

**REAUTHORIZATION OF THE INTERMODAL
SURFACE TRANSPORTATION EFFICIENCY ACT**

HEARINGS

BEFORE THE

SUBCOMMITTEE ON
TRANSPORTATION AND INFRASTRUCTURE
AND THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDRED FIFTH CONGRESS

FIRST SESSION

PART I

FEBRUARY 13 AND 26, MARCH 6, 13, AND 19, 1997—WASHINGTON, DC

PART II

MARCH 22, 1997—COEUR D'ALENE, IDAHO
MARCH 26, 1997—KANSAS CITY, MISSOURI
MARCH 28, 1997—LAS VEGAS, NEVADA
APRIL 7, 1997—NEW YORK, NEW YORK
APRIL 21, 1997—WARWICK, RHODE ISLAND
MAY 7 AND JUNE 6, 1997—WASHINGTON, DC

Printed for the use of the Committee on Environment and Public Works



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REAUTHORIZATION OF THE INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT

THURSDAY, FEBRUARY 13, 1997

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

TRANSPORTATION REAUTHORIZATION ISSUES

The subcommittee met, pursuant to notice, at 2 p.m. in room 406, Senate Dirksen Building, Hon. John W. Warner (chairman of the subcommittee) presiding.

Present: Senators Warner, Kempthorne, Bond, Inhofe, Thomas, Moynihan, Reid, Baucus, and Chafee [ex officio].

OPENING STATEMENT OF HON. JOHN W. WARNER, U.S. SENATOR FROM THE COMMONWEALTH OF VIRGINIA

Senator WARNER. The subcommittee will come to order. Even though our witnesses haven't arrived, I think we'll go ahead and get started.

We recognize the presence of the senior Senator from New York, who was the father on the Senate side of ISTEAA.

The purpose of these series of hearings is to enact a follow-on piece of legislation.

This first hearing was intended by the distinguished ranking member and myself to discuss the changing transportation needs of both commercial traffic and personal traveling habits; the anticipated funding requirements for our surface transportation system; and the benefits our economy receives from our investments in transportation.

The subcommittee's next hearing will be February 26, where we will receive the testimony of the new Secretary of Transportation, Mr. Slater. He will present the Administration's perspective.

I look forward to working with him. Speaking for myself and I think almost everyone that I know on this subcommittee, we have a very high professional regard for the Secretary, and for that reason I'm optimistic that we can have a meeting of the minds between the goals of the Administration and certainly the Senate side of the Congress.

We are well aware of the amount of work ahead of us, and we want to meet a September 30 deadline. We know the consequences of not doing that, and I'm hopeful that perhaps we can even get a step ahead of it.

About the level of funding, I was joined by distinguished colleagues such as Senator Graham and the distinguished colleague from Montana and others to put out a letter saying that we feel a level of 26 billion authority for this program is a satisfactory level for this year. Fifty-seven Senators have joined in that letter.

Now, we all know what's in the highway trust fund. Even if we were to take this sum out, according to my calculations, between \$5 and \$8 million would remain.

It does not require any more taxes. It does not require \$26 billion trying to readdress this tough issue of the 4.3 cents now going to the general fund. It's there.

Now, when I went through law school there was a very clear definition of the word "trust." You are a fiduciary. You hold it as a trustee for the benefit of others.

We have represented to the American public, "When you pay your gas taxes, they come to Washington to a trust fund to be redistributed back to you for the purpose of improving your existing highway system and road system and possibly adding newer sections.

We should hold to that concept of the trust. If we're not going to follow the concept of the fiduciary and the trust, then I suggest we rename this the "jailhouse fund," and your money is sent and it's locked up.

So let's just be honest with the American public, and I'm going to fight very hard, and I'm very glad six other members have joined me in this effort—particularly my distinguished colleague from Montana.

Every statistic shows transportation is a very sound investment in the United States. For every dollar invested, economists anticipate a return of \$2.60. The future of our country depends on the ability of the American worker to compete in a world market.

How many times have all of us visited our industrial plants and asked the question? I did in Luray, VA, in a plant that makes blue jeans—I know that sounds prosaic, but it's an important economic entity in that rural community of Virginia. As I exited, I said, "Where do I find the basis for your being able to compete with Asia?" And he simply pointed to a truck and he said, "That order came in this morning. We turned it around in 2 hours. It's back on that truck and it's on the shelf of the merchant the next morning."

That, Senator is turn-around time which makes this company competitive with the world's cheap labor markets. I hasten to say that the laborers in that plant were being paid a fair wage for a good day's work.

I'm also concerned about safety—safety and structural integrity of the present system. I'm going to, I hope, be joined by others who impress upon Secretary Slater the need for the level of funding over and above what the Administration has indicated today.

As yet, our Budget Committee has not responded to my request, joined by others, in giving us a higher level of funding, but they haven't said no, so there is hope there.

Goals for ISTEA—I say ISTEA because I supported ISTEA-I. I think it's not wise to name this ISTEA-II because, while I intend to work toward preserving many of the strides and accomplish-

ments in ISTEA-I, I still feel we can make further strides, particularly in the area of lessening the control over the expenditure of funds in our States.

As I mentioned earlier this week, Senator Graham and I put in the STEP 21 bill. This legislation responds to America's need for a strong national transportation system. STEP 21 is a reasonably balanced, multi-modal approach that will increase our Nation's mobility and permit American products to effectively compete again in the global marketplace. It recognizes that all regions of the Nation have significant transportation requirements and they're different. They're different.

The program for the first time responds to our transportation demands using current needs information. This approach will address the inequities that have persisted in the funding formulas.

We won't open that fight here today, but let me tell you that is serious business to many of us. I'm heartened by the fact that the distinguished majority leader has said to me in no uncertain terms that he will support me as strongly as possible in trying to get an equitable readjustment of a formula which is long since outdated. We all know that.

If there ever were in the history of the Congress a witch's brew that was mixed by the legislators, that's that formula using criteria that go back to the days just following the conclusion of the Pony Express. The time has come. Fortunately, I think there are forces in fair and objective minds in the Senate today to rework that formula.

So we're not retreating in any way from ISTEA. We're picking out what I hope will be the strongest parts of that. We'll continue to work toward greater flexibility of State and local decisionmakers to invest their resources in non-highway alternatives such as transit and, indeed, commuter rail.

Gentlemen, I think I will put the balance of mine in so that we can shorten our statements.

[The prepared statement of Senator Warner follows:]

PREPARED STATEMENT OF HON. JOHN WARNER, U.S. SENATOR FROM THE
COMMONWEALTH OF VIRGINIA

I want to welcome Deputy Secretary Downey and our other witnesses to the subcommittee today as we continue our work to reauthorize the Intermodal Surface Transportation Efficiency Act—or ISTEA.

For the information of members on the subcommittee and others, the purpose of the first hearing is to discuss changing transportation trends, both commercial traffic and personal travel habits, the anticipated funding requirements for our surface transportation system and the benefits our economy receives from our investments in transportation.

The subcommittee's next hearing will be February 26th, where we will be pleased to have Secretary Slater present the Administration's proposal for ISTEA reauthorization.

I look forward to working closely with the Department to devise a bill that meets our shared goals of improving the mobility of all Americans.

We are well aware of the very significant challenges ahead of us in order to enact new legislation before ISTEA expires on September 30. Failing to do so will cause serious disruption in project construction and planning as no funds will be provided to states after October 1 until a new surface transportation law is enacted.

I am committed to meeting that deadline and will work to ensure that the subcommittee reports legislation in a responsible timeframe.

Certainly, an adequate level of Federal funding available from the Highway Trust Fund in the next 5 years is critical to our reauthorization efforts.

We must find ways to begin to meet the significant financial demands identified by the Department of Transportation to maintain our highways and bridges at their current level.

I was pleased to work with Senator Baucus and other members of the subcommittee on a letter to the Budget Committee requesting \$26 billion in contract authority for this program. The support of 57 Senators indicates the strong bipartisan support for a healthy investment in our surface transportation program.

This level of funding can be supported by the revenues in the Highway Trust Fund without depleting the balances. It does not depend on transferring the 4.3 cents of the gas tax now going to the general fund or other additional revenues.

As the Highway Trust fund consists of taxes collected on the users of the system—American drivers—we must use this revenue to maintain our transportation system.

It is also evident that transportation is a sound investment for the American taxpayer. According to DOT, for every \$1.00 invested, we receive an economic return of \$2.60.

I am concerned that the funding levels proposed in the President's budget cannot meet the serious structural, safety and capacity demands we have today.

As the subcommittee begins its work to reauthorize ISTEA, I remain committed to a surface transportation system that:

- effectively moves people and goods;
- provides for the safety of the traveling public;
- fosters a healthy economy; and
- ensures a consistent level of performance and service among the 50 states.

These are national priorities that must be met.

Earlier this week, Senator Graham, a member of this subcommittee, and I introduced the so-called STEP 21 bill.

This legislation responds to our need for a strong national transportation program.

STEP 21 is a regionally balanced, multimodal approach that will increase our nation's mobility, and permit American products to effectively compete in the global marketplace.

It recognizes that all regions of the Nation have significant transportation needs.

It is a program that, for the first time, responds to our transportation demands using current needs information. This approach will address the inequities that have persisted in the funding formulas.

In doing so, we provide a program that acknowledges that sparsely populated states with large land areas or states with small populations cannot "go it alone."

As Important, STEP 21 does not retreat from the principles of ISTEA to provide a surface transportation program that is intermodal, responds to our environmental needs, and maintains our commitment to safety.

We continue the flexibility of state and local decisionmakers to invest their resources in non-highway alternatives—such as transit or commuter rail.

We continue the important role of metropolitan planning organizations.

We recognize that a full and open planning process stimulates public participation—which in turn fosters transportation solutions that respond to larger community goals.

We provide a program that is environmentally sound, recognizing that transportation plays an important part in our national commitment to improving the quality of the air we breathe.

STEP 21 also continues the Enhancements program that invests in alternative forms of transportation—bike paths and pedestrian walkways—and mitigates the impacts of past transportation choices.

With that brief description of my legislation, I want everyone to be clear, however, that I intend for the subcommittee's work to be a collective process of ideas.

I look forward to working with all members of the subcommittee, and particularly the Ranking Member, Senator Baucus to draft legislation that provides a surface transportation program that can respond to the demands of the next century.

United States Senate

WASHINGTON, D.C. 20510

January 14, 1997

The Honorable Pete Domenici
Chairman
U.S. Senate Budget Committee
Washington, D.C. 20510

Dear Mr. Chairman:

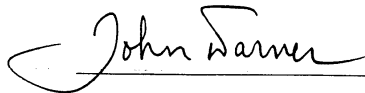
As the Senate Budget Committee begins to prepare the FY 1998 Budget Resolution, we are writing to express our support for an increase in funding for transportation programs. With the reauthorization of the Intermodal Surface Transportation Efficiency Act (ISTEA) this year, funding levels in the Budget Resolution will provide the framework necessary to rewrite the legislation.

Investments in transportation and infrastructure increase our mobility and allow us to move goods and people safely and efficiently. And just as important, a significant investment in transportation and infrastructure will create thousands of jobs and contribute to the economic well-being of this country.

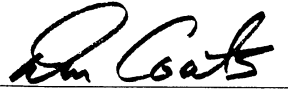
The Department of Transportation estimates that the Highway Account of the Highway Trust Fund, taking into account all incoming revenue and interest collected, could sustain an annual funding level of \$26 billion into the next century. We ask that the FY 1998 Budget Resolution reflect this level.

As this nation prepares to enter the 21st century, a strong commitment to transportation will ensure our ability to compete in today's global economy. The Budget Resolution is the first step in making such a commitment.

Sincerely,



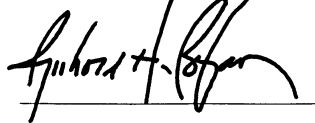
John Warner



Dan Coats



Max Baucus



Richard H. Rogers

Clude Robb

Dundell Tane

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Michael B. Eij

John Breaux

Sherry Reid

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[Signature]

[Signature]

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<u>Bob Smith</u>	<u>Art Bond</u>
<u>John Warner</u>	

Senator WARNER. We'll turn to our distinguished chairman here for a few opening comments.

**OPENING STATEMENT OF HON. JOHN H. CHAFEE,
U.S. SENATOR FROM THE STATE OF RHODE ISLAND**

Senator CHAFEE. Thank you very much, Senator Warner, distinguished chairman of the subcommittee. I want to thank you for holding this first hearing on the reauthorization of the Intermodal Surface Transportation Efficiency Act, which we did, as you remember, in 1990. And I want to pay tribute to Senator Moynihan, who was such a tremendous leader in that effort in that year.

I think it's terribly important that we remember what the name of that legislation was and what the legislation is we're working on today, and that is it's the Surface Transportation Efficiency Act. It's not a highway bill; it's a surface transportation act.

I believe that what we've got to do is make the most strategic possible investments into transportation.

During the 1950's and 1960's it made sense to build an interstate highway system. Today I think we have to be more creative. We must carefully plan and allocate limited resources. Yes, we seek more resources. We've applied to the chairman of the Budget Committee, but who knows how much we'll get. And no matter how much we get, it won't be enough.

It's like a general in the war. He never had enough ammunition. And so will be the programs that we're dealing with.

So I'm interested in hearing what our panelists have to say about which transportation projects and programs will provide the greatest economic benefits in the future.

Wise transportation investment decisions are largely a question of what will generate the most efficient flow of people and goods. ISTEA was a major step in reorienting the focus on personal and commercial travel. Transportation decisions have now become part of a larger planning process—a process that recognizes how transportation touches every corner of our lives.

Obviously, we're a different Nation now than we were when the interstate system was created. We must maintain the strengths of the transportation system we have in place, but we must build upon them, too, so I look forward to hearing more about these important issues.

We thank the chair.

[The prepared statement of Senator Chafee follows:]

PREPARED STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE
STATE OF RHODE ISLAND

Thank you, Mr. Chairman. I welcome the opportunity to take part in this, the first hearing of the new Congress on reauthorization of the Intermodal Surface Transportation Efficiency Act. Let me point out that ISTEA expanded the focus of national policy, recognizing that the individual transportation modes function best as a cohesive and interrelated system. It transformed what was simply a highway program into a surface transportation program dedicated to the mobility of passengers and goods.

The purpose of today's hearing is to receive testimony on transportation trends, funding requirements, and the impact of transportation on the economy. Transportation plays a critical role in the national and global economy. In the United States, it employs more than 12 million people; consumes one of every five dollars of total household spending; and accounts for 11 percent of the nation's gross domestic product.

There has been a great deal of emphasis on the level of funding for transportation, but minimal attention to the question of which transportation investments will yield the highest return in the future.

Now more than ever, strategic investment in transportation is critical. During the 1950's and 1960's, it made the most sense for the Nation to build an interstate highway system. Today, we need to be more creative. We must carefully plan and allocate limited resources. I am interested in hearing what our panelists have to say about which transportation projects and programs will provide the greatest economic benefits in the future.

Wise transportation investment decisions are largely a question of what will generate the most efficient flow of people and goods. Along those lines, we must keep a watchful eye on travel trends as we make tough transportation policy choices.

ISTEA was a major step in reorienting the focus on personal and commercial travel. Transportation decisions now have become part of a larger planning process. A process that recognizes how transportation touches every corner of our lives. Policy makers and planners must be flexible in adapting to constantly changing transportation needs.

We are a far different nation than we were when the Interstate System was created. The way we live, the way we travel, and even the amount of money we have to spend on transportation all have changed—and will continue to change. We must maintain the strengths of the transportation system we have in place—but we must build upon them, too.

I look forward to learning more about these very important issues. Thank you.

Senator WARNER. Senator Baucus.

**OPENING STATEMENT OF HON. MAX BAUCUS,
U.S. SENATOR FROM THE STATE OF MONTANA**

Senator BAUCUS. Thank you, Mr. Chairman.

I want to echo your words, as well as the words of the distinguished chairman of the subcommittee, in recognizing the achievements of the Senator from New York. The distinguished senior

Senator from New York is the one who amazingly put this together.

I can remember a few years ago watching him put the various pieces of legislation together in a way that was very accommodating. The various parts of the country were very appreciative of his utmost grace and style, as befitting the Senator from New York, and I just want to thank him publicly here very much for the great work that he did.

Frankly, he set the stage for us. Most people would agree that we have a very good surface transportation program. There may be a few wrinkles in it, but essentially it has served us very well.

Let's be reminded about the large portion that transportation is of our U.S. gross domestic product. I was surprised to see what a large percentage it is when this table was given to me.

Housing is No. 1 in our country, about 24 percent. After housing, health care is about 15 percent GDP, and then food 13. The next-largest function is transportation. It's huge.

Frankly, as huge as it is, it's clear that we have a great need for more dollars, if we can find them, to maintain our current program.

The Department has a needs assessment, which we all know about, but the Department of Transportation needs report states that almost \$50 billion per year will be needed in order to maintain current highway conditions—just to maintain. That's not in addition.

The chairman of the subcommittee mentioned that many of us are encouraging the Budget Committee and the Appropriations Committees to use the full \$26 billion that's available in the trust fund for each of the next 6 years. Senator Warner mentioned that 57 Senators have signed the letter. Actually, there are two more Senators that have signed to it. It's 59 Senators, at least.

We should do all we can to maintain the transportation needs of our country—the various components of the programs, in addition to highways. It's all the different forward-looking features of an interconnected transportation system that we all are working on, and particularly as begun by the Senator from New York.

Thank you, Mr. Chairman.

Senator WARNER. Thank you, Senator.

Senator Moynihan from New York, who is the ranking member of the subcommittee which is conducting this hearing today—Senator Moynihan.

**OPENING STATEMENT OF HON. DANIEL PATRICK MOYNIHAN,
U.S. SENATOR FROM THE STATE OF NEW YORK**

Senator MOYNIHAN. Thank you, Mr. Chairman, and thank you for your generous remarks about the ISTE. I thank my colleague from Montana. I thank Senator Warner.

As we ask ourselves, "What do we do now?" it doesn't do great harm to pause a moment and say, "We've not done so badly in the past."

We're going to hear testimony this morning that the return for the highway investments prior to 1970 was 35 percent. That's an aggregate for the private sector of 17 percent. If we spend this money well, we get a lot back from it.

Senator Warner's clothing factory is a good example of a highway system that made just-in-time inventory and delivery a possibility that has enormously affected the economics of the private sector quite apart from the convenience of the roads, themselves.

I would much agree with Senator Chafee that we are dealing with the Surface Transportation Act. The era of the construction of the interstate system has ended, as it was intended to do. We got the job done. And we moved on in this last legislation to a more general surface transportation concept, and we have a lot to show for it.

I continue to think that the idea of efficiency in these matters is hugely important. There is no such thing as a free ride. That idea is taking hold and we're showing results. I think \$26 billion is absolutely a minimum for highways. I think there should be money for transit, too.

I would just leave one last note, because it was something we thought about 5 years ago.

The magnetic levitation was invented, thought up in 1960 by a young nuclear engineer coming back from Brookhaven Lab on the east end of Long Island. He was on his way back to MIT for a beer party, I suppose. Between the time he slowed down at Frog's Neck Bridge and the time he paid his toll he'd thought up mag lev. Well, that's what it means to be 28 years old and a nuclear engineer.

It's the most important change in surface transportation in history, except the wheel, because it does not rely on friction.

In Japan, in Germany they're roaring ahead with development. I think our distinguished chairmen are going to have a look at the operation.

I would hate to accept a world in which things are invented in the United States and made elsewhere, and it remains to be seen, but it's not to be forgotten.

Thank you very much, Mr. Chairman.

Senator WARNER. Senator Kempthorne.

**OPENING STATEMENT OF HON. DIRK KEMPTHORNE,
U.S. SENATOR FROM THE STATE OF IDAHO**

Senator KEMPTHORNE. Mr. Chairman, thank you very much for your leadership in the process as you've outlined how we will proceed on the reauthorization of ISTEA. I ask to place my statement in the record.

[The prepared statement of Senator Kempthorne follows:]

PREPARED STATEMENT OF HON. DIRK KEMPTHORNE, U.S. SENATOR FROM THE
STATE OF IDAHO

Thank you, Mr. Chairman. I appreciate that you are holding this hearing today as we begin the reauthorization of ISTEA. It is very appropriate that we begin this process by receiving testimony about transportation trends for the future and how we will pay for them.

When I speak with the Director of the Idaho DOT and my State legislators about ISTEA the first thing they want to know is if there will be more funds available to support the new National Highway System.

They want to know if Congress is going to return more of the gas tax dollars collected at the pump to States to build and maintain Federal highways.

The want to know if Congress will continue to recognize and support the concept of a "National" highway program that benefits all Americans regardless if you live in a large urban area or a sparsely populated rural western State.

They want to know if Congress will financially support research for the development of new and more efficient modes of travel, alternative fuels and vehicles.

These priorities are my priorities. That is why the testimony of these witnesses today is so relevant and timely.

We must return more dollars of the gas tax "user fee" back to the States for use on long deferred maintenance instead of building up a balance in the trust fund that serves no transportation purpose.

We must structure ISTEA II so that it fulfills the objectives and goals of ISTEA. One while we streamline and improve the original program based on its track record of performance. We must never lose sight however, of the intent and purpose of the original Federal Interstate Highway System which was established more than 40 years ago . . . we are one country with one national system of roadways that people must be able to depend upon. We cannot allow the Intermodal Surface Transportation Efficiency Act or the National Highway System to become programs of have and have-nots, and winners and losers.

We must be innovative and creative not only in developing transportation technology for the future but, also in developing creative ways to finance them.

We are at a critical crossroads of our nation's transportation future. We must seize it as an opportunity for success and not let it slip away.

Mr. Chairman, in closing I would like to submit for the record a report entitled "Our National Laboratories and Transportation Research." This is an excellent document which was prepared to address the question "What is the role of our National Laboratories in transportation research?" We are very proud to have one of these laboratories, The Idaho National Engineering and Environmental Laboratory, located in Idaho. I am hopeful that members of the committee will review this important report.

OUR NATIONAL LABORATORIES AND TRANSPORTATION RESEARCH

THE CIVILIAN AND MILITARY PERSPECTIVE THE ENERGY AND ENVIRONMENTAL PERSPECTIVE THE TRANSPORTATION SAFETY PERSPECTIVE

(By David Albright, The Alliance for Transportation Research Institute, The University of New Mexico; Lewis S. Roach, Sandia National Laboratories; Basil A. Barna, Idaho National Engineering Laboratory; Adrian Tentner, Argonne National Laboratory Our National Laboratories and Transportation Research)

Introduction

DAVID ALBRIGHT, THE ALLIANCE FOR TRANSPORTATION RESEARCH INSTITUTE, THE
UNIVERSITY OF NEW MEXICO

There are challenges we face as a nation that require extraordinary means to achieve a solution. Sometimes called "Grand Challenges" these problems are characterized both by potential impact on society and complexity of the problem. Urgent needs of the current transportation system, and innovative solutions for sustainable transportation in the next millennium, represent a Grand Challenge. A meaningful response will require full and effective use of the science and technology base of the United States of America.

The National Laboratories are an essential part of our science and technology base. As a result of a half-century of public investment, exceptional capabilities are available to support basic research and achieve significant breakthroughs. The areas of transportation research in which the National Laboratories can contribute the most are those which are relevant to their core mission, support their strategic objectives, and in which they have accumulated considerable expertise. While some laboratories have developed transportation programs, there are competencies in each National Laboratory that may help address the transportation Grand Challenge.

Grand Challenges arise periodically in the history of nations. Meaningful response to these challenges, or the lack thereof, can have a dramatic military or economic impact on the global balance of power. Perhaps the prototypical example of a Grand Challenge is the development of nuclear weapons during the World War II.

There are many equally important, albeit less dramatic, challenges. Mapping the human genome, forecasting the global climate, and maintaining leadership in high-speed computing will have a major impact on society and our nation's ability to compete on a global basis.

In almost all cases, we rely upon the nation's science and technology base to lead in solving these problems. While universities and free-market resources are an important part of this base, alone they may be unable to provide the best solutions.

Our system relies upon a broadly based research and education mission for our universities, and a near-term, competitive mindset for private-sector laboratories.

The need for longer-term, higher risk and higher payoff research responding to Grand Challenges was recognized as the fundamental reason for the establishment of a National Laboratory System in the United States. The National Laboratories have an important function in the nation's science and technology base. The laboratories address selected problems that require a highly expert, interdisciplinary approach, and at its very best is based exclusively on the public interest. In addressing these problems, the laboratories have in the past, do in the present, and must in the future work closely with universities and private industry.

The triad that composes our nation's science and technology base has been tested by time and events. Each leg, whether private sector, university or National Laboratory, has its strengths. It is important to set national policy in a way that allows each component to serve and develop, while constantly seeking improvement. Research consortia involving the National Laboratories are a means of fully engaging the science and technology base, and are important in addressing the transportation Grand Challenge.

There are several areas in which our present and future transportation system can be understood as a Grand Challenge, and in which the National Laboratories are critically needed. Military and civilian transportation needs and capabilities are inexorably linked—and this linkage forms the first area. Colonel Lewis Roach, Sandia National Laboratories, addresses this area of transportation research. Energy and environmental research is the second area in which the National Laboratories are critically needed to achieve a sustainable transportation system. Mr. Basil Barna, Idaho National Energy Laboratory, develops this need. Mr. Barna also made a significant contribution to these introductory comments. Safety is the third area of transportation research. Dr. Adrian Tentner, Argonne National Laboratory, explores this subject and role of the National Laboratories.

These three statements are not intended as exhaustive discourse on the ways in which the National Laboratories should support transportation. These statements are intended to present a clear and compelling basis for the intentional, thoughtful inclusion of our National Laboratories in addressing the transportation Grand Challenge.

The transportation Grand Challenge can be expressed as the civil and military, energy and environment, and safety needs of our current and future transportation system. While developed in general terms, the impact of these needs is felt by each individual and each community across the nation. To respond to individual, community, and national concerns, our science and technology base should be fully and meaningfully employed in transportation research.

CIVIL/MILITARY TRANSPORTATION RESEARCH AND THE NATIONAL LABORATORIES

LEWIS S. ROACH, SANDIA NATIONAL LABORATORIES

There exists today an unprecedented level of commonality between this nation's military and civilian transportation research needs. The current view of United States national security centers on both our defense and economic security. Transportation, a central element of both of these aspects of national security, requires optimization by the best available means. The national military strategy has undergone a significant change from the cold war posture of containment of the Soviet Union utilizing a large standing military force, much of it forward deployed in Europe. The military establishment has been reduced both in personnel and bases, particularly those abroad, and we now rely on the concept of "power projection" of forces from the Continental United States. The execution of that military strategy places exceptional requirements on the nation's transportation system at a time of expanding international trade and domestic economic activity and increasing passenger traffic and congestion. A robust, high-capacity transportation system is a common requirement for each of these issues. The nation needs a careful focus on the interplay between civilian and military transportation requirements so that improvements can be made via a closely coordinated transportation research policy. The National Laboratories are uniquely positioned to perform exceptional service in this national interest.

Transportation has become the linchpin holding together the means of executing the national military strategy. That strategy protects our vital national interests with the capacity to respond to two nearly simultaneous major regional contingencies. Military forces are comprised of vast quantities of equipment, supplies, and troops, and this assemblage must be moved on short notice to very distant locations.

The challenge is to project the bulk of this combat power with many fewer forward-based forces and limited propositioned equipment. This is a significant shift from the cold war era military posture. The implications of this shift for the transportation system require both policy and technology solutions to ensure successful defense of our vital national interests.

Information Technologies

The current environment of global competition and heightened reliance on foreign trade has direct implications on the ability to efficiently move goods into and out of the country. Modern manufacturing approaches often cause finished goods, individual parts, and work in process to be transported into and out of the country multiple times. With the widespread application of just-in-time logistics, accurate status and carefully moderated flows of material are imperative for profitable manufacturing operations. This is true whether or not export/import is a feature of the distribution plan. Forward thinking transportation companies have realized that providing their customers with accurate, timely information flow regarding their shipments' status and expected delivery is nearly as important as the actual movement of the goods.

The military has a corresponding information requirement, particularly during emergency deployments involving hundreds of thousands of personnel and large volumes of equipment moving vast distances by multiple modes. Maintaining visibility and control of such massive and complicated operations requires new tools somewhat similar to those used by commercial industry. The difference is the critical synchronization requirements and the multimodal aspects of military deployments, which in reality are the disassembly of large forces, their transportation over long distances, and their reassembly at destination. This causes heightened requirements for not just shipment data that tracks individual items in transit. Rather, it envisions the roll-up of that data into meaningful information from which is derived critical knowledge of the transportation system. Additionally, there is a need to anticipate bottlenecks and transportation system capacity shortfalls before the impacts occur, along with decision support mechanisms to help select corrective actions and model the outcomes for validation and execution. Cutting-edge research in this area of military logistics requirements could have application to United States industrial competitiveness if defense and civilian interests are mutually considered.

Infrastructure Development

The condition and continued development of the nation's transportation infrastructure is relevant to the efficient movement of people and goods. Several examples illustrating this point impact civilian and defense transportation. As foreign trade plays a larger role in the United States economy, commercial ports are changing to accept the more specialized intermodal cargo flows. The types of port facilities that support the military's ship of choice for unit deployments—roll on/roll off (RORO)—are characterized by large, open spaces for cargo staging and uncluttered waterside space for the large ramps these ships lower to the wharf. However, modern container terminals often have large equipment blocking access to the waterfront, in addition to mountains of empty and loaded containers staked nearby. This trend to specialization and development of commercial port property may have particular impact on the military as it divests itself of military-operated ocean terminals under the 1995 round of the Base Realignment and Closure (BRAC) process.

Investment in the upkeep and expansion of our road network is necessary in both a growing population and economy. Technology is needed that delivers more accurate and precise data for the assessment of road and bridge condition and projected deterioration of the infrastructure. Dual use technologies that could be focused on intelligence collection regarding war time degradation of an opponent's transportation network, could also prove effective for performing comprehensive assessments of our domestic roads and bridges.

Such technologies could aid the decisionmaking process for federally funded highway projects. Although these decisions are by their nature in the political arena, with strong state and local influence they benefit by accurate assessments of actual conditions. Along certain specific routes, the U.S. Department of Defense (DoD) has a critical stake, yet limited influence. The concentration of military forces in relatively few major bases places added urgency on having solid transportation infrastructure from those bases to the strategic seaports of embarkation. Rail is the preferred mode for moving heavy and/or oversized equipment; and rail is also preferred for lighter wheeled vehicles and accompanying supplies, where the convoy distance to the port exceeds a day of road march. However, placing sole reliance on rail would be imprudent considering the potential vulnerability of fixed rail lines to sabotage.

Transportation System Protection

A series of catastrophes, some involving transportation, has prompted President Clinton in July, 1996, to appoint a commission to examine critical infrastructure protection. Although some incidents were of natural causes or unintended manmade causes, others included suspicious air crashes, mass transit bombings and lethal gassings, and railway tampering. Together, they provide painful recognition of our vulnerability to domestic terrorism, sabotage, and serious disruption to orderly society. Given our military basing policy, with its reliance on power projection, providing security to our domestic transportation system is imperative to ensure the capability to deploy forces under emergency conditions. A comprehensive systems approach to the question of infrastructure protection is required to cover the range of vulnerabilities and safeguards systems. Examining the major parts of the transportation system and building in protections as facilities are under design utilizing the concept of surety—the safety, security, and reliability of a system—could provide an appropriate framework for attacking this challenge. The National Laboratories have historically provided the nation's foremost capability in providing a total systems view of "high consequence" operations. These include nuclear power plants, nuclear weapons research and development, air traffic control systems, and others. An exceptionally wide variety of science and technology disciplines are resident in these institutions.

Civil/Military Cooperation

Recognition of the degree of military reliance on the civilian transportation system is fundamental to understanding the interplay between civilian and military transportation research needs. Currently, the military ships over 85 percent of cargo via commercial carriers in peace time and a higher percentage during contingency operations. Once the BRAC process is complete, the only strategic defense seaports in the country under day-to-day military control will be the ammunition ports. As a result, deployments of military unit equipment will occur almost entirely through commercial ports. Maintaining a forward look at new commercial technologies and their military implications is a firm, continuing requirement.

With the reliance on commercial transportation comes a sensitivity to potential disruption of commercial activity during a large military deployment through the transportation system. Given the manufacturing industry reliance on just-in-time logistics techniques, in addition to reduction in finished goods inventory via responsive transportation services, the potential for significant, military-induced economic impacts must be considered. In a short notice crisis situation, it cannot automatically be assumed that all required commercial transportation capacity can be made instantly available. Research on potential economic disruptions and effective methods to minimize their effects would clearly be prudent.

Utilizing the civilian transportation industry for military strategic lift has been a necessity since World War II. Formal agreements with air and ocean carriers? such as the Civil Reserve Air Fleet program and the Voluntary Intermodal Shipping Agreement, provide heavy supplementation to the limited cargo aircraft and ships under DoD control. The arrival of this civilian equipment in a hostile theater of operations brings into question the safety of the carrier's equipment and personnel. Consideration should be given to a more complete integration of commercial conveyances into military communications networks, military air traffic control systems, and force protection systems such as friendly fire avoidance technology. Recent trends in military logistics outsourcing to commercial firms in theaters of operation provide additional reason for examination.

Conclusion

The several areas of overlap in civilian and defense transportation, above described, are a subset of potential areas where joint technology could be applied to these important national needs. Advances arising singly in government or private sectors must be examined for crossover application. With further recognition of the interrelationship of civilian and defense transportation, actively seeking areas of joint research to solve common problems is good public policy in a time of declining resources. The development of advanced transportation technologies holds the promise of significantly contributing to achievements in both the economic and defense dimensions of national security.

TRANSPORTATION, ENERGY, AND THE ENVIRONMENT

BASIL A. BARNA, IDAHO NATIONAL ENGINEERING LABORATORY,

THE CHALLENGE OF SUSTAINABLE TRANSPORTATION

Sustainable transportation for the Nation in the 21st century certainly qualifies as a Grand Challenge. The basis of the problem has its roots in simple physics. Mobility requires energy. Current energy use patterns for transportation result in significant economic, national security, and environmental impacts. Even though this is recognized, we can't simply replace the system because of the investment in the infrastructure, the lack of suitable alternatives, and the key role that transportation plays in the development of the economy.

This challenge is made even more complex by a strong interaction between the potential technological solutions and the human aspects of the problem. Because of this, transportation solutions for the next century will be characterized by an integration of both technical and political concerns. The nature of this integration will affect the quality of life of each individual and community in the nation.

The wise direction of science base resources to this problem will require a fundamental understanding of the relationship that mobility has with energy resources, the environment, and the nation's social and economic processes. In short, research must treat the system as a whole. Perhaps even more importantly, research must be conducted within the framework of new partnerships that recognize the importance of multiagency coordination and the development of regional solutions that result in a national system.

Energy and Environmental Impacts

Few human activities affect the environment as dramatically as transportation. Every highway, every pound of particulate emissions from diesel engines, every discarded vehicle tire is part of an emerging global problem that is generally not perceived as a series of related events. It is time to begin treating these problems as part of a larger system so that technology and policy development can be steered in a direction that is sustainable and improves the quality of life globally.

Transportation is so integrally woven into the fabric of day-to-day life that we rarely see the connections between trucks, barges, pipelines, the corner junkyard, and the lingering haze that is part of every significant metropolitan area in the world. The political reality is that we deal with immediate and easily identified problems such as potholes and gasoline prices. The real message is that more efficient and environmentally responsive transportation systems must be invented or the United States' standard of living will decline as we lose our global competitive edge.

In the time it takes to read this sentence, the nation's transportation system will burn over 30,000 gallons of oil. Ninety-seven percent of the transportation fleet is powered by petroleum based fuels, and over 25 percent of America's total energy usage is consumed by transportation (Transportation energy data book: Edition 15, May, 1995). Fueling the economy, the national security and personal freedom, this system is one of the fundamental elements of the nation's infrastructure.

Unlike other industries however, transportation is singularly dependent on petroleum. This dependence on a single source of fuel, much of it imported, adversely affects national security and balance of payments. It also creates a situation in which even small gains in efficiency can have major payoffs.

The transportation infrastructure is also chronically overburdened as traffic volume is at an all time high. Added to this are new global challenges, competition for limited resources, and a need to minimize regulatory burden while ensuring its effectiveness. The United States can no longer afford the luxury of increasing capacity by just doing more of what has been done before.

The Critical Role of Interagency Coordination and Regional Partnerships

Historically, transportation has not been developed as a system that requires integration of diverse individual interests. The science base has been focused on many aspects of the problem, but not in an integrated fashion. National Laboratories in particular have for the most part been utilized to examine energy efficiency, oil imports, and the development of enabling technologies in the areas of materials, energy storage and conversion, and alternative energy sources.

While this is not wrong, it does not take advantage of the tremendous potential of having the laboratories address the broader issues and serve as a resource for development of an integrated, optimally efficient national transportation system. It is time to utilize the National Laboratories as both regional technology resources and as resources that assist in the coordination of research across Federal agencies.

Stronger linkage between the laboratories and the U.S. Department of Transportation (US DOT) would compliment the existing laboratory missions while providing a powerful tool in developing a sustainable transportation system. The US DOT, for example, should have an office specifically charged with the purpose of interfacing with the National Laboratories. As the success of this approach is proven, the lessons learned could serve as a template to expand the coordination to all agencies with a transportation role.

A broader interagency collaboration is not, however, a complete solution. If the science base is to be effective in meeting this Grand Challenge, research must be conducted in a new and challenging way. To this end, the National Laboratories should be utilized to promote regional partnerships focused on transportation needs. Such partnerships would include state and local agencies, universities, the laboratories, and the private sector. In a very real sense these partnerships would connect the research with the day-today reality of how the Nation achieves mobility, equity and economic development. Properly designed, these alliances could demonstrate a major advance in how the science base creates national opportunities.

Technical Issues in Transportation—The Role of Fundamental Research

The Grand Challenge of sustainable transportation will require the nation's science base to systematically address the entire scope of the transportation system. This approach will transcend traditional methods, which tend to focus on solutions for specific aspects of the problem such as congestion management, fuel efficiency, and highway infrastructure. A truly sustainable transportation infrastructure must be based on the relationships between the economy, the environment, and future energy supplies.

Approaching the problem in this fashion requires a broad, interdisciplinary skill base that is primarily accountable to the public interest. For this reason, the National Laboratories are an essential ingredient in achieving a solution. Perhaps even more importantly, the laboratory system should be utilized as an instrument of synergy for common interests across Federal agencies.

To accomplish this, fundamental research is needed in these primary areas:

First there must be an effort to develop the tools that allow policymakers to work with the transportation system as an entity. While complex and composed of many diverse but related elements, there is a single purpose to the transportation system: the movement of physical objects and information. (It is important to recognize that people are often transported when the primary objective is moving information.)

Increase the efficiency of energy conversion methods. While much work is currently underway to increase the efficiency of internal combustion engines and selected alternatives such as electric propulsion, there is a need to better coordinate this development with known problems of congestion, mobility, and pollution.

Reduce environmental impact from emissions, limited recycling, and waste transportation. Transportation is a significant contributor to the nation's waste stream in the form of emissions and abandoned materials and is also the primary method for relocation of many other waste streams.

Conduct research to increase the diversity of transportation options and linkage between these options. This is more than intermodalism. It includes new modes and methods of information transfer.

Example of Potential Integration: Freight

As an example of how an integrated approach can be applied, consider the following. While the nation's freight transportation system has made improvements in engine efficiencies and aerodynamics, the freight sector has not been able to match the strides made in passenger transportation, manufacturing, and building energy efficiency.

In large part the gains have been offset by an overall shift away from transportation modes that use less energy per ton of freight movement. From 1960 through 1993, the ton miles of freight moved by rail increased by 193 percent compared to an increase of 309 percent for intercity trucking (Bureau of Transportation Statistics, National Transportation Statistics, 1993). Since it takes 2,946 BTUs to move a ton mile by truck versus 344 BTUs by rail, the overall freight system efficiency is heavily dependent on the share of freight for each mode.

The nation's transportation system has not begun to exploit the benefits that can be achieved by technologies that better coordinate transportation modes. Even within specific modes, there are significant opportunities for greater efficiencies through improved information systems, lightweight materials, and better engines. Diesel engines, which are the primary power source for rail, trucking, and busses, are significant contributors to emissions.

An integrated approach would establish the measures and tools that would allow all modes to be developed as part of a system. In addition, commodity flow data would be used to identify areas where high payoffs could be obtained from mode shifting or automation technologies.

Needed Actions

If progress is to be made in answering the Grand Challenge of sustainable transportation, action is required in the following areas:

Utilization of the National Laboratory System by all Federal agencies involved in the nation's transportation system—This means developing new policies that can allow sister Federal agencies such as the US DOT, the U.S. Department of Energy, the U.S. Department of Defense, and the Environmental Protection Agency to coordinate research at the National Laboratories.

Creation of regional transportation research partnerships that strengthen the connection between the National Laboratories and the real needs of the nation's transportation system—State and local transportation agencies would play a lead role in these partnerships and the laboratories would serve as an important new resource for developing local solutions that address the national issues.

Congressional and executive branch support for developing a sustainable and dramatically improved transportation system—Such support would only arise from a recognition that the existing transportation system and its expected evolution will not effectively compete in global markets in the 21st century.

Effective involvement of the science base—The National Laboratory System must be given a clear mission and mandate to represent the public interest in basic research. This mission should be defined to compliment the skills of the university and private-sector elements of the nation's science base.

THE ROLE OF THE NATIONAL LABORATORIES IN ENSURING TRANSPORTATION SAFETY

ADRIAN TENTNER ARGONNE NATIONAL LABORATORY

Introduction

Ensuring the safety of our national transportation system has always been one of the most important missions of the U.S. Department of Transportation (US DOT). Considerable resources have been allocated both by the US DOT and private industry for safety research and the development of ever safer vehicles and roads. This sustained emphasis on transportation safety and the cooperation of public agencies and private industry has resulted in the United States having one of the safest transportation systems in the world. But inexorable growth in traffic constantly challenges the infrastructure capacity, and new solutions relying on advanced technologies are needed to maintain and enhance the efficiency of our transportation system. The trend toward increased transportation reliance on information technologies and system integration applies to all modes of transportation. The US DOT's plan for an Intelligent Transportation System (ITS), for example, has been developed to provide solutions to some of our surface transportation problems by combining advanced technologies with traditional transportation systems. With the advent of transportation systems relying on advanced technologies, new opportunities and challenges in ensuring and enhancing the safety of our national transportation system stand before us. The convergence of advanced sensors, communications, and computing technologies with traditional transportation systems promises to create an advanced transportation system that will not only reduce traffic congestion and associated negative environmental impacts, fuel consumption, and travel times, but will also reduce the number of accidents that continue to occur on our roadways. At the same time, reliance on many new technologies and components will require additional safety research and analysis to avoid or minimize new potential risks. The close interaction between vehicles and infrastructure through wireless communications, for example, will result in a more tightly connected transportation system, in which a component failure could have greater adverse consequences than in today's system. The planning and design of our future transportation system should therefore involve, at an early stage, an evaluation of the risks associated with the system. Through the early identification of the primary sources of risk, the opportunity exists to develop cost-effective approaches to avoid or minimize the risk of adverse consequences before system development and deployment.

The safety analysis of an integrated national transportation system is a challenging task, requiring considerable technical expertise and resources. The National Laboratories have successfully led the safety analysis and research in the development of other complex technological systems of national interest, such as advanced

weapons systems, naval submarines and nuclear reactors. Today the National Laboratories can serve as a valuable resource to US DOT and to the Nation in the development and implementation of an integrated safety analysis plan that will coordinate the transportation safety research activities of the industry, universities, and laboratories as we pursue the development and deployment of advanced transportation systems in the United States.

Background

The trend toward increased reliance of our transportation system on advanced technologies, stimulated by the national ITS Program, is likely to continue and accelerate as we approach the next millennium. This trend provides new opportunities for increasing the transportation system safety by assisting drivers in making better informed decisions, expanding the role of automatic control systems in accident prevention, optimizing the management of roadway systems, and providing faster help in emergencies through improved communication between the vehicles and control centers. Work on many related demonstration projects is currently underway under ITS DOT's leadership, with active participation from industry, universities, and National Laboratories. The National Laboratories provide a wealth of advanced technologies, including sensors, computing, communications, and control technologies that can play an important role in increasing the safety and reliability of our future transportation system.

At the same time, the growing interdependency between the vehicles and the roadway infrastructure, and the increasing reliance on advanced technologies are combining to create a new challenge in ensuring the safety of the emerging transportation system. Safety improvements in this system will depend upon the accuracy and timeliness of data and communications and upon the proper functioning of control systems. In addition to the usual safety issues encountered in transportation, issues of safety, correctness, security, and fault tolerance of system components (software and hardware) become important when automatic digital control systems are used.

Where there is greater reliance on advanced technologies, there is also potential for new types of adverse consequences in terms of vehicle accidents, misrouting of vehicles, or increased travel times. A software error or hardware failure in a vehicle control system, for example, could have more serious consequences in an Automated Highway System than in today's transportation system.

To be acceptable to the public, any change in transportation system technology must present a very low probability of causing conditions worse than would apply without the change. Planning and design of a new transportation system should therefore involve, early in the design process, an evaluation of the risks associated with the proposed system. Through early identification of the primary sources of risk, the opportunity exists to incorporate cost-effective improvements that eliminate or minimize the risk of adverse consequences before the system design is completed. These improvements may be in hardware and software component specifications, hardware and software design features, operation or maintenance procedures, personnel training, contingency planning, means of protecting the system from external threats, etc. Fail-safe features should be incorporated at key points of vulnerability, which a proper hazard evaluation would identify.

The National Laboratories have experience addressing the safety of large-scale, safety-critical, complex control systems for nuclear reactors, weapons systems, and robots used in weapons production and in decontamination and decommissioning. Moreover, the National Laboratories have long conducted research in computer science and in modeling and simulation of complex systems, and they have developed tools such as automated reasoning systems and program transformation systems that can be used for the development of reliable software for safety-critical applications. Several specific areas of expertise available at the National Laboratories that could contribute directly to the safety of our future transportation system are listed below.

Hazards Analysis and Risk Assessment

The National Laboratories have experience in hazards analysis of complex systems involving hardware, personnel, and procedures. In addition, the National Laboratories have capabilities to perform computerized fault tree and event tree analyses, including quantification of the frequency of key system failures, common cause analyses, and human reliability analyses. These techniques have been used in the design of nuclear reactors and in the assessment of the risk and reliability effects of plant modifications, equipment aging, procedure changes, and changes in technical specifications. Risk assessments estimate the probability of failure of a system and determine the most likely contributors to that failure, and they may be used

to guide the system design with regard to safety-related features. Such methods have been applied at the National Laboratories in the design phase of systems to evaluate the effectiveness of various design options in reducing the risk of accidents, and have also been used to assess the safety of existing systems.

Computer Modeling and Simulation

Computer modeling and simulation have been used extensively at the National Laboratories to analyze the behavior of complex systems and to explore the effects of alternative designs on system safety and efficiency. The use of computer simulation can greatly reduce the need for costly and time consuming experiments. The National Laboratories have a wealth of experience in the use of advanced computational methods, high-performance computing architectures, and computer simulation environments that integrate hardware and software components. They have developed computer models for the analysis of large-scale transportation systems and simulation environments for the detailed modeling of ITS that could be used in the safety analysis of advanced transportation systems.

The risk assessment process discussed above requires not only an estimation of the probability of events, but also an estimation of the consequences of these events. This consequence analysis often requires an understanding of the physical effects of accidents, which can be obtained through a combination of experiments and computer simulation of the physical events. The National Laboratories have considerable experience in vehicle crash simulation and analysis of accident consequences. They have cooperated with private industry in using computer simulations for the analysis of crash response of various automotive structural components. The use of similar analyses to assess the safety of drivers and passengers and the efficiency of various roadway safety barriers would be a natural extension of these capabilities. The National Laboratories have extensive high-performance computing and communications resources that can support such a large-scale transportation safety modeling and simulation effort.

Modeling and simulation might also be used to estimate, in real time, the severity of specific accidents and to guide the decisions of the emergency response team. Several ITS operational tests already include plans for making accident information, such as accelerometer data, available to the emergency response agencies in real time. In the future we can expect to see this data used in a real-time accident computer simulation to provide the emergency response team with estimates of accident consequences. The National Laboratories' capability to integrate real-time data into process simulation codes for predicting system response will be valuable in such a system.

System Safety Experiments

Large-scale experiments and demonstrations are an integral part of the safety analysis of complex technological systems and are essential in the validation of computer modeling and simulation results. The National Laboratories have extensive experience in the design, assembly, instrumentation, execution, and analysis of such experiments. Experimental teams at the National Laboratories have worked closely with computer simulation and analysis teams to minimize the number and cost of experiments by using the results of computer simulations to guide the design of experiments and to maximize the amount of relevant information obtained from each experiment.

Reliable Software and Fault-tolerant Hardware

In the area of software development, the use of good software development practices and tools can provide assistance in producing correct software; but only the use of Formal Methods, which prove mathematically that a program correctly implements the specified system, can provide assurance that the program is correct.

The National Laboratories are in a position to undertake considerable research in developing practical Formal Methods for use in ITS control systems. They have developed program transformation systems and automated reasoning systems, which can be used to help produce correct software from specifications economically. Further work needs to be conducted to develop and demonstrate techniques for applying these systems to digital control systems. Several National Laboratories are currently working jointly on a High-Integrity Software project to apply these techniques to such systems.

Software security is also an important issue that needs to be investigated in conjunction with safety. For example, if centralized control, or even traffic density information, is provided to vehicles, subversion of the communication software could be used to direct commercial vehicles to take an out-of-the-way route, where they might be attacked and robbed. An important aspect of software security is to prove that a program does not have certain properties (such as a "back door") that permits

someone to take over control of the software. Almost no research has been done in this area, and the National Laboratories, particularly using their background in automated reasoning, could take the lead in performing such research.

The development of fault-tolerant hardware, such as multiprocessor fault-tolerant computers, is another area of expertise available at the National Laboratories that, combined with reliable software, can play an important role in increasing the safety and reliability of advanced transportation systems.

System Control and Accident Management

The National Laboratories have accumulated considerable expertise in the areas of automated system monitoring, system malfunction diagnosis, and recommendation of system control alternatives in order to minimize the effects of malfunctions or accidents. Artificial intelligence technologies, including expert systems and neural networks, have been successfully applied to malfunction diagnosis and accident management for electrical power plants and other complex technological systems. The early diagnosis of sensor or system malfunction and the recommendation of system management alternatives will be an important element in ensuring the safety of an ITS that could utilize the advanced computing and analysis methodologies developed by the National Laboratories.

Operational Readiness Review

An important element of system safety is the assurance that the system (comprised of hardware, software, personnel, and procedures) is fully ready prior to deployment or implementation. Applying formalized operational readiness review methods can greatly help to reduce the potential for hazards caused by faulty system operation that result from failure to recognize that certain components of the system were absent, incomplete, or inadequately integrated into the system. The National Laboratories have considerable experience in utilizing such methods to ascertain the operational readiness of a new process facility involving complex arrays of newly designed hardware and software, many new procedures, and personnel who may require specialized training and qualification.

Conclusion

Ensuring the safety and reliability of the national transportation system presents new challenges resulting from the continuous increase in the number of travelers and volume of freight, the increasing reliance on advanced technologies and complex components, and the increasing interaction between various modes of transportation. A tightly coupled transportation system, relying more and more on advanced sensors, computing, and communication technologies, requires additional research and analysis of system safety, to ensure that transportation presents only very low risks to travelers and that fail-safe features have been incorporated at key points of vulnerability.

The National Laboratories have considerable expertise and experience in the safety analysis of complex technological systems such as complex weapons systems, naval submarines, and nuclear reactors. The National Laboratories have demonstrated a sustained interest in transportation safety research and development in general, and ITS in particular, by participating in national and regional advanced transportation research activities and operational tests. They are working closely with Federal and state transportation agencies, industry, and universities in promoting the development and deployment of ITS.

The combined analytical and experimental capabilities of the National Laboratories represent a unique resource that can help ensure the safety and reliability of our transportation system. This resource could, and should, be used by the US DOT in the process of designing and deploying increasingly safer transportation systems of the United States.

Senator KEMPTHORNE. I, too, want to salute Senator Moynihan for his vision in the development of the first ISTEA. Tremendous.

Mr. Chairman, when I speak to the director of the Idaho Department of Transportation and my State legislators about ISTEA, the first thing they want to know is if there will be more funds available to support the new national highway system.

They want to know if Congress is going to return more of the gas tax dollars collected at the pumps to States to build and maintain Federal highways.

They want to know if Congress will continue to recognize and support the concept of a national highway program that benefits all

Americans, regardless if you live in a large urban area or a sparsely populated rural western State.

They want to know if Congress will financially support research for the development of new and more efficient modes of travel, alternative fuels in vehicles.

These priorities are my priorities. That's why the testimony of these witnesses today is so relevant.

We must return more tax dollars of the gas tax user fee back to the States for use on long-deferred maintenance instead of building up a balance in the trust fund that serves no transportation purpose. We must structure the reauthorized ISTEA so that it fulfills the objectives and goals of ISTEA, while we streamline and improve the original program based on its track record of performance.

We must never lose sight, however, of the intent and purpose of the original Federal interstate highway system, which was established more than 40 years ago.

We are one country with one national system of roadways that people must be able to depend upon. We cannot allow the Intermodal Surface Transportation Efficiency Act or the national highway system to become programs of have's and have-not's, and winners and losers.

We must be innovative and creative, not only in developing transportation technology for the future, but also in developing creative ways to finance them.

We are at a critical crossroads of our Nation's transportation future. We must seize it as an opportunity for success, not let it slip away.

Mr. Chairman, in closing I'd like to submit for the record a report entitled, "Our National Laboratories in Transportation Research." This is an excellent document which was prepared to address the question: what is the role of our national laboratories in transportation research?

We're very proud to have one of these laboratories, the Idaho National Engineering and Environmental Laboratory, located in Idaho. I'm hopeful that members of this committee will be able to review this very important document.

Senator WARNER. Thank you very much, Senator.

At your recommendation, Senator Kempthorne, it's the intention of the chair and the ranking member to hold a hearing on this legislation. I believe we're going to do it in your State, in Coeur d'Alene, ID, at a date to be determined.

Senator KEMPTHORNE. Mr. Chairman, I'd appreciate that greatly.

Senator REID. How about one in Searchlight, NV?

Senator WARNER. Beg your pardon?

Senator REID. How about holding one in Searchlight, NV?

Senator WARNER. If you'll turn it on, we'll come.

[Laughter.]

Senator BAUCUS. How about in Montana?

Senator BOND. And on the way back you can stop off in Missouri.

[Laughter.]

Senator MOYNIHAN. Mr. Chairman, I have to object. The idea of interstate highway system began in the 1939 World's Fair in Flushing Meadows, NY, and I think Flushing Meadows is it.

[Laughter.]

Senator WARNER. I remember it, and remember the GM exhibit.

Senator MOYNIHAN. Futurama.

Senator WARNER. Yes, sir.

Senator MOYNIHAN. That's correct.

Senator WARNER. In order of the "early bird" rule, we'll shift to Mr. Bond.

**OPENING STATEMENT OF HON. CHRISTOPHER S. BOND,
U.S. SENATOR FROM THE STATE OF MISSOURI**

Senator BOND. Thank you very much, Mr. Chairman.

It is a real pleasure to join with you and members of this committee as we work on what is a vitally important measure for my State. To say that we have made progress is obviously the first step, and I do join with the others in commending the leaders of this committee, Senator Moynihan and others, who have brought us to where we are today to make the United States the most mobile society in the world and in history.

Frankly, we've gone from the horse and buggies on dirt roads to the interstate systems that we know can carry such heavy volumes of passengers and products.

To make the case briefly for the hearing in Missouri, I would just note that Missouri has long been a leader in transportation. In 1808, King's Highway from St. Louis to Southeast, Missouri, was the first legally designated road west of the Mississippi. In 1919, Missouri was the first State to protect and earmark funds for highway purposes. In 1956, Missouri became the first State to accept and begin construction on the Dwight Eisenhower Interstate Highway System, and the first stretch of interstate actually began work on Interstate 70 in St. Charles.

These roads, these highways have been vitally important for our State's growth, for convenience, and, most of all, for safety of our people.

The 1991 Intermodal Surface Transportation Efficiency Act provided the road map for our vision to the future, and that is easy access for every community of any size to a modern, safe road; roads that connect into a grid in the national highway system.

The steps that you have taken in this committee before I even joined the committee—when I was merely an officious inter-meddler—have enabled us to make tremendous strides in transportation.

I would—I can assure Senator Kempthorne that the questions he heard in Idaho about the return, how much money is going to come back, how much money is going to be available for badly needed roads in Idaho are exactly the same questions I hear in Missouri.

I agree with the chairman, the ranking member, that it is time that we put the trust back in trust fund.

People keep saying, "What are you doing with the money?" They think we're probably using it—

Senator WARNER. We locked it up.

Senator BOND [continuing]. For our personal benefit. I think that it is time that we get back.

We are working with the chairman of the full committee on means to do that, and I certainly am proud to support your efforts on STEP 21.

We have a long way to go to meet the challenges of the 21st century, resolving congestion problems, continuing research and development, recognizing the changing demographics, and looking at the financing options that are available. These are going to be important, as well.

We've heard from the chair of the subcommittee about the importance of good highways for an economy in a globally competitive situation, but I want to emphasize a fact that I guess I've known before. It was just brought to my attention recently that highway, road, and bridge accidents are the leading cause of death of children under 18 in my State, and good highways, good safe highway systems, roads, and bridges are vitally important if we're going to assure that safety.

Highway authorization funding debates are always exciting. There are some who have even talked about taking charitable contributions to watch the activities in the highway debates. That might be a good way to get some additional funding for highways.

But funding formulas are serious business and we intend to work to see the fair and objective Senators who have been referred to before have an opportunity to work on some of the wrinkles, the few remaining wrinkles in the existing ISTEA which include the rate of return for certain of us who have had the pleasure of giving as donor States and would like to work with our colleagues to even up the playing field.

I thank you, Mr. Chairman, the ranking members, and the leaders on this committee who have brought us to the point where we are today.

Senator WARNER. Thank you very much, Senator.
Senator Thomas.

**OPENING STATEMENT OF HON. CRAIG THOMAS,
U.S. SENATOR FROM THE STATE OF WYOMING**

Senator THOMAS. Thank you, Mr. Chairman. I shall be brief.

I notice in here the purpose of this hearing is to receive testimony, so I will—

Senator WARNER. If you haven't been listening, I gave a little testimony in the beginning.

[Laughter.]

Senator WARNER. And I look forward to your strong support.

Senator THOMAS. Yes, indeed, and now it's my turn for a little testimony.

First I must, of course, recognize Senator Moynihan. I wouldn't want to be the one who failed to do that, sir.

Let me just be very brief. I have a statement.

Forty-four percent of the roads in my State of Wyoming are fair to poor, according to the highway assessment, so we have a great deal to do. The Federal Government owns 50 percent of Wyoming, and so a great many of the roads are on the Federal establishment. Yellowstone Park has a deficiency, \$250 million worth of road funding they believe. They get \$8 million a year now. That doesn't work well.

The national highway system, of course, is very important to a State like Wyoming, a bridge State where people go through. We have not too many folks. We're a small town with very long streets, and they're terribly important to us.

So I look forward to working with you. I'm delighted to be on the subcommittee, Mr. Chairman.

Thank you.

[The prepared statement of Senator Thomas follows:]

PREPARED STATEMENT OF HON. CRAIG THOMAS, U.S. SENATOR FROM THE
STATE OF WYOMING

Mr. Chairman, thank you for holding this hearing today. It is important that the subcommittee examine our country's transportation infrastructure funding requirements because they are significant and we should be doing more to meet them. In fact, 44 percent of the roads in my State of Wyoming are in fair to poor condition. In addition, the State's highway repair and maintenance needs total \$50 million per year, which is more than the State can address. Those figures do not include Wyoming's infrastructure needs in the Federal lands highway program. The Federal Government owns 50 percent of the land in my State and those roads have substantial funding requirements as well.

I am also concerned about the infrastructure needs in our national parks. I met recently with the Superintendent of Yellowstone National Park and discovered that the majority of Yellowstone's road structurally deficient. As one of the crown jewels of the national park system and host of more than three million visitors annually, this situation is unacceptable. In fact, the Park's 10-year plan includes \$250 million in road funding requirements. However, Yellowstone only receives roughly \$8 million annually to meet these needs. I certainly hope this shortfall is an issue the committee will address during the reauthorization of ISTEA.

I also am pleased today's hearing will focus on the national economic benefits of the country's transportation infrastructure. Wyoming is a "bridge" State; goods are transported from their source across Wyoming, and to their final destination. A set of efficient and well maintained roads are as important to the cities that export goods across the country and around the world as they are to the people in Wyoming. The former director of the Wyoming Department of Transportation, Don Diller, said last year, "On I-80 in Wyoming, more than 50 percent of the traffic is trucks, and those trucks are not serviced in Wyoming. The goods are not manufactured in Wyoming, and the economy of Wyoming is not improved by their manufacture. The goods are not delivered in Wyoming, but add to the economy of some other area."

Again, Mr. Chairman, I am pleased you are holding this hearing so the subcommittee can explore these important national issues. I look forward to working with you to address some of these pressing national needs.

Senator WARNER. Thank you very much.

Gentlemen, should we recognize Senator Reid? I realize every now and then we ought to slip over here.

The lighthouse is on, the searchlight.

**OPENING STATEMENT OF HON. HARRY REID,
U.S. SENATOR FROM THE STATE OF NEVADA**

Senator REID. Thank you, Mr. Chairman.

I've sat through a couple of these authorization bills and my friend from Missouri says that maybe we could get people to pay. Well, I've watched Seinfeld and sat through these. There's no comparison.

[Laughter.]

Senator REID. I don't think we'd make much money.

Mr. Chairman, the dynamic flow of commerce and individuals is continually subject to change. While our transportation policies may not always be able to anticipate these changes, they must be flexible enough to accommodate them.

All of us have varying opinions about the best way to meet these changes. I believe there are some areas of common ground that all of us can agree, as we establish the framework of reauthorizing ISTEA.

Our transportation policies must recognize the importance of providing adequate dollars for improvement and maintenance of our infrastructure. The policy should not favor one region over another. Funding formulas should provide States with sufficient funding to meet the changing infrastructure needs they face.

While some push for devolution, all of us agree that Federal regulations have to recognize the need for greater flexibility at the State level. Because we have a national transportation policy, we must recognize there are often unique interstate needs that otherwise would not be addressed but for a Federal program. I think we started doing that, and I think we did it quite well in the last bill that we passed.

I believe the unique regional perspectives, though, will bring this issue ultimately to a coherent national policy.

Mr. Chairman, I represent a State that is 650 miles from one corner to the other corner. It's a long way. We have in the Las Vegas area 5,000 new people moving into that relatively small area every month. We have tremendous infrastructure problems.

Because funding formulas are based on old census data, it's nearly impossible for States like Nevada to receive the proper financing necessary to accommodate this growth.

I heard my friend from Wyoming say that his State is 50 percent Federal land. Ours is almost 90 percent Federal land, and we have some unique problems because of that.

Between our interstates, you can fit the States of New Jersey, Connecticut, Massachusetts, Rhode Island, Vermont, New Hampshire, and Delaware. That's just between our interstates. We have a lot of territory to cover. That's because of all the Federal land and because we're sparsely populated, even though, Mr. Chairman, Nevada now is the most urban State in the Union—more urban than New York, more urban than California, any State in the Union. We have almost 90 percent of the people that live in Reno and Las Vegas metropolitan areas.

We have some very unique problems.

Because the Federal Government owns about 90 percent of the lands in Nevada, Nevada receives little or no taxes from these lands but still must provide for intercontinental activity across these areas. In order for all States to enjoy the benefits of our economy, we must be able to build and maintain these lines of commerce, and Federal land programs is a source of much of the funding for these areas.

Nevada is a bridge State. Most of the traffic that comes across Nevada highways is interstate traffic. We play an important role in interstate commerce. But the need for improving and maintaining these interstates arises out of the damage caused by non-Nevada traffic.

It's difficult for me to explain to my constituents why we're under-funding basic maintenance projects when we see firsthand the infrastructure degradation caused by out-of-state travel and out-of-state travelers.

Now, Mr. Chairman, I'll just take a minute. I know that——

Senator WARNER. Take your time, Senator.

Senator REID [continuing]. There's almost unanimous disagreement with me on this committee. I've tried it before. But I'll tell you, we are going to have demonstration projects in this bill. There's always everybody that stands up over here and says, "We're not going to have any demonstration projects." We're going to wind up having them.

Bud Shuster is the chairman of the committee in the House. He has demonstration projects. His members want demonstration projects. They're going to wind up having demonstration projects, just like the last bill we had.

I think that we should recognize that there are certain areas of this country that we need to go outside the basic formula. I think that we have the ability, as much as my State director, to determine where there are some needs. So I just say that we should be aware of that.

We are going to wind up in this bill with demonstration projects.

I would also say a couple of members have already mentioned that we need more money spent on infrastructure. I say let's spend all the money that comes into the highway trust fund then. And if people believe this, join with me in my legislation.

I have a bill that has been introduced that says that we should spend all of the highway trust fund money doing work for surface transportation.

Finally, I'm concerned that we haven't consistently articulated coherent national policy and we need to do that. We're doing much better. I think this last bill we passed is really a good one.

I'm troubled, though, sometimes by the budgetary gimmickry being played with, as I've mentioned, with the highway trust fund. We should get these highway trust fund moneys off budget.

Our Nation's infrastructure represents a lifeline that fuels our economy. When we neglect to adequately provide for the health of this lifeline, all of us suffer. Whether it's unsafe and degraded roads or pollution caused from over-congestion, all of us are affected. The price is not only inconvenience of traversing a dilapidated infrastructure; indeed, the real price is increased costs all of us pay for goods and services because of the burdens placed on us because of the steady flow of commerce.

It's similar, I guess, to a cholesterol buildup in the arteries. Eventually we have a steep price to pay.

I also, Mr. Chairman, would like to recognize and pay tribute, for lack of a better description, to Senator Moynihan. I enjoyed very much 5 years ago working on the legislation. For example, Senator Moynihan said in this committee that building more roads isn't the answer, and a number of us said "prove it," and he did. There have been a number of articles that have been written showing just because you have a lot of traffic, building more roads isn't necessarily the way to handle the problem.

I think that many of the things that we tried to do last time we were unable to do, but I think we have to give some of those theories which have now been developed with 5 more years of research and development, I think we need to develop some of them.

I believe, Mr. Chairman, that even though our bill was a good one, I think we can improve upon it by doing some unique things like we tried to do in the last bill.

So thank you all very much. I look forward to working with each of you in the coming months. It's not going to be easy, as we all know.

Senator WARNER. Thank you, Senator. Your statement I think very forcefully brought home to us the unique qualities of your State, and I mentioned in my opening statement that there is a strong diversity here and we've got to recognize that. We do have our differences, however, on the question of the demonstration projects, and I think that what remains of the highway trust fund should be a matter that remains on budget.

[The prepared statement of Senator Reid follows:]

PREPARED STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE
STATE OF NEVADA

Mr. Chairman, there is little doubt that the issues we will address in today's hearing are issues that are of great interest to every member of both bodies. Transportation represents a truly national concern. All of us have a stake in ensuring that America's transportation policies are coherent and efficient. More importantly, all of us have a vested interest in ensuring that the goals of our transportation policies are capable of being achieved.

This session of Congress will likely include extensive consideration of not only how we finance our national infrastructure but also what our transportation policies should aim for as we head into the 21st century.

The dynamic flow of commerce and individuals is continually subject to change. While our transportation policies may not always be able to anticipate these changes, they must be flexible enough to accommodate them. All of us have varying opinions about the best way to meet these changes. However, I believe there are some areas of common ground that all of us can agree on as we establish the framework for reauthorizing the ISTEA.

- Our transportation policies must recognize the importance of providing adequate dollars for improvement and maintenance of our infrastructure.
- The policies should not favor one region over another, as the steady flow of commerce across State lines is in the nation's best interests.
- Funding formulas should provide States with sufficient funding to meet the changing infrastructure needs they face.
- While some push for devolution, all of us agree that Federal regulations have to recognize the need for greater flexibility at the State level.
- Because we have a national transportation policy we must recognize that there are often unique interstate needs that otherwise would not be addressed but for a Federal program.

I believe the unique regional perspectives all of us bring to this issue will ultimately allow us to forge a coherent national policy. I represent a State that just happens to be the fastest growing State in the country. We have 5,000 new people moving into the State of Nevada every month. Because funding formulas are based on old census data it is nearly impossible for Nevada to receive the proper financing necessary to accommodate its growth.

Nevada is also unique in that 87 percent of the land is owned by the Federal Government. To appreciate how much land this is consider the fact that in the areas in between our interstates, you can fit the States of New Jersey, Connecticut, Massachusetts, Rhode Island, Vermont, New Hampshire and Delaware. That's a lot of Federal land. Because the Federal Government owns these lands the State of Nevada receives little or no taxes from these lands but must still provide for intercontinental activity across these areas. In order for all States to enjoy the benefits of our economy we must be able to build and maintain these lines of commerce, and Federal lands programs is the source of much of the funding for these areas.

Nevada is also a bridge State. Much of the traffic is interstate traffic. We play an important role in interstate commerce. But the need for improving and maintaining these interstates arises out of the damage caused largely by non-Nevada traffic. It is difficult for me to explain to my constituents why we are underfunding basic

maintenance projects when they see firsthand the infrastructure degradation caused by out-of-State traffic traveling on our interstates.

Finally, I am concerned that while we have consistently articulated a coherent national transportation policy, we have failed to provide the adequate funding necessary to support these policies. Specifically, I am troubled by the current budgetary gimmickry being played with the Highway Trust Funds. The games being played with the highway trust fund are penny-wise and pound-foolish. I have introduced legislation to take the highway trust fund off budget and believe this action is necessary if we are serious about meeting our transportation objectives.

Our nation's infrastructure represents the lifeline that fuels our economy. When we neglect to adequately provide for the health of this lifeline all of us suffer. Whether its unsafe and degraded roads or pollution caused from over congestion, all of us are affected. The price is not only the inconvenience of traversing a dilapidated infrastructure. Indeed, the real price is the increased costs all of us pay for goods and services because of the burdens placed on a steady flow of the stream of commerce. It's similar to cholesterol buildup in the arteries—eventually there is a steep price to pay.

I look forward to being an active participant in rewriting a bill that will allow us to continue into the next millennium as the world's foremost economic powerhouse. By providing coherent, efficient and flexible transportation policies we will surely rise to the great challenges of the 21st century.

I thank our distinguished colleague for being very patient. Senator Inhofe.

Senator INHOFE. Thank you, Mr. Chairman. I will submit a statement for the record.

Senator WARNER. You go right ahead.

**OPENING STATEMENT OF HON. JAMES M. INHOFE,
U.S. SENATOR FROM THE STATE OF OKLAHOMA**

Senator INHOFE. I'll just make a couple comments.

Certainly I pay tribute to Senator Moynihan, who has brought us to the point where we are today and had the vision and foresight to look beyond our old scope, and I have been here just long enough to remember what that was, having spent 8 years in the House of Representatives serving on the Public Works and Transportation Committee.

I look around and I see that we have broadened our scope. Not many people are aware that we in Oklahoma are navigable. We actually have—Tulsa, OK, is the most inland port. I know that Mr. Card knows that and a few others maybe are aware of that, too. So we have a diverse transportation currently and transportation potential.

In looking at the committee up here, of the nine members that are sitting before you today, six of us are donor States, and I think this will become a more lively debate.

I introduced legislation in the past, both in the House and in the Senate, to put some bench mark, maybe 80 percent, beyond which a State could go ahead and have some money and make the decision on a local basis as to whether it would go into mass transit or go into roads.

So I see that there should be differences of opinion, and I'd say to my good friend, Senator Reid, I fought that battle against the demonstration projects for 8 years, lost it every year to Bud Shuster, and I'm not optimistic about winning it this time, but I'll still try.

So I'm looking forward to a very active and beneficial debate on this most significant piece of legislation.

Senator WARNER. Thank you, Senator.

[The prepared statement of Senator Inhofe follows:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM OKLAHOMA

Thank you Mr. Chairman for holding this hearing today. As we begin the important process of reauthorizing ISTEA, the legislation that represents the most sweeping change to this nation's transportation policy, we need to take the time to examine current transportation trends across the United States.

The fact is that people are becoming more mobile every year. City limits are expanding and the population in the Midwest and beyond are booming. With urban sprawl, rural travel becomes urban travel and highway and transit traffic increase as people move to and from work. The passage of NAFTA and the globalization of the economy augmented international trade as well, bringing with it an increase in movement of foreign goods to all corners of the country. These goods travel on our highways, waterways, and railroads.

Oklahoma maintains all modes of transportation. Just north of Tulsa, is the Port of Catoosa, an inland international seaport. Barges, with loads of cargo ranging from metal products and building materials to wheat, use this port as a gateway to communities further inland. In the heart of America, Oklahoma's rails, highways and air space are constantly in use.

But the interstate transportation system is not just about Oklahoma. It is about the Nation being interconnected as a unit for the free flow of domestic as well as foreign commodities and people. That means a truck filled with Oklahoma peanuts can travel quickly and efficiently to a customer in Maine.

The entire transportation industry is estimated to comprise 17 percent of the United States economy. If for no other reason, we need to make sure that our programs are workable, efficient and intelligently funded. Transportation has shaped what our nation is today, and to continue to operate successfully, the system needs to be maintained.

I was a member of the House Public Works and Transportation Committee back when ISTEA was crafted in 1991. I think we did an admirable job. However, the changing needs of our nation and its transportation system need to be reflected in updated formulas and programs. Last year I introduced a bill that would guarantee an 80 percent return on a State's transit funds. Oklahoma, like other States, is classified as a donor State in both highways and transit dollars. As we move through this reauthorization process, I will look forward to reworking the formulas established under ISTEA to make sure that donor States see a fair return on their contributions to the Highway Trust Fund and Mass Transit Account. Calculations used in the past served our nation for the time, but population growth and movement warrants a new approach.

I look forward to hearing from today's witnesses on just how the population has shifted and their recommendations on ways to meet the new demands as a result.

Senator WARNER. Senator Moynihan, do you wish to have a moment or two rebuttal?

[Laughter.]

Senator MOYNIHAN. I think Senator Inhofe has been there with Bud Shuster, and so have I, sir. I'm happy that this year it will be you.

[Laughter.]

Senator WARNER. Thanks.

Well, we'd better get started here. We're having too good a time.

Mr. Secretary, would you join us, please?

We have very good attendance. We're anxious to get the perspectives of the Department, and we recognize that we're departing from—should we say some tradition of having the Secretary first? But we value you as a professional and what you've done. You've made very important contributions to transportation in your public service.

You just proceed. We'll place into the record your entire statement, and perhaps you can summarize it so that we can move to questions early on.

Thank you.

**STATEMENT OF HON. MORTIMER L. DOWNEY, DEPUTY
SECRETARY, DEPARTMENT OF TRANSPORTATION**

Mr. DOWNEY. Thank you, Mr. Chairman, and I will summarize my statement. My longer statement for the record does deal with the three issues that were named as the topics of this hearing in detail: infrastructure needs, transportation benefits to the economy, and trends in transportation. I'll just try to highlight some of the issues.

This week opens the official debate on ISTEA reauthorization. This will be a major challenge, and we look forward to working with this committee and with all of the Congress in renewing this important legislation.

Incoming Secretary Rodney Slater and I, our administrators from the various modal administrations within DOT, are ready to work with you. We'll present our proposal for reauthorization in a few weeks, and we look forward to the debate on it and to other proposals, as well.

ISTEA authorized \$157 billion for fiscal years 1992 through 1997, and we certainly should ask what did we get for all that money. That investment is producing results, even with many of the projects still under construction. But funding was not the only benefit from the ISTEA legislation. It changed the nature of the transportation planning process. It introduced new ideas with respect to intermodalism and technology. It gave us new financial choices. And we believe it strengthened the partnerships among State and local governments and with the private sector.

The result is that the transportation system is getting better. The physical condition of bridges and pavement which had been deteriorating has stabilized across the Nation, and in many areas actually improved—especially on the National Highway System.

Peak hour congestion in our largest urban areas has stabilized, and the rate of highway fatalities has declined since the enactment of ISTEA, although not as much as we would like to see. It is now steady at 1.7 fatalities per 100 million miles traveled.

The conditions and performance of our transit systems has also improved.

These trends suggest that we are keeping pace with the maintenance requirements of our infrastructure system. We have stopped the tide of accelerating deterioration. We are seeing positive results from our safety programs, and we have begun to tie our system together through ISTEA's emphasis on intermodalism.

Despite this progress, though, we are still confronted with an infrastructure deficit. Over the long term, to maintain current conditions on our highway and transit systems will require significantly higher funding from all sources—Federal, State, and local governments. That's why over the last 4 years we have stepped up the level of infrastructure investment. We've averaged \$25.5 billion a year for infrastructure in the last 4 years. That's 20 percent higher than the preceding 4 years. We've committed in the 1998 budget to continue that level at \$25.6 billion, slightly above the average of the past 4 years.

Under the Administration's plan, \$24 billion would be available next year for highway and transit capital, the core ISTEA programs, and in our proposed legislation we would request authoriza-

tion levels somewhat above the 1998 proposal in hopes that economic conditions and budgetary progress would enable us to support higher obligation levels in future budget and appropriation actions.

But we also recognize that Federal grant funding cannot meet all of our infrastructure needs. We need to continue working with you to develop new financial tools such as the State infrastructure banks that we began 2 years ago and innovative financing techniques to attract new sources of funding from the private sector.

We need to increase the use of technology to make our current infrastructure more efficient and less costly.

The priority given to transportation investment reflects the vital role that transportation plays in assuring America's economic prosperity and quality of life. Senator Baucus spoke of the significant contribution to the gross domestic product of transportation. That's one measure of its importance.

Another is the fact that nearly 10 million Americans are employed in industries that provide transportation-related goods and services, and these are good jobs with the highest wage level of any sector in the economy.

Our Bureau of Transportation Statistics, a creature of ISTEA, has found that, as a result of greater efficiency in the transport systems, Americans now enjoy higher levels of transportation output for the same level of input, an overall improvement in productivity.

Another recently completed DOT-sponsored study has clearly documented the substantial economic returns on highway investments. Senator Moynihan referred to this study, showing that the private sector return on investment from improved transportation is a substantial one, even higher than the investment earned by the private sector on their own investments.

We find, not surprisingly, not all spending is the same. Investments in transportation infrastructure pay long-term dividends. If the Nation's economy is going to grow in the years ahead, we cannot short-change ourselves and under-invest in essential infrastructure.

But to make the right investment choices, we need to take account of the factors affecting our transportation system. This country is facing major changes in personal and business travel, new patterns of freight shipments, regional population shifts, fast-growing elderly populations, and teenage populations, and an explosion of information technology. All of this will change the nature of demand and use of the transportation system, and we need to respond to that.

One of the most significant trends in recent years has been simply the increase in travel. U.S. passenger travel has nearly doubled in the last 25 years. Much of that has been in the highway modes, but we also have stabilized public transit. It is no longer declining, and elements of it, like commuter rail and light rail, have increased appreciably.

Many different factors have contributed to the growth in travel: demographic and labor force changes, income growth, and changes in the makeup of metropolitan areas. Much more of the travel in America is suburb-to-suburb, less of it is suburb-to-downtown.

Our population trend changes will also affect the demand for transportation services.

The number of Americans over age 65—today there are 33.5 million such Americans. That number could increase by over 50 percent, and that will require public transportation and highways to be more user friendly with better signing, facility modifications, and other improvements.

With respect to freight movement, again there has been substantial change. To gain better knowledge of that, our Bureau of Transportation Statistics worked with the Census Bureau to re-initiate a commodity flow survey so we have measures of what is going on in the freight system. We find that the system continues to be dominated by trucks, especially for short-distance movements. We find that flexible forms of transportation such as express and intermodal movements are increasingly important.

While there are economic and social benefits to increased travel and freight transport, at the same time there are costs in terms of safety and environmental harm, and these challenges must be met in future legislation.

Transportation injuries and deaths still impose a substantial drain on the economy.

Taking into account the current level of Federal and State highway programs, projected increases in miles traveled would mean that the number of Americans killed in crashes would increase. A conservative estimate projects up to 51,000 deaths a year by 2005, compared to about 41,500 last year. We should not allow this to happen. We need to reduce the fatality rate. We need to reduce the actual number of traffic fatalities.

The key to much of this is improving our behavior on highways: increasing safety belt usage, increasing child safety seat use, reducing drunk driving, and increasing compliance with the established traffic laws.

We will propose in our legislation tools to achieve these goals. We also will propose changes with respect to environmental protection so that we can strengthen our efforts to mitigate the effects of transportation on the economy.

We cannot achieve these key national priorities linking Americans to jobs, health care, and education without efficient transportation, and the challenges we face in the areas of safety and the environment do not stop at State borders.

ISTEA was visionary legislation, and its central elements—intermodalism, flexibility, inter-governmental partnership, a strong commitment to safety, environmental protection, enhanced planning, and strategic investment—should be preserved and should be the foundation for the next surface transportation reauthorization.

With those tools, we should be able to respond to these trends and the challenges, and, in partnership with our partners in the States and in local communities and with the private sector, I believe that we at the Federal level can play a leadership role in meeting these challenges.

Mr. Chairman, that completes my statement, and I would be pleased to answer your questions.

Senator WARNER. Thank you very much.

You're familiar with this document?

Mr. DOWNEY. Yes.

Senator WARNER. I'm just going to read a little bit.

"In 1994, an estimated \$49.9 billion in highway and bridge capital investment would have been required from all sources just to maintain the 1993 conditions and performance."

Now, I would hope that your Department—and I would like to request the Secretary, in his testimony, to provide this committee with some charts showing one curve, the amount that's needed to maintain the current system in a safe and effective and economic manner, just maintenance. Then, if we are to increase the funding, what funding increase would be required to enhance this system?

For example, this goes on to say, "An estimated 68.2 billion would be required in 1994 to provide a higher quality of service on highway and bridge systems."

Do you want to take a look at that? It's the second paragraph there.

Now, we need to show to the American public just exactly what's going on. I'm not trying to fault the Administration or fault the Congress. I just want to get the facts out there. We're the trustees. They're paying the dollars in.

In my judgment, this curve is going to show a downward trend as to what's needed just to maintain the current system, when, in fact, much of the public thinks that the payment of this significant tax is improving what they already have.

So could you convey that to the Secretary?

Mr. DOWNEY. Mr. Chairman, I will. And, in fact—

Senator WARNER. Would you like to comment a little bit on it?

Mr. DOWNEY. Yes, sir. The Conditions and Performance Report is a departmental document. It's an analysis we do at the request of the Congress every 2 years. We will be submitting a new one later in 1997.

I think it sets—

Senator WARNER. I think it's due out in about April or May.

Mr. DOWNEY. Yes.

Senator WARNER. But we're going to be well along in our legislative work on this particular piece of legislation.

Mr. DOWNEY. I think its findings will be similar to the 1995 findings. It will indicate how additional resources will be needed over time to maintain the performance of the system. It will also point to the progress that we have made. We believe it will show that with some good choices that have been put in place, we are holding our own, but that we could, in fact, with that additional investment, achieve good returns to the economy. I think that's the conclusion of the combination of the studies that we have done.

And the Conditions and Performance Report suggests that greater investment—Federal, State, local, and private—would pay returns to the economy.

Senator WARNER. Well, you're not the one to—you've got to salute and march off with your budget figures from OMB, as approved by the President, so we're not going to get into that debate today.

But you're very articulate. You say we do need more. You recognize that. The other professionals recognize it. I think everyone

around this dais recognizes that. So who, when, and where is going to make the decision to begin to turn this curve around?

Well, I'm suggesting it has to be made here by the Congress, and we put in place steps to do it.

Let's talk about—to what extent can you—and if you're not able to deal with this, do ask the Secretary to include it in his—where are our major trading partners in terms of their transportation system and their level of expenditures?

We need a comparison in this country, because we're in a day-by-day struggle around the world to remain competitive and to make our economy strong.

Mr. DOWNEY. On that point, I would—we'd be pleased to provide that kind of an analysis. I think the point it will make is that our trading partners are investing heavily in an effort to catch up.

Senator WARNER. Catch up.

Mr. DOWNEY. And they recognize that they need to catch up.

One study that I'm familiar with showed that in India, where wage levels are such that their product could be very competitive, they suffer a 30 percent disadvantage immediately after the product leaves the factory because their transportation system is so far below the efficiency of ours.

So the efficiency of our transportation system, as it exists today, is clearly a competitive advantage for this country, and other countries are investing heavily because they want to catch up.

Senator WARNER. My last question—here in the metropolitan area in Washington, our analysis shows that many, many people are spending up to an hour behind the wheel in transportation. This, of course, contributes to gridlock, but it's a loss of their time from other productive activities—namely, their job or their family, both equally important.

Do you foresee that the Administration will be forthcoming in some solutions as to how to rework that problem in this bill, legislative solutions?

Mr. DOWNEY. I think there will be proposals, both proposals that are nationwide in scope but can also be put to work in this region, things like intelligent transportation systems, improvements in traffic flow. We will also have proposals for some of the specific needs of this region such as the Woodrow Wilson Bridge, and our continued commitment to the METRO system.

Senator WARNER. Yes. I hadn't intended to get into the bridge situation. That's very important to this Senator, and it seems to me another day and another time to get into that.

My distinguished colleague.

Senator BAUCUS. Thank you, Mr. Chairman.

Mr. Downey, you said other countries are trying to catch up with us, and I think to some degree that's true. At least it's my understanding that Japan spends about four times what we do as a percentage of gross domestic product, and I suspect that maybe some European countries spend more as a percent of their GDP than we.

But we shouldn't help them catch up by, at best, running in place, or perhaps even spending less.

As I look at the Administration's budget, the highway budget, highway portion only, looks like the request is \$500 million less than currently we're spending.

Are we going to help other countries catch up?

Mr. DOWNEY. We certainly don't want to help them catch up. I think our budget for 1998 should sustain the level of investment we're currently putting in place, and hopefully maintain the performance of the system. But over time we are going to need to invest more.

We believe some of the aspects of our budget, especially the Federal credit program and the State Infrastructure Bank program, will allow us to make some of those strategic investments in major new projects that will, in fact, sustain our advantage against these other countries.

Senator BAUCUS. When will the Administration submit a bill?

Mr. DOWNEY. I hope within a few weeks.

Senator BAUCUS. As you know, we have another hearing, I think the 26th of this month.

Mr. DOWNEY. Yes.

Senator BAUCUS. It doesn't sound like your bill will be ready by that hearing.

Mr. DOWNEY. We know of the date of that hearing and certainly are working toward being ready.

Senator BAUCUS. Yes. Could you just convey back to OMB, or whomever, we've got to get cracking here.

Mr. DOWNEY. I will do that.

Senator BAUCUS. OK. I appreciate that.

Your comments on proposed turn-back legislation submitted by some Members of Congress—I'm very much opposed to that. I think it undermines the Federal nature of the program. I think it's very short-sighted. I don't think we should fall victim to the excessive States' rights claims. I mean, it sounds good. It's good for home consumption. But, frankly, I think it's a disservice to the national character of the program.

Your thoughts on the economic or the safety or mobility implications of that legislation if it were to be enacted?

Mr. DOWNEY. Certainly it would be a major shift from what has worked well over the last 50 to 75 years, which has been a national system of partnership between the Federal Government and the State governments. We are concerned about the concept of breaking that system apart with the turn-back proposal.

Were that to fall into place, there's no assurance that at the State levels the taxes would be reenacted at their present amounts.

There's no assurance that in a State-only approach to our transportation system we would get the linkages that we need, the common safety standards that we need, or the applications of technology that, in fact, have made our system better.

We gave some thought to this concept in putting the Administration's proposal together before we decided on the course we have in place. We said, "Should we consider a turn-back? Should we consider other options?"

Our endorsement of the present approach, with some modifications to make it work better is, in our view, the best way to go.

Senator BAUCUS. So you rejected the turn-back?

Mr. DOWNEY. We rejected turn-back.

Senator BAUCUS. Could you give the committee some more reasons why you rejected it?

Mr. DOWNEY. There are safety considerations.

Senator BAUCUS. What are some of them?

Mr. DOWNEY. The considerations of making the system consistent across the country in areas of signage, in areas of civil design, and in some of the incentives that we can put in place.

We are not supportive of mandates on some of the safety issues, but we think there are incentives that can be put in place to assure that people who drive in this country, wherever they might be, will have the same degree of protection and concern for drunk drivers, for safety belt use, and the like.

I think there is a lot to be gained from a national system. This is a single society. People have mobility. People learn to drive in one State but move to another. People travel. I think a single system from both a safety standpoint and an economic standpoint is critical to the Nation.

Senator BAUCUS. I appreciate that.

I'm a little concerned, as I think some are, that the President's budget submission generally is just sort of a maintenance budget. It's clear we have to work to balance the budget, but it just seems to me that, as we drive toward a balanced budget, we have to still be more creative to look for ways to meet our Nation's needs, and whether that's additional revenue, tax revenue, or whether it's additional private financing techniques, or whatever it is, I think we're being a little bit pedestrian in our approach to infrastructure needs in this country, generally—particularly surface transportation.

I just urge you and others in the Administration, as I'm urging all of us here in the Congress, to be a little more creative than I think we are being as we attempt to grapple with all of these.

Mr. DOWNEY. Certainly, as we work on this bill that's something we would be looking to explore—to see if there aren't new ways to do it.

I was with the President last week when he met with the Governors, who raised this same issue, and his message to them was, "I want to work with you on all of the priorities in the budget, and the outcome will be what makes sense for the American people."

Senator BAUCUS. I think it's clear we want to work together, but the challenge or the charge here is to be more aggressive, more creative to come up with something more quickly.

Senator WARNER. Senator Baucus, thank you very much.

Senator Thomas.

Senator THOMAS. Thank you, Mr. Chairman.

Mr. Downey, I'm kind of new at this. You had 24 pages in your statement. Here's part of it: "We cannot achieve other key national priorities linking Americans to jobs, health care, without efficient transportation. The challenge we face is in safety, environment. Do not stop. Significant challenge is ahead."

We all agree with that, but if you were to say in four things what is it we ought to be doing this year, what would they be? I'm afraid I don't quite understand, from all of your statement, what it is you think are the priorities.

Mr. DOWNEY. From the standpoint of legislation, the key priority is reenactment of the Federal surface transportation program, a

piece of legislation that has been known as ISTEA over the last 6 years, whatever it will be known as in the future.

I think it's important to reenact that, and to do it in a timely way.

Senator THOMAS. What does that mean?

Mr. DOWNEY. To hopefully have it in place by the 1st of October.

Senator THOMAS. OK.

Mr. DOWNEY. The States need that lead time to put their programs in place, and we'd like to get started on implementing it.

Within that piece of legislation I think it's important to create a climate in which good investment decisions can be made so that State and local areas can pick the projects that are most important and get on with them, connect them up in a useful way.

That's one of the reasons why we supported the National Highway System legislation, because it will concentrate a significant portion of the dollars on a small portion of the system that carries the majority of inter-city and local traffic, particularly commercial traffic.

The third priority, which really is first in terms of importance, is safety. The legislation and the way we implement the program really has to focus on safety. We are very concerned by the fact that the rate of traffic fatalities, while it had declined substantially over the past decade to 15 years, has now leveled out. If we don't do something about that rate, increasing population and increasing travel will mean an upturn, a significant upturn in traffic deaths.

Senator THOMAS. So what's the solution to that?

Mr. DOWNEY. Solution is construction, better vehicles, and behavior-related measures such as increasing the rate of safety belt use, and decreasing the rate of drunk driving.

Senator THOMAS. So your main interest would be in construction? You're not really in charge of safety belts, are you?

Mr. DOWNEY. Through our programs, we have had a role in increasing use of safety belts, and we would propose continuing that, working through the States on both legislation and enforcement, to ensure that the public travels safely.

And then the last piece is technology. We'd like to invest in new technology to make these transportation systems work better.

Senator THOMAS. You indicated in one of the reports, I think on page 3, 50 billion would have been required at all levels of government to maintain current conditions—only 70 percent of what was needed in 1993. Is that still the case?

Mr. DOWNEY. We have—as I said to the chairman, we have not completed the 1997 report, but I think it will be in that range. It may be a little—it should be a little bit better, at least at the Federal level, and we hope that State and local governments have followed through with some additional investment.

We are still probably below that level—

Senator THOMAS. So generally you're still saying—

Mr. DOWNEY [continuing]. To maintain systems—

Senator THOMAS [continuing]. The combined resources would only provide 70 or 75 percent?

Mr. DOWNEY. From 70 to maybe 75 percent of the long-term need.

Senator THOMAS. I see.

Mr. DOWNEY. If we continue at that pace, we will see physical deterioration, and, as traffic grows, performance would degrade. You would have additional congestion and delays and inadequate performance.

Senator THOMAS. Finally, would you comment on what would be your solution to the public land roads like national parks, specifically? How do you think we should deal with those backlogs?

Mr. DOWNEY. We will propose in our legislation continued Federal funding for the national park roads and other Federal land roads. The Federal Highway Administration carries out those programs. We think they should continue to play an active role.

Senator THOMAS. Would you care to guess, if the others are 75 percent funded, how would you say the national parks are?

Mr. DOWNEY. I would like to provide that for the record.

Senator THOMAS. Please.

Mr. DOWNEY. I think we do have an analysis of that.

Senator THOMAS. All right, sir. Thank you.

Senator WARNER. Senator Inhofe.

Senator INHOFE. Thank you, Mr. Chairman.

Mr. Downey, I'm the chairman of the subcommittee called Clean Air, Property Rights, Wetlands, and Nuclear Safety. As you know, right now we're looking at—we've had two hearings so far concerning the changes in the national ambient air quality standards, and it has become quite contentious.

During your analysis of the future transportation needs, did you take into consideration any potential changes in these standards?

Mr. DOWNEY. We have been working with the Environmental Protection Agency on the new standards. Of course, they are the lead agency and would establish the standards.

Working with them, we have identified what the potential impacts would be on States, counties, municipalities, what additional populations and areas might, under those standards, fall into non-attainment. And we will propose in our legislation additional allocations of funding to those areas to help them build the transportation system changes that will be needed to help reach attainment.

Senator INHOFE. Well, what kind of transportation systems could you build that would help reach attainment if you find that an area is out of attainment?

Mr. DOWNEY. For example, we have found in the existing non-attainment areas that measures to improve traffic flow, which are really short-term in their benefits, measures to improve public transit use, measures to encourage land use development that would have less travel associated with them, all can contribute.

Some urbanized areas have experimented with freight movement improvements to reduce the use of trucks and increase the use of rail.

All of these have individually fairly small impacts on air quality, but they do help toward achieving the air quality goals, and we'd like to continue that approach.

Senator INHOFE. Part of what we're talking about here today is trying to project into the future what our future needs are going to be. Of course, we had a little discussion with Senator Baucus.

I didn't agree with some of his analyses about where these decisions are best made.

But it would seem to me that if you're looking at some massive changes, as have been proposed by the Administration, that you would have either as into your plan now or as an alternative should those become a reality as to what the future needs would be throughout the country on the transportation system.

I'm wondering if, first of all, you have plugged that into your current analysis. And second, if not, are you coming up with a stand-by plan to take those things into consideration?

And if the second answer is yes, would that have an effect on what you would feel the needs would be around different parts of the country?

Mr. DOWNEY. In our proposed legislation we will have some responses. Some of them will be, as you described, stand-by.

We don't fully understand yet when the impacts of some of these changes would occur, and certainly we at the Federal level would not be designing the transportation system changes. That would happen at the State and the regional level through the metropolitan planning organizations, through State governments, in the inter-connection of the air quality implementation plans and their transportation plans.

But we would be prepared to work with the States in the event that changes have to be made.

Senator INHOFE. I'm really thinking about an allocation of funds and preparing for the future as we step into this next age, and what we're doing right now is very, very significant, but I wanted to kind of explore a little bit where we would go; what effect, if those were to pass, that would have on the overall plan in terms of use on the system and in terms of deterioration.

In other words, I could see, quite frankly, a shift in funding if non-attainment areas were mandated to car pooling or some alternative means of transportation, as you just suggested, that could very well work—have a negative effect as to how projects were funded in the future.

And if you haven't gotten into it, I would, because it would have very, very serious, serious, serious effects on future transportation needs from location to location.

Mr. DOWNEY. When we submit our legislation, I think there will be some reference and—

Senator INHOFE. What I'd like to see—

Mr. DOWNEY [continuing]. And we will be working with EPA on implementation plans.

Senator INHOFE. Well, by the time you submit your legislation I have an idea that we'll pretty much know where that's going to go, and in which case we ought at least to have an alternative plan as to how it would be affected as a result of adopting that change in standards.

Senator KEMPTHORNE [assuming the chair]. Senator Inhofe, thank you very much.

Mr. Downey, I noticed on different occasions during this testimony you've referenced, of course, safety, and you've talked about seat belt usage, and, of course, the objective to lower fatalities. I've

not heard you make any reference to the current air bags and air bag standards. Is there a reason you've not referenced that?

Mr. DOWNEY. Only that that's not really part of the ISTEA legislation insofar as this committee is involved, but it certainly is a concern. We are aware of your interest and your concern. I know Secretary Designate Slater is, as well, and will be responding to you.

Senator KEMPTHORNE. All right. Mr. Downey, thank you very much.

Mr. DOWNEY. Thank you.

Senator KEMPTHORNE. I'd like to call the next panel forward.

Before the next panel begins, I'd just note for the record, Mr. Downey, that Federal motor vehicle safety standard 208 dealing with air bags was modified in ISTEA, so it certainly does pertain here.

OK. With that, I'd like to welcome our next panel of distinguished guests. We have: Mr. Andrew Card, who is the president and CEO of the American Automobile Manufacturers Association; Mr. Darrel Rensink, who is the president of the American Association of State Highway and Transportation Officials; Mr. Alan E. Pisarski, who is the author of "Commuting in America," and Mr. Damian Kulash, who is the president and CEO, ENO Transportation Foundation, Incorporated.

Welcome all of you.

With that, Mr. Card, if you'd please give us your opening comments.

**STATEMENT OF ANDREW H. CARD, JR., PRESIDENT AND CEO,
AMERICAN AUTOMOBILE MANUFACTURERS ASSOCIATION**

Mr. CARD. Thank you very much, Mr. Chairman. It's good to be with you.

I was pleased you referenced FMVS 208 as being part of ISTEA. I happen to have been secretary when the mandate under that provision of ISTEA took effect, and I had to put forward a notice of proposed rulemaking on the current air bag technology.

My name is Andrew H. Card, Junior. I am the president and chief executive officer of the American Automobile Manufacturers Association, whose members are Chrysler Corporation, Ford Motor Company, and General Motors Corporation. I thank you for the opportunity to testify today in the reauthorization of the Intermodal Surface Transportation Efficiency Act, known as ISTEA.

The automotive industry has a keen interest in and a unique perspective on a safe and efficient highway system. Good roads are vital for both the production and the use of our products.

The automotive industry sells mobility. Some years ago a former GM chairman characterized the role of the industry in this way: we may think we sell cars and trucks, but what we are really selling is mobility. Our cars and trucks must be well-designed and well-built, but if they cannot be used efficiently and enjoyably, they will be of no more value than a canoe in a desert.

While our customers need good roads for the safe and efficient use of our products, we, as manufacturers, must also have good roads to build and distribute our products.

Global economic competition has changed the way we conduct every aspect of our business, and that includes how we use our highways.

U.S. maps may show that Interstate 75 goes from Sault Ste. Marie to Key West, and that Interstate 95 runs from Maine to Florida; however, for America's car companies, these roads extend directly from our 276 manufacturing facilities to Europe, to South America, to Asia, and beyond.

In order to compete in our global economy, AAMA member companies have instituted quality control and lean manufacturing processes to reduce costs and increase productivity. These improvements have resulted in a significant change in the auto industry's material delivery network. Auto manufacturers now ship the majority of their parts and components just in time to meet very precise production schedules.

The data dramatically illustrates this change. In a decade, just-in-time deliveries have increased, on average, from 25 percent to 95 percent of all deliveries. For example, at one of our member companies 32 plants operate on just-in-time inventory system. That means that throughout every single working day about 2,500 trucks travel more than one million miles on the Nation's highways delivering parts and components to those 32 plants just at the point they're needed in the production process.

At another one of our member companies' plants, one typical plant receives and unloads an average of 120 truck loads of components, parts, and supplies daily.

The plant then ships approximately 480 vehicles, one-half of its daily production, directly to dealers using 60 haul-away trucks.

An additional 480 vehicles leave the plant site loaded on multi-level rail cars destined to rail unloading ramps located in major market areas. Upon arrival, the rail cars are unloaded and the 480 vehicles are delivered to dealers by another 60 haul-away trucks.

Finally, at another plant trucks pick up parts at suppliers within a 30-minute window and deliver them to the manufacturer's plant under the same time constraints. The objective is to have no more than 2 hours' inventory on the line at any one time.

It is clear that any disruption in highway service, such as congestion or bad roads, will cause disruption in the manufacturing cycle. That results in production loss, sales loss, and even sometimes job loss.

As Henry Ford put it, ordinarily money put into raw materials or into finished stock is thought of as live money. It is money in the business. It is true. But having a stock of raw material or finished products in excess of requirements is waste which, like every other waste, turns up in high prices and low wages.

Just-in-time was a goal in the 1980's, but in the 1990's it is truly a necessity in order to be internationally competitive.

Mr. Chairman, I would now like to address some specific issues related to ISTEA. I want to compliment Senator Moynihan in the role he played in developing the original ISTEA legislation.

Senator KEMPTHORNE. Mr. Card, I tell you what. The reason you've seen an absence is there's a vote that is currently taking place.

Rather than have you have to rush so that we would dash off, I'm going to take a brief recess, because out of courtesy to all of you gentlemen we want to hear what you have to say, so, rather than having the time clock pushing us, I'm just going to recess and I'll be back in just a few moments.

Mr. CARD. Thank you, Mr. Chairman.

Senator KEMPTHORNE. Thank you.

[Recess.]

Senator KEMPTHORNE. Again, for those of you on the panel, we appreciate your indulgence here.

Mr. Card, you were about ready to get specific.

Mr. CARD. I'm trying to get specific.

Senator KEMPTHORNE. All right.

Mr. CARD. Thank you, Mr. Chairman.

Senator Baucus, good to see you, and thank you for the accommodations you gave me when I was Secretary of Transportation.

As you said, Mr. Chairman, we would now like to get into more of the specific issues related to ISTEA.

One of the most critical responsibilities for Congress in the reauthorization process is to provide adequate funding for the highway program. We all know that there is a need. I think that's indisputable. We also all know that there is money in the highway fund, in the highway trust fund, and that money should be spent. I think that is the simple approach that we should use to address all of the debate over this very important ISTEA legislation.

I know the subcommittee is very well aware of the problems associated with our surface transportation infrastructure. In fact, subcommittee members signed—and I was pleased to see that, the letter that Senator Warner mentioned, now with 59 Senators—signed a letter to the Budget Committee chairman urging the committee to provide a \$6 billion increase in highway funding for fiscal year 1997.

AAMA's members strongly support the objectives of that letter, and we sincerely appreciate the efforts that were put into getting that letter with so many signatories on it.

As a global industry, the automobile industry also believes that the future U.S. competitiveness must address global transportation trends. With the national commitment in some major overseas markets to advanced surface transportation modes and ITS systems, we know that more must be done if we're going to remain competitive.

In this context, the automobile industry supports the development of ITS in a mix of both vehicle and highway technologies which are designed to assist all roadway users in the smooth movement of traffic in congested areas.

I note that the debate over ISTEA will not only center around the size of the pot—I think the most important part of the debate is the size of the pot—but it will also center around how that pot would be allocated.

I know that the CMAQ program is of particular concern and will come up in the debate.

GM, Ford, and Chrysler are very, very interested in being partners as we address the problems of congestion mitigation. We also

know that we have societal responsibilities to help improve air quality.

I feel personally that the CMAQ program is in desperate need of reform, but the goals of CMAQ are very important for us to remember when we consider ISTEA.

Congestion mitigation is important not only because it relates to what happens to individual travel, but also to the commerce of America. Congestion does slow down just-in-time delivery and we would like to work with you to reform the CMAQ program to best reflect the needs of the transportation system.

ITS would be one area where we think it makes sense for us to work together on advanced technologies to help mitigate those problems, but America's car companies truly believe that maintaining and improving our Nation's highway system must be one of the national priorities.

If we are to compete effectively in the 21st century, our transportation must be up to the competition and up to the challenge.

We will work with you. We would welcome the chance to work with you as you craft the next ISTEA, and our goal is to reauthorize an ISTEA that is good for America and good for American workers so that they can compete in markets around the world.

With that I say thank you, and I'd be glad to answer any questions that you might have.

Senator KEMPTHORNE. Mr. Card, thank you very much.

Senator KEMPTHORNE. Let me turn to Mr. Pisarski. Your comments, please?

STATEMENT OF ALAN E. PISARSKI, AUTHOR OF "COMMUTING IN AMERICA"

Mr. PISARSKI. Thank you, sir. Mr. Chairman, it's an honor to be here at this first Senate hearing on ISTEA reauthorization. I recall with great pride that I participated in the first Senate hearing at the inception of ISTEA 6 years ago.

My focus today will be on commuting trends, their economic and demographic determinants, and their implications for our transportation future.

I should say that the other members of the panel were all participants in the development of the document "Commuting in America." AASHTO led and chaired the 14 public agencies that participated in its development and support of ISTEA. One of the funders was Mr. Card's group. The ENO Foundation was the publisher. The Department of Transportation was very important in developing the information that I used in my document.

I'll be referring to some of the graphics here. I think that may be the simplest way to get through some of the material.

In the early work of "Commuting in America" back in the 1980's we talked about three booms in America with respect to commuting—the worker boom, the automobile boom, and the suburbanization boom.

I'm going to talk a little bit about the virulence of those trends, whether they have persisted into the present and how will they develop out into the future, and also I would like to discuss some emerging trends that are important for us to focus on.

With respect to workers, the main point is that the great boom in population and workers with the advent of women joining the labor force in extensive numbers, with the baby boomers joining the labor force, is at an end. This big surge that we felt of commuters in the 1970's and into the 1980's is behind us. It's kind of like a python that swallowed a pig. It's working its way through the system, as the baby boomers age, and so the large numbers of workers that were added in that period are very much behind us.

We will be having steady additions to the labor force out into the future, but not of extraordinary scale that we saw in the past.

With respect to the automobile boom, the dramatic shift to the single occupant vehicle is, in a sense, almost complete. We saw a tremendous surge to the single occupant vehicle, basically at the expense of all alternatives. Car pooling, transit, walking—all of the other alternatives declined in both share and in absolute numbers as the population shifted to the single occupant vehicle.

That trend has stabilized at very high levels. We've got saturation effectively in auto ownership in America, and saturation with respect to driver's licenses, with some important exceptions that I'd like to mention later.

The third part of the booms of the past that I want to look at is one that has retained its virulence and will grow in the future, and that is the shift of the population to our suburbs.

Suburbanization continues at a very strong pace, in terms of population, workers, and jobs. This is still a dominant force. I would say there's no end in sight with respect to the shift to the suburbs.

What we've seen is about two-thirds of job development going into our suburbs, and the dominance of the new circumferential kinds of commuting, the suburb-to-suburb commute.

Other patterns that I think are of significance are inter-metropolitan commuting, where more and more we're seeing people moving from areas like Baltimore to Washington, moving from one suburb of a metropolitan area to the suburbs of another metropolitan area.

Another factor is so-called "reverse commuting" that I think is important for us to consider. The President mentioned in his State of the Union Address the importance of central city workers and getting them to the jobs that are more and more located in our suburban areas. In fact, we had greater growth in reverse commuting than we did in commuting within our central cities in the last 10 years.

Among forces of change that are emerging and that are going to be critical in commuting, the first of these is immigration. Immigration is now a dominant factor in national population growth trends. Our overall population growth is at very low levels, about the same as our depression years. But about 40 percent of our population growth is in immigrant populations. The big difference is when we add one to our population with a new birth, we get a commuter 20 years later. When we add one to our population by immigration, we get almost instant commuters.

About 80 percent of immigrants come to the United States at working age. Of course, one of the reasons they're here is to join the labor force and to join the commuting stream.

Where will they go? Where will they work? Where will they live? That's going to be a very important set of factors in how commuting patterns develop.

The final point that I'd like to focus on is ethnic and racial patterns. I mentioned earlier that we had something like saturation with respect to driver's licenses and auto ownership in America. That's misleading. When we get closer to the information, what we find is that, although we have only 11 percent of our households in America without automobiles that breaks into about 7 percent of the white, non-Hispanic households without vehicles, but in the black population we're talking about 30 percent of households without vehicles, and in Hispanic populations we're talking about 20 percent of households without vehicles, and in our central cities those numbers are considerably higher.

With respect to driver's licenses, the same thing is true—that we have saturation in the sense of 96 percent of white male non-Hispanics of driving age have driver's licenses. But within the black population, black males have 80 percent driver's licenses, black women 70 percent.

So a lot of our growth in the future, the future automobile buyers, the future participants in commuting patterns are going to be coming from racial minorities and ethnic minorities in the future. This is going to be one of the patterns that we're going to have to focus on.

One of the patterns that we've seen grow is the immense pressures of time on people, and we are seeing their reaction. One of the reasons so many people, particularly women, shifted to the single occupant vehicle was the immense pressures of time. Although actual travel times did not increase that much, what we've seen is a shift into something we call "trip chaining," where more and more people, instead of just going to work and coming home, are making stops on the way to work and are making stops on the way home, particularly women.

This kind of ties the work trip together with the whole social pattern of the household and has immense influence on traffic patterns. There's good news and bad news in that pattern, as you might suspect.

I think I'd like to stop there, Senator, and would be delighted to answer any questions if I can.

Senator WARNER [resuming the chair]. Thank you.

Senator WARNER. I'm sorry I wasn't here for the entire testimony, but I shall read it. I appreciate it very much.

Mr. PISARSKI. Thank you, Chairman.

Senator WARNER. All right. We'll have our next panelist now. Thank you.

STATEMENT OF DARREL RENSINK, PRESIDENT, AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

Mr. RENSINK. Thank you, Mr. Chairman. My name is Darrel Rensink. I am the president for the American Association of State Highway and Transportation Officials and director of the Iowa Department of Transportation.

On behalf of AASHTO, I am pleased to accept your invitation to testify on issues relative to reauthorization of the surface transportation programs.

As members of the Environment and Public Works Committee, you are well aware of both the benefits from and the need for transportation as we head into the 21st century. So, what I am about to say will come as no surprise. However, the importance of transportation for this Nation's future requires that we focus our attention directly on transportation.

America's transportation network has played a major role in our Nation's economic success. Just as in our Nation's past, our future is greatly dependent on how well we support our transportation system. The legislation you will be considering is, therefore, very important to the people of America as we rapidly approach the 21st century.

Perhaps no other Federal investment has such far-reaching implications or influences the daily quality of our lives as does our transportation systems. It serves all of our citizens daily in traveling to their jobs, day cares, and markets, in providing goods to wholesale and retail outlets, in traveling to recreational activities, and in a wide range of activities in which we all participate.

Most importantly, transportation is the backbone for our State, national, and international economies. Transportation is our Nation's economic engine, which is built on an efficient transportation system, a key component to our global competitiveness.

Industry, much of which now rely on "just-in-time" delivery of raw materials, must have an effective and efficient transportation system.

I recognize that a central point of the debate on reauthorization will be funding formulas and the distribution of funds among the States.

As the director of the Iowa Department of Transportation, I understand the importance of Federal funding for my State's highway and transit programs, and I also understand that the discussion of formulas is important. However, as the debate begins, we must remember that without transportation there is no State or national economy, there is no quality of life, there is no economic development, and therefore there is no future.

We must evaluate the discussion of transportation beyond the funding formulas and focus on the importance of transportation to our Nation and its citizens.

Our Nation has thrived largely in part, due to transportation and its systems, which we currently enjoy and often take for granted. People and freight would not move if it were not for our highways, railroads, airports, and waterways that we now have in place.

Just as important are the transportation services provided by the transit systems and the trucking or motor carrier industry.

The Interstate System and the National Highway System are the two most visible components of our transportation system and serve as the backbone of our transportation infrastructure. We must not reduce our commitment to maintaining this backbone, our Nation's primary economic foundation.

I often hear that to compete in the global economy we need a good transportation system. I believe that concept is included in my

formal testimony submitted to your committee. However, competing in the world economy is not good enough. As it is in sports, we can compete and still lose.

We cannot afford to lose when it comes to our transportation systems. This Nation must be the leader, and to lead we must have a transportation system second to none. To be in the forefront, we must invest in our transportation systems.

In my remaining comments today I will touch on AASHTO's key recommendations and respond to the themes you have stated for this hearing.

AASHTO agrees that the Intermodal Surface Transportation Efficiency Act was landmark legislation. It improved our ability to provide better transportation for the Nation in many ways. The planning and decisionmaking processes for surface transportation were changed by ISTEA, moving decisionmaking the States and local governments and emphasizing State and local cooperation, intermodal planning, and public participation.

Greater flexibility was provided in utilizing Federal funds, allowing States and local governments to better target resources to match State, local, and citizen priorities.

AASHTO's support for ISTEA doesn't mean that there are not areas for improvement. The detailed policy recommendations for reauthorization which were provided to the committee identify areas where the Association believes changes could be made.

You asked that we respond to three areas: future transportation trends, transportation benefits to the economy, and infrastructure funding requirements.

Mr. Chairman, looking at the trends for transportation, it is clear that it continues to play a major role in the well-being of this Nation. This role is demonstrated by the growth in the number of drivers, vehicles, and passengers on our highway and transit systems, and the reliance of industry and economic development on the availability of efficient transportation.

An example, just-in-time production, is one of the most significant trends in U.S. manufacturing in recent years. This trend has allowed many businesses to sharply reduce or eliminate inventories.

In 1990, just-in-time manufacturing accounted for 18 percent of U.S. production, by 1995, this percentage had increased to 28 percent. However, just-in-time production and the resulting reduction in inventories require dependable and efficient transportation facilities. These trends will continue placing an ever-increasing demand on our systems.

The benefits to the economy—Mr. Chairman, throughout the history of our Nation, transportation has been a key driving force in building and maintaining our economy. A copy of a report prepared by AASHTO and FHWA, entitled, "The Economic Importance of Transportation, Talking Points and References," has been provided to your committee.

Industry estimates that logistic and transportation costs account for 20 to 25 percent of the value of a product on the shelf. This results in a direct relationship between what our citizens pay for products and the cost of transportation.

In addition to the efficiency and production benefits for a manufacturing sector, investments in transportation are also important for job creation and employment mobility.

The Federal Highway Administration's most recent report on job generation for highway investment finds that \$1 billion of investments in the Federal highway program supports more than 42,000 full-time jobs.

Also, according to the U.S. Department of Transportation, every dollar invested in the highway system will return more than \$2.60 in benefits to the economy.

As indicated in the few examples shown above, investing in the Nation's transportation facilities is important to ensuring long-term economic growth.

Mr. Chairman, you also requested testimony on infrastructure funding requirements. Simply described, our needs for investments to adequately support the Nation's surface transportation systems are well documented and far exceed the current investment levels.

AASHTO analyzed the investment requirements of our transportation systems based on information received from the U.S. Department of Transportation. This analysis is detailed in our report, "The Bottom Line: Transportation Investment Needs, 1998 to 2002." Copies of this report have also been provided to the subcommittee.

To summarize the report, over the next 5 years total highway investment needs to maintain the current conditions and performance capabilities are \$264 billion, an additional investment of \$94 billion is needed to improve the condition and performance of this essential system, for a total investment need of \$358 billion over 5 years.

Transit needs to maintain and improve are identified at \$39 billion and \$33 billion, respectively, for a total of \$72 billion over 5 years.

While the estimated amounts to maintain and improve our highway and transit systems are daunting, significantly more funding is being collected from highway users but is not available for transportation.

If we could access all the funds now flowing into the Highway Trust Fund and the 4.3 cents per gallon now used to support the general fund programs, we could at least maintain the current conditions of our surface transportation system.

AASHTO and the National Governors' Association share this recommendation to fully use highway user fees for transportation purposes. We commend you, Senator Warner and Senator Baucus, and the 55 Senators who joined you in writing to Senator Domenici, Chairman of the Senate Budget Committee, seeking a higher highway program level. We also commend Senators D'Amato and Moynihan for their similar letter urging higher transit funding levels.

So, in summary, Mr. Chairman, AASHTO believes that there will be no more important legislation before the Congress for the future of America than the reauthorization of our surface transportation program. We must either meet our investment needs or face a decline in American mobility as we enter the 21st century.

During your hearings and during the debate on reauthorization, you will receive testimony from many groups, individuals who are

interested and concerned about transportation and its funding. As you prepare your list of witnesses, I hope you will hear from the users of transportation systems, including the members of industries that rely on transportation for their financial future. This includes: General Motors, Sears, Wal-Mart, Federal Express, United Parcel, only to name a few. These companies recognize the true importance of transportation to our economy and our future.

We have provided you with AASHTO's recommendations for your authorization and stand ready to provide any further information which would be of assistance as you move forward in the legislative process.

Mr. Chairman, I have one more thought. As a State transportation official, I have been bothered by some time that transportation is not higher on the national agenda, the public's radar screen. Other activities and issues such as welfare reform, health care, crime, budget deficit, and education have occupied higher positions on the national agenda. These are all important issues, and I don't want to downplay their importance, but at a time when good news seems hard to come by, transportation is good news.

Because of this concern and to further the cause of transportation, as President of AASHTO I have initiated discussions between AASHTO and the National Governors Association to plan and convene a National Transportation summit to be held this spring or summer. Its purpose is to bring together State, Federal, and local officials, along with the users of the transportation system, to bring attention to the importance of transportation for the future of this Nation.

Mr. Chairman, this concludes my remarks. Again, thank you for the invitation to present our views, and I would be pleased to respond to questions now or in writing.

Senator WARNER. Thank you very much, Mr. President.

Senator WARNER. I would hope that that meeting could be held in a timeframe that the work product and recommendations can be taken into consideration by this subcommittee, and, indeed, the Congress as a whole. I commend you for your testimony.

Mr. RENSINK. Thank you very much.

Senator WARNER. Thank you.

Now, Mr. Kulash.

**STATEMENT OF DAMIAN KULASH, PRESIDENT AND CEO, ENO
TRANSPORTATION FOUNDATION, INC.**

Mr. KULASH. Thank you, Mr. Chairman.

Senator WARNER. Thank you.

Mr. KULASH. You've heard from the other witnesses and you certainly know from your own work about the tremendous importance of transportation to the economy.

Some of those linkages are very obvious. Transportation is clearly very important to the industries that make heavy use of it. The site-specific benefits of transportation—of investments made in one place versus another—are brought to your attention in all the decisions you make.

What may not be so obvious is the effect that transportation has on the economy, as a whole. We got some new and important evi-

dence on that this past year in an analysis done by M. Ishaq Nadiri of New York University.

In my testimony on page 4 there is a graph in there that shows what he found, and it is striking. This analysis examined the return to the Nation's economy, as a whole, of the investments made in the capital stock over the period 1950 to 1990.

In the early years of this period, Prof. Nadiri found a very striking return. The returns were something in the order of 30, 35 percent, and some years even higher. That means that a dollar put into this program repaid itself within 3 years, before the period of the authorization was even over—a very stunning return.

In more recent decades, these returns have fallen ending the period at about the same level as private investment, namely down around 10 percent.

I think that pattern is very surprising, in two respects. No. 1 is how large the returns were when the investment was working at its peak. I think it's surprising also at how big a difference there has been over the decades in terms of what those returns have been between the 1950's, for example, and the late 1980's.

To figure out what led to those patterns and whether they have implications on today's investments, we at the ENO Foundation convened a forum of economists and industry representatives and others to see if there was a rationale for which investments worked and which did not.

The bottom line of our discussions was that these large returns came about because of network effects. A network effect is a type of consequence over and above the site-specific benefits of transportation. A network effect comes about because you create growing room in the economy to allow entirely new businesses to spring up—things that didn't happen before.

We've heard about some of those network effects from the other witnesses today, with their very impressive statistics on just-in-time, on other industries such as catalog stores that have come into business, intermodal freight operations, relocations to central plant, and ability to achieve new economies of scale there.

Such consequences show up in many, many companies across the Nation. One thing that the Nadiri analysis pointed out was that they occur throughout every sector of the economy, not just the big highway using communities.

Which programs now will have these sorts of network effects today and create growing room for the economy now? There is a lot of speculation about this. No one really knows. But I think there are four areas that warrant specific consideration in this regard, the interstate highway system certainly being one.

The very large returns realized during the 1950's and 1960's happened to coincide with the era when the interstate system was built. If we disinvest in this system now, either functionally or physically—by letting the condition deteriorate, or by letting congestion defeat the function—then the disinvestment could trigger negative returns at the same rates, some very high rates, that our early investment showed positive returns.

The national highway system—like the interstate system, would target the investment around those roads that are most heavily

used, most vital to the economy. Investments here might similarly show larger than normal returns.

The Nadiri analysis did separate out non-local roads, and found that even though the pattern for the entire highway investment had come down in recent decades to the level of the private sector return, the investment on non-local roads, a system that is probably roughly equivalent to the national highway system, was still about 50 percent higher than that private sector return. That means it's around 15 percent or so, not the same as the high rates found in the 1950's but not bad, either.

Another promising area are investments to fill intermodal gaps. The intermodal feature of ISTEA did open a new focus on these gaps. Since the formation of the Department of Transportation there has been one policy statement after another that alludes to the need for integrated national transportation system. That has always been much easier to say than to do.

One of the reasons that it has been difficult to do is that the specter of such a large Federal role came off like a command and control structure imposed on this large system. This was very scary to the many economic interests that depend on the transportation system and find it working well.

Intermodalism, by not trying to be a command and control structure for the whole transportation network, but by concentrating only on the worst points of coordination of the overall system—namely, those points of contact between the modes—is a way of achieving better efficiency out of the whole transportation network without a greatly expanded Federal presence.

Finally, the greater coordination capabilities that are offered through intelligent transportation systems also are an area that may create economic growing room through systems improvements in transportation.

So as you go into the reauthorization cycle and look at which programs can do the most to fuel the Nation's economic performance, the very large differences we've seen in the past certainly point out that this is a significant area, that some investments are much, much better than others.

I recognize there are many other social concerns that you must take into concern as you reauthorize the bill, but the economic returns are too big to ignore. They're much bigger than the site-specific benefits, and selecting investments that fuel the Nation's economy ought to be one of the top priorities as you move forward.

Thank you, Mr. Chairman.

Senator WARNER. Thank you very much.

We'll now proceed with questions.

First, Mr. Secretary, we welcome you back again. You've been before our committee many times.

Mr. CARD. Thank you, Mr. Chairman.

Senator WARNER. We value highly your insights into this problem.

Now, I want to talk a little bit about intermodalism. We want very much—I'm speaking for myself—very much to have this bill incorporate and advance those concepts that were put into ISTEA.

Now, what can we do, in your judgment, to make further strides toward intermodalism which brings in efficiencies—not only cost, but I think transportation.

Mr. CARD. Thank you, Mr. Chairman. I think that it would be good to look at the choke points in our transportation system today, and that's where we should target some of the opportunities for greater efficiency.

We clearly have a choke point, if you will, at the Mexican border. The bulk of our transportation network has been east-west, not so much north-south. However, because of the North American Free Trade Agreement, we are finding a lot more commercial traffic moving north-south, and we do have some intermodal choke points, specifically at the Mexican border, and I think it would be good to facilitate greater interconnectivity at our border, and that should not just be with regard to truck traffic or motor vehicle traffic, but also with regard to our rail traffic.

Also, the disputes of the past that use to rage between highways and railroads have lessened somewhat over the last several years because of ISTEA, and that's because we now have a closer working relationship in the movement of goods from railroads to our highways and highways to our railroad systems.

So my counsel would be that you ask the Department of Transportation to help identify particular choke points in our transportation network.

While congestion was an object of significant discussion during the original ISTEA debate, congestion mitigation relief really hasn't materialized the way we had hoped it would now 6 years into ISTEA.

During my testimony I talked about our belief that congestion mitigation is a proper and appropriate goal under the Intermodal Surface Transportation Efficiency Act. Unfortunately, some of the programs that were instituted under the CMAQ program did little to mitigate congestion, and we have found that congestion actually increased over the last 5 years rather than decreased.

I think that there should be a recognition of the role of highways and highway construction in congestion mitigation. There was a—I think a knee-jerk presumption that congestion mitigation would mean no highways and no interchanges and no off-ramps, and I hope that that would be something that could be done so that congestion mitigation would also include the ability to spend money to better use our highway networks.

If you have other particular questions, I'd be glad to try to respond.

Senator WARNER. President Rensink, I raised the report here earlier, the 1995 Conditions and Performance Report, and in it it reflects that in that particular fiscal cycle 46.9 billion was contributed by States and 23.4 billion by local governments. This compares to 18.2 billion provided by the Federal Government in that particular cycle.

Now, I perceive that the Congress is trying to put more and more responsibility—and I'm very much a part of that movement here in the Congress—onto the States, wide range—welfare, may well end up in the medical area, also.

Given that, do you think that, if we're held to this level of just the 20 billion, that the States can increase their revenue portions to the highway problem? Or should Uncle Sam awaken to the fact that we're sending enough down to the States already and maybe it's now our responsibility to increase the highway and not to lessen theirs but at least recognize that their dollars are being stretched in many different directions as a direct consequence by the Congress?

Mr. RENSINK. Mr. Chairman, the States have a good history and are proud of the fact that on many, many occasions they stepped up to the plate to provide transportation resources. We are proud of the partnership that we've had with the Federal Government in making our transportation system what it is today. It has been a good partnership. It has worked out well.

Each State, in some unique or distinct way, has its own capacity to do things and/or to raise revenues.

I'm quite sure, Mr. Chairman, that States are aware and support some of the events and objectives that are set out here in Washington, as you look at balancing a budget, etc.

But I also believe that before States are going to come back and carry a big bat and step up to the plate, that they're expecting some answers from Washington concerning the unobligated balances that are in the trust fund, as well as the 4.3 cents that currently is being directed toward general fund and deficit reduction purposes.

Certainly States are going to be ready to do their share. But at this point, given perhaps some of the difficulties that some would have in taking a heavier share, that they would expect Washington and the Federal Government to look at those two situations I just referenced.

Senator WARNER. Have you had the opportunity to consult with the National Governors Association? And, if not, would you undertake to explore that? It would be very helpful—

Mr. RENSINK. Yes, we have been.

Senator WARNER [continuing]. If the Governors across the United States would come in and support the concept of moving up to hopefully the 26 billion.

Mr. RENSINK. Mr. Chairman, in my remarks I referenced our partnership with the Governors, through the National Governors Association at a national summit on transportation. More recently, when they were in Washington at their annual winter meeting, we were pleased that the National Governors Association did appoint a special task force on transportation. It is the intention of AASHTO to partner very closely with them in looking at these issues including the 4.3 cents and the trust fund balance. We plan to work with them very closely.

Senator WARNER. Well, working with them is fine, but, mind you, this train is out of the station, this bill, and it's moving.

I think the likelihood of having significant impact on this bill from organizations such as yours—you've made your contribution today, but the NGA has got to come in a timely fashion.

This is a very, very significant undertaking to present to the President and to the Congress, as a whole, the necessity to increase significantly this highway funding.

I'm pleased that the gentlemen here at this table are with me on that, but we need all the help we can get.

Mr. RENSINK. We're ready to help.

Senator WARNER. Fine.

Now, this is fascinating, and I must tell you I've got to go back and rethink some things here, but we want to take this into consideration.

Given the significant trends in this area, do you think they're going to continue to move more strongly in this area—I mean, this pattern of particularly the female worker and the need to stop coming and going, which we understand fully? What should we be putting in this bill to recognize this trend and begin to facilitate that mode of transportation?

Mr. PISARSKI. Well, first, sir, there's no question that these patterns are going to continue. I think they're getting, in fact, more virulent. They're getting stronger.

Senator WARNER. Let me make sure, you said more pronounced and stronger?

Mr. PISARSKI. Yes. More pronounced in the future.

One of the things, the new technologies that are coming along—computers, telecommunication—are pushing us toward greater potential dispersal of the population, greater dependence on these kinds of flows.

And I think the kinds of patterns that we're going to see, the immense pressures of time, particularly on women, are just the factor that, in effect, drives all of these patterns.

Senator WARNER. Chances are they're working both parents, or the household, both of them are gainfully employed, sometimes in three jobs, some having two jobs.

Mr. PISARSKI. One of the keys here is that 70 percent of the workers in the country are in households with two or more workers, and so we don't have the kind of Ozzie and Harriet situation of the past of the sole worker getting in the car in the suburbs and going downtown.

It's much more a case of people having, in effect, competing activities where they have to make arrangements for the household, for children, for their other activities, and balance their entire household requirements.

So I think that set of factors is going to be very much a part of our future.

With respect to the response to the system, I'd say there are two things. I mentioned that there's kind of good news and bad news in this. The good news is, from an air quality point of view, you have fewer cold starts because people make the rounds rather than make individual trips, and they are bunching the trips together, and so we don't have go home, go back, go home, go back. That's kind of good news.

The bad news is that this is not a kind of pattern that transit can respond to. It's not a kind of a pattern that car pooling can respond to. And it also tends to pull into the peak period those other activities that—going to the supermarket, stopping at the dry cleaners—that historically we didn't put in the peak periods.

So now we've got some people competing with the commuter in the peak period.

The response of the system—we're going to have to have a highly flexible system. I think the ability of transit to respond to this and to the suburb-to-suburb commute is going to demand a tremendous amount of flexibility, and the historical notion of suburb-to-center-city is just not going to help us.

Senator WARNER. One last question to you. Have you done any analysis on HOV lanes? We're trying that more and more in this greater metropolitan area.

Mr. PISARSKI. One of the things we've seen is almost a complete collapse of car pooling, quite astonishingly so.

What has happened is the big car pools have just about dissolved. They're about half of what they were years ago.

Senator WARNER. By "big" do you mean three or more?

Mr. PISARSKI. Three, four, five, six. You still see them in the very long trips, West Virginia to Washington, trips like that, but most car pooling today is husband/wife car pooling, parent and child car pooling. It's a family activity rather than an association of neighborhoods or co-workers.

It's increasingly internal to the household, so it's not really car pooling in the sense that I think of those terms.

Car pooling has a big advantage when there's heavy congestion on the main roads and you can put something like the HOV lanes on 395, but there is a penalty to car pooling, itself. Basically there's a chart in "Commuting in America" that says that for each person you add to the car pool you add 5 minutes to the travel time, and so the congestion on the alternative routes has got to make it worth that extra 5 minutes for each person to make car pooling worth people's while.

Senator WARNER. That's an interesting statistic.

My time has expired.

Senator BAUCUS. Thank you, Mr. Chairman.

I have just one basic question of Mr. Card.

Mr. Secretary, I was wondering what the big three can do to help my little campaign here on the Budget Committee and Appropriations Committee to increase our appropriations. You've got a lot of folks behind you and a lot of power.

I'm remind of—who was it? One of GM's former chairman, "What's good for GM is good for the country."

Mr. CARD. Senator, I prefer to think I only have three members—GM, Ford, and Chrysler.

Senator BAUCUS. Right.

Mr. CARD. And they have a lot of momentum behind them, and I'm subject to that momentum several different times.

We definitely support Senator Warner's letter that all of you signed, along with 58 of your colleagues. That is a very important step. You have given us something that we can point to that would allow us to go forward and encourage others to support the position that you've taken.

AAMA will go on record and will try to solicit support from others to the cause that you've so appropriately identified.

It's very important that the pot of money available to meet our surface transportation needs be as large as possible. It's a pot of money that, quite frankly, belongs to the users, and the users have

put their money in that pot and they've told us to take good care of the money, to spend it wisely, but to spend it.

We would like to work with you to make sure that all of Congress understands that responsibility, so I pledge to work with you, and we can talk about particular strategies that might be important.

Senator BAUCUS. Thank you. I'd encourage you to kind of send the message back up the pipeline. Thank you very much.

Thank you, Mr. Chairman.

Senator WARNER. Thank you very much.

Senator KEMPTHORNE. Mr. Chairman, thank you.

Mr. Card, when Secretary Slater was before this committee for his confirmation hearing, one of the points that he made, which I appreciated, was that safety was his No. 1 priority.

As you know, I have a great interest in motor vehicle safety, and particularly in the issue of air bag safety. As you know also, I've placed a high priority on the elimination of the current unbelted testing standard because it results in the manufacturing of air bags that are too aggressive, that are causing the deaths of children, small-statured people, particularly women.

As you're also aware, on December 4 of 1996, I petitioned the Department of Transportation to include in their proposed rule changes an immediate moratorium on the unbelted test.

Your organization has been on record several times in support of the proposal, and as recently as January 30 of this year, when you stated in a letter to NHTSA,

The immediate elimination of the present FMV SS208 unrestrained dummy test remains the single-most direct action that would allow manufacturers to quickly initiate air bag design changes that can further reduce the injury risks related to air bag inflation.

Would you elaborate on your support of my efforts to get this standard changed?

Mr. CARD. Thank you, Senator Kempthorne.

The automobile industry—and I would point out that it's the world's automobile industry, it isn't just the domestic manufacturers, but all of the manufacturers of automobiles throughout the world—believes that bringing a less-aggressive air bag into the marketplace as quickly as possible would help to mitigate problems associated with air bags.

At the same time, all of the world's manufacturers also recognize that the most optimal design criteria that we could bring to our vehicles for safety would come with a presumption by the Government that the occupants of a car are wearing their safety belts.

Clearly, the unbelted test requirement that is currently the regulation at the Department of Transportation results in overly aggressive air bags, and it restricts the ability of the automobile industry to design their vehicles in an optimal fashion to meet the safety requirements of the occupants.

We have a goal to do no harm to any of the occupants in the car. We feel that that is our paramount concern. Clearly, our objectives are to do no harm to those who are properly buckled up. When people are buckled up, you can better judge their location in the vehicle. They also recognize that the safety systems in the automobile or truck today include the crumple zones in the structure of the ve-

hicle, the safety belt, and the air bag. They are not separable systems. They work as a system.

Yes, we fully endorse an effort to eliminate the unbelted regulation. We compliment you, Senator Kempthorne. But I would point out that it is incumbent upon the National Highway Traffic Safety Administration to move as expeditiously as possible to allow us to bring less-aggressive air bags into the marketplace, and they can do that by approving the sled test protocol and approving that rule such that we can begin to bring less-aggressive air bags into the marketplace in a matter of 6 to 9 months.

Senator KEMPTHORNE. OK. I agree with you that they should approve the sled test, and we are in agreement that that is an incremental step and that they should then proceed with eliminating the unbelted test. That is the ultimate most direct route.

Mr. Card, I know, because of your background as former Secretary of Transportation, it has to be as upsetting to you as it is to myself, and I'm sure to the Chairman, that we have a standard, a Government standard, that was predicted would kill children, and today there are at least 32 dead children because of that Government standard.

Do you see any reason why the Administration would need to slow down implementing the sled test as it moves forward to issue a proposed rulemaking change that would do away with the unbelted test?

Mr. CARD. Senator Kempthorne, there is absolutely no reason why the Government should not be able to proceed quickly with a sled test protocol that would allow for depowered air bags.

There is now a consensus among the safety community, the world's manufacturers of automobiles, and I'm going to say even regulators, that the sled test protocol is the quickest way to allow for a depowered air bag to come into the marketplace.

At the same time, no regulation should be held up while the debate goes on about the question of unbelted test requirements.

It's imperative that the Government move quickly with the sled test proposal so that less-aggressive air bags come into the marketplace. That is a transition to a better policy, we think, that would be a test protocol recognizing belted occupants.

But let's get the interim solution out there as quickly as we can, while we work together to get a better solution. The better solution would be a belted test requirement and advanced technology.

Senator KEMPTHORNE. All right. I appreciate that.

Mr. Chairman, I would just add to that the chairman of the National Transportation Safety Board also agrees that we should do away with the unbelted standard, and so I'm doing all that I can with the Department of Transportation so that they will issue that proposed rule change.

It is appalling to me that March of last year, before the Commerce Committee, the administrator of NHTSA testified that there are 15 dead children because of that standard. Ten months later that administrator testified there were now 32 dead children because of that standard.

I do not understand the reluctance of NHTSA to move forward so that we no longer risk the lives of kids.

Enough said on that topic. I'm going to pursue it.

To all of the other members of the panel, I appreciate greatly the information you have provided. I'm going to have to excuse myself because of another hearing that I will be going to, but it is very helpful as we now move forward in the reauthorization of ISTEA, and I can tell you that we're in extremely capable hands with Chairman Warner, who has fashioned an appropriate process that will be inclusive so that we're going to come up with an excellent reauthorization.

I thank all of you.

Senator WARNER. I thank the Senator, and I look forward to supporting you in your endeavors on resolving this air bag thing.

Senator KEMPTHORNE. Thank you very much.

Senator WARNER. I'm going to have one last question to the president here, and I've got to tell a little story to try and frame it.

Eighteen years ago I was privileged to be elected to the U.S. Senate. I was anxious, after my re-election, to get back to my State and visit and thank the people. And I expect my colleagues have this experience.

Anyway, there was a big parade in this community that prides itself in being the peanut capital of the world.

Don't you folks leave yet. It's a good story.

[Laughter.]

Senator WARNER. It's the peanut capital of the world.

So I arrived down there, brand new U.S. Senator, and all of us who have gone to the parades, there's the big marshaling area on the high school grounds, and we were all there, and the cars had all been placed in order.

You don't have to put all this in the record.

I started looking for my car, thinking that I'm the U.S. Senator, I'm going to be in the head of the parade.

Well, I found my car, and it was behind the sheriff and the mayor and three or four State legislators, so I didn't become indignant but I decided to figure out just exactly what was the formula by which these cars were located.

It was a particular State legislator ahead of me with whom I'd had some encounters with—it so happens he's of the other political persuasion—and I was somewhat indignant about that man particularly.

I found out that that parade was ordered in terms of what those folks had done for the community, and several of those legislators had gotten a new road for that community, and that's what decided the position in the parade.

Now, I'd just as soon be omitted parades in my next term, but anyway, I'll be down there.

But the point of this story is that people contend that in our interstate system, Mr. President, we're falling into some poor condition because the States are putting too great a percentage of their assets into new highway construction rather than maintaining what's in place.

Do you have any comments on that?

Mr. RENSINK. Well, Mr. Chairman, I'm not sure I've got all the available data to respond, at least as it pertains to other States, but I can speak to my own State as it relates to the interstate sys-

tem and other parts of the primary system, and the priority that we give to maintenance versus capacity.

It can be tempting and sometimes very tempting to defer from and to move away from maintenance, be it on the interstate or any other parts of the primary, to respond to the pressures that we all face as DOT directors in our individual States for some expansion programs, some new roads, something new that you can put a ribbon across and cut. It's got that flavor that it seems to be a dollar better spent.

What I've tried to do in my State, and something that I certainly hope we can do throughout the industry, is to create an awareness that a dollar spent for maintenance is a dollar that's just as valuable and just as important as a dollar for new capacity.

Senator WARNER. I'm glad to hear that, because we're going to have to look at various options. I'm the last here to want to try and put more directives to the States, but for every State legislator to get his or her new road at the expense of the maintenance, we've got to do something about that.

Mr. RENSINK. We agree.

Senator WARNER. And I thank you.

I want to ask Mr. Kulash the wrap-up question here. With the limited resources to invest in a large network of highways and transit systems with growing needs, how can we be sure to make the right investments so that taxpayers receive the same high rate of economic return that we experienced in building the interstate system?

Mr. KULASH. Mr. Chairman, I'm not sure that is possible. The very high rates that we got from the interstate system were wonderful. I'm not sure that equally high rates could be achieved today, but it is important to try to target Federal investments on those programs that can produce the best returns, and these are the ones that make the national network stronger.

You described very graphically how most political leaders see the investment in the road system. They see what's in their back yard. What they don't see is how an investment that gets rid of a bottleneck in St. Louis benefits somebody who's growing oranges in Florida and benefits a manufacturer in California who is shipping cross-country.

Those are the network effects—they are created by improvements that make the whole system perform better; not just by weighing what has an immediate district benefit for us.

These network effects were most apparent following the Nation's investment in the interstate. Keeping the interstate in good repair, making sure that the developing bottlenecks on the interstate are somehow dealt with, is certainly a high priority.

The national highway system has that potential, as well.

The whole intermodal area offers a potential to produce national transportation benefits, not just highway benefits, that have those same network features.

As you're aware, even though ISTEA created the capacity to start to deal with intermodal investments, without sufficient funding they're in competition with other priorities. As a result, there has been some disappointment at the small amount of money that has actually found its way into intermodal projects. Using intermodal

investments to improve the national transportation system is a question of both money and how responsibility for this activity is structured within the Department.

Finally, intelligent transportation systems also have the potential to offer these kinds of benefits.

Senator WARNER. Well, I thank you very much, and I thank the panel, as a whole.

We've had an excellent hearing today, and we've got a tremendous challenge facing the Congress, and we're fortunate to have the expertise that each of you brings to the resolution of these issues.

The subcommittee stands in recess until the call of the chair. Thank you.

[Whereupon, at 4:34 p.m., the subcommittee adjourned, subject to the call of the chair.]

[The prepared statements of Senators Smith and Boxer, and other material submitted for the record, follow:]

PREPARED STATEMENT OF HON. BOB SMITH, U.S. SENATOR FROM THE
STATE OF NEW HAMPSHIRE

Thank you, Mr. Chairman, for holding this first in a series of hearings on reauthorization of our major surface transportation law, otherwise known as ISTEA. I was a proud supporter of this legislation in 1991 and continue to support its goals today.

ISTEA represented a revolutionary change from past transportation legislation and a shift toward an integrated, intermodal transportation system to promote efficiency and economic growth. Some of its major provisions included: greater planning authority for State and local governments, increased research for innovative technologies such as intelligent vehicle highway systems, and funding for environmental protection activities.

A reauthorized ISTEA should continue to recognize regional differences, but at the same time, recognize that our transportation system is a national system. Certainly, every State wants to get its "fair share," and we will need to balance each State's needs with the needs of the Nation as a whole.

While there is some merit to having various funding programs, we should refrain from creating any new funding categories or set-asides, and allow for maximum flexibility between the various programs. It is also important that we reduce or eliminate any onerous mandates or sanctions on the States.

From New Hampshire's perspective, it will be important to ensure that small States continue to receive adequate funding for their infrastructure needs. New Hampshire strongly supports certain programs, such as the Bridge Rehabilitation, Scenic Byway and Recreational Trail programs, that other States may not utilize as much. The strength of ISTEA is that it recognizes these varying needs and provides States with the flexibility to direct funding as they see appropriate.

There are many challenges before us as we take steps toward a balanced budget—something I have fought long and hard for. Our needs will always outweigh our resources. But, we also have to recognize how critical transportation is to our economy and social well-being.

Thank you, Mr. Chairman, and I look forward to working with you in this reauthorization process.

PREPARED STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM THE
STATE OF CALIFORNIA

I want to thank Chairman Warner and Sen. Baucus, our ranking member, for beginning our ISTEA hearings early this year. We have a lot of work to do.

Now is the time that we make ISTEA a solid blueprint for surface transportation policy into the next century.

Transportation is an increasingly major concern for the people of California. The Bay Area survey recently found a third of the residents surveyed last fall cited the most important problem is transportation, surpassing crime as the region's chief worry.

Our system is running at over-capacity. While California has finally emerged from economic recession—jobs growth is up and international trade is flourishing—our continued recovery is jeopardized by the strains on our transportation system.

Cargo handled by the Los Angeles International Airport—already the third busiest cargo airport in the world—may nearly triple into the next century. Expansion at San Francisco International Airport could add up to 75,000 cars on peninsula highways. California has identified about \$1 billion of transportation infrastructure improvements needed to adequately serve future commercial vehicle traffic crossing the California-Mexico border as a result of NAFTA.

Trade-related jobs now surpass aerospace jobs in Los Angeles. The Los Angeles Customs district is the largest in the country. More than a billion tons of cargo move out of, into and within the State every year. A survey of shippers and carriers reported last year that congestion was the key issue limiting their ability to provide efficient transportation. This freight-related congestion, as well as the explosion in single-occupant vehicles, impacts our consumers and air quality as well. Lack of grade-separated railroad crossings cost consumers in travel time and shippers in efficiency. And, those idling cars and trucks are spewing poisons into our air.

As I said, we have a lot of work to do, and I look forward to working my colleagues to fashion a revitalized ISTEA that encompasses the economic benefits of a safe and efficient transportation system.

PREPARED STATEMENT OF HON. MORTIMER L. DOWNEY, DEPUTY SECRETARY
OF TRANSPORTATION

Mr. Chairman, Senator Baucus, members of the committee: Good afternoon. Thank you for inviting me here this afternoon to testify about reauthorization of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). I welcome this opportunity and I am excited by the prospects for building on ISTEA. It seems we have all been talking about this subject a great deal. At DOT, we have done extensive public outreach over the past year. We have heard from all parts of the transportation community, in all regions, at all levels of government, as well as from the private sector. The response has been heartening. It is now 1997, the year of decision, when we must move from generalities to specifics. Armed with a wealth of information and viewpoints, we can now get down to the business of developing successful legislation. On behalf of incoming Secretary Rodney Slater, and the Administrators of DOT's operating Administrations, I want to express our willingness to work closely with this committee and, of course, with all the others in Congress.

This week opens the "official" debate on ISTEA reauthorization in the 105th Congress. I think we all recognize how big a challenge this year will be. It is time for the discussion to get down to real terms with real solutions in the context of a real deadline, September 30, the expiration of the current authorization. We know we will not all agree on every aspect of the next bill—what I have been referring to as "NEX-TEA"—but I believe we can reach consensus in a way that builds on the important themes of ISTEA: intermodalism, planning, flexibility, safety, environmental protection, investment and innovation.

In a few weeks, we will present to you the product of our deliberations, the Administration's proposed reauthorization bill. It will reflect our firm belief that ISTEA has been a success and that the next authorization cycle should continue its programs and policies. Because of ISTEA, including its innovative programs authored by this committee like the Congestion Mitigation and Air Quality improvement (CMAQ) program, our transportation system is getting better and we are addressing its environmental impacts. We, along with our old and new partners in State and local governments and in the private sector—both in industry and labor—are making good choices. Within the context of a balanced Federal budget, we are making progress on most of our most pressing infrastructure needs.

I noted the goal of a balanced Federal budget—a goal shared by the President and Congress. The theme of "balance" may be a useful one to remember during 1997. In fashioning a successor to ISTEA, we will have to achieve a balance among competing interests, between requests and available resources, between short-term and long-term solutions, between donor and donee States, between demands for greater mobility and higher productivity and the costs of such activity to our environment and to safety. This bill will also weigh the balance of power and responsibilities among levels of government. Achieving a good balance will not be an easy task, but it is a task that has been made easier by the record already established under ISTEA. ISTEA has given us both a foundation and a blueprint for the future.

As we begin the legislative process, I want to reemphasize that the Administration's long-term vision of the Nation's transportation system is spelled out in our

DOT Strategic Plan. It envisions a “seamless” intermodal transportation system that effectively ties America together and links it to the world—a system that will provide safe, efficient and environmentally friendly movement of people and the products they use. And it is always important to underscore that we need a transportation system equipped to meet our national security needs—to respond to disasters, and to move people and goods, for both military and civilian purposes, in times of national emergency.

Today, you have asked me to address three topics: infrastructure funding needs, transportation benefits to our economy, and trends in transportation. In addition, I would like to briefly mention how the President’s budget proposal will respond to our needs. I believe it demonstrates the Presidents continued commitment to transportation priorities and will allow us to build that bridge to the 21st century.

INFRASTRUCTURE NEEDS

ISTEA authorized a total of \$157 billion over the period of fiscal years 1992–1997. The appropriations process over that period actually made \$145 billion available for ISTEA programs. We all should ask “What did we get for that money?” That investment is producing real results, even with many of the projects still under construction.

The physical condition of bridges and pavement, which had been deteriorating, has stabilized and, in many areas, actually improved. This is especially true on the 161,000-mile National Highway System (NHS), our premier national and regional network of principal routes that provide the greatest economic, defense, and personal mobility benefits. Peak-hour congestion in our largest urban areas has stabilized. Also, the rate of highway fatalities has declined, although not as much as we would like to see. These trends suggest that, while the successes of ISTEA may not make the daily headlines, overall, we have kept pace with the maintenance requirements of our infrastructure system; we have stopped the tide of accelerating deterioration of the system; and most importantly, we have begun to tie our transportation system together through ISTEA’s emphasis on intermodalism.

And this success has extended to transit nationwide. In the last 4 years we have helped buy nearly 26,000 new buses and nearly 600 new rail cars for State and local transit agencies. Most of these meet requirements that they be accessible to persons with disabilities. We have also helped to fund more than 100 miles of new transit lines, serving more than 100 new stations, and our data show improved conditions and performance of our transit systems.

We are making progress. According to the Department’s 1995 Conditions and Performance Report:^{*}

- The number of structurally deficient bridges has dropped.
- The amount of pavement in poor condition has stabilized at a manageable level.
- The percent of transit fixed facilities and rolling stock in good condition has increased.
- Since 1984, the passenger-mile weighted average speed improved by about 10 percent on our Nation’s transit systems.
- Well over half of all riders report wait times of 5 minutes or less. Fifty-one percent of transit trips involve one or more transfers.
- Less than one-third of all transit trips involve standing for at least part of the trip.
- About 25 percent of all transit users report trip times of 10 minutes or less.

Over the long run, to maintain current conditions on our highway and transit systems, it will require significantly higher funding from all sources—Federal, State, and local governments. Our most recent report to Congress suggests the shortfall may be as high as 40 percent. To improve conditions to optimal levels based on economic and engineering criteria would require us to double our current capital investment in highways and transit.

President Clinton recognizes the importance of sound infrastructure to America’s prosperity and international competitiveness, and he has addressed infrastructure needs even as he has reduced the budget deficit. That is why he, drawing on ISTEA resources, increased investment in highways, transit systems, airports, and other infrastructure to an average of \$25.5 billion over the past 4 years, more than 20 percent higher than during the previous 4 years.

^{*}The 1995 Status of the Nation’s Surface Transportation System Condition and Performance Report of the Secretary of Transportation to the U.S. Congress (Comm. Print 104–30, March 1996). This report compares 1993 data with data for 1991. The Department’s 1997 report will be published later this year.

Federal grant funding cannot meet all of our infrastructure needs, and so 2 years ago we created the Partnership for Transportation investment, which has cut red tape, produced new financial tools, and attracted new sources of funding. That has accelerated over 70 projects worth more than \$4 billion, including \$1.2 billion in increased investment above and beyond that available through conventional financing. These projects have moved an average of 2 years ahead of schedule, saving interest and inflation costs and producing benefits faster. The '97 budget built on this progress by providing \$150 million in seed money for the first State Infrastructure Banks, or SIBs, which, thanks to action by this committee, were established under a pilot program under the NHS Act. SIBs will leverage private and other public funds through a variety of new financial strategies. The new budget proposes to expand this effort by providing another \$150 million in seed money for SIBs, and \$100 million for a new Federal Credit Program. The Credit Program will be similar to the SIBs in its support of innovative financing, but it will fill a different need—the support of projects which, by virtue of their magnitude or multi-state benefits, are of national significance but which might not fit into the programs of individual States. That will enable us to make loans and apply other financing arrangements for such projects.

We can also invest in intelligent transportation technologies that will make our current infrastructure more efficient—and less costly. Indeed, we believe that as much as two-thirds of the new capacity that we will need in the coming years in our Nation's most congested corridors can be provided by intelligent transportation systems and at much less cost than for normal construction.

The challenges before us are national in scope, and they require national solutions. Traffic congestion and bottlenecks in major trade centers like Los Angeles and Chicago not only impose delays on local commuters and regional freight, they also interfere with the speedy and reliable cargo movements essential to enhance our global competitiveness. Efficient mass transit systems are essential for our regional economies to compete with business centers around the world, and to assure that all our citizens have access to health care, education, and job training. And the members of this committee are well aware of the significance that we, as a Nation, have placed on improving the environment and upgrading safety. These challenges cannot be solved on a piece-meal basis, but rather require coordinated national strategies, in partnership with State and local governments, industry, labor and other transportation customers.

Also national in scope are the public roads that serve the transportation needs of national parks, forests, tribal lands, and other areas under Federal jurisdiction. We propose spending \$512 million in fiscal year 1998 to support efforts coordinated by FHWA's Federal Lands Highway Program to develop necessary transportation infrastructure on Federal lands that protects natural resources, serves tourism, provides access for Native Americans, and supports economic development in rural areas.

President Clinton's proposed Fiscal Year 1998 budget for the Department of Transportation reflects the President's commitments both to balancing the budget by 2002 and to a safe, secure, and efficient transportation system—one which supports economic growth while preserving our natural environment. Therefore at a time when the overall Budget is decreasing, the President has protected infrastructure by requesting a steady discretionary spending level of \$25.6 billion.

For example, our highest priority within DOT is improving the safety and security of our transportation system. Although it is already the safest in the world, much of what we do is aimed at making that system even safer—even as travel growth and demographic changes create new challenges. That is why we want to raise direct Federal safety spending by \$200 million—to \$2.9 billion, a record 7.5 percent of our total budget. A major focus will be on reducing highway crashes, which account for nine of every ten transportation fatalities. About 41,500 travelers died in such crashes last year, a slight reduction from 1995. This toll is far too high and we must redouble our efforts to reduce it.

In order to cut the fatality rate, we have to focus not only on making safer cars and safer roads, but also on working to assure that drivers do their part. We need increased education and enforcement, and to do that we want to raise highway safety spending by NHTSA by 11 percent—to \$333 million. While the details of our efforts will be included in our ISTEA reauthorization bill, I can tell you that our plan includes:

- \$9 million for a new occupant protection grant program to encourage States to increase safety belt use, the single best way to protect a vehicle's occupants;
- a \$9 million increase—to a total of \$34 million—in funding to help States enact tough drunk driving laws;

- \$8 million for a new research and education program to reduce air bag risks for children and small adults, while still preserving the benefits of air bags for all motorists; and,
- \$2 million for a pilot program for pre-license drug-testing, as the first step in launching the President's new initiative to combat drug-impaired driving.

Along with a greater emphasis on safety, the President has also indicated his continuing commitment to infrastructure investment. The fiscal year 1998 budget proposal of \$25.6 billion—slightly above the average of the past 4 years—would sustain the current investment that has produced significant results in terms of the performance of our transportation system. Under the Administration's plan, \$24 billion could actually be obligated next year for highway and transit capital. Under ISTEA's successor bill, we will be proposing higher authorization levels for fiscal year 1998 and subsequent years in case the Administration's economic growth and deficit projections prove too conservative, as they have in the recent past. If the budget situation were to improve in future years in this manner, we would look toward increasing the obligation levels. We will work with Congress on NEX-TEA funding issues this year, and each year, through the normal budget and appropriations process.

As part of the President's Budget, we propose to support Amtrak—including improvements for the Northeast Corridor—from the Highway Trust Fund. That includes \$767 million in fiscal year 1998—\$344 million for operating and \$423 million for capital, an increase of \$27 million over last year's level minus one-time costs. The Administration will work with Congress, Amtrak management and labor, State governments, and other interested parties in the coming year to develop an affordable long-range plan that eliminates Amtrak's dependence on Federal operating subsidy.

As part of a comprehensive plan to increase flexibility and improve efficiency in transit, we hope to integrate formerly disparate formula capital, formula operating, discretionary bus, and fixed-guideway modernization grants into a streamlined Formula Programs account. For urbanized areas over 200,000 population, we plan to replace transit operating assistance with increased capital funding and a more flexible capital assistance definition that would include preventative maintenance. Areas under 200,000 population—those most dependent on Federal assistance for operating costs—would be able to use their formula grants for all transit expenses, including operating assistance. Also, transit providers in any size area would be eligible for a new Access to Jobs and Training program that targets Federal transit assistance to low-income individuals, including current and former welfare recipients.

Moreover, in the future, we are looking to technology to provide many of the improvements we need in safety and efficiency. That's why we want to increase investment in transportation research and development by 9 percent, to \$1 billion. That includes \$250 million for Intelligent Transportation Systems (ITS), which apply advanced computer and communications technologies to travel. About \$150 million will fund research, development, and technology transfer activities, and \$100 million is for grants to encourage State and local governments to begin to invest in the integrated, intermodal deployment of the electronic infrastructure necessary to support ITS services. These include regional traffic information services and coordinated traffic control on both freeways and arterial streets.

Finally, transportation, like all human activity, affects the natural environment, and we have an obligation to mitigate its impacts. That is why we're proposing a 5 percent funding increase in our environmental programs—to \$1.53 billion. Much of this would be for CMAQ which State and local governments use to cut pollution through transit projects—traffic flow improvements—and alternatives such as ride-sharing. CMAQ funds would be authorized at \$1.3 billion a year, up 30 percent from their level under ISTEA.

I believe this budget will allow us to continue to improve our transportation networks.

ECONOMIC BENEFITS OF TRANSPORTATION

This committee is well aware of the vital role that transportation plays in assuring America's economic prosperity and quality of life. From the colonial post roads and canals that expanded our frontiers, to the railroads and Interstate Highways that linked a growing country, to the transit systems that made possible the development of our great cities and provided important linkages in rural areas—America's economic progress has always been closely tied to advances in transportation. And this progress has accrued to all those participating in this vital industry, including those engaged in its construction and operation.

And along the way, transportation became more than just a means to prosperity—it became a big economic player in its own right. One measure of transportation's role in the economy is its contribution to the gross domestic product (GDP). In 1995, the portion of the GDP attributed to transportation-related demand was \$777.2 billion, or 10.7 percent of overall GDP. Thus, transportation ranks fourth among economic sectors in its share in GDP, not far below health care and food. Nearly 10 million Americans are employed in industries that provide transportation-related goods and services, and these are good jobs—with the highest wage level of any sector of the economy.

We find that, as a result of greater efficiency in our transport systems, Americans now enjoy higher levels of transport output for the same level of input, an overall improvement in productivity.

As our national economy becomes more fully integrated and as America increasingly becomes part—of a larger global economy, transportation will only become more important to our standard of living. Logistical innovations such as intermodalism and flexible “just-in-time” delivery systems have been essential in maintaining our productivity advantage worldwide against other countries that compete on the basis of lower wages. This process continues to accelerate and translates into lower costs for businesses and for consumers, who pay less at the checkout counter as a result. In 1990, 18 percent of production was just-in-time; by 1995, it was 28 percent. In this and in other ways, transportation continues to contribute to our growing productivity.

Under ISTEA, Americans got more for their transportation dollars because ISTEA provided a strategic investment framework. It did so through stronger planning requirements and through programs, such as the National Highway System, that focused resources on roads of high national priority; it also provided for completion of the Interstate construction program. And ISTEA's authors had the vision to create the Surface Transportation Program, which provided unprecedented flexibility to State and local officials in determining transportation solutions that meet the unique needs of their communities.

We all know that investments in transportation systems and infrastructure can have a powerful effect on business activity. Until recently, however, our information about the economic consequences of such investments has been largely anecdotal. This is no longer the case. A recently completed DOT-sponsored study—and, I might add, the most carefully done study ever undertaken on this subject—has clearly documented the substantial economic returns on highway investments. As comprehensive as this study is, it is important to understand one other fact about it: the authors examined the economic returns on highway investments; they did not attempt to estimate the consumer benefits of highway investments, a major component of the public benefits.

The DOT study estimated how increased spending on highways lowered costs to those private companies that rely on highways. The results of the study are dramatic: between 1950 and 1989, the authors estimated that the average rate of private sector return on highway investments was 28 percent, a figure substantially higher than the average rate of return on investment earned by the private sector during this 40-year period (13 percent or so). While the rate of return on highway investments varies depending on the time period or highway system, the rate of return for total highway capital for the most recent period studied (1980–1989) was comparable to the average rate of return earned in the private sector (11 percent or so).

Other nations do not have the transportation infrastructure that we sometimes take for granted in the United States. It is transportation that has set us apart from the rest of the world. The Economist recently tracked the slow travel of Wrigley's chewing gum on a 1,000 mile trip from a factory in China's Pearl River delta to a consumer in Shanghai—a trip that took several months and involved freighters, trucks, tricycle carts and bicycles. Most manufacturers in Asia could not even imagine “just-in-time” production; an Indian exporter's cost advantage over western competitors is eroded by around 30 percent, simply because of costs and delays in transportation. Gridlock is common in parts of Asia—for goods and for people. Greater Jakarta, for example, is home to 16 million people, and it has no subway. The annual cost of gridlock in Bangkok is estimated at \$3.2 billion.

Many nations around the world have also identified large infrastructure investment requirements, although the financial capacity to make the necessary investments varies by country. In Japan, transportation capital investment by the government, as a proportion of Gross Domestic Product, is about four times that of the United States. And our European allies invest at a rate substantially above ours. Asian governments hope to invest upwards of one trillion dollars on infrastructure by the century's end, half of which will be for transportation-related infrastructure.

European governments are spending even more on a continent-wide system of high-speed rail and motorways. Our global competitiveness hinges on the efficiency of our transportation system—in part because of the very size of our Nation: in Japan, the average journey from manufacturer to the export shipping point is 50 miles; in the U.S., it is about 450 miles. We are examining transportation improvements, particularly in north-south corridors and along our borders with Mexico and Canada, that will facilitate enhanced trade resulting from the North American Free Trade Agreement (NAFTA). Another significant factor in freight movement has been the shift to east-west-Pacific-oriented flows, affecting not only the size and direction of rail traffic, but causing ports in Los Angeles and Long Beach to increase their market share. On a broader scale, it is critical that we assure that our connections across the country—to ports, airports and major transportation facilities—effectively link us to our global partners.

The benefits of an efficient, interconnected national transportation system are clear. It is therefore vital that we understand the factors that contribute to and affect the performance of that system. While it may not make for the most dramatic testimony, I believe it is important to understand recent trends in transportation so that we may make the best choices for the future.

TRANSPORTATION TRENDS

The United States is facing major changes in personal and business travel, new patterns of freight shipments, regional population shifts, fast-growing elderly and teen populations, and an explosion of information technology. Across the Nation, there are growing demands for speed and efficiency, especially from businesses, but also from individuals struggling to preserve time for family and community alongside demanding work lives. Congestion and pollution are two problems that are increasing. Both present new challenges for the transportation community and force us to devise innovative solutions for dealing with them. We must meet the demand for increased mobility for all our citizens—rich and poor, elderly and young, disabled and able-bodied, in urban and rural areas—to ensure their full participation in community life. Let me outline a few aspects of current trends in transportation that will direct our future policy decisions on ISTEA reauthorization.

Much of this information is from the Bureau of Transportation Statistics (BTS) which, as you all know, was established by ISTEA. Their work of compiling, analyzing, and disseminating information on the nation's transportation systems will lead to a better understanding of the performance of the transportation system and the potential for its improvement.

Passenger Travel

Between 1970 and 1995, U.S. passenger travel nearly doubled, growing by an average of 2.7 percent a year. Annual passenger miles of travel per person averaged 17,200 miles in 1995—nearly 6,000 miles further than in 1970. Automobile travel grew by almost 1 trillion passenger-miles, reaching 2.8 trillion passenger-miles in 1995, overshadowing all other modes in absolute terms. Passenger travel in light-duty trucks (including pickups, sport-utility vehicles, and minivans) grew nearly fivefold over this period raising concerns over the fuel efficiency of the light-duty fleet. With regard to public transportation, over the past 15 years, transit travel has remained relatively stable. However, passenger-miles traveled on commuter rail, light rail and demand-responsive services have increased appreciably.

Many different factors have contributed to the growth in travel, including demographic and labor force changes, income growth, and changes in the makeup of metropolitan areas:

- In the quarter of a century between 1970 and 1995, the U.S. population grew by nearly 58 million people. More than 16 million people immigrated to the United States during this period. A high proportion were working-age adults who have joined the labor force and live in metropolitan areas. These factors have influenced urban travel demand.

- Baby boomers and women poured into the workplace. The civilian labor force grew by 59 percent, from 83 million in 1970 to 132 million in 1995. More people working means more people commuting, and more travel. In 1990, employed persons with licenses drove an average of 15,280 miles compared with 8,048 miles for people with licenses who are not employed.

- The number of households increased by 53 percent, nearly twice as much as the increase in population would suggest. The reason: household size decreased from 3.14 people in 1970 to 2.65 people in 1995. Smaller households mean fewer people to share responsibilities for shopping, recreation, and child care, and thus more travel per household.

- The number of automobiles and light trucks grew from 107 million in 1970 to 191 million in 1994. This increase is partly related to income growth. Rising income also generates demand for long-distance travel, especially international travel.

Changes in development patterns also have affected travel. In metropolitan areas, the locations where people live, work, and shop have become more dispersed, and travel and dependency on private vehicles have increased. Metropolitan areas grew from 140 million people in 1970 to 189 million in 1990, but between 1980 and 1990, the central cities lost half a million people, while the suburbs gained 17.5 million. Between 1970 and 1990, the suburban share of metropolitan population rose from 54 percent to 62 percent, and during the second decade of this period, the suburban share of jobs rose by almost the same proportion, from 37 percent to 42 percent.

Shifts in the location of jobs have changed travel patterns. Suburb-to-suburb commutes in 1990 accounted for 44 percent of all metropolitan commutes, while suburb-to-downtown made up only 20 percent. As metropolitan areas expanded and low-density suburbs spread into rural areas, mass transit struggled to provide the same level of service as in higher density city cores. Thus, private vehicle trips soared, as they offered the most direct connections for many suburb-to-suburb commutes by occupants.

Although the increase in mobility over the last quarter of a century has brought major benefits to American society, not all share fully in the benefits. For example, for many Native Americans, inadequate transportation infrastructure has hindered economic progress, health care, jobs, and schools in Indian Country. This must change. President Clinton has proclaimed a government-to-government relationship with American Indian Nations to foster Indian self-determination and economic independence. Investment in the future of Indian Country, including investment in infrastructure, will ensure long-term dividends to our partners in this special relationship. The jobs created through this investment may provide some of the most impoverished areas of the United States an opportunity for economic prosperity.

In addition, as many available jobs have shifted to suburban and exurban areas, low-income workers who cannot afford to live in those communities or own a car are often left with inadequate resources to reach their places of employment. Alternatively, they cannot find work because the travel times involved are prohibitive. Also, if welfare reform is to be successful, low-income inner city residents must have the means to access jobs in suburban communities. Efforts such as our Department's fiscal year 1998 \$100 million access to jobs initiative, and HUD's Bridges to Work initiative, will contribute to enhancing welfare-to-work opportunities.

Mobility for older Americans and people with disabilities is a critical and growing need that must be addressed. The elderly are the fastest growing component of the U.S. population, with nearly 13 percent of the population over the age 65. The number of Americans over age 65—33.5 million in 1995—could increase by over 50 percent by 2020. The majority of these individuals are accustomed to independent mobility in self-operated vehicles. The aging of the population will require important modifications to the transportation system to make it safer for those with less keen eyesight, hearing and responses. Adjusting our public transportation systems to bring them into compliance with the Americans with Disabilities Act is a mandate that must be fully implemented to serve better the needs of elderly persons and persons with disabilities. Public transportation and highways must be made more user-friendly through better signing, facility modifications and other improvements. We will have to give increased attention to mobility alternatives for these segments of our population, as their mobility may be a significant social, economic, and health concern. Appropriate and acceptable approaches to achieving these objectives will have to be addressed in ISTEA reauthorization.

Traffic congestion in the nation's 50 largest cities costs travelers more than \$40 billion annually. Without a strategy that uses multi-modal solutions to this problem, delays are likely to increase over the next two decades as travel nationwide increases by a projected 60 percent. These delays translate directly into growing costs to business and ultimately are passed along to consumers.

The Movement of Freight

Freight transportation grew substantially between 1970 and 1994 in all land modes and air cargo. The ton-miles carried by Class 1 railroads increased 57 percent, while ton-miles carried by oil pipelines increased 41 percent. Using vehicle-miles of travel by combination trucks as a surrogate for ton-miles, freight transportation by truck increased 210 percent. The number of commercial motor carriers has also increased from 180,000 in 1989 to over 400,000 in 1996. The biggest relative growth was in air cargo ton-miles, which increased 434 percent.

This growth has been uneven, responding to general fluctuations in the economy. In response to the need for better data on freight movements, BTS worked with the

Bureau of the Census to conduct the Commodity Flow Survey (CFS) in 1993. Results from the CFS (with adjustments by BTS) show that the nation's freight transportation system carried more than 12 billion tons of goods, generating a total of 3.6 trillion ton-miles in 1993.

The CFS confirms the dominance of trucks in our nation's freight transportation system, especially for shipping distances under 500 miles. Trucks moved nearly three-quarters of the value and just over half of the weight of all shipments. In terms of ton-miles, the split among truck, rail, water, and pipeline is more even because of the greater distances large shipments move in the nonhighway modes. Growth in truck use has been particularly dramatic. According to the Bureau of the Census Truck Inventory and Use Survey, the number of trucks used in for-hire transportation increased by 24 percent between 1982 and 1992. Vehicle-miles grew even faster: for-hire trucks traveled approximately 58,000 miles per vehicle in 1992 compared with 46,000 miles in 1982. Also, the truck fleet appears to be getting heavier as well as traveling farther.

Fast, flexible forms of transportation have become more important in recent years. In 1993, parcel, postal, and courier services carried more than 9 percent of the value of shipments of processed or manufactured goods that were measured by the CFS. When shipments carried by more than one mode are added to moves by parcel and courier services, intermodal freight exceeded 208 million tons, valued at about \$660 billion. In particular, about 41 million tons, valued at \$83 billion, moved by the classic intermodal combination of truck and rail. Assuming 50,000 pounds of payload per truck, this means that more than 1.6 million large trucks were diverted from our nation's highways for a major part of their trips.

Intermodal shipments tend to be high in value: goods shipped by parcel, postal, and courier services have an average value of \$14.91 per pound, while truck-rail intermodal shipments average \$1.02 per pound. Although these numbers are far less than the \$22.15 per pound average for air and air-truck shipments, they are significantly higher than the 34 cents per pound for truck-only shipments and the less than 10 cents per pound for railroads, water transportation, and pipelines.

The importance of interstate transportation was also demonstrated. Much of the freight was shipped over long distances. According to CFS data, out-of-state shipments accounted for 62.3 percent of the value of all shipments in the U.S. By weight, out-of-state shipments accounted for 35.3 percent. These figures do not fully reflect certain categories of shipments (such as imports from foreign countries) that were out of the scope of the survey. Hence, the above figures on out-of-state shipments are probably conservative. Another indication of the significance of interstate travel is that 49 percent of the vehicle miles traveled by for-hire trucks in 1992 were outside their base State.

Freight transportation has changed in response to many factors. We are moving lighter goods, either because traditional products like automobiles are being manufactured with lighter materials, or because the economy is emphasizing inherently light products such as consumer electronics. Just-in-time logistical systems have placed new demands for faster and more reliable service to support manufacturing, wholesale, and retail. The combination of toll-free telephone numbers and overnight parcel delivery services has allowed small retail establishments to serve national and international markets, resulting in more growth for carriers specializing in small shipments.

International trade will probably continue to place increasing demands on the domestic transportation system. Although overall global economic growth rates are likely to be uneven, economic growth in regions such as Asia, the Pacific Rim, and Latin America may continue to be significant. This growth will provide new markets for U.S. products, and be the source of both imports and tourists to be carried on the domestic U.S. transportation system.

As I noted earlier, NAFTA has added a north-south focus to traditional concern with east-west freight movements for international shipments. Based on information from the BTS Transborder Surface Freight Dataset, collected through the Census Bureau, \$273.56 billion in goods moved by surface transport between Canada and the United States in 1995, an increase of 10.2 percent from 1994. In terms of value, 74 percent of this trade move by truck, 22 percent by rail and 4 percent by pipeline in 1995.

In 1995, \$96.36 billion in goods moved by surface transport between Mexico and the United States, an increase of 6.4 percent from 1994. In terms of value, 85 percent of this trade moved by truck in 1995; virtually all the rest moved by rail.

Finally, although transborder land crossings are important, most international trade moves in and out of the United States through ports. Seaports handled international cargo valued at \$619 billion in 1995, compared to \$49 billion in 1970 (in current dollars).

Safety

We have made great safety progress in the face of increasing travel. Even so, transportation injuries and deaths still impose a substantial drain on the U.S. economy, along with emotional devastation for surviving family members and friends. Transportation accounts for roughly half of the accidental deaths in the United States, as it has for at least 25 years. And approximately 95 percent of transportation deaths resulted from crashes involving motor vehicles. These crashes are the leading killer of America's youth. Yet the reduction in the highway death toll is one of the great success stories of the last quarter century. Had the 1969 death rate—five fatalities per 100 million vehicle-miles traveled (vmt)—persisted, more than 120,000 people would have died from motor vehicle crashes in 1995, nearly three times the actual number of fatalities. Not only the death rate, but the absolute number of deaths from crashes involving motor vehicles has declined dramatically.

Nevertheless, a close look at recent statistics allows little room for complacency. As I noted earlier, about 41,500 lives were lost last year on our nation's highways. These deaths are only part of the picture; crashes result in costly injuries, productivity losses, lost travel time and increased congestion, placing a huge burden on our economy—an estimated \$150.5 billion in 1994. The cost of medical treatment alone is estimated to be more than \$14 billion a year. The American taxpayer pays more than one-quarter of that amount to cover the Medicaid and Medicare costs associated with these injuries. The American taxpayer also has to make up for the lost tax revenue resulting from injuries and fatalities, estimated at nearly \$8 billion a year.

Taking into account the current level of Federal and State highway safety programs, projected increases in miles traveled will mean that the number of Americans killed in crashes will increase; a conservative estimate projects up to 51,000 deaths a year by 2005. This must not happen. We must reduce the fatality rate, and reduce the actual number of traffic fatalities. Improvements in vehicle and highway design will help. But the key is to improve our behavior on the highways by increasing safety belt and child safety seat use, by reducing drunk driving, and by increasing compliance with established traffic laws. Greater community involvement, and public and private sector leadership will lead directly to improved traffic behavior. National research and development also will continue to play a critical role in developing more effective countermeasures and delivery systems.

Over a year ago, DOT began to develop an Action Plan to Reduce Highway Injuries and Related Costs. We are assisting States in setting and evaluating their performance goals and providing a wide range of technical and financial assistance to assure that States have the tools, such as adequate data, to identify their problems and pursue the best strategies to resolve them. The Action Plan is an ongoing effort of the Department directed toward saving lives and taxpayer dollars. That plan, together with the safety measures I noted earlier that are included in our budget plan, will help communities respond effectively to these safety problems.

Environment

Transportation, like all human activity, also affects the natural environment. Because of its enormous size, it is inevitable that our transportation system will have some undesirable environmental impacts. Many, but by no means all of these impacts, stem from reliance on fossil fuels, especially petroleum. Because transportation energy use is increasing and domestic oil production continues to decline, U.S. reliance on imports is likely to continue. Gains from past technological change and fuel economy standards have tapered off.

Transportation activities can affect the quality of surface and groundwaters. Under some circumstances water quality may be affected when oil, fuel, and other chemicals emitted or dropped from vehicles is washed from highways by rainfall. These contaminants can eventually reach streams, lakes, or groundwater. The movement and storage of fuels and other substances used for transportation also has the potential to cause water quality problems.

With regard to air pollution, the effort to control vehicle emissions has been an environmental success story. Far less pollution is emitted from cars and trucks today than 25 years ago. These dramatic improvements in air quality would never have occurred without a strong Federal role. Coordination between transportation and air quality planning has improved. More than one-quarter of the areas that did not meet ozone standards in 1990, and a few areas not meeting carbon monoxide standards, have met air quality goals. The Environmental Protection Agency has reclassified these areas as in attainment. Nevertheless, many large cities continue to have problems meeting air quality standards and compliance will continue to be a significant challenge. Transportation officials must continue efforts under ISTEA's

successor and the Clean Air Act to reduce air pollutant emissions from transportation.

Moreover, the United States continues to be the world's largest producer of greenhouse gases—both absolutely and on a per capita basis—and transportation accounts for 32 percent of U.S. carbon dioxide emissions, the key emission from anthropogenic sources. This is of ongoing concern because, as vehicle miles traveled and single occupancy vehicle rates continue to increase, transportation is the fastest growing sector for greenhouse gas emissions. The threat posed by global climate change must continue to be addressed through efforts to encourage travel in higher occupancy modes such as mass transit and carpools, to help reduce the growth in vehicle miles traveled.

Finally, efforts to mitigate environmental impacts and improve air and water quality, to protect open space, wetlands, and wildlife habitat, and to support other options that reduce the need for travel, such as pedestrian-friendly developments, must be continued and strengthened through programs such as CMAQ and transportation enhancements and through comprehensive and integrated transportation planning. Transportation planning decisions should also take into account efforts to redevelop "brownfields," particularly urban areas that have been abandoned or underutilized due to contamination risks.

LESSONS LEARNED AND THE CHALLENGES AHEAD

ISTEA marked a turning point in developing an interconnected national transportation system, and its successor should be based upon that same vision. The question is: how do we get there, in an era of tight budgets? We believe ISTEA has provided a solid framework for us to build upon. The successor to ISTEA must retain the core elements that have made ISTEA such a success in just a few short years.

While we can be justly proud of the national progress made under ISTEA, there are still significant challenges ahead—ones that will require fresh thinking and creative solutions—and continue to require Federal investment and guidance. If we are to maintain our quality of life and remain competitive in the global marketplace, we must aggressively meet the challenge of continued growth while mitigating unwanted safety and environmental affects.

As ISTEA's Declaration of Policy specifically acknowledged, we cannot treat our transportation infrastructure as a collection of individual modes competing with each other. We need to see our transportation facilities as a national system, with each mode complementing the others, and working together as a whole for the benefit of all users. ISTEA brought us closer to that goal, in several ways. First, it gave State and local governments the responsibility for planning all aspects of their State and regional transportation systems, and gave them more funding flexibility to pursue the goal of a more efficient, integrated transportation system. Second, ISTEA created mechanisms for funding projects connecting the different components of our transportation system. Through the CMAQ program—the flexible, environmentally oriented category in ISTEA—we have, for example, funded an innovative truck-rail transfer facility in Stark County, Ohio, and projects in Portland, Oregon, and Seattle, Washington, designed to unsnarl traffic and improve rail and truck access to the commercial waterfront. These projects—which help reduce vehicular congestion, improve safety and air quality, and provide better access into the port area so we can accommodate the increased volume of trade—show that there does not have to be a tradeoff between jobs and the environment.

In regard to Indian reservation roads, ISTEA implemented our special government-to-government relationships by establishing a policy of consultation with tribal governments concerning the development of transportation systems for Indian reservations. For years, a lack of transportation infrastructure "chilled" economic development on Indian reservations. But ISTEA has begun to address reservation infrastructure needs and we need to continue to include tribal governments as partners in this effort.

In Miami, efforts are underway to plan a transit facility, known as the Miami Intermodal Center, to link Miami International Airport to the Port of Miami, a major cruise ship center. This is a good example of how the private sector and all levels of government—city, county, State and Federal—together with officials from different modes of transportation—the air, maritime, port, transit and highways—can work together to accomplish mutual goals.

Sound transportation systems cannot be created without the involvement of those affected. ISTEA brought new players to the table. The goal was to make the process of setting transportation priorities more informed and more inclusive. And State and local governments are responding. Efforts have been made throughout the country—in Atlanta and Boise to name a couple of leading examples. Also, Federal land man-

agement agencies and tribal governments are increasingly involved in statewide and metropolitan transportation planning.

And a more inclusive process does yield results—in the form of better, more feasible and more publicly acceptable plans. The plans being developed by States and Metropolitan Planning Organizations (MPOs) through the ISTEA processes are more viable. The fiscal constraint requirements ISTEA applied to these Transportation Plans mean they reflect the reality that planning requires hard choices based on available funding.

The comprehensive planning and public participation requirements established by ISTEA help to assure that a full range of social, economic, and community impacts are taken into consideration as investment decisions are being made. They connect transportation decisions with other community concerns—land use, environment, and quality of life—to make communities more livable. There should be no question of turning back. ISTEA's successor must continue to guarantee that investment decisions are the product of a systematic, inclusive planning process—an informed political decision.

In order to meet the transportation challenges of the 21st century, we will have to draw upon the talents and creativity of all levels of government and the private sector. In the past 3 years, we have taken major steps in that direction. For example, in Glendale, California, a public-private partnership of the Glendale Transportation Management Associates, Nestle USA Inc., and Commonwealth Land Title took on the challenging question: how can private companies help clean the air? In June 1993, in a program partly supported by CMAQ funds, Nestle and Commonwealth Title began rewarding employees who voluntarily chose alternatives to driving alone. An evaluation of this demonstration program found that, with a modest investment of startup funds, the average vehicle occupancy increased by approximately one-third, suggesting the possibility of achieving dramatic reductions in the number of vehicles clogging the roads of the Los Angeles basin.

ISTEA strengthened the traditional Federal-State partnership and expanded it to include local governments, metropolitan planning organizations, and the private sector. Post-ISTEA legislation should build upon these successful relationships. We also need to bring in all the resources and talent available.

Finally, cleaner, safer, and more efficient transportation has often come because of new technologies—some entirely new, such as the automobile, and some that have made previous advances safer or more efficient, such as seat belts. Continued development and use of advanced technology are vital if such progress is to continue. Under ISTEA, there is a renewed emphasis on applying technology that will close the gap between the state-of-the-art and the state-of-the-practice. And a reauthorized ISTEA must harness technology to serve a new century, through intelligent transportation systems, high speed rail, magnetic levitation, and other new technologies. By emphasizing deployment of technologies such as ITS, we can translate innovation into improved safety, system capacity, efficiency and travel time. Investment in research and development has been expanded, both through increased funding and through new partnerships with the private sector.

CONCLUSION

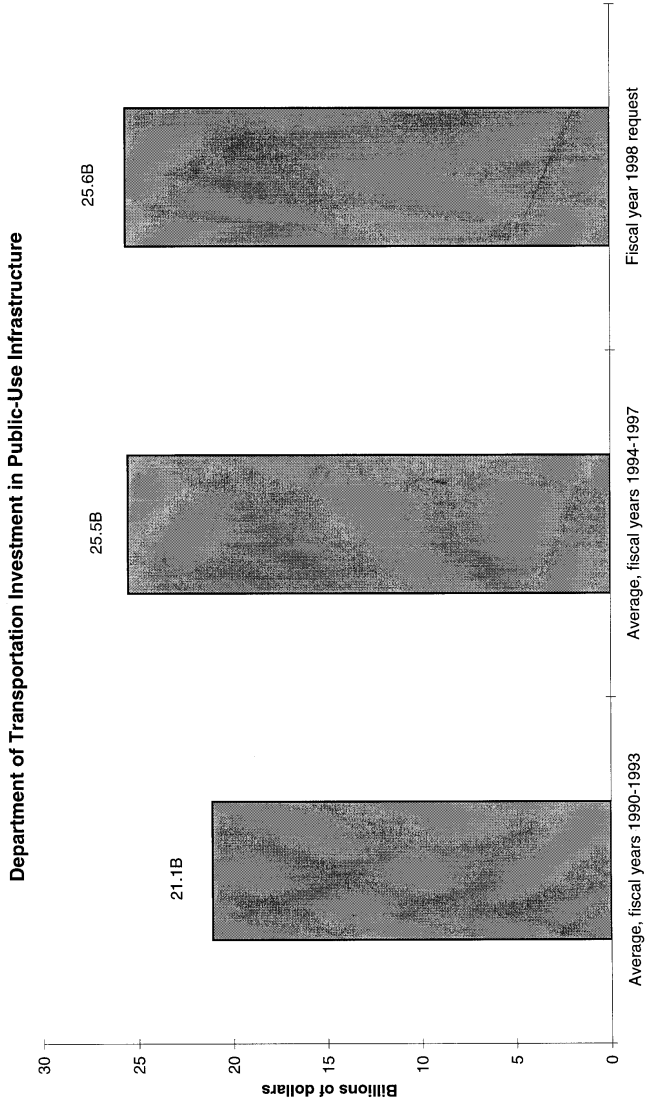
ISTEA is visionary legislation, and its central elements—intermodalism, flexibility, intergovernmental partnership, a strong commitment to safety, environmental protection, enhanced planning and strategic investment—should be preserved. These elements should serve as the foundation for the next surface transportation reauthorization. Over the course of the next several months, all parts of the transportation community, from both public and private sectors, will examine the merits of ISTEA and debate the details of the new legislation. I look forward to that debate.

Efficient national cargo movement is key to our ability to benefit from expanding trade opportunities. Truckers and other freight operators need national uniformity in both facilities and regulatory standards. We cannot achieve other key national priorities—linking Americans to jobs, health care and education—without efficient transportation. And the challenges we face in the areas of safety and the environment do not stop at State borders.

There are significant challenges ahead with a lot of work to do. In partnership with our colleagues in the States and local communities, and with the private sector, I believe that we at the Federal level have a leadership role in meeting those challenges.

Mr. Chairman, that concludes my prepared statement. I look forward to working with you and other committee members on reauthorization of these important surface transportation programs. Clearly, we can all agree that investment in our na-

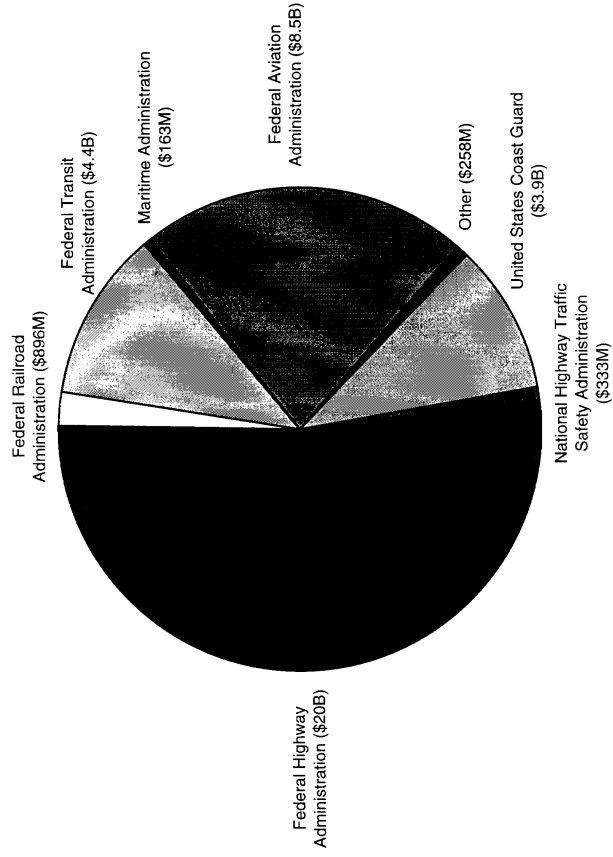
tion's transportation infrastructure is vital to preserving our competitive advantage throughout the world and to maintaining the well being of our citizens. I will be happy to answer any questions.



SOURCE: U.S. Department of Transportation. 1997. *U.S. Department of Transportation: Budget in Brief, Fiscal Year 1998*. Washington, DC.

Prepared by the Bureau of Transportation Statistics

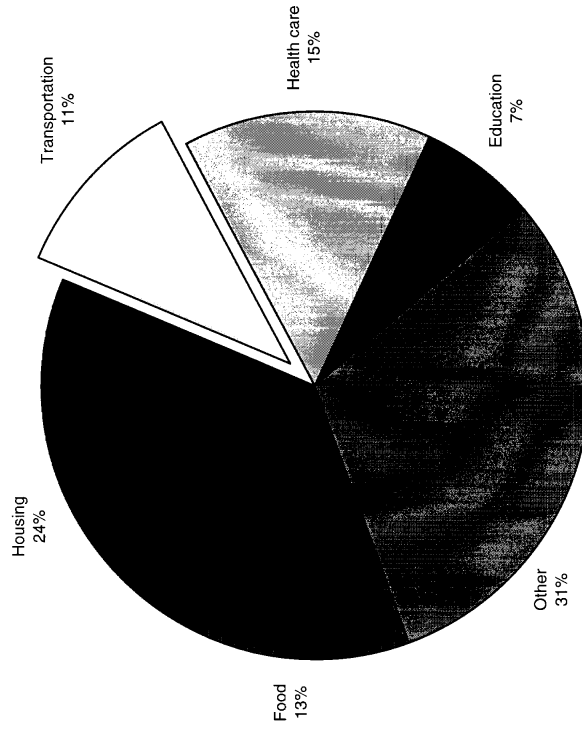
Department of Transportation Budget, Fiscal Year 1998 (Total \$38.4 Billion)



SOURCE: U.S. Department of Transportation. 1997. *U.S. Department of Transportation: Budget in Brief, Fiscal Year 1998*. Washington, DC.

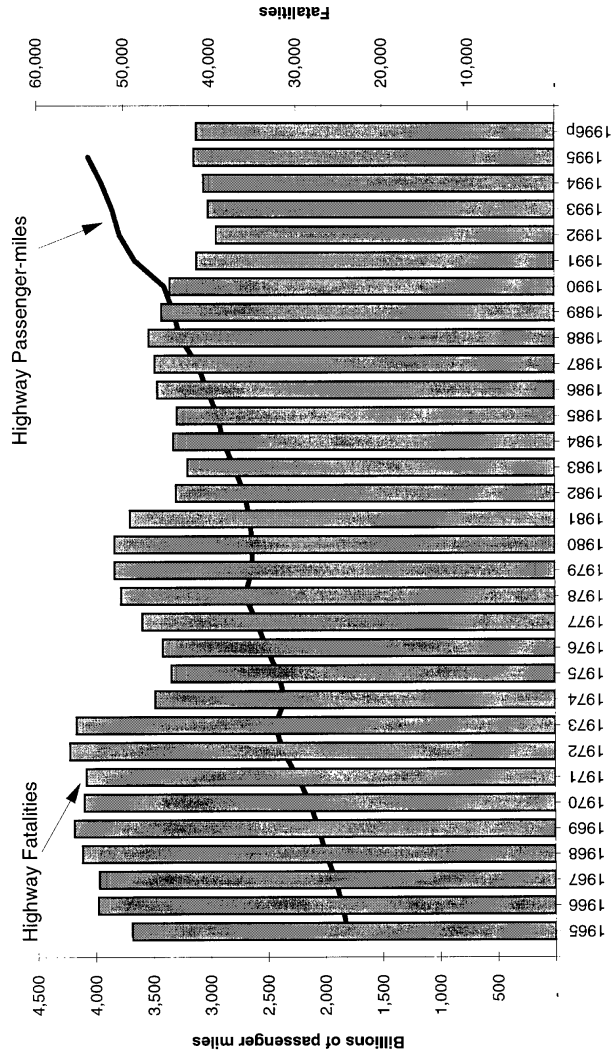
Prepared by the Bureau of Transportation Statistics

U.S. Gross Domestic Product by Major Function, 1995



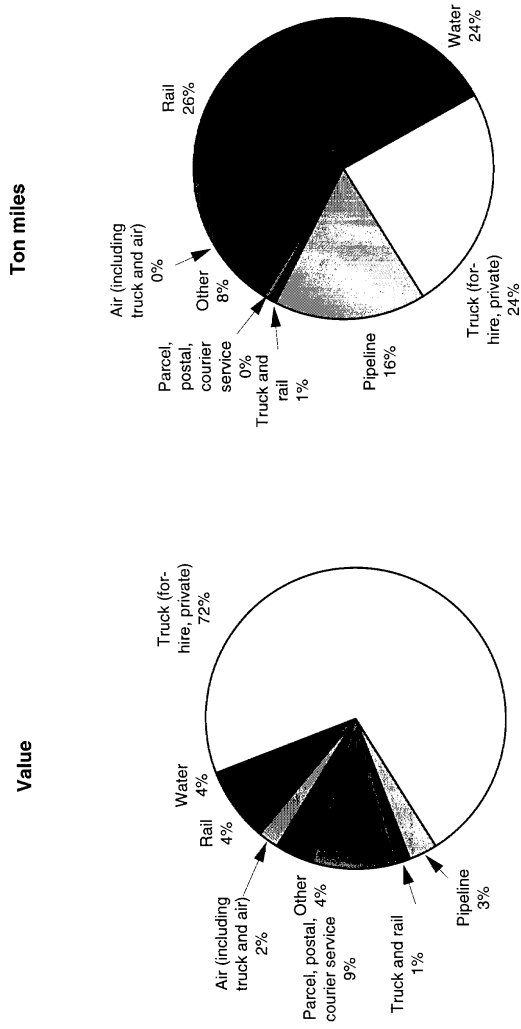
SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis. 1996. *Survey of Current Business*. Washington, DC.

Highway Passenger-miles of Travel and Highway Fatalities, 1965-1996



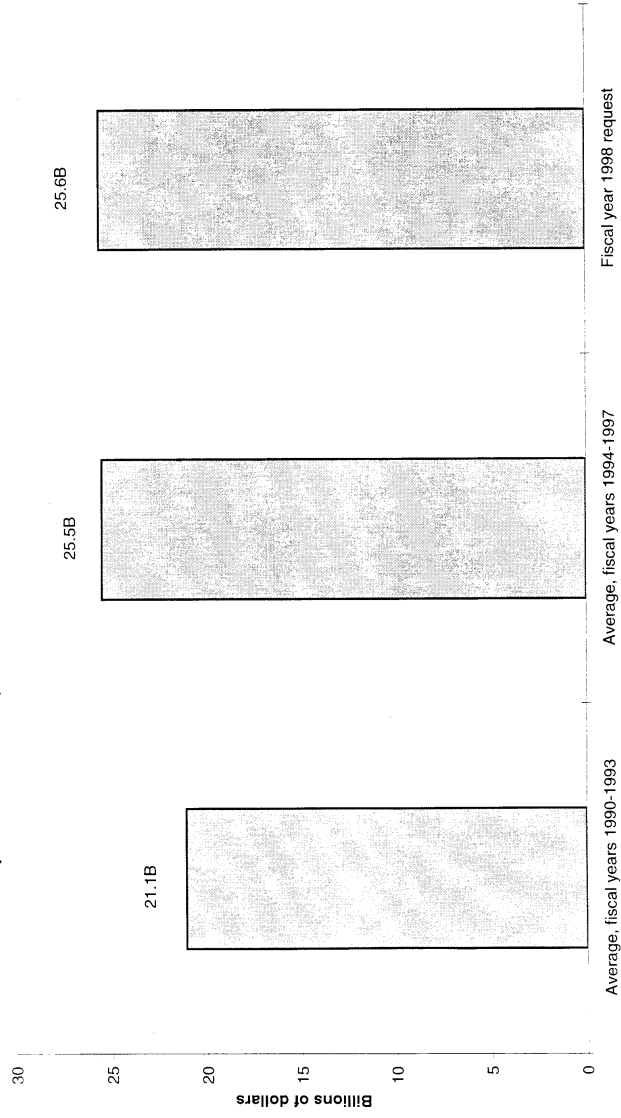
SOURCE: Compiled from various sources in U.S. Department of Transportation, Bureau of Transportation Statistics. 1996. *National Transportation Statistics 1997*. Washington, DC.

1993 Commodity Flow Survey: Value and Ton-Miles of Freight Shipments by Mode



SOURCE: U.S. Department of Transportation, Bureau of Transportation Statistics. 1997. "1993 Commodity Flow Survey: United States Highlights."

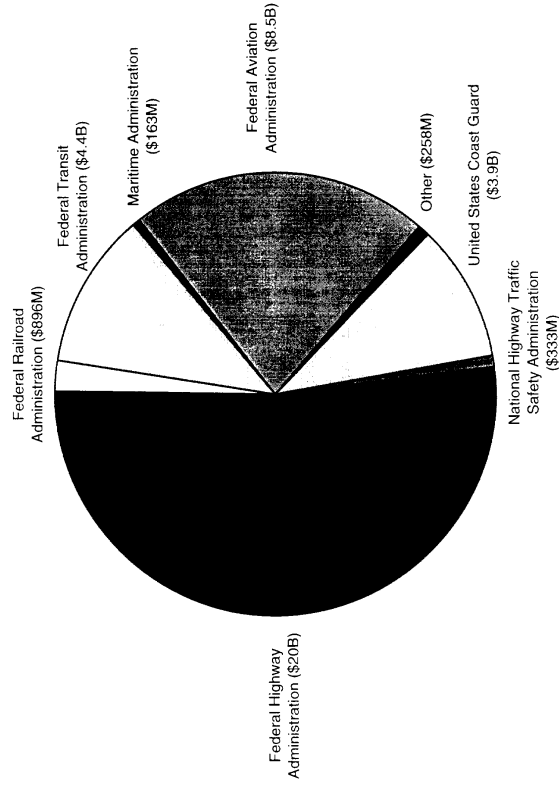
Department of Transportation Investment in Public-Use Infrastructure



SOURCE: U.S. Department of Transportation. 1997. *U.S. Department of Transportation: Budget in Brief, Fiscal Year 1998*. Washington, DC.

Prepared by the Bureau of Transportation Statistics

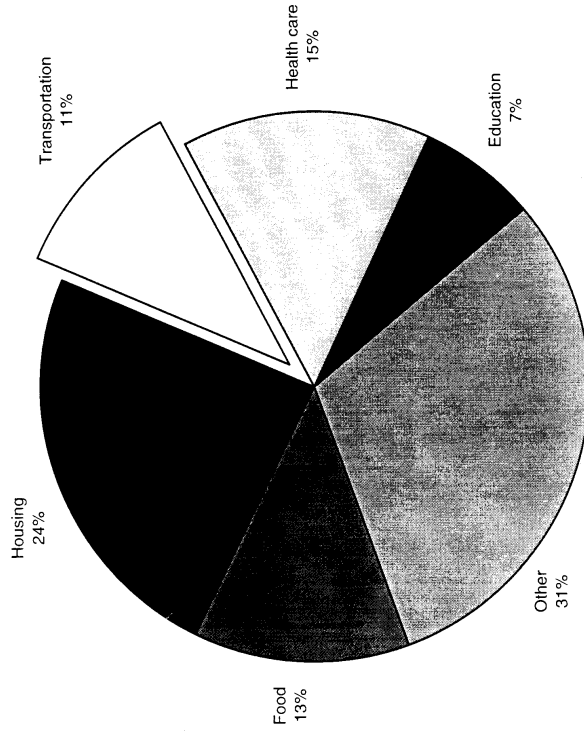
Department of Transportation Budget, Fiscal Year 1998 (Total \$38.4 Billion)



SOURCE: U.S. Department of Transportation, 1997. U.S. Department of Transportation: Budget in Brief, Fiscal Year 1998. Washington, DC.

Prepared by the Bureau of Transportation Statistics

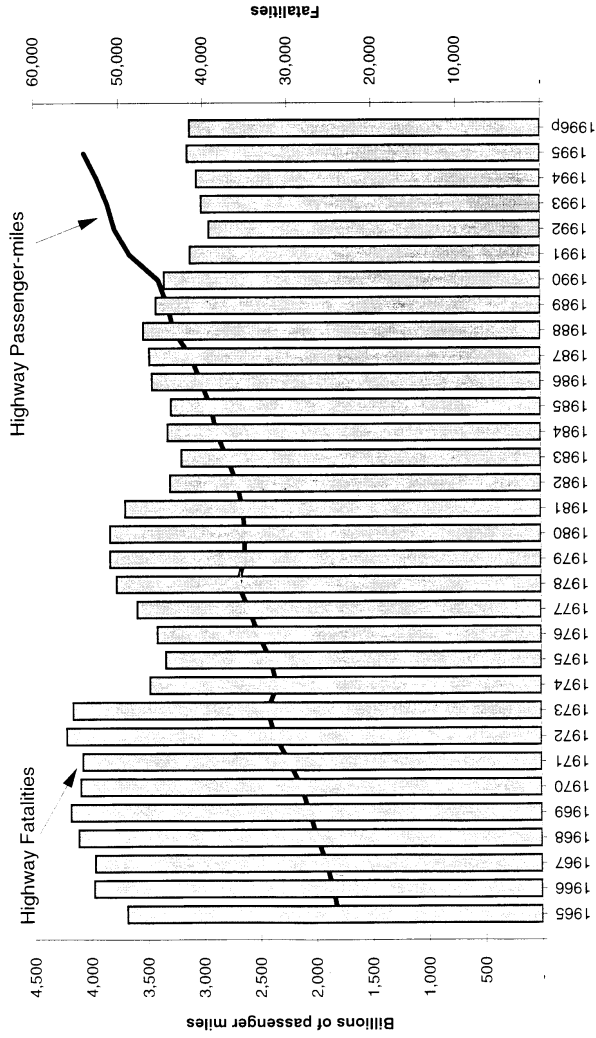
U.S. Gross Domestic Product by Major Function, 1995



SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis. 1996. *Survey of Current Business*. Washington, DC.

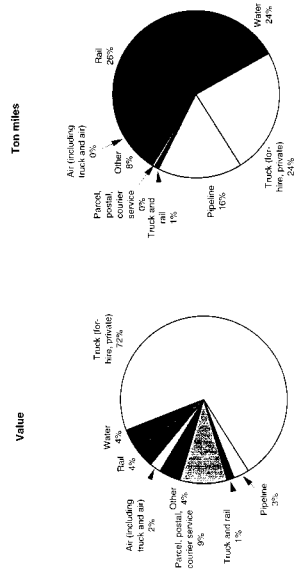
Prepared by the Bureau of Transportation Statistics

Highway Passenger-miles of Travel and Highway Fatalities, 1965-1996



SOURCE: Compiled from various sources in U.S. Department of Transportation, Bureau of Transportation Statistics, 1996. *National Transportation Statistics 1997*. Washington, DC.

1993 Commodity Flow Survey: Value and Ton-Miles of Freight Shipments by Mode



SOURCE: U.S. Department of Transportation, Bureau of Transportation Statistics, 1997, "1993 Commodity Flow Survey, United States Highlights."

Prepared by the Bureau of Transportation Statistics

RESPONSES OF MORTIMER DOWNEY TO QUESTIONS FROM SENATOR CHAFEE

Question 1a. According to a Department of Transportation (DOT) study, the rate of economic return on highway investments has declined somewhat over the last decade.

Do you foresee this slightly downward trend continuing in the next century?

Response. The rate of return on highway investment has declined over the last decade in part because a larger share of total highway investment has been devoted to improving highway conditions and a smaller share to improving the capacity and performance of the highway system. Industry thus has not realized the kinds of improvements in highway accessibility and levels of service that it did during the period when the Interstate System was under construction. Recently, FHWA and its partners have focused much greater attention on incorporating freight considerations into the highway planning process to identify the types of highway and intermodal transportation investments needed to improve the efficiency and level of service of freight transportation. Increased funding for the National Highway System (NHS), the backbone of national surface transportation systems, should also contribute to providing the transportation services needed by an increasingly dispersed economy. Furthermore, as State and local transportation agencies accelerate the implementation of intelligent transportation initiatives, the performance of highway and related transportation systems can be expected to improve significantly, allowing industry greater opportunities to reduce overall logistics costs thereby increasing their productivity. We cannot expect the kinds of economic returns that we realized during the Interstate construction era, but technological innovations such as ITS and adequate funding for the NHS should slow and perhaps reverse declines in the rates of return on highway and intermodal transportation investment.

Question 1b. If highways alone no longer yield the highest rate of return, where in the area of transportation should we direct limited resources?

Response. We are not aware of any comparative analysis of highway investment versus other infrastructure or alternative government programs currently available to answer your question.

Question 2. For obvious reasons, the term "intermodalism" is used repeatedly in the context of surface transportation policy. Indeed, your testimony emphasizes the goal of a "seamless" intermodal transportation system. There are countless examples of "intermodal connectors" with respect to freight, but intermodalism with respect to passenger travel is overlooked at times.

Can you share some specific examples of how intermodalism is working to move people more efficiently?

Response. Although the term "intermodalism" refers to a well defined segment of the freight industry, its meaning is less precise when applied to passenger transportation. Fundamentally, intermodalism is about designing solutions which make the most sense for the passenger—regardless of mode.

The goal of "seamless transportation" refers to one common definition of intermodalism: improving connections between the modes. A trip that requires a passenger to change modes typically is slower, less convenient, and less reliable than one where no change is required: the more changes, the greater is the delay and inconvenience. Easing and, where possible, eliminating the barriers which complicate intermodal passenger travel improves the efficiency and capacity of the overall transportation system. The Department is helping to fund a variety of such initiatives. We are also encouraging State and local institutions needed to facilitate passenger intermodalism to engage in the cooperative efforts which make this goal a reality.

The Department supports a number of initiatives to encourage and foster passenger intermodalism. In Albany, New York, the State spent Federal Highway Administration funds to build park and ride lots in the congested I-87 "Northway" Corridor to link with the regional transit operator's buses, which are being funded by our Federal Transit Administration. In Miami, Florida, the eight-mile long South Dade Busway provides the city's Metrobuses with an exclusive connection to the city's rapid transit network. FHWA funding provided 80 percent of the cost of the project to extend the transit system to the suburbs.

Around the country, numerous intermodal terminals are being planned, built and/or rebuilt using a variety of "modal" funding sources to link rail, bus, and taxi services. Examples include Richmond, Virginia's Union Station linking intercity and intracity rail services as well as bus services; Dallas, Texas's Union Station linking Amtrak, taxis, and the city's new light rail system; and Baltimore's Pennsylvania Station linking intercity and intracity rail as well as commuter rail and bus services. St. Louis, Missouri is developing its own plans for a new intermodal center. New York City's Metropolitan Transportation Authority is developing a farecard which will allow commuters to use either bus or subway services.

Good intermodal connections improve system capacity by providing travel alternatives. In San Francisco, California, the extension of the Bay Area Rapid Transit system to San Francisco International Airport is seen as providing an alternative to highway access. By doing so, BART is helping to relieve access constraints that threaten the airport's ability to service the region. In Houston, Texas, a regional mobility program incorporates freeway improvements, transit and carpool lanes, park and ride lots, and a regional travel information system. Since the program began, transit ridership has increased significantly, as have average highway speeds.

Finally, in addition to these activities, the Department's reauthorization proposal, NEXTEA, will seek to foster intermodalism by increasing the ability of State and local governments to flex Federal funds for publicly owned, and certain privately owned, transportation facilities. This flexibility will allow State and local governments to improve connections that often are the bottlenecks impeding regional or local mobility. Coupling this flexibility with innovative financing is expected to give the public sector additional tools and potential sources of revenues that otherwise would not be available under traditional grant programs.

1995 STATUS OF THE NATION'S SURFACE TRANSPORTATION SYSTEM: CONDITION AND PERFORMANCE

Introduction

This pamphlet provides a summary of the 1995 Status of the Nation's Surface Transportable System: Condition and Performance Report to Congress (C&P Report). It is the latest in a series of biennial reports that track changes in transportation physical and operating characteristics, finance, and usage patterns. Also included are estimates of capital investment required from all sources to meet specified levels of system performance in future years. The current report combines information about our highway, bridge, transit, and maritime systems.

This report is the second in the C&P Report series that combines documents satisfying statutory requirements for the Department of Transportation to provide Congress with information on the condition, performance, and capital investment requirements of the Nation's highway and transit systems. For the first time in the report series history, information is provided on maritime infrastructure. Maritime reports are not, however, statutorily required.

This report is in keeping with the Department's commitment to a truly intermodal perspective of the Nation's transport system. Combining modal information provides a valuable intermodal perspective as we seek to make the best use of each mode in satisfying our Nation's needs. We will continue the expansion of modal coverage in this report series to provide the breadth of information needed to deal with our increasingly complex transportation requirements.

The report finds that personal and freight transport demands on our systems are at an all time high and are expected to increase with population and economic growth, but at a slower rate than experienced in past decades. While the U.S. population has increased 1.16 percent annually since 1980, the number of trips per person and miles per trip have increased about three times as fast. Reasons for the per capita increases include changes in trends related to employment; the number, size, makeup, and location of households; the number of licensed drivers; and the number of household vehicles.

The physical condition of the surface transportation system has generally been stable, with States and local governments investing at rates approximately equal to the cost of maintaining the physical plant. Improved highway conditions have, to some extent, resulted in a significant decline in highway fatality rates over the past decade.

In contrast, highway system performance has been declining; this is reflected in various measures of congestion. The quality of transit performance has improved with increases in average speed, reductions in wait times and number of transfers as well as reductions in trip times.

Although all units of government and private industry are currently investing at record levels to maintain transport services and efficiency, demands continue to outpace investment. In 1994, an estimated \$57.2 billion capital investment would have been required from all sources just to maintain 1993 conditions and performance on our Nation's highway, bridge, and transit systems. In 1993, all levels of government actually invested \$40.5 billion in these systems.

An estimated \$80.0 billion would have been required in 1994 to provide a higher level of service by correcting and accruing deficient highway, bridge and transit conditions. The highway component of this estimate based on a new procedure that focuses on the services that the system provides to the users rather than on physical condition of the infrastructure. All highway improvements included in this estimate generate direct and agency benefits in excess of the initial cost of the improvement.

DOCUMENT ORGANIZATION

This document provides a summary of the 1995 Status of the Nation's Surface Transportation Conditions and Performance Report to Congress. It is presented in two parts. The first contains material on highway and transit facilities, the second covers the maritime industry.

Part I begins with a discussion of highway and transit system and user characteristics:

- Who uses the system?
- Why do they use it?
- What does the system need in order to meet current and future personal transportation requirements?
- What does the system look like?

The second chapter provides information on highway and transit finance:

- Who pays for the system?
- Where do the revenues come from?
- How are highway and transit funds spent?

The third chapter provides an indication of how well the highway and transit systems are working:

- In what physical condition are the Nation's highway and transit systems?
- How much congestion are highway users facing?
- How has the transit system been performing?
- How safe is the highway system?
- What has been the impact of highway transportation on the quality of our environment?

The next chapter provides estimates of the investment required, by all units of government, to either maintain or improve the condition and performance of the highway and transit systems over the next 20 years. These estimates are expressed as average annual requirements, that is the 20-year investment total divided by 20

years. The final chapter in Part I provides a linkage between the 20-year investment estimates and actual recent capital outlays by all units of government for highway, bridge, and transit capital improvements.

Part II summarizes information describing the maritime system. Material is also provided on system condition and performance. This section does not provide estimates of future investment requirements.

Readers will note that this summary contains a number of boxes labeled "Drawing Conclusions." This convention is intended as a vehicle for providing background information that may be useful in interpreting the report's statistical information.

PART I: HIGHWAY AND TRANSIT

1993 SYSTEM REPORT CARD

HIGHWAY

System Characteristics

Highway vehicle miles traveled reached 2.3 trillion (up 2.2 percent per year since 1989); highway passenger miles reached 3.9 trillion (an increase of 2.3 percent per year since 1989).

The extent of rural center-line mileage declined since 1983 due primarily to the expansion of Federal-aid urban area boundaries based on the periodic census.

Conditions and Performance

Pavement condition improved throughout the 1980's and continued to do so into the early 1990's. However, because the States are transitioning to a new method of rating pavements, it is impossible to determine if overall pavement condition changed in 1993 relative to prior years.

The severity of congestion (as measured by the percent of travel congested in the peak hour) increased through most of the 1980's, but stabilized between 1989 and 1991. The 1993 data indicates that the severity of congestion has continued to remain relatively constant. However, the change in urban area boundaries shifted a number of formerly rural highway sections into the urban category—diluting congested urban mileage. In urban areas, the extent and duration of congestion has increased steadily since 1983.

Highway safety has improved since 1983; the overall highway fatality rate has declined steadily from 2.58 fatalities per 100 million vehicle miles traveled (VMT) in 1983 to 1.75 per 100 million VMT in 1993, with the Interstate system continuing to be, by far, the safest system.

Since 1990, the percent of deficient bridges has decreased. In 1994, bridges classified as either structurally or functionally deficient accounted for 24 percent of Interstate bridges, 28 percent of other arterial system bridges, and 28 percent of collector system bridges.

Finance and Investment Requirements

All levels of government provided \$88.5 billion for highway programs. The Federal Government provided \$18.2 billion; the States, \$46.9 billion; and counties, cities, and other local government entities funded the remaining \$23.4 billion.

The \$88.5 billion provided for highway programs was distributed as follows:

- Capital investment: \$39.0 billion
- Noncapital expenses: \$41.9 billion
- Debt retirement: \$5.2 billion
- Reserve: \$2.4 billion

Of the \$39.0 billion invested in capital improvements, \$34.8 billion was for projects intended to improve the physical condition or performance of the system. The remaining \$4.2 billion was spent on improvements that were not triggered by condition or performance deficiencies (e.g., environmental mitigation and expenditures for economic development).

Federal funds accounted for \$17.1 billion of the \$39.0 billion in capital outlay, or 44 percent.

In 1994, an estimated \$49.9 billion in highway and bridge capital investment would have been required from all sources just to maintain 1993 conditions and performance. Actual capital investment in 1993 (the latest year for which expenditure data is available) was 70 percent of what was required to maintain conditions.

An estimated \$68.2 billion would have been required in 1994 to provide a higher quality of service on highway and bridge systems. Not all existing and accruing

highway deficiencies would have been eliminated, but those highway improvements that generated direct benefits in excess of the initial cost would have been made.

TRANSIT

System Characteristics

A total of 508 local public transit operators provided transit services in 316 urbanized areas. An additional 5,010 local and regional organizations provided publicly accessible transit services in rural and small urban areas.

On rail, transit patronage was 17.9 billion passenger miles (up 0.7 percent per year since 1983); on bus systems, transit patronage was 18.4 billion passenger miles (down by 0.5 percent per year since 1983).

Conditions and Performance

Between 1984 and 1992, the percent of transit maintenance yards, maintenance buildings, stations, and bridges in good or better condition improved significantly. However, one-third or more remain in less than good condition. As of 1992, 76 percent of rail cars were in good or better condition.

The perception of quality among customers and potential customers is an important determinant of transit use, often more important than the fare levels:

- Since 1984, the passenger-mile-weighted average speed improved by about 10 percent.
- Well over half of all riders reported wait times of 5 minutes or less. About 80 percent of riders wait no longer than 10 minutes. Fifty-one percent of transit trips involve one or more transfers.
- Twenty-nine percent of transit trips involve standing for at least part of the trip.
- About 25 percent of all transit users report trip times of 10 minutes or less, and nearly 76 percent of transit trips were reported to take less than half an hour.

Finance and Investment Requirements

Total transit revenue, from all sources, was \$22.6 billion. Public funding for transit was \$15.5 billion. The Federal share of this support was \$3.3 billion, the State and local share was \$12.1 billion. Fares and other system-generated revenue accounted for \$7.1 billion.

Of the \$22.6 billion in funding provided for transit, \$21.7 billion was expended for capital investment and operating requirements. Capital investment accounted for \$5.7 billion and \$16.0 billion was spent to satisfy operating costs (the remainder was placed in reserve).

Overall, Federal funds contributed only 6 percent to meeting transit operating costs, while contributing just under 42 percent of transit capital expenditures.

In 1994, an estimated \$7.3 billion in transit capital investment would have been required from all sources just to maintain 1993 conditions and performance. This level of investment included a \$5.1 billion requirement in system preservation and \$2.2 billion to expand capacity. Capital investment in 1993 was \$5.7 billion, or 78 percent of what was required.

An estimated \$11.8 billion was required in 1994 to provide a higher quality of service on transit systems. Of the \$11.8 billion investment requirement, \$7.1 billion would have been spent on system preservation and \$4.7 billion would have been used to correct capacity deficiencies.

CHAPTER 1: SYSTEM DESCRIPTION AND USAGE CHARACTERISTICS

The United States enjoys an extensive surface transportation system that includes 3.9 million miles of roads, 576,000 bridges, and over 166,000 route miles of transit.

In 1993, the number of vehicle miles traveled on highways reached 2.3 trillion, up 3.4 percent per year since 1983. On rail, transit patronage was 17.9 billion passenger miles in 1993, up at an annual rate of 0.7 percent from 1983. On bus systems, transit patronage was 18.4 billion in 1993, down by 0.5 percent per year since 1983. In 1993, total highway passenger miles traveled (PMT) reached 3.9 trillion, up at an annual rate of 2.3 percent since 1989 (the first year that highway PMT statistics were available).

The interaction of complex societal forces over the last two decades has resulted in important changes in the Nation's travel-trends. These changes will place new demands on our transportation system in the future.

A major trend noted is the transition to a service economy and the associated increase in the flexible labor force. Commuter trips will be increasingly spread over a longer day, with a sizable minority of travelers having variable work schedules.

A number of important demographic trends may also impact future travel patterns and service requirements. For example, the significant growth in the number of married women who work outside the home suggests large numbers of commuters who may need to drive alone due to their need to balance multiple responsibilities such as dropping children at day care on the way to work or grocery shopping on the way home.

Finally, rapid suburbanization of the population and employment has important transportation implications. In general, the lower the density of a community, the fewer concentrated origins and destinations and the fewer corridors of high density demand. These kinds of patterns require decentralized transportation facilities and services.

CLASSIFICATION BY FUNCTION

Highway

The 3.9 million miles of public roads and streets in the United States are functionally classified as arterials, collectors, and local roads, depending on the type of service they provide. These major systems are further subdivided into both rural and urban areas. Exhibit 1-1 provides an overview of the system and displays mileage and travel system and displays mileage and travel shares by functional classification.

Arterials

The arterial system, which includes the Interstate as well as the recently designated National Highway System, provides the highest level of mobility, at the highest speed, for long uninterrupted distances. These facilities generally have higher design standards than other roads, often with multiple lanes and some degree of access control.

Collectors

Collectors provide a lower level of mobility than arterials at lower speeds and for shorter trips. Collectors are usually two-lane roads that collect and distribute travel to and from the arterial systems. They provide the highest degree of mobility for a variety of local travel requirements.

Local Roads

The majority of public road and street mileage is classified as local. Local roads provide the access between residential and commercial properties and the higher functional systems. These roads and streets provide a high level of access to abutting land but limited VMT.

Transit

All public transit services in the United States may be functionally classified according to the public policy purposes served by individual trips: low-cost mobility, congestion management, and supporting livable metropolitan areas. Exhibit 1-2 provides an organizational overview and displays trip shares by functional system.

Low-Cost Mobility

All transit systems in the United States devote a portion of their services to providing low-cost mobility for people who, for reasons of low income, youth, old age, or disability, do not or cannot operate personal motorized transportation. The most important characteristic of such services is the provision of regular access to as many destinations in the service area as possible for a fare that passengers from low-income households can afford.

Congestion Management

Transit services that are competitive with the automobile most effectively serve the congestion mitigation function. The most distinctive characteristic of these transit services is consistently rapid door-to-door travel speeds encouraging a large proportion of people who own automobiles to choose transit thereby avoiding the unreliability and delays of congested highways.

Livable Metropolitan Areas

Transit services that provide motorized access to and from pedestrian oriented and multiple purpose central business districts and communities serve the function of supporting livable metropolitan areas. The most distinctive characteristic of these services is design for pedestrian access rather than access by automobile. Transit's

role in supporting a livable metropolitan area is strongest where pedestrian access to transit and to other services via transit enable households and businesses to function with reduced use of automotive transport. Although most such areas are very large cities, communities with very large college campuses exhibit similar characteristics.

SYSTEM EXTENT AND CAPACITY

Extent

Highway

In 1993, total National public road and street mileage was 3.9 million miles. Exhibit 1-3 compares current (1993) mileage with 1983 mileage. The share of total miles in rural areas decreased slightly, from 83 percent to 79 percent.

Bridge

In 1994, there were more than 576,000 bridges on our Nation's highways, compared to about 573,000 bridges in 1984.

Transit

In 1993, 508 local public transit operators provided transit services in 316 urbanized areas. An additional 5,010 local and regional organizations provided publicly accessible transit services in rural and small urban areas. In 1993, there were 129,317 total transit vehicles, 7,439 miles of rail track, 2,271 rail stations, and 1,172 maintenance facilities. Route miles of transit rail grew 15.7 percent from 1983 to 1993, or 1.5 percent per year. Nonrail transit includes buses, ferry boats, vans, and other conveyances, which in 1993 reached 158,799 route miles, an annual increase of 2.0 percent since 1983.

DRAWING CONCLUSIONS

Comparison of previous year data with the 1993 data used in the current C&P Report has the following difficulties:

- Expansion of the urban area boundaries as a result of the 1990 census resulted in reclassification of certain rural highway facilities to urban, causing miles and travel to shift from rural to urban classification.
- The States have reclassified certain U.S. Forest Service roadways to nonpublic roadways (which are not included in the National statistics).
- As a prelude to designation of the National Highway System, the States functionally reclassified their roads.

Capacity

Highway and transit capacitor comparisons are found in Exhibit 1-4. In 1993, there were .1 million lane miles of highways in the Nation. Over the Midyear period from 1983 to 1993, lane mileage increased 0.2 percent annually. Transit rail and bus capacitor is defined as the average number of miles traveled by each vehicle multiplied by the number of vehicles, expressed as standardized "bus equivalent vehicles." In 1993, transit rail capacitor consisted of 15,945 rail passenger vehicles providing 1,564 million bus equivalent vehicle miles, an annual increase of 2.2 percent since 1983. Transit bus capacitor, from 1983 to 1993, increased 1.5 percent annually.

AGGREGATE AND PER CAPITA TRAVEL GROWTH

The 1990 Nationwide Personal Transportation Survey shows that in 1990 Americans made 250 billion personal trips in a car or truck, or by bus, train, subway, or airplane, or by walking, biking, or riding a motorcycle. In 1990, Americans took over 91 percent of work trips and over 87 percent of all trips in a car or truck or other personal vehicle and only 2 percent to 4 percent of all trips in a bus, subway, or train. However, the transit share is much higher in urban areas, particularly the largest areas.

In 1990, Americans made 72 percent more person trips and traveled 65 percent more person miles than they had in 1969. This remarkable growth in travel is a function of aggregate travel growth and per capita growth.

Aggregate travel growth is related to total growth in the U.S. population; as the population increases the aggregate number of trips made and miles traveled increases, even if no one person takes more trips or travels farther than before. However, as shown in Exhibit 1-5, from 1969 through 1990 the total number of trips taken by all Americans increased over three times as fast as the population. It is

clear that other factors, in addition to population growth, account for much of the increase in total trips.

In 1990, the average trip length for all purposes was 9.4 miles compared to 8.7 miles in 1983, while the average commute increased to 10.7 miles from 8.5 miles, or a 26 percent increase.

Highway Vehicle Miles Traveled (VMT)

Highway VMT comparisons are found in Exhibit 1-6. In 1993, total highway VMT reached 2.3 trillion. For the 10-year period from 1983 to 1993, total travel increased at a compound annual rate of 3.4 percent. Travel growth in urban areas outpaced rural areas. However, as noted earlier, part of this growth is the result of expanding urban boundaries, i.e., rural travel becoming urban travel.

Highway and Transit Personal Miles Traveled

On rail, transit patronage was 7.9 billion passenger miles in 1993, up at an annual rate of 0.7 percent from 1983. On bus systems, transit patronage was 8.4 billion in 1993, down by 0.5 percent per year since 1983. In 1993, total highway passenger miles reached 3.9 trillion, up at an annual rate of 2.3 percent since 1989 (the first year that PMT statistics were available). Person miles of travel trends are provided in Exhibit 1-7.

PERSONAL TRAVEL CHARACTERISTICS

While almost all indicators of travel are up, there is substantial diversity within aggregate travel trends. There are important differences in the travel patterns of men and women, the young and the old, those in urban and rural areas, and among those of different racial and ethnic backgrounds.

Changes in travel patterns during the last two decades result from the interaction of complex societal forces that constrain and shape how American households organize all aspects of their lives. In order to recognize the demands that will be made on the Nation's transportation systems in the future, we must recognize how American households respond to the pressures created by these linked forces, and how their responses lead to wide variations in individual and aggregate travel patterns.

ECONOMIC TRENDS

In the next decade most job growth will be in service rather than production industries. Retail trade will soon replace manufacturing as the second largest source of total U.S. employment, generating over 5 million jobs by 2005.

A key component of the service sector is the flexible labor force, which contains as much as one fourth of all American workers. The flexible labor force is characterized by temporary employment, variable work schedules, workers with multiple employers, and work weeks of less than 40 hours.

In addition, the change to a service industry has brought Reconcentration of employment sites, creating a wide variety of dispersed work destinations. Industries do not need to be near one another or in a central area, average firm size is smaller, and firms are less likely to locate along heavily traveled corridors.

These changes have substantially altered the trip patterns of many workers, who are now traveling at different hours, along different routes, and on different days of the week than comparable people two decades earlier. Commuter trips are now spread over a longer day, with a sizable minority of travelers having variable work schedules.

DEMOGRAPHIC TRENDS

The major societal trends highlighted in Exhibit 1-5 appear to have affected certain groups in society differentially.

Ethnic Diversity

Large and growing numbers of the U.S. population are from different cultural, racial, or ethnic backgrounds. For reasons ranging from differing cultural norms to varying employment opportunities and income levels, these groups appear to have distinct travel patterns.

The Elderly

American society is rapidly aging. In 1990, more than one fourth of the entire population was over age 60. By the first decade of the next century almost half of all elderly people will be over age 75, and almost 5 percent of the entire U.S. population will be over age 80.

A number of factors related to the aging of society have profound implications for our Nation's transportation system. First, there are larger numbers of elderly driv-

ers today. Between 1983 and 1993 the increase in licensing among both older men and women was substantial. As a result the elderly are driving far more than they did two decades ago.

Second, the travel patterns of older people are strongly influenced by residential patterns. Because most older people age in the places they lived while working, elderly people are concentrated in low density or rural areas, where alternatives to automobile transportation are limited.

Third, there are central city concentrations of older people with special needs. Those elderly people who live in the central cities of metropolitan areas are more likely to be members of ethnic or racial minorities or women living alone.

One of the major implications of the aging of society is that there will be fewer younger workers available to pay for, or to directly provide, services for the rapidly growing number of seniors who require assistance. The overall level of care required by our aging population is much more physically and psychologically demanding than that needed four decades ago, in part because of the increased number of cognitive diseases among the growing number of people older than age 80.

Women

Today women account for close to half of those in paid employment. There has been significant growth in the number of married women who work outside the home as well as the participation of women with children, many with very young children.

The ways in which salaried women balance their domestic and employment responsibilities impact the modes they choose, the hours they travel, the routes they take, and how they organize and combine their out-of-home activities. For example, because they retain multiple responsibilities when they enter the paid labor force, women often "link" trips together, dropping children at day care on the way to work or going grocery shopping on the way home.

Women with children often have to make trips solely to meet the needs of their children and therefore may be less able to use alternative modes. Many workers report that they must drive alone because they need access to a car immediately before and after work to accomplish their child care needs and are concerned that they might be faced with a family emergency during the middle of the work day.

POPULATION MOVEMENTS AND LAND USE PATTERNS

Over the last three decades, the United States has experienced large shifts in employment and population that have resulted in rapid suburbanization of the population and employment as well as concentration of poverty in central cities. At the same time, local land use regulations have interacted with these factors to continue to increase the expansion of single purpose neighborhoods and low density communities.

These patterns all have strong implications for how, where, and how often people travel. The majority of Americans today live and work in metropolitan areas with low density land use and housing patterns. In general, the lower the density of a community the fewer concentrated origins and destinations and the fewer corridors of high density demand. These kinds of patterns require decentralized transportation facilities and services.

CHAPTER 2: FINANCING

All levels of government provided \$88.5 billion for highway programs. The Federal Government accounted for 21 percent; the States 53 percent; and counties, cities, and other local government entities funded the remaining 26 percent.

In the past two decades (since 1973), the Federal share of highway funding has gradually dropped from 28 percent to 21 percent. Alternatively, the percentage of highway receipts contributed by local governments has steadily increased during the same period, increasing from 19 percent in 1973 to 26 percent in 1993.

The \$88.5 billion in highway revenues does not include revenues collected from highway users but used to finance transit and other nonhighway activities. For example, State highway user revenues from motor fuel taxes, motor vehicle fees, and tolls actually generated \$46.1 billion in revenues in 1993, but only \$36.7 billion was actually used to fund highways.

The \$88.5 billion provided for highway programs was distributed as follows:

- Capital investment: \$39.0 billion
- Noncapital expenses: \$41.9 billion
- Debt retirement: \$5.2 billion
- Reserve: \$2.4 billion

During the past two decades, in constant (1970) cents per unit of travel, total expenditures have dropped from 1.88 cents per vehicle mile of travel (VMI) in 1970 to 1.12 cents per VMT in 1993, a 40 percent reduction.

Total transit revenue, from all sources, was \$22.6 billion. Public funding accounted for slightly over two-thirds and system-generated revenue (e.g., fares, advertising, etc.) accounted for almost one-third.

Of the \$22.6 billion in funding provided for transit, \$21.7 billion was expended for capital investment and operating requirements. Capital investment accounted for \$5.7 billion and \$16.0 billion was spent to satisfy operating costs.

FUNDING BY LEVEL OF GOVERNMENT

Highway

In 1993, all levels of government provided \$88.5 billion for highway programs. The Federal Government funded \$18.2 billion; the States, \$46.9 billion; and counties, cities, and other local government entities funded the remaining \$23.4 billion. The Federal share of funding for highways increased dramatically between 1956 and 1960 following passage of the Federal-Aid Highway Act of 1956 and the establishment of the Highway Trust Fund. However, since 1960 there has been a gradual trend downward in the Federal share of funding. The percentage of highway receipts contributed by local governments has been steadily increasing over the past several decades. For example, as illustrated in Exhibit 2-1, the local share of highway funding has increased from 19 percent in 1973 to 26 percent in 1993.

While the Federal Government provided 21 percent of the funding for highways in 1993, its direct share of actual total expenditures was only \$0.9 billion, or less than 1 percent. This is because almost all of the funds that the Federal Government provides for highways are transferred to the States under the Federal-Aid Highway Program for State and local governments to expend. Most of the remainder is spent on federally owned roads and research.

Transit

Public funding for transit in 1993 was \$15.4 billion. The Federal share of this support was \$3.3 billion, remaining at about the same level in current dollar terms since 1985. The State and local share was \$12.1 billion in 1993.

The state and local share of transit assistance has climbed steadily since reaching a low of 45 percent in 1980. This is due to a reduction in Federal operating assistance in the 1980's, an increase in State and local assistance over the same period, and a continued increase in transit service provided.

SOURCES OF PUBLIC SECTOR FINANCING

Highway

The \$88.5 billion provided for highway programs in 1993 came from a number of sources including highway user charges, property taxes and assessments, general funds, investment income, other taxes, miscellaneous fees, and bond issues. Exactions, development fees, and special district assessments provided additional revenue.

At the Federal level, motor fuel and motor vehicle taxes are the primary source of funds for highways. Motor fuel and motor vehicle taxes also provide the largest share, 72 percent, of highway funds at the State level.

Over one-third (36 percent) of highway funding at the local level is provided through the General Fund. Investment income and bond issue proceeds account for 32 percent. Property taxes, assessments, and other fees contribute almost 24 percent. The remainder (7 percent) is provided by highway users (motor fuel taxes, motor vehicle taxes, and tolls).

Transit

Federal support for transit comes from two sources: the Mass Transit Account of the Highway Trust Fund and the General Fund. The Transit Account now receives 2.0 cents per gallon of Federal motor fuel tax receipts.

DRAWING CONCLUSIONS

Funds Collected for Highways but Spent for Nonhighway Purposes

The highway revenues cited in this report do not include revenues collected from highway users but used to finance transit and other nonhighway activities. For example, State highway user revenues from motor fuel taxes, motor vehicle fees, and tolls actually generated \$46.1 billion in revenues in 1993. However, only \$36.7 billion was used to fund highways.

Although local governments actually raised \$2.4 billion from highway user taxation, only \$1.7 billion was expended for roads and streets. The difference in highway user revenues went for a variety of highway purposes.

CAPITAL AND NONCAPITAL EXPENDITURES

Summary of Expenditures

Of the \$88.5 billion in funding provided for highways in 1993, \$86.1 billion was expended for highway programs and \$2.4 billion was placed in reserve. Of the total highway expenditures, \$80.9 billion went for current expenditures and \$5.2 billion was used for debt retirement.

In constant (1970) cents per unit of travel, total expenditures dropped from 1.88 cents per vehicle mile of travel (VMI) in 1970 to 1.12 cents per VMT in 1993.

Of the \$21.7 billion expended for transit in 1993, \$5.7 billion was expended for capital and \$16.0 billion was for operating costs.

Capital Expenditures

Highway

All levels of government spent over \$39.0 billion on highway capital improvements. Of total expenditures, capital outlay represented 53 percent in 1973 and 48 percent in 1993. In constant (1970) cents per unit of travel, capital outlay dropped from 1.04 cents per VMT in 1970 to 0.56 cents per VMT in 1993, a 46 percent decline.

Of the \$39.0 billion spent on capital outlay in 1993, State and local governments spent \$38.7 billion, including \$17.1 billion in Federal funds. Federal direct expenditures were \$0.3 billion. Federal funds accounted for 44 percent of total highway capital outlay in 1993, down from a high of 56 percent in 1980.

State and local governments supplied 55 percent of all funds for highway capital improvements in 1993. With the exception of the period from 1976 to 1986, the State and local government share has been consistently more than 50 percent.

Exhibit 2-5 summarizes the distribution of highway capital outlay by improvement type and functional system for nonlocal roads.

Capital outlay on all local roads was \$7.1 billion in 1993. Local roads have the highest level of spending per unit of travel of all the functional systems. Improvement type data, however, are not available for this functional class.

Transit

While Federal capital assistance has remained relatively stable between 1988 and 1993, the level of State and local contribution to transit capital assistance has grown. Thus, investment in transit capital assets, both for existing and new systems has increased from \$4.1 billion in 1988 to \$5.7 billion in 1993. Federal capital assistance levels in fiscal years 1994 and 1995 were substantially higher than in past years.

The largest single component of transit capital expenditures in 1993 was rail facilities, reflecting a general preponderance in capital investment for facilities. Rolling stock accounts for just 27 percent of transit capital expenditures. This is due primarily to the greater investment required for rail facilities, which includes the rights of way, track, and structure over which the service operates. Bus facilities, while far more numerous, can be much simpler and require less substantial investment.

Noncapital Expenditures

Since 1956, in both current and constant dollars, spending for non-capital highway expenditures has increased. The noncapital share of expenditures for highways was \$41.9 billion in 1993, or 52 percent of highway expenditures.

Constant dollar growth from 1960 through 1993 for the noncapital category of expenditures was 122 percent compared to a 60 percent growth in total expenditures for both the capital and noncapital categories. In constant dollars, 1993 maintenance and traffic services expenditures were 78 percent higher than in 1960. Exhibit 2-6 demonstrates the increase in the proportion of total highway expenditures directed toward noncapital requirements. A total of \$22.9 billion was spent by State and local governments in 1993 to keep all highways, roads, and streets in 1993 to keep all highways, roads, and streets in serviceable condition. The maintenance and traffic services share of total expenditures was 26 percent in 1960 and 28 percent in 1993.

Other noncapital highway expenditures include administration, highway law enforcement and safety, and interest on highway debt. The relative share of these other noncapital expenditures to total expenditures has increased from 12 percent

in total expenditures has increased from 12 percent in 1960 to 24 percent in 1993. In constant dollars this category of spending has increased dramatically (216 percent) since 1960.

Transit

Operating (noncapital) expenditures increased significantly between 1983 and 1992, from \$8.4 billion to \$16.0 billion. Most of the percentage increase took place between 1983 and 1986. From 1987 to 1993, the annual increase in operating expenses, in real terms, was less than 1 percent. The earlier increases result, largely, from more complete reporting of costs, particularly in the rail transit sector as well as from significant increases in service supplied.

Although real operating costs per unit of service have remained relatively stable in recent years, expenditures per unit of travel have increased due to a decline in the rate of service utilization. Specifically, real operating costs per passenger mile increased 31 percent from 1983 to 1993, an average annual increase of 3 percent. The decline in service utilization rates can largely be explained by the increase in real fares of 41 percent during this period, an annual rate of an annual rate of 4 percent.

CHAPTER 3: CONDITIONS AND PERFORMANCE

Because of investment targeted to system preservation, our highways, bridges, and transit systems are in better physical shape than they were a few years ago, and they are safer than ever:

- The number of structurally deficient bridges has dropped.
- The amount of the pavement in poor condition has stabilized at a manageable level.
- The percent of transit fixed facilities and rolling stock in good condition has improved.
- The overall highway fatality rate has declined steadily from 2.58 fatalities per 100 million vehicle miles traveled (VMT) in 1983 to 1.75 per 100 million VMT in 1993, with the Interstate system continuing to be, by far, the safest system.

However, highway congestion continues to worsen. More travelers, in more areas, during more hours are facing high levels of congestion and delay than at any point in the history of the country. This means we are more susceptible to massive traffic backups as a result of accidents and even minor incidents.

The quality of transit service has improved:

- Since 1984, the passenger-mile weighted average speed improved by about 10 percent.
- Well over half of all riders report wait times of 5 minutes or less. Fifty 1 percent of transit trips involve one or more transfers.
- Less than one-third of all transit trips involve standing for at least part of the trip.
- About 25 percent of all transit users report trip times of 10 minutes or less.

SYSTEM PERFORMANCE

Highway Performance

Highway performance refers to the quality of service provided to system users. Highway operating performance, on a given facility or system, is a function of the quality of traffic flow. "Congestion" is a term often used to describe poor highway performance. There are substantial costs to the economy of the Nation as a result of congestion. A report by the Texas Transportation Institute, *Roadway Congestion Estimates and Trends—1990*, March 1993, estimated the total cost of congestion for the 50 urban areas studied at \$43.2 billion. Delay accounted for approximately 85 percent of this amount, while excess fuel consumption accounted for 15 percent. Eight of the top ten urban areas had total congestion costs exceeding \$1 billion.

While there is no widely accepted definition of congestion, congestion has three attributes: severity, duration, and extent. These three attributes affect system reliability. The severity of congestion refers to the magnitude of the problem, measured primarily by the average overall travel speed, travel time delay, or the maximum length of a queue behind a bottleneck. The extent of congestion is defined by the geographic area, the portion of the population, or the portion of total travel affected. The duration of congestion is the length of time that the traffic is congested. This report presents an assessment of severity. However, data to quantify the duration and extent of congestion are currently unavailable. A discussion of daily vehicle travel per lane mile is provided to give the reader a sense of travel density.

Peak-Hour Severity

The volume to service flow ratio (V/SF) may be used as a measure of severity. The V/SF is the ratio between the volume of traffic actually using a highway facility during the peak hour and the theoretical capacity of that facility to accommodate the traffic.

A V/SF of greater than 0.80 indicates the beginning condition of congestion. This level is a cost effective level of operation, but small increases in traffic beyond this point will generally cause operational problems.

Beyond a V/SF of 0.80, delay increases rapidly and system reliability is impaired because of an increase in nonrecurring delay. In general, as the traffic flow and density increase, any interruption is increasingly likely to cause disruption to the smooth flow and create a stop-and-go situation, resulting in lower throughput.

A V/SF of 0.95 or higher indicates the onset of severe congestion. Vehicle operating costs, fuel consumption, emission, and aggravation increase dramatically. Commuting time increases, worker productivity is lost, and trip quality declines.

The percentage of daily peak-hour urban travel in 1993 occurring under congested or highly congested (near stop-and-go) conditions is presented in Exhibit 3-1. It is noteworthy that of the peak-hour travel on Interstates and other freeways and expressways that is congested to some extent, 77 percent is occurring under severely congested conditions.

Due to changes in urban area boundaries and reclassification of some rural facilities, it is difficult to assess trends related to peak-hour congestion. However, the percent of peak-hour travel on urban Interstates with V/SF ratios greater than 0.80 increased from about 55 percent to about 70 percent between 1983 and 1989, and has remained relatively constant since that time.

DRAWING CONCLUSIONS

Congestion

"Congestion" is a term often used to describe poor highway performance. However, there is no widely accepted specific definition. It results from the inability of an individual highway section or system to accommodate adequately the volume of traffic that attempts to use the facility or system.

The results of congestion are interruptions in the traffic flow, delay, increased travel time, increased fuel consumption, increased vehicle emissions and reduced air quality, increased user costs, increased cost of goods transport with resultant increased costs to the consumer, increased aggravation to the driver, and other effects.

The perception of what constitutes congestion varies from place to place. What may be perceived as congestion in a city of 300,000 population may not be considered congestion in a city of 3 million. For that reason, this report does not attempt to specifically define congestion. Instead, it looks at the peak-hour volume of traffic relative to the calculated capacity.

Nonrecurring Delay

Incidents such as vehicle breakdowns and accidents, including minor fender benders, have the potential to create nonrecurring delay. Where congestion levels exceed volume to service flows of 0.80, the likelihood of nonrecurring delay increases significantly. High levels of nonrecurring delay result in system unreliability and are the economic reason that high levels of congestion should be avoided.

Questionable system reliability can severely restrict the adoption of advanced production and distribution techniques. Just-in-time delivery is only one example of many innovative practices that depend on the efficiency and reliability of highways. Although the absolute amount of time taken for a trip is important, what is more important is the assurance that the time for the trip will not be outside a specified range.

Highway and Bridge Data Sources

The highway information on condition and performance is based on data supplied by State highway agencies via the Highway Performance Monitoring System (HPMS) and the National Bridge Inventory (NBI) data bases. The HPMS data is updated annually and includes information about pavement, roadway cross-section, alignment, and usage for more than 110,000 sample sections of arterial and collector highways nationwide. The NBI contains records on each of approximately 575,000 bridges and is updated continuously.

Calculating Capacity

The volume to service flow ratios (V/SFs) reported in the current 1995 C&P Report are consistent with the capacity calculation procedures presented in the 1985

Highway Capacity Manual (HCM), Special Report 209 of the Transportation Research Board.

The 1985 HCM was revised in 1994 to reflect the increased volumes of traffic that are now being accommodated by freeways and, to a lesser extent, by other roads. Current research shows that more traffic can move through a freeway lane per hour than ever before because drivers have become willing to travel at closer headways (less than 2-second intervals) and at higher speeds at higher rates of flow than previously.

The new HCM suggests a capacity increase of 10 percent to 15 percent on freeways and means that less highway mileage and travel will be reported as occurring under congested conditions than is currently reported using the old procedure.

It is anticipated that the 1995 HPMS data furnished by the States and reported in the 1997 C&P Report will reflect the new capacity: calculation procedures.

Daily Vehicle Miles of Travel per Lane Mile (DVMT)

There has been a consistent increase in travel relative to the capacity of the highway system to accommodate the travel. Exhibits 3-2 and 3-3 illustrate the changes in DVMT per lane mile for each functional system, from 1983 to 1993.

These exhibits demonstrate the continuing increase in travel density on the higher functional systems, particularly the Interstate. DVMT per lane mile on the rural Interstates increased an average of 3.6 percent annually. On the urban Interstates, travel per lane mile increased 2.6 percent annually.

This increase in travel relative to the slower increase in supply of highway capacity suggests increasing congestion on the higher functional systems in the urbanized areas. Rural travel has not yet saturated the facilities to the degree that has occurred in the large urbanized areas. The greatest extent of congestion on highways in the rural category often occurs on those highways adjacent to urban areas or on facilities with heavy recreational travel.

Transit Performance

The perception of quality among customers and potential customers is an important determinant of transit use, often more important than the fare levels.

User Travel Speed

One of the most important dimensions of transit performance is speed of service, as perceived by the user. Overall speeds have improved since 1984 for both rail and bus service. Average rail speed improved from 24.8 miles per hour in 1984 to 26.3 miles per hour in 1993. Bus speed, on average, was 12.9 miles per hour in 1984 and 13.7 miles per hour in 1993.

Transfers and Waiting Times

The latest data (1990) indicates that the majority of transit users do not spend much time waiting for service. Well over half of all riders (59 percent) reported wait times of 5 minutes or less. About 80 percent of riders wait no longer than 10 minutes.

The need to transfer between transit vehicles en route to one's travel destination also influences transit patronage. Fifty-one percent of transit trips involve one or more transfers. In addition, approximately 17 percent of transit trips involve a transfer from a private vehicle, e.g., park-and-ride situations.

Available Seats

The presence of standees, even one or two, tends to convey a sense of crowding. This is especially true from the perspective of those who must stand. Passengers often consider a vehicle to be crowded when it is operating with a load factor above seated capacity but still significantly below full capacity. As shown in Exhibit 3A, 29 percent of transit trips involve standing for at least part of the trip.

Travel Times

According to data collected in 1990, about 25 percent of all transit users reported trip times of 10 minutes or less, and nearly 76 percent of transit trips were reported to take less than half an hour.

SYSTEM CONDITION

Highway Conditions

Highways

Highway physical condition is a function of pavement condition, lane width, alignment, drainage adequacy, and other measures that relate to the road's physical integrity or level of safety. Pavement conditions degrade because of normal use and

weathering, increases in traffic or vehicle sizes and weights, as well as levels of maintenance and capital spending.

Pavement rated as poor usually requires vehicles to travel more slowly than the posted speed limit, with more acceleration and deceleration to avoid potholes or other sections of bad pavement. Vehicle slowdown and rough pavement driving reduces fuel efficiency, wears out brakes and shock absorbers more quickly, and can lead to more frequent front end alignments.

Exhibit 3-5 shows the 1993 mileage and travel distribution by category of pavement condition as well as the percent of unpaved mileage.

Pavement in poor condition requires immediate improvement, usually reconstruction, to restore serviceability. Reconstruction involves removing and replacing paving material down to (and perhaps including) the subbase.

Mediocre pavement is expected to need improvement in the near future, generally within the next 5 years, depending on pavement design, environmental factors, and traffic loading. Pavement rated as mediocre can be improved by pavement management programs. The life of the highway surface for these pavements can be prolonged with lower cost, 3R types of pavement improvements (resurfacing, restoration, and rehabilitation).

Pavement in fair condition will likely need improvement in the 5? to 10-year horizon. The pavement in good condition will not likely need improvement for 10 years to 15 years or more.

The pavement information for the higher functional systems is, for most States, based on the International Roughness Index (IRI) pavement rating system. Ratings for the lower order functional systems reflect, for the most part, Pavement Serviceability Rating (PSR)-based assessments. However, to some extent, the distribution of pavements by condition rating reflects a mixture in each functional system of the PSR and IRI procedures.

Bridge

The proportions of bridges that are classified as being structurally or functionally deficient are found in Exhibit 3-6. In general, the higher functional systems have fewer deficient bridges.

A structurally deficient bridge is not necessarily unsafe or one that requires special posting for speed or weight limitations. It is a bridge that is designated as needing significant maintenance attention, rehabilitation, or sometimes replacement. Some of these bridges are load-posted so that heavier trucks will be required to take an alternate, longer route.

Functionally deficient bridges are those that do not have the lane widths, shoulder widths, or vertical clearances adequate to seine the traffic demand; or the waterway of the bridge may be inadequate and therefore allow occasional flooding of the roadway,

DRAWING CONCLUSIONS

Assessing Pavement Condition

Pavement condition evaluations have in the past been based on the Present Serviceability Rating (PSR) system. However, a transition is being made to ratings based on the international Roughness Index (IRI). This change from PSR to IRI invalidates any comparison of 1993 pavement condition data with that of preceding years. Several years of measurements using the IRI procedure are needed to define a trend.

IRI is an objective measure of pavement roughness developed by the World:Bank, and is accepted as a standard in the pavement evaluation community. It has been adopted as the measurement of pavement roughness by FHWA because (1) it uses a standard procedure and can be replicated, (2) it provides a consistent measure across jurisdictional lines and diverse functional systems, (3) it is an objective measurement, and (4) it is consistent with accepted worldwide pavement roughness measurement procedures.

The PSR measure is more subjective, and its application was subject to variation among jurisdictions and over time in the same jurisdiction, so it was difficult to compare accurately the trends in pavement.

TRANSIT CONDITIONS

Bus and Paratransit

Vehicle age is used as a surrogate for condition and provides the basis for evaluating bus and Paratransit fleet conditions.

Exhibit 3-7 displays urban bus and Paratransit vehicle conditions, in terms of the percentage of fleet in excess of the Federal Transit Administration (FTA) guideline age for each type of vehicle.

There is a significant number of overage vehicles of all types in the rural Section 16 and Section 18 fleets. The Section 16 fleet includes all vehicles owned by private nonprofit human service agencies that are recipients of Section 16 funds, not just those acquired with FTA funds.

Bus Maintenance Facilities

According to transit operators, more than half (57 percent) of urban bus support facilities are in "good or better:" condition for their current mission. The remaining facilities are categorized as "adequate" (18 percent), "substandard" (14 percent), and "poor" (10 percent).

Of those facilities owned by rural operators, 74 percent are reported to be of adequate size and 68 percent adequately equipped. Of leased facilities, 61 percent are reported to be of adequate size and 55 percent are considered to be adequately equipped.

Rail

The areas reported to be in most need of improvement in 1984 have improved significantly. Maintenance yards went from only 17 percent in good or better condition to 64 percent, and maintenance buildings went from only 28 percent to 52 percent. Also, stations improved significantly from 29 percent to 66 percent, and bridges from 33 percent to 61 percent. A substantial portion of rail infrastructure is still in need of investment to return it to good condition. Most significantly, over 73 percent of elevated structures need major investments. In addition, overhead (43 percent), third rail (41 percent), and maintenance facilities (48 percent) also have significant shares in less than good condition, requiring major investments.

DRAWING CONCLUSIONS

Minimum Transit Asset Age Requirements

For the purpose of managing the Federal investment in transit, the Federal Transit Administration (ETA) has established minimum requirements for the period of time an asset must remain in mass transit service before it will be considered eligible for funding of a replacement. These guidelines are based on such factors as industry practices, manufacturer recommendations, and studies of the tradeoff between capital investments and operating costs. On this basis, the following are the minimum useful life guidelines for vehicles used in bus and paratransit service: =

- Standard Full Size Transit Bus: 12 years
- Medium Duty Transit Bus: 10 years
- Small Transit Bus: 7 years
- Urban Paratransit van: 4 years

HIGHWAY SAFETY

A significant improvement in highway safety occurred during the period from 1983 through 1993. The overall highway fatality rate declined steadily from 2.58 fatalities per 100 million in 1983 to 1.75 fatalities per 100 million in 1993. Accident and fatality rates are affected by many factors other than highway condition and performance, including weather conditions, occupant protection use, number of intoxicated drivers, extent of police exposure, law enforcement, vehicle speed variations, and driver performance.

SELECTED HIGHWAY ENVIRONMENTAL INDICATORS

The environmental consequences of transportation arise from both construction and usage. Indices of performance pose both conceptual and practical challenges. However, an initial set of categories has been identified and includes air quality, water quality, wetlands, energy, noise, land use and open space, threatened and endangered species, and community impacts.

Progress is being made in each of these categories. As an example, there has been significant progress in reducing the overall levels of four major transportation-related air pollutants over the last decade.

Transportation sources are credited with most of the emissions reductions during the decade, even though travel increased by 33 percent. Improvements in air quality are attributed to Federal limits on gasoline volatility; replacement of older cars with newer, less polluting ones; and increased usage of unleaded gasoline.

CHAPTER 4: INVESTMENT REQUIREMENTS

Investment requirement estimates are developed for two scenarios. The Cost to Maintain conditions and performance provides the cost to keep the system functioning at its current level. The Cost to Improve conditions and performance provides the cost to bring the system up to a specified level of condition and performance.

The average annual Cost to Maintain overall 1993 highway, bridge, and transit conditions and performance, for the period 1994 through 2013 is estimated at \$62.7 billion. The average annual Cost to Improve highway, bridge, and transit conditions and performance is \$86.8 billion over the same period.

Seventy percent of the highway and bridge investment reported as necessary to either maintain or improve conditions and performance would be required in urban areas where about 55 percent of the cost would be directed to capacity expansion.

Somewhat over half of the investment necessary to either maintain or improve transit conditions and performance would be required to correct rail deficiencies; the remainder would be directed to the bus system. A significant portion (85 percent) of total transit investment requirements would be spent in areas having populations greater than 1 million.

The investment requirements provided above reflect the adoption of policies, within the most populous urbanized areas, to locally manage and satisfy future travel demand given environmental, fiscal, and social constraints.

The highway component of the Cost to Improve scenario was developed using a new simulation model, the Highway Economic Requirements System. This procedure uses marginal benefit/cost analysis to optimize highway investment. All highway improvements selected for implementation generate direct user and agency benefits in excess of the initial cost of the improvement.

ANALYTICAL OVERVIEW

Investment Scenarios

Total capital investment required from all sources to achieve certain specified levels of overall condition and performance on the Nation's highway, bridge, and transit systems is provided for two scenarios: (1) the Cost to Maintain current conditions and performance and (2) the Cost to Improve current conditions and performance.

Both scenarios are implemented over a Midyear beginning in 1994 and include the cost to selectively repair pavement, bridge, and transit deficiencies; eliminate unsafe conditions; and add capacity.

Under the Cost to Maintain scenario, some facilities will get better and some will get worse but overall system condition and performance will stay the same throughout the analysis period. In contrast, under the Cost to Improve scenario, overall system performance is improved by correcting existing and accruing system deficiencies.

Methodology

The centerpiece of the highway investment requirements estimation procedure is the Highway Performance Monitoring System (HPMS), which includes a comprehensive national data base and sophisticated investment/performance simulation models.

The HPMS data base provides information describing the current state of the highway system in terms of condition and performance.

The coordinated simulation models—the Analytical Process (AP) and the Highway Economic Requirements System (HERS)—simulate investment decisions and estimate the resulting level of system condition and performance. The AP was used to evaluate the Cost to Maintain scenario. This approach is founded on engineering principles. That is, engineering standards determine deficiency levels for various system attributes and potential improvement options are identified and considered for implementation based on engineering judgment and practice.

The HERS was used to evaluate the highway Cost to Improve scenario. This marks the beginning of a significant transition from the traditional engineering-based approach to one that incorporates economic considerations. The Cost to Improve investment requirements estimate now incorporates an economic efficiency test that each candidate improvement must pass before being selected for implementation.

The highway Cost to Improve scenario is now referred to as the Economic Efficiency scenario to highlight its economic component.

Where the traditional engineering-based analysis systematically implements all appropriate improvement options identified, regardless of economic merit, HERS evaluates each potential improvement to assure that direct user and agency benefits generated by the project will exceed the initial cost of the improvement.

Bridge investment requirements for both the Cost to Improve and Cost to Maintain scenarios are estimated using an engineering-based procedure, analogous to the HPMS AP. The bridge investment requirements do not reflect explicit benefit/cost considerations.

For both scenarios, the transit analysis is based on current infrastructure extent and condition and an estimate of the cost of system preservation and added transit capacity required to satisfy the objectives of each scenario. Explicit benefit/cost procedures are used to validate service level assumptions and certain unit costs.

DRAWING CONCLUSIONS

Investment Requirements

Estimates of investment required to either maintain or improve the Nation's highway, bridge, and transit systems over the next 20 years are intended to serve as benchmarks for policy development.

The Cost to Improve highway, bridge, and transit conditions and performance suggest the upper limit of appropriate national investment, based on either engineering or economic criteria. Alternatively, the Cost to Maintain conditions and performance estimates provide a sense of the lowest reasonable level of investment; investment at levels less than the Cost to Maintain benchmark will result in system deterioration.

The investment scenarios do not represent comprehensive alternative national investment policies. No policy priorities have been assumed regarding either the strategic importance of individual facilities, classes of facilities, or mode of transportation. In actual practice, however, State and local transportation agencies do target.

The Highway Economic Requirements System (HERS)

An Overview

An important goal of highway capital investment is to reduce the total cost of transportation, including costs occasioned by public agencies as well as highway users. User costs vary according to highway physical conditions and system performance, and these factors are directly affected by the level of highway investment.

The HERS model estimates the national highway investment required to achieve a specified user cost level or the user cost level resulting from a given level of highway investment. Its simulation procedure assumes that project-level selection practices will optimize (given varying constraints) the relationship between public investment and direct user costs.

The HERS uses as input the HPMS data base and employs benefit/cost analysis (BCA) to evaluate the attractiveness of potential highway improvements that have been identified to correct deficient prototype sections. The BCA decision rule is straightforward: invest only when benefits exceed costs.

In the current version of HERS, benefits include reductions in direct user and agency costs. Highway user benefits are defined as reductions in travel time costs, accidents, and vehicle operating costs. Agency benefits include reduced maintenance costs and the residual (salvage) value of a project. Costs refer to expenditures associated with implementing the project such as design, right-of-way acquisition, and construction.

For each alternative, a time stream of constant-dollar costs and benefits is estimated for the lifetime of the project. Future benefits are measured relative to the base, or do nothing alternative, and discounted to allow for the opportunity value of resources with respect to time.

When analyzing the Economic Efficiency Investment scenario, the HERS corrects all system deficiencies having associated improvements that generate direct user and agency costs exceeding the initial cost. Investment beyond that indicated by the Economic Efficiency scenario includes projects having negative net benefits. Investment short of this point is a "second best" alternative because constraints, such as funding exclude some projects having benefits greater than costs.

When funding is not available to achieve "optimal" spending levels, HERS will prioritize economically worthwhile potential improvement options according to relative merit (that is, benefit/cost ratios) and select the best set of projects. Subsequent editions of the C&P Report series will include the results of such analysis.

Limitations

An intensive, independent review of HERS in 1994 indicated that, while the model was fundamentally sound, it could be improved by consideration of a number of issues.

Static System. The current version of the model does not consider network interactions, new construction on new alignment, traffic diversion, or induced travel. Many of these limitations are a function of the data base, which consists of statistically sampled discrete highway sections.

Inefficient Pricing of Facilities. Because highways (and transportation in general) are not efficiently priced, highway users do not consider the marginal costs—increased travel times—they impose on all other drivers using the facility. Future versions of HERS will have the capability of simulating the impact of alternative pricing strategies.

Direct User Costs. While the direct benefits included in the current version of HERS constitute the major impacts of highway improvements, the HERS accounting is not comprehensive. Most significantly, externalities (e.g., changes in air quality) and "real" (as opposed to pecuniary) productivity improvements (e.g., benefits from improved system reliability) arising from system improvements are not addressed. Work is under way to incorporate externalities into the HERS framework.

Uncertain Value of Travel Time. One of the most significant benefits associated with many highway improvements is travel time savings. Although much research has been conducted in this area, there is still disagreement on the proper values that should be applied to the various types of travel: commercial, commuting to work, and personal. Future editions of the C&P Report will include detailed results of sensitivity analysis.

Travel Growth Assumptions

For the current 1995 C&P Report, the travel forecasts underlying the highway and transit investment requirements for the 33 most populous urbanized areas (UZAs) are derived from the Metropolitan Planning Organization (MPO) planning process. Highway travel growth projections for facilities outside these areas are based on state-supplied, facility-specific forecasts as provided in the HPMS data base.

Social, fiscal, and environmental concerns are most pronounced in these areas and transportation modal alternatives are more prevalent as well. For example, approximately 90 percent of transit ridership occurs in the 33 most populous UZAs.

The MPO highway and travel forecasts must be in conformance with Clean Air Act requirements and consistent with the fiscal capability of the area to implement the proposed transportation investments.

Exhibits 4-1 and 4-2 illustrate the divergence from historical patterns implied by adoption of MPO travel growth assumptions. Highway travel is projected to increase at a dampened rate (1.5 percent annually) relative to past experience. The growth rate would naturally decline in the future as the VMT base grows; however, the MPO forecast implies a sudden shift to a lower rate.)

Alternatively, transit travel growth trends are assumed to shift from a continually constant level of travel to one in which travel will grow at a compound annual rate of 2.4 percent. These trends are consistent with MPO plans that seek to reduce highway travel through various demand and supply oriented measures that encourage higher transit use.

However, without significant and widespread demand-shaping policies, which have yet to be implemented in any American city, it is not likely that the MPO forecasts will be achieved. To the extent that actual future experience exceeds the highway travel forecasts, the resulting investment requirement estimates may be understated. Analogously, the degree to which the transit travel forecasts are not realized, the estimates of future transit investment requirements may be overstated.

ADDITIONAL ASSUMPTIONS AND PROCEDURAL IMPROVEMENTS

The data base, as well as the associated models are under continuous review. Procedures are routinely developed, external to the models, to keep the investment requirement estimation procedures consistent with current information. Efforts to incorporate these external procedures into the model structure are underway but may take several years to complete.

Exhibit 4-3 provides an overview of the external revisions to the model inputs and outputs that were implemented for the current report.

INVESTMENT REQUIREMENTS

Cost to Maintain Conditions and Performance

Highway and Bridge

The average annual Cost to Maintain overall 1993 highway and bridge conditions and performance on existing arterial, collector, and local systems through 2013 is estimated at \$54.8 billion.

Under this strategy, the overall miles of roadway in poor or mediocre condition would remain essentially unchanged over the analysis period. System performance would be maintained at its current level on most rural and many urban miles.

The current total number of structurally deficient and functionally obsolete bridges would also remain about the same.

Transit

The average annual Cost to Maintain current transit conditions and performance, for the period 1994 through 2013, is estimated at \$7.9 billion.

This level of investment would maintain facilities and equipment in their current state of repair and expand service to meet the demand increase forecasted by the MPOs.

At this level of investment, transit vehicles would be replaced at about the current rate, which is slightly slower than what is generally regarded as optimal. Existing rail systems would be maintained in about their current condition, with no major improvements. Transit operators would meet the requirements of the Americans with Disabilities Act (ADA) and the Clean Air Act Amendments (CAAA).

Cost to Improve Conditions and Performance

Highway (Economic Efficiency)

Under this scenario, system deficiencies are identified and any investment that creates positive net benefits is considered worthwhile. Implementation of this scenario resulted in an average BCR of greater than 2.6. Some improvements resulted in BCRs significantly higher than 2.6 and some were lower; no improvement was implemented that had a BCR of less than 1.0.

The average annual Cost to Improve highway conditions and performance for the period 1994 through 2013 is, given Economic Efficiency standards, \$65.1 billion.

Bridge

The Cost to Improve bridge conditions scenario provides cost estimates for achieving and maintaining predefined Minimum Condition Standards for physical conditions on bridges that are currently deficient or expected to become deficient at some point during the analysis period. This scenario represents a significant improvement in nationwide bridge conditions.

The modeling procedure used to develop the investment estimates for this scenario does not employ economic considerations in the evaluation of potential improvements.

The Cost to Improve bridge conditions for the period 1994 through 2013 is \$8.9 billion annually.

Transit

The average annual Cost to Improve transit conditions and performance is estimated at \$12.9 billion for the analysis period.

Of the total annual investment requirements, \$7.9 billion represents the Cost to Maintain current conditions and performance, \$2.0 billion to correct existing deficiencies, and \$3.0 billion to improve transit service levels in terms of system speed, comfort, and convenience. These estimates reflect investment requirements imposed by the CAAA and the ADA.

At this investment level, sufficient capacity would be available to provide transit patrons with seats for all but those trips occurring at the peak of rush hours. In addition, wait times and the need to transfer would be reduced. Finally, the backlog of deferred rail and bus modernization and rehabilitation requirements would be eliminated.

SCHMATIC: DEVELOPMENT OF HIGHWAY INVESTMENT REQUIREMENTS

Adjustments to the Highway Performance Monitoring System Analytical Process and Highway Economic Requirements System Simulated Investment Requirements

1. The analysis of 1994–2013 highway and bridge investment requirements began with an assessment of the 1993 Highway Performance Monitoring System (HPMS) data base. The States provide section-specific estimates of future travel at the end of the analysis period.

2. The first major adjustment was to revise the HPMS State-supplied travel forecasts in the 33 most populous urbanized areas to reflect MPO planning considerations. This adjustment resulted in less highway travel being projected over the 20-year analysis period and therefore lowered capacity requirements, especially in the most populous urbanized areas.

3. In the face of increasing congestion, many drivers will adjust their schedules to make more intensive and efficient use of available highway capacity. Therefore.

peak travel periods will extend for longer periods of time and in more locations. To reflect this phenomenon a spreading of the peak was simulated, resulting in lower capacity requirements.

4. The model-based results were adjusted to reflect the latest edition of the Highway Capacity Manual (HCM), which assumes a larger number of vehicles per lane per hour are now being accommodated than in the past (effectively increasing capacity). The impact of this adjustment was a reduction in projected capacity requirements.

5. Where appropriate, capacity enhancements other than constructing additional lanes were simulated. Such enhancements include freeway surveillance and control, High Occupancy Vehicle facilities, ramp metering, incident management, signalization improvements, traffic channeling, and restriping existing pavement. The impact of implementing an aggressive Transportation System Management program reduces the requirement for additional lane miles of capacity.

Investment Requirements Added to the Model-Based Estimates

6. To incorporate the basic infrastructure requirements in expanding suburban areas, the expected population growth in and around urbanized areas is translated into basic network infrastructure. Incremental metropolitan expansion requirements are estimated at \$8.5 billion per year (beyond estimates for increased demand on existing facilities).

7. The HPMS data base does not contain condition and performance information for the approximately 2.7 million miles of roads functionally classified as local. Local road investment requirements are estimated at \$1.0 billion per year, based on a Department of Agriculture study.

8. The military relies on the highway system for peacetime movement of military shipments, as well as for wartime or emergency mobilization and deployment of military units. For these purposes, a subset of Interstate and other principal arterial systems has been accorded certain design specifications in order to accommodate large and heavy military vehicles. Capital requirements necessary to achieve these specifications, above and beyond what would normally be required to accommodate nonmilitary traffic, are estimated at \$30 million annually.

9. In their HPMS submittal, the States are no longer required to provide information on rural minor collectors. The investment analysis of rural minor collectors was based on information included in the 1992 HPMS data base.

CHAPTER 5: INVESTMENT REQUIREMENTS VERSUS CAPITAL OUTLAY

In 1994, \$57.2 billion in capital investment would have been required, from all levels of government, just to maintain 1993 conditions and performance on our Nation's highways, bridges, and transit systems. This estimate includes \$34.8 billion in system presentation and \$22.4 billion to expand capacity to prevent increased congestion.

In 1994, \$80 billion would have been required to provide a higher quality of service. This estimate includes \$50.7 billion for system presentation and \$29.3 billion for expanded capacity. Under this scenario, highway deficiencies would not be eliminated, but those highway improvements that generated a benefit/cost ratio of one or greater would be made.

Currently (1993), all levels of government spend \$40.5 billion annually on highway and transit capital investment triggered by condition and/or performance deficiencies. Highway investment accounted for \$34.8 billion and transit investment accounted for \$5.7 billion.

Just to maintain current conditions on our highway and transit systems will require 41 percent higher funding than Federal, State, and local governments are currently investing. To improve conditions to optimal levels based on economic and engineering criteria would require us to double our current capital investment in highways and transit.

Investment by all units of government has never been sufficient to maintain overall system condition and performance. However, highway and transit systems have not fallen apart because the States are investing strategically so that the most important deficiencies are addressed. As a result of overall disinvestment, highway system performance continues to decline. Motorists now face more congestion, in more places, for longer periods of time, than at any point in history. Maintaining the highway and transit infrastructure at an acceptable level will become increasingly difficult unless adequate funding is provided.

Investment estimates are developed for a 20-year analysis period. To provide linkage between these 20-year investment estimates and actual current year invest-

ment, this section offers a comparison of 1994 investment requirements and actual recent capital outlays by all units of government. This analysis requires that only 1993 disbursements related to condition and performance deficiencies (as opposed to total capital outlay) be compared to investment required in 1994 (in contrast to the average annual requirement).

It was reported earlier in this pamphlet that a total of \$38.7 billion was spent by State and local governments on highway and bridge capital improvements in 1993. However, not all of this spending was occasioned by condition and performance deficiencies.

Of the \$38.7 billion in capital expenditures, \$34.8 billion was spent to correct condition and performance deficiencies. The balance was spent on capital improvements intended to satisfy other objectives such as environmental impact mitigation or economic development. Exhibit 5-1 provides a comparison of total capital outlay with that portion invested to correct condition and performance deficiencies.

Because of projected increases in highway and transit travel over the 20-year analysis period, the investment requirement estimate for any given year (except the midpoint) will be different than the average annual investment requirement reported in Section 4. Investment required for capacity expansion to maintain or improve system performance is assumed to grow at a rate equal to the rate of travel growth. Therefore, the investment required for each year during the first 10 years of the analysis period will be lower than the average annual; and the investment required for each year during the second half of the analysis period will be higher than the average annual.

Exhibit 5-2 compares the investment required in 1994 to maintain or improve highway, bridge, and transit conditions with the comparable 1993 capital outlay. Readers will note that the highway and transit investment required in 1994 is indeed lower than the average annual. Bridge investment is generally directed at system preservation and is therefore assumed to be insensitive to travel growth estimates.

PART II: MARITIME

CHAPTER 6: WATERBORNE TRANSPORTATION

The U.S. waterborne transportation system serves the needs of both international and domestic commerce and also includes the port infrastructure and shipbuilding industry. Together its segments play a critical role in meeting national security requirements and contributing to economic growth.

The world merchant fleet amounts to over 25,000 vessels with a capacity of 686 million deadweight tons (DWE). The U.S. ranks tenth among countries of registry with 20 million DWT. The domestic fleet includes nearly 40,000 vessels with a cargo capacity of more than 67 million short tons.

The January 1, 1995, world orderbook for merchant vessels consisted of 1,527 vessels totaling 66.6 million DWT. The Major U.S. Shipbuilding and Repair Base is comprised of 101 private building and repair shipyards, and the U.S. ranks 26th among the world's shipbuilding nations.

U.S. oceanborne foreign trade amounted to 898 million long tons with a value of \$566 billion in 1994 and is projected to grow 4.5 percent annually through 2005.

The cargo carried on U.S.-flag vessels increased steadily from 25.1 million long tons in 1970 to 35.2 million long tons in 1994, a 40 percent increase, reflecting the deployment of larger, more productive vessels.

Total domestic trade amounted to approximately 1.1 billion short tons annually during the 1987 through 1993 period.

There are 1,917 major U.S. seaport terminals, and 1,789 river terminal facilities located in 21 states on the 25,000-mile U.S. inland waterway system. Of the 343 ports that handled waterborne trade during 1993, the 50 leading coastal and inland ports accounted for 89 percent of the total traffic. In 1994, 44 percent of the world merchant fleet tonnage called at U.S. ports.

World oceanborne trade is projected to approach 5 billion tons by 2005. The demand for new buildings worldwide will approximate \$267 billion in current dollars over the next 5 years, \$150 billion attributable to replacement requirements and \$117 billion to trade growth.

Future investment in the U.S. waterborne transportation system will need to continue to be a blend of public and private money, as the industry remains essentially privately capitalized.

SYSTEM CHARACTERISTICS AND CONDITION

The U.S. waterborne transportation system serves the needs of both international and domestic commerce. It includes the international liner (scheduled), nonliner (unscheduled dry cargo) and tanker segments, the domestic inland waterways, Great Lakes and ocean segments, the port infrastructure, and shipbuilding industry. Together these segments play an important role in both the global and domestic economy, and a critical role in meeting our national security requirements and contributing to economic growth.

World and U.S. Oceangoing Fleets

Characteristics The world merchant fleet of oceangoing vessels 1,000 gross tons and over, as of January 1, 1995, amounted to just over 25,000 vessels with a capacity of 686 million deadweight tons (DWT). Only 15 nations have more than 10 million DWT registered under their flags, and together these 15 account for 75 percent of the world total. The five largest registry 'days are Panama, Liberia, Greece, Cyprus, and the Bahamas, accounting for 46 percent of the total world fleet. The U.S. ranks tenth with 20 million DWT. Tanker vessels make up the largest part of the world fleet, accounting for 5,994 vessels and 297 million DWT. Dry bulk carriers account for 5,291 vessels and 250 million DWT. The United States has a significant presence in the world intermodal fleet; its containership fleet ranks third in the world.

Condition

The U.S. oceangoing fleet is older and less fuel efficient than the overall world fleet.

*U.S. Domestic Fleet**Characteristics*

The domestic fleet includes nearly 40,000 vessels with a cargo capacity of more than 67 million short tons. The predominant vessel in the domestic fleet is the dry cargo barge, 87 percent of which operate on the inland waterways. Total capacity of the 26,953 dry cargo barge fleet is 39 million short tons.

In 1993, the tank barge fleet consisted of 3,862 vessels with a capacity of nearly 11 million short tons. About 82 percent of these operated on the inland waterways. The domestic towboat/tugboat fleet amounted to 5,224 vessels in 1993, 62 percent operating on the inland waterways. The self-propelled U.S.-flag Great Lakes fleet consists almost exclusively of dry bulk vessels, most of which carry ores. Ferries constitute a small segment of the domestic fleet, 150 in number, with a total passenger capacity of just over 87,000 (580 per vessel average).

Condition

An age profile of selected portions of the domestic fleet is shown in Exhibit 6-3.

Port Infrastructure

The U.S. port system is comprised of deep-draft seaport and Great Lakes port facilities and the inland waterway system. Each of these elements include both publicly and privately owned marine terminal facilities which are the interface between water and surface transportation modes.

There are in total 1,917 major U.S. seaport terminals comprising 3,173 berths. The general cargo class is the predominate berth type in all regions except the Great Lakes, where the majority of facilities are for dry bulk cargoes.

There are 1,789 river terminal facilities located in 21 states on the 25,000-mile U.S. inland waterway system. The inland system is less concentrated geographically and provides almost limitless access points to the waterways.

U.S. Shipbuilding

The Major U.S. Shipbuilding and Repair Base is comprised of 101 private shipbuilding and repair shipyards—21 shipbuilding yards, 32 major repair yards, and an additional 48 yards that are capable of performing topside work on large vessels.

DRAWING CONCLUSIONS

Intermodal Transportation

Intermodal transportation uses sophisticated equipment (vessels and inland delivery systems) linked through information technology to meet shippers' needs. Compared to traditional breakbulk services, intermodal transportation provides shippers with lower transportation costs, reduced inventory and warehousing costs, just-in-time logistics support, reduced damage and pilferage, and increased market opportu-

nities. U.S.-flag carriers pioneered the development of marine container terminals, double stack trains, and cargo and equipment tracking systems to provide the total logistics support required for an efficient transportation network.

U.S.-flag Shares

U.S.-flag vessels carried approximately 3.8 percent of U.S. waterborne foreign trade in 1994, down from 5.3 percent in 1970. However, the cargo carried on U.S.-flag vessels has increased steadily from 25.1 million long tons in 1970 to 35.2 million long tons in 1994, a 40 percent increase. This absolute increase in cargo carried on U.S. flag vessels reflects the deployment of larger, more productive U.S.-flag vessels in the in the 1970's and 1980's.

SYSTEM PERFORMANCE

International Trade

In 1994, world oceanborne trade (imports) amounted to about 3.1 billion long tons, with the United States accounting for 18 percent. Total oceanborne U.S. foreign trade (exports and imports) in 1994 amounted to 898 million long tons with a value of \$566 billion, an increase of 3.2 percent in tonnage and 12.8 percent in value from the previous year.

U.S. liner trade expanded at an annual rate of 6.8 percent between 1985 and 1994. In 1994, approximately 78 percent of all U.S. liner cargoes (long tons) were containerized. Highly specialized line-haul/ feeder services, connecting carrier services and vessel-sharing arrangements have become the norm in these trades.

U.S. non-liner shipments declined at an annual rate of 1 percent between 1985 and 1994. The U.S. tanker trade grew at an average annual rate of 7 percent between 1985 and 1994, due largely to rising U.S. petroleum imports (occasioned in part by declining domestic crude oil production).

In 1994, 7,206 vessels, or 29 percent of the world merchant fleet, called at U.S. ports. In terms of capacity, these ships represented 44 percent of the deadweight tonnage in the world fleet.

U.S. Domestic Trade

Total domestic trade (inland waterways, Great Lakes, and domestic ocean services) amounted to approximately 1.1 billion short tons annually during the 1987 through 1993 period.

The total volume of cargo carried on the Great Lakes has been quite stable over the last several years, and amounted to nearly 110 million tons in 1993. More than 90 percent of this traffic moved in dry bulk ships.

One out of every eight tons of goods transported domestically moves via the inland or intracoastal waterway systems, and more than half of U.S. states are tied to a waterway system.

Total cargo moving in the domestic ocean trades, which include Alaska, Hawaii and Puerto Rico, has been declining steadily for the past several years, reflecting the decline in Alaska North Slope crude oil shipments.

Port Traffic

The movement of domestic and foreign waterborne commerce through the U.S. port system is highly concentrated. A total of 343 ports handled waterborne trade during 1993. The tonnage handled by the 50 leading coastal and inland ports amounted to 89 percent of the total water-borne trade in that year. Despite the high degree of concentration, there were 145 ports that handled over 1 million short tons of cargo, which demonstrates the broad base on which the U.S. port system is built.

Container traffic through U.S. ports, which increased by 12 percent from 1993 to 1994, is also highly concentrated. The top ports accounted for 79 percent of the total. In terms of port calls, the top ports accounted for approximately 75 percent of the vessel calls to all U.S. ports in 1994.

Shipyards Production

As of January 1, 1995, the world orderbook for merchant vessels 1,000 gross tons (GRT) and over consisted of 1,527 vessels totaling million DWT. Japan and South Korea are by far the leading world merchant shipbuilders with combined 64 percent share (based on DWT) of the January 1, 1995 orderbook. The United States ranks 26th among the world's shipbuilding nations.

U.S. shipbuilding industry has a long history of commercial construction. However, as a result of the suspension of Federal construction assistance, the U.S. shipbuilding industry's commercial orderbook fell from 77 vessels (approximately 4.7 million GRT) in the mid-1970's to zero by 1988. Since the enactment of the National Shipbuilding and Shipyard Conversion Act of 1993, U.S. shipyards have been ag-

gressively competing for re-entry into the domestic and foreign commercial shipbuilding markets. The newly expanded Federal mortgage guarantee program Title XI) has been a major impetus to the shipyards.

National Security Aspects

In the past, the United States relied on a huge fleet of relatively small commercial ships to provide sealift support; now, that fleet has been superseded by an infinitely more sophisticated network of interrelated, intermodal equipment and large vessels. These assets, located throughout the world, serve both U.S. commercial and military requirements.

Demand for Water Transportation and Shipping Capacity

Oceanborne Trade

World oceanborne trade expanded from 2.3 billion long tons to 3.1 billion long tons between 1985 and 1994 (3.9 percent annually), and is projected to grow at 4.3 percent annually to approach 5 billion tons by 2005. U.S. oceanborne foreign trade grew at a slightly slower rate over the last 10 years, but is projected to grow 4.5 percent annually through 2005. Oceanborne trade is expected to grow at higher rates than gross domestic product due to reduction in trade barriers and advances in transportation and communications. Countries will be trading a larger share of what they produce.

Demand for Ocean Shipping Capacity

Demand for shipping capacity is largely a function of world trade. However, given the age profiles of the existing world fleet, the principal new building demand in the 1990's will come from the requirement to replace existing vessels. Thus, total shipbuilding demand has a replacement component and a trade-induced component. Since trade forecasts may vary widely, there is much more certainty associated with the replacement component, which reflects the physical deterioration of ships over time. Exhibit 6-7 shows the world demand for newbuildings in the 1995-2000 period. Nearly two-thirds of the total demand for newbuilding through the year 2000 will be for replacement vessels. The demand for newbuildings worldwide will approximate \$267 billion in current dollars over the next 5 years, \$150 billion attributable to replacement requirements and \$117 billion to trade growth.

Considering the high percentage of the world fleet that serves the U.S., this demand for newbuilding is important to the Nation, as both a shipbuilder and a consumer of transportation services.

System Investment Requirements

Future investment in the U.S. waterborne transportation system will need to continue to be a blend of public (Federal, State, and local) and private money, as the industry remains essentially privately capitalized.

Significant investment in replacement tonnage will be required. Where the replacements are built and what flag they fly will be largely a function of the level of Federal commitment to maintaining a U.S. flag presence in international trade and a U.S. shipbuilding capability. Federal funds invested in the maritime industry tend to be highly leveraged. Thus, an annual investment of \$100 million in the proposed Maritime Security Program would maintain an operating liner fleet of 50 U.S.-flag ships operating in international trade (a small fraction of the total operating costs of such a fleet). Similarly, the Title XI ship financing program (which guarantees up to 87.5 percent of vessel cost) requires that only a small portion of the guarantee amount (5 percent to 10 percent) be held as a reserve against default.

STATEMENT OF ANDREW CARD, JR., PRESIDENT, AMERICAN AUTOMOBILE
MANUFACTURERS ASSOCIATION

Good afternoon, I am Andrew Card, President and CEO of the American Automobile Manufacturers Association (AAMA). AAMA's members are Chrysler Corporation, Ford Motor Company and General Motors Corporation. Thank you for the opportunity to testify today on the reauthorization of the Intermodal Surface Transportation Efficiency Act (ISTEA).

The automotive industry has a keen interest in and a unique perspective on a safe and efficient highway system: good roads are vital for both the production and use of our products.

The automotive industry sells "mobility." Some years ago, a former GM chairman characterized the role of the industry in this way: "We may think we sell cars and trucks. But what we are really selling is mobility. Our cars and trucks must be well

designed and well built, but if they cannot be used efficiently and enjoyably, they will be of no more value than a canoe in the desert."

While our customers need good roads for the safe and efficient use of our products, we as manufacturers must also have good roads to build and distribute our products. Global economic competition has changed the way we conduct every aspect of our business and that includes how we use our highways. U.S. maps may show that Interstate 95 runs from Maine to Florida and that Interstate 80 goes from New York to San Francisco. However, for America's car companies, these roads extend directly from our 276 manufacturing facilities to Europe, to Asia and beyond.

In order to compete in our global economy, AAMA member companies have instituted quality control and lean manufacturing processes to reduce costs and increase productivity. These improvements have resulted in a significant change in the auto industry's material delivery network. Auto manufacturers now ship the majority of their parts and components just-in-time to meet very precise production schedules. The data dramatically illustrate this change: in a decade, just-in-time deliveries have increased, on average, from 25 percent to 95 percent of all deliveries.

For example, at one of our member companies, 32 plants operate on a just-in-time inventory system. That means that throughout every single working day, about 2,500 trucks travel more than one million miles on the nation's highways delivering parts and components to those 32 plants just at the point they're needed in the production process.

At another one of our member companies, one typical plant receives and unloads an average of 120 truckloads of component parts and supplies daily. The plant then ships approximately 480 vehicles (one half of its daily production) directly to dealers using 60 haulaway trucks. An additional 480 vehicles leave the plant site loaded on multilevel rail cars destined to rail unloading ramps located in major market areas. Upon arrival, the rail cars are unloaded and the 480 vehicles are delivered to dealers by another 60 haulaway trucks.

Finally, another manufacturer uses a scheduled delivery process to assure that parts and materials are delivered to its plants in just the right quantity, at the right time. Trucks must pick up parts at suppliers within a 30 minute window and deliver them to the manufacturer's plant under the same time constraints. The objective is to have no more than 2 hours inventory on the line at any one time.

It is clear that any disruption in highway service, such as congestion or bad roads, will cause disruption in the manufacturing cycle, resulting in lost production and sales. As Henry Ford put it: "Ordinarily, money put into raw materials or into finished stock is thought of as live money. It is money in the business, it is true, but having a stock of raw materials or finished goods in excess of requirements is WASTE which, like every other waste, turns up in high prices and low wages."

Just-in-time was a goal in the 1980's, but in the 1990's, it is a necessity in order to be internationally competitive.

Mr. Chairman, I would like now to address some specific issues related to ISTEA. One of the most crucial responsibilities for Congress in the reauthorization process is to provide adequate funding for the highway program. There are sufficient funds in the Highway Trust Fund but they have not been spent in the past several years, to the detriment of our roads and bridges. I know the subcommittee is well aware of this problem. In fact, all of you signed the recent letter to Budget Committee Chairman Domenici urging the committee to provide a \$6 billion increase in highway funding for fiscal year 1997. AAMA's members strongly support and appreciate your efforts.

As a global industry, the automobile industry also believes that future U.S. competitiveness must address global transportation trends. With the national commitment in some major overseas markets to advanced surface transportation modes and to Intelligent Transportation Systems programs, continued U.S. development of innovative highway transportation approaches is important in assuring the long-term viability of the U.S. transportation system. In this context, the automobile industry supports development of Intelligent Transportation Systems, or ITS, a mix of both vehicle and highway technologies which are designed to assist all roadway users in the smooth movement of traffic in congested areas. ITS can help improve air quality, increase safety for highway users, as well as help reduce fuel use.

America's car companies believe that maintaining and improving our nation's highway system must be one of our national priorities if we are to compete internationally in the 21st century. We know you will work toward that same goal as you authorize ISTEA this year.

RESPONSES OF ANDREW H. CARD, JR., TO QUESTIONS FROM SENATOR INHOFE

Question 1. Do you see the EPA's proposed ozone and particulate matter standards as having an economic effect on transportation trends in this country in general? And specifically on the transportation industry?

Response. If EPA's proposed standards for ozone and particulate matter are adopted, there is likely to be a significant increase in non-attainment areas in the country. Any area in non-attainment would be restricted in how it allocates Federal highway funds, so there would clearly be a negative effect on transportation. In addition, there would likely be additional controls imposed on mobile source emitters which would have a negative effect on both personal mobility and the just-in-time delivery system on which manufacturers depend.

Question 2. What would you like to see in an ISTEA reauthorization proposal concerning the CMAQ program?

Response. The CMAQ (Congestion Mitigation Air Quality) program currently does little to reduce congestion on America's highways and therefore little to improve air quality. The CMAQ program should be reformed so that funds could be used for highway projects which would allow traffic to move more freely and provide improved access from highways to our manufacturing facilities.

RESPONSES OF ANDREW H. CARD, JR., TO QUESTIONS FROM SENATOR CHAFEE

Question 1. I think we can all agree that investments in transportation yield a high return in terms of economic productivity, efficiency and job creation. However, we are unlikely to have adequate public resources to address all transportation needs. Strategic transportation investment is therefore critical. In your opinion, which transportation investments will yield the greatest rate of return in the future?

Response. The best return on our investments in transportation comes from highway expenditures, especially where funds are used to mitigate traffic congestion and improve access to our manufacturing facilities.

Question 2. Your testimony recommends that the reauthorization should provide increased funding for highways and innovative highway programs. What about other modes of transportation? How much does your industry rely on rail and other modes to build and distribute your products?

Response. The auto industry is heavily dependent on all modes of transportation, including rail. As a result, intermodal connectivity—efficient connections between modes—is also very important to the industry.

PREPARED STATEMENT OF ALAN E. PISARKI, AUTHOR OF COMMUTING IN AMERICA II

INTRODUCTION

It is an honor to be here at this first Senate hearing on ISTEA reauthorization, with the opportunity to address important transportation trends in America today. I recall with great pride that I participated in the first Senate hearing in the advent of ISTEA 6 years ago.

My focus today will be on commuting trends, their economic and demographic determinants, and their implications for our transportation future. This will be based largely on my recent study, *Commuting in America II*. At the outset, I want to thank the 14 sponsoring organizations and other agencies that assisted in this effort, particularly the leadership of the American Association of State Highway and Transportation Officials.

The materials provided are in two parts: this testimony, and a set of supportive graphics. Copies of the complete report, *Commuting in America II*, have also been made available.

THE WORKER BOOM

Previous study has identified three factors operative in the worker boom of the seventies: large job increases, the baby boom, and the rapid increases in women's participation in the work force. Each of these three forces has diminished. The trends depict a clearly visible "bubble" of growth in both the labor force age population and the actual labor force over the past period that explains the great commuting surge of the seventies and early eighties and its relative decline in the nineties.

Although the rates of change show a sharp drop, the total increase for the period is still substantial, over 18 million workers, actually about 300,000 more than in the

seventies yielding two decades of very substantial increase with which our transportation system has had to deal.

There is substantial foundation for the belief that the 1990 census results may have signaled the closing of the worker boom. Future trends depict a period of relative calm low overall growth in total population and population of working age for the remainder of the decade and into the next century. Labor force growth rates will decline to about half of the rate in the eighties, but are still projected to produce an absolute increase in labor force of between 17 and 18 million for the decade, or only a little less than the number in the eighties.

Some key points:

- The 1980–1990 decade saw the lowest rate of population increase in our nation's history, save for the depression decade, and the only other time that growth over a decade has been below 10 percent. Absent extensive levels of immigration that rate would have been much lower.

- There is a period of relative calm ahead about 10 percent overall growth in population and population of working age for the this decade moving in tandem with continuously declining rates of growth out to the year 2050.

- Women's labor force growth rate surged through the sixties and seventies and is just now tapering off, but still remains at high rates relative to men. Total labor force increase in the 1980–1990 decade was clearly down from the previous decade, for both men and women, with women contributing 11 million to the labor force in contrast to about 14 million in the previous decade.

- Women's share of total employment rose from below 30 percent in 1950 to 45 percent in 1990.

- It is expected that the 18 year old age-group, the source of new workers, new commuters and new drivers, will have declined to its nadir in 1995 and then slowly begin recovering, but will not reach 4 million again until 2008 under present projections.

- In many respects the fundamental unit of metropolitan travel is the household. There are about 100 million households in America today. The average household size in 1950 was 3.37 persons, declining rather dramatically to 2.63 persons by 1990, with the greatest changes occurring in the sixties and seventies.

- There continues to be a close parallel between household and labor force growth; the overall growth rate from 1950 to 1990 for the labor force was 200 percent and for households, 211 percent, indicating that labor force (or workers) per household changed little in the period.

- Seventy percent of workers live in households with two or more workers, suggesting that tradeoffs between home and work locations are critical.

- The effect of all this is to say "yes," but to the question of the influence of the worker boom in the future of commuting. The strong growth rates characteristic of the boom period are over, but given the large size of our national work force resulting from the strong growth of the past, future growth will continue to yield large numbers of new commuters that will challenge our infrastructure and public policy.

THE AUTO BOOM

As in the worker boom, there is a qualified answer to the question of the persistence of the trend in private vehicle ownership and use.

Arrayed on one side is the astonishing fact that we added more vehicles than people to our population in the eighties. Beyond the surge in ownership is the fact that the private vehicle continued to absolutely dominate the choice of mode of transportation to work. All alternatives to driving alone to work by private vehicle declined between 1980 and 1990. The increase in the number of commuters in single occupant vehicles exceeded the total increase in commuters. About 19 million workers were added, and over 22 million single occupant vehicle drivers. Effectively, all new workers chose to drive alone and a few million additional workers shifted from other modes to the single occupant vehicle. Some alternatives, such as walking and carpooling, declined precipitously, while others, such as transit, declined less dramatically. Only working at home showed growth.

Arrayed on the other side, it is difficult to see continued shifts to the private vehicle, on average, across the Nation beyond the present surge. A number of factors are involved in this:

- The shares of auto ownership by households show clear signs of stabilization at very high levels.

- The ratio of cars to workers has actually declined slightly.

- Most significantly, the number of vehicles available exceeds the number of drivers; and there is apparent saturation, on average, of drivers licenses. The important exception to these points will be treated later.

The prospects for further shifts to the private vehicle seem minor if only because commuting travel is now so overwhelmingly oriented in that direction. It seems infeasible to believe that carpooling or transit levels could drop further fewer than one in ten cars has an occupant other than the driver, and transit is used by one in 20 commuters. On the other hand the precipitous declines in carpooling in the last decade were unanticipated as well.

The forces that impel personal vehicle use continue. Among the factors that will govern private vehicle use for commuting in the future are these:

- continued dispersion of jobs and population to the suburbs and beyond;
- continued pressures of time on multi-worker households;
- continued low levels of vehicle operating and ownership costs.

Of these, the pressures of time, particularly on working women, has immense influence. The fact that 70 percent of commuting households have two or more workers suggests that living near work is no longer a simple option, and the trip chain taking care of household needs on the way to and from work (children, food, laundry, etc.) is central in contemporary lifestyles.

Among the key findings were:

Vehicle Ownership

- While population grew by less than 10 percent and households by about 14 percent between 1980 and 1990, total vehicles available to households jumped by over 17 percent. Nothing depicts better the scale of vehicle growth than that the number of vehicles added in the decade exceeded the number of people added.
- The majority of U.S. households have two or more vehicles, with an average vehicle availability of 1.66 vehicles per household, up from 1.61 in 1980. It is more impressive when it is recognized that these increases in vehicles per household are occurring against a backdrop of declining persons per household.
- The case for stabilization of vehicle ownership can still be made despite the significant growth numbers just cited; there has been a decrease in the share of households with three or more vehicles from 1980 to 1990
- It will not matter how many vehicles people own as long as the number of driver's licenses are stable.
- The proportion of all households that are without vehicles has been in continuous decline since at least 1960. In 1960 21 percent of households were without vehicles, dropping to just above 11 percent by 1990.
- In absolute numbers, the number of zero-vehicle (vehicle-less) households has remained roughly constant for 30 years at about 10 to 11 million.
- Census data indicate that about 5.3 million workers live in vehicle-less households. Thus at most half of the vehicle-less households have workers.
- The New York metropolitan area held about 20 percent of all zero-vehicle households in 1980. Despite the fact that New York lost zero-vehicle households in the 1980–1990 decade, it still obtained approximately a 20 percent share of a fifth of all such households.
- The American vehicle fleet is aging rather substantially. The present fleet's average age is approaching 8 years (7.7 years), in contrast to less than 5.6 years in 1969.
- New cars typically have less than 20 percent of their travel allocated to commuting whereas older vehicles have upwards of 24–25 percent of their travel in commuting.
- Trends in the transportation cost index, composed of the cost trends in owning and operating private vehicles, and with proportional inputs from taxi, transit, and airline fares, as well as other transport costs closely track the general consumer price index, composed of a weighted "marketbasket" of all consumer purchase items.
- The cost of vehicles in terms of the number of weeks of median family earnings needed to pay for them showed a stable pattern throughout the seventies at about 20 weeks pay, rising to about 25 weeks pay, a 25 percent increase, by 1991. Thus, the average vehicle costs about half a years pay to the family earning the median national income.
- If improvements in vehicle fuel efficiency are added to declines in fuel costs the price of fuel per mile of travel has dropped substantially. Fuel costs have dropped from above nine cents a mile in the high cost 1980–1982 period to the 5½ cent range in 1992.

Modal Shares

- The short description of the long term trend is that there is a continuation of the increasing orientation to personal vehicles for commuting. The number of single occupant private vehicle users increased by over 22 million between 1980 and 1990

exceeding the number of new commuters. The pattern is uniform across the Nation by region, State, and metro area.

- The linking together of trips serving the household as part of the journey to work trip, so called work-trip chains, such as dropping children at child-care facilities, dropping off cleaning, picking up fast-foods, etc., is very much a family/household characteristic, and an increasingly important factor in choice of transportation.

- Auto use increases with age until the mid-fifties age group and then slowly tapers. This pattern is replicated when men and women are analyzed separately.

- There are only slight differences between men and women in mode choice that are still discernible; these differences have tended to diminish over time as women's work characteristics have become more like men's.

- The most evident effect of income is that driving alone increases from about 60 percent to over 80 percent with increasing income; correspondingly, carpooling decreases.

- Central city renters, constituting about 17 percent of households, are the least auto-oriented group, although still with a 70 percent private vehicle share. While all home owners are highly private vehicle-oriented, suburban home-owners are the most, with over 90 percent use of the private vehicle.

- The number of carpoolers has dropped from 19 million in 1980 to less than 15.4 million carpoolers in 1990 out of a total of 115 million declining to 13.4 percent of commuters. A major factor in the decline of carpooling, accounting for two-thirds of the loss, is the decline in large carpools.

- Carpooling is increasingly a household activity.

- Public transit use remained relatively stable from 1980 to 1990 with almost exactly 6 million riders in 1980, declining by about 100,000 to roughly 5.9 million users in 1990. Transit's share of commuters declined from 6.3 percent to 5.1 percent.

- While bus, the major mode used in transit, lost ridership, other transit modes, specifically subway and commuter railroad, gained riders. Much of the total increase, almost 40 percent of it, occurred in New York.

- Metro area size is a critical factor in transit use. Metro areas of over one million population, which account for half the national population, are responsible for 88 percent of the nation's transit use; areas over 5 million account for 61 percent. New York alone accounts for 37 percent. The concentration of transit use in the largest metropolitan areas has increased since 1980.

- Working at home was the only category, other than the single occupant vehicle, that increased in share. The overall gain was dramatic, over a 50 percent increase, growing from 2.2 million in 1980 to 3.4 million in 1990.

- Among the groups that are most oriented to working at home are women, home owners, older populations, non-metropolitan residents and the white non-Hispanic population. Non-metropolitan residents, with 20 percent of all commuters, constitute 30 percent of those who work at home.

Commuting Times and Travel Trends

- Overall, commuting travel time for all modes averaged 22.4 minutes one way in 1990, up by only about 3 percent, from 21.7 minutes in 1980 an increase of roughly 40 seconds.

- Seventy percent of Americans reach work in less than half an hour.

- Metropolitan size is also a major factor in travel times, varying from an average of 17 minutes for those areas below 100,000 in population to over 27 minutes for those over 3,000,000 in population a 10-minute swing. The average for the areas over 1 million is just above 25 minutes.

- Most States cluster around the national average with the greatest deviations being New York State (1.24 times the national average) and North Dakota (58 percent of the national average).

- On average, a suburban resident commuting to the same suburb has a 7 to 8 minute travel time advantage over commuting to the central city of the same metro area.

- The central city oriented trip appears to increase in travel time far more rapidly as metro size increases than do trips to suburbs or to other central cities or suburbs. This suggests one reason for the growing significance of suburbs in large metro areas.

- Reverse commutes, at 23 minutes, take about 3 or 4 minutes less in the non-peak direction than does the inbound direction.

- Suburb to same suburb travel is almost completely explained by driving alone, walking and working at home.

- Suburban and non-metropolitan flows are very similar in regard to the dominant share of the private auto and two-person carpools. After that, larger car pools

are key in non-metropolitan to central city flows, while transit plays a bigger role in suburb to central city flows.

- The flow between central cities shows a striking use of larger carpools and of railroads. This is a major role for commuter rail.

- The percentage of commuters with travel times beyond 60 minutes is just below 6 percent. The average for all metro areas over a million is 7.5 percent. Three areas have percentages over 10 percent New York (16.5), Chicago (10.7), and Washington, DC. (10.7).

- The 60-or-more minutes travel time group has the lowest drive alone share, while still significant, but with extensive use of large carpools and transit, especially commuter railroad.

- There is an even peak from 7 a.m. to 7:30 a.m. and from 7:30 a.m. to 8 a.m., consisting of a male-oriented worker peak and then a female oriented peak.

- Even in the peak period, the period from 7:30 a.m. to 8 a.m., the majority of travelers have trip times of under 20 minutes. The half hour segment just before it has many more long distance (in time) travelers.

- The early morning hours are much more heavily oriented to long distance travelers. A high proportion of workers with trips longer than 60 minutes leave for work before 5 a.m.

Travel time changes support the changing flows patterns observed earlier. While both increased in average travel time, the time advantage of suburb to suburb commuting over suburb to central city commuting has actually increased.

The average trends tend to imply that things are going relatively well in commuting, but that is clearly not the case everywhere. Nothing is so distorted by averages as measures of travel time. Many areas, particularly those undergoing substantial growth, notably the metropolitan South and West, have seen sharp increases in travel times. One part of the explanation for the small increases in average travel times is provided by the shifts from slower modes to faster, e.g. from transit to carpooling or from carpooling to driving alone. This is obviously a one-time solution that will be available to only a few in the nineties. Neither will the surplus system capacity be available to absorb additional travelers. As a result the search for reasonable commuting times will likely lead to further dispersal.

THE SUBURBANIZATION BOOM

In regard to the geographic flow patterns of commuting the trends are unequivocal; the suburban boom continues. Because of Bureau of the Census definitional changes, this trend requires some statistical manipulation to confirm.

Overall, the suburbanization of population and jobs not only continues but has accelerated in pace. Today the dominant commuting flow pattern is suburban, with half of all the nation's commuters living in suburbs and over 41 percent of all jobs located there, up from 37 percent in 1980.

Suburban areas, defined here as the balance of metropolitan areas after subtraction of the central city, are now the main destination of work trips. The suburbs were the location of 13 million of the 19 million new jobs created between 1980 and 1990; about a 70 percent share of all job expansion. This is an increase in share of job growth from the 1970 to 1980 period.

If the focus shifts to commuting within metropolitan areas only, and non-metropolitan areas are excluded, suburbs contain two thirds of all metropolitan workers and slightly more than half of metropolitan job destinations.

The flow patterns with a suburb as a destination account for substantial shares of growth in recent times. Suburb to suburb commuting accounted for 44 percent of metropolitan commuting flows in 1990. That share is destined to increase given that suburb to suburb commuting obtained more than 58 percent of all commuting growth from 1980 to 1990 as it did in the 1970 to 1980 period.

A substantial increase in growth share was also obtained by central city to suburb commuting, so-called "reverse commuting," rising from a 9 percent share of growth to over 12 percent. Its share of growth actually exceeded the share of central city to central city flows.

Of further note is that the "traditional commute," the suburb to central city component of flows, decreased its share of growth, accounting for less than 20 percent of all increase in the 1980-1990 period, down from a 25 percent share in the previous decade.

Inter-metropolitan commuting has shown substantial growth. In both 1980 and 1990 the dominant part of inter-metropolitan commuting was "cross suburb commuting"—that is, commuting from one suburb to the suburb of a different metropolitan area. This flow pattern grew at more than twice the rate of suburban commuting growth in general.

As one measure of the suburban effect, the number of Americans who commute outside their county of residence has almost tripled since 1960.

Some key trends:

POPULATION PATTERNS

- If the geographic definitions that applied in 1980 are retained for 1990, central city population across the Nation has actually declined, all of the metropolitan growth of 17 million therefore was in the suburbs. In this structuring of the data non-metropolitan areas gained 5.2 million. Some of the key points in the suburbanization trend are:

- In the 1980–1990 period, using 1980 definitions, central cities showed a slight decline of .7 percent, losing roughly half a million people.

- Central cities lost in the range of 2.5 to 3 million persons per year in net terms to the suburbs during the eighties. These flows were somewhat softened by foreign immigration to central cities in the range of 750,000 per year. Thus central cities continue to experience net outward population shifts, almost exclusively to suburbs, in excess of 2 million per year.

- The 1980 to 1990 growth pattern contributed to a further increase in suburban population share; the 1990 suburban share of metropolitan population now stands at over 60 percent.

- Metropolitan population growth rates have been highly variable from area to area. All of the high growth metro areas were Western or Southern, with the exception of Minn.-St.Paul. Conversely almost all of the low growth areas were North-eastern.

- As in the seventies, all areas losing population still show substantial overall worker growth and even more dramatic suburban worker growth, although not as extreme as in the earlier decade.

- Non-metropolitan areas are again experiencing something of a growth renaissance. Although less than half of the nation's non-metropolitan counties were growing in the eighties, almost three-quarters were gaining population in the nineties, with a major factor being in-migration. Many of these growth areas seem to be recreational and retirement based.

- Actual domestic migration rates appear to have continued unslackened in the eighties, despite the aging of the population, with most moves remaining in the same area.

- There is evidence of a lessening of the shift to the sunbelt that has dominated national migration patterns since the 1950's. Taken together the South and West, with 52 percent of the nation's 1980 population, obtained 94 percent of population growth in the 1980–1985 period, dropping off to about 83 percent of growth in the 1985–1990 period. In the nineties the rate has dropped further to an estimated 76 percent of all growth by 1993, but their share of the nation's population still rose to 56 percent.

Job/Worker Patterns

- Suburbs now house half of all workers in the country. Most of the workers reside within the heavily urbanized inner ring of the suburbs.

- The data indicate that there has been a significant alteration in the location of jobs over the 10 year period. Suburban areas constituted 42 percent of the job locations in 1990, up from 37 percent in 1980, obtaining a two-thirds share of national job growth in the period, (equivalent to 75 percent of metropolitan job growth). The remarkable point is the substantial share of growth taken by the suburbs and central cities outside the metropolitan area of residence of the commuter. One quarter of the growth was obtained by such areas.

- Of 115 million commuters, about 90 million are in metropolitan areas, of which 80 million commute internally and 10 million leave the metropolitan area, often bound for other metropolitan areas.

- The remaining 25 million commuters are non-metropolitan, for the most part remaining in non-metropolitan areas to work, with about 3 million entering metropolitan areas every day to work.

- The tendency to work within one's home county declines as the size of the metropolitan area increases. Seventy-six percent of all commuters work within their county of residence, with a remainder of somewhat more than 27 million who leave. This is almost triple the number who commuted beyond their county of residence in 1960. Intercounty commuting varies sharply by metropolitan area as a function of the local geography.

- Central city residents are more home-area oriented, with a percentage approaching 85 percent working in their home county, while suburbanites are much

less so-oriented, with slightly more than 71 percent remaining in their residence county. Those living in places of above 5,000 population in non-metropolitan areas, i.e. small cities and towns, are the most locally oriented, with 85 percent remaining in their county to work.

- The dominant flow pattern is suburban, with half of all metropolitan commuters living in suburbs; and with suburb to suburb commuting accounting for 44 percent of metropolitan commuting flows. Suburban areas are now the main destination of work trips.

- The available data indicate that outbound flows to other metropolitan areas and to non-metro areas amounted to about 5.4 percent of all commuting in 1980 and rose to over 7.5 percent in 1990. Moreover, inter-metropolitan commuting increased at a rate more than double that of metropolitan growth.

- In both 1980 and 1990 the dominant pattern of inter-metropolitan commuting was "cross suburb commuting," that is commuting from one suburb to a suburb of a different metropolitan area. It amounted to about 31 percent of all inter-metropolitan commuting in 1980, rising to almost 39 percent in 1990. This flow pattern grew at more than twice the rate of suburban commuting growth in general.

- Overall the national job/worker ratio for central cities is 1.36, i.e., 136 jobs for every 100 workers. The overall national job/worker ratio for suburbs is 0.83 and for non-metro areas 0.92. Review of national patterns suggests that something closer to balance is occurring in both central cities and suburbs.

EMERGING TRENDS

In addition to the persistence, in varying degrees, of the trends of the past, new trends are emerging that will sharply modify commuting patterns into the future.

Immigration

The scale of foreign immigration has become prodigious; perhaps, the dominant factor in national population growth patterns. Total immigration to the United States in the 1980–1990 period was about 8.7 million persons; thus the foreign born share was almost 40 percent of total population growth. Recent data indicate the pace continues at that rate, with 4.5 million arriving in the 5 year period from 1990 to 1994, twice the rate of the 1970's.

Foreign immigrants tend to go to where Americans are, but with a somewhat greater focus on central cities. It is the most populous States that receive immigrants.

The arrival of immigrants has affected the numbers of households without vehicles in the areas with major foreign immigration. Many sunbelt cities had greater percentage increases in population than in vehicles; all had significant increases in the number of households without vehicles. Even the suburbs of many of these areas saw large increases in households without vehicles.

In obvious contrast to new births most immigrants arrive at labor force participation age; they are instantaneous additions to the traffic scene. About 80 percent of immigrants were of labor force age.

Thus immigrants impact the commuting scene in many ways. They are a direct addition in population, and an even more substantial increment to labor force, equaling greater than a third of all new commuters, and their volatile modal patterns will affect future flows in several modes. Of acute interest will be the time-frame in which they shift from initial patterns of behavior upon arrival to patterns more like the national average.

The fact that immigration factors can be altered by congressional action at any time tends to create additional uncertainties with respect to future commuting patterns.

Ethnic and Racial Patterns

Previous discussion has emphasized the tendency toward saturation in many areas vehicle ownership, driver's licenses, and the use of the auto to work. These tendencies can be overstated because of a failure to examine these patterns in sufficient demographic detail. Saturation is a characteristic almost exclusively among the white non-Hispanic population. There is still substantial room for growth in these characteristics among the Black, Asian, and Hispanic populations.

The key factor is households without vehicles. The proportion of all households that are without vehicles has been in continuous decline since at least 1960 dropping from 21 percent to just above 11 percent by 1990. In terms of absolute numbers, the number of zero-vehicle (vehicle-less) households has remained roughly constant for 30 years at about 10 to 11 million. The slight increase in this number from 1980 to 1990 is almost certainly attributable to immigrant population effects. Cen-

sus data indicate that about 5.3 million workers live in vehicle-less households. Thus at most half of the vehicle-less households have workers.

In stark contrast, the black population averages over 30 percent non-vehicle owning households and in central cities the number is over 37 percent. Many individual central cities have extraordinary levels of black vehicle-less households New York with 61 percent, Philadelphia 47 percent, Chicago and Washington, DC, 43 percent.

Hispanics, with an overall rate of vehicle-less households of 19 percent, have a rate of 27 percent in central cities. Among the central cities in metropolitan areas with very high levels of Hispanic vehicle-less households are New York with over 62 percent and San Diego with 37 percent.

It is clear that central city renters are the predominant group of non-vehicle owning households; and as a general rule renters are more likely to be zero vehicle households than home owners. The New York metropolitan area held about 20 percent of all zero-vehicle households in 1990.

One of the most pertinent aspects of this is the variation among racial and ethnic groups with regard to availability of driver's licenses. The White, non-Hispanic population is near, or at, effective saturation, especially among men (circa 96 percent); whereas the rate among all other racial and ethnic groups of men is on the order of 80 percent.

The disparities among women of different racial and ethnic groups and between women and men, are even greater. A point worth focusing on is that the sharp disparities between men and women among Hispanics and Asians is considerably greater than that between either Black or White men and women.

All of these differences have effects on the opportunities for work locations, travel times, choice of mode, etc. A predominant part of the population that walks to work, or uses transit, and taxi are drawn from the households without vehicles.

These groups constitute the major sources of growth in vehicle ownership and use in the future. It cannot be assumed that the differences between these groups and the national average are racial, or ethnic, or gender-based in character. Rather, age, income level, household size, and the location and type of residence will be the governing factors in future commuting patterns. It must be assumed that as the socioeconomic profile of these groups change there commuting behavior will shift accordingly. That is likely to mean an auto-oriented suburban-based working style.

Some key findings:

- Black and Hispanic drive-alone commuters have very similar patterns, with White non-Hispanics exhibiting a similar pattern but with a higher overall utilization rate.
- A major difference is the exceptional use of transit modes by the black population. The pattern is similar in both suburban and central city locations.
- Black households lag both white non-Hispanic and Hispanic households in the use of bicycles, motorcycles and working at home.

CLOSING

Mode Choice

There is little basis for adopting any view that suggests that there will be a significant reversal in the private vehicle orientation of commuters based on present patterns of behavior and demography. The dominant factor here is the continued dispersal of populations out from our metropolitan areas and the pressures of time on workers. As long as the private vehicle remains at all affordable to own and operate the pattern will continue. The shifts in age structure of commuters abets this trend.

This does not suggest that all is lost for public transit or other alternatives. The cases where transit, carpooling, walking and biking have been successful need to be studied and clues found regarding the appeal to the commuters that have proven effective. Those areas where transit is a major factor, predominantly in the center of our major metropolitan areas, need to sustain and intensify services. Where transit use is significant, most users indicate happiness with the services provided, which is a sound starting point. This market needs to be preserved. Transit providers will need to be very innovative to sustain or gain in markets. Some of the innovative work responding to suburban demands in the Chicago, Philadelphia, and New Jersey areas may yield successful models.

It is difficult to be optimistic regarding a renaissance in carpooling. Most carpooling today is not carpooling in the sense we knew it just a few years ago a voluntary arrangement among co-workers or neighbors. That is dying most of the surviving "carpool activity consists of family members with parallel destinations and timing. Maybe these need a new name "fampools"? The advantages in carpool lanes are significant where average traffic speeds are very poor, but there are time costs

to carpooling as well. Thus it is a changing environment which needs continuous exertion, as jobs change, work patterns shift and travel times change.

Density and Dispersal

Continued dispersal toward the fringes of our metro areas seems a given for both jobs and population. Rapid growth on the metropolitan fringes has been masked by definitional changes. Census modified definitions shifted 6 million of the new population growth in the eighties from the suburbs to the central city and four million from non-metro to metro areas.

Variations on a Theme

We are becoming increasingly conscious of a set of developments that add to the volatility of commuting. Simply described, this is a tendency for greater variability in the location, path, time and mode of travel to work. It is difficult to say whether this tendency is increasing or that it has just become more evident to researchers in recent times. Our data collection approaches focusing on 1 day's travel by a set of selected individuals or households would typically not catch this kind of phenomenon. Surveys would have to track daily travel of an individual over the course of several weeks to establish some sense of the scale and character of variation.

Economic and Social Factors

The nature of work is changing. More work can be done in small work units of a few people or even one. This adds to the potential for dispersal of jobs. It also adds to the greater freedom in many cases of people to set their hours of work to match their personal preferences.

Paralleling this factor is that many jobs are services oriented, where workers must be available to customers, requiring odd hours of work and weekend schedules. This adds to the greater potential dispersion of jobs in time as well as space.

The powers of communications and data processing are only beginning to be felt. They are becoming ubiquitous.

All of the power of telecommunications is focused unintentionally on permitting greater dispersal of populations and jobs. It fundamentally reduces the penalty of distance.

The effects of women in the work place has been unmistakable and will further influence trends in the future. There seems to be a greater understanding of people's needs to care for children, and to take time off for other family needs as well. This has led to greater work scheduling flexibility in many firms, both large and small. That flexibility supports variation in work arrivals, and departures, as well as work days. Certainly, part of this is the sharp competition among firms for highly skilled employees, many of them women.

It is to be expected that this willingness to be flexible on the part of management will only increase in the future as some skills become even scarcer and firms compete for the best. This also means that firms will tend to relocate where their scarcest resource, skilled employees, are located. Being a short commute away will be a benefit that firms can offer. This will tend to push firm locations to where people want to be, generally pushing employers toward higher income neighborhoods, and leading to longer commutes for lower income workers. Regionally, it means the outer edges of the metropolitan area; nationally, it means those areas that are pleasant and attractive to live in. This will keep national growth focused on the sun-belt and West. This could lead as well to increasing growth in smaller areas, university towns, for instance, rather than in the very large metropolitan areas of the Nation.

Immigration

The scale of immigration, and in some respects its character, is a product of a stroke of a pen in Washington. Immigration will be the dominant population factor in many areas of the Nation, in the large population centers in general, and in particular in the centers of the West and South. Material presented earlier shows that immigrants are heavily oriented to the labor force years. Their bimodal distribution in education will create strange frictions in the national labor force, competing both at the highest and lowest skill levels.

Not surprisingly, their orientation to the private vehicle is less than that of other Americans. The question is how long will it take before their behavior patterns are symmetric with others of similar income and age characteristics. Or, are there substantial cultural variations that will manifest themselves?

The Democratization of Mobility

The private vehicle has become the tool of mass mobility. While we tend to think of auto ownership as all-pervasive in this society, this study has shown that this

is strongly skewed by race and ethnicity, and other factors. One has to believe that the expansion of opportunity in America to immigrants and those born here will expand ownership and use of private vehicles as well. This will provide the great sources of growth of private vehicle ownership and travel in the coming years.

The growth in vehicle travel in the remaining years of this decade and into the next century will be predominantly a product of new access to personal vehicle use on the part of young people, the older population, women in general and racial and ethnic minorities the mobility "have-nots" of our society.

Just as we have cited the competition for skilled workers at the high end of the job spectrum, there will likely be more workers than jobs at the low end. This will mean workers traveling great distances for not particularly attractive jobs. The dramatic growth in intermetropolitan travel and in reverse commuting from the city out to the suburbs are both products of that reality.

Society then is faced with an unpleasant challenge. So much of current public policy in commuting is aimed at suppressing auto ownership and use. Those policies are unintentionally aimed squarely at those on the margin of the ability to own and operate a vehicle, particularly those policies aimed at increasing the cost of driving. It is clear that those most affected by such policies will be those on the lower rungs of the economic ladder. Often these people will be those who are most auto-dependent.

Public Policy and Commuting

Much of public policy today is focused on modifying societal behavior in commuting, specifically the preference for driving alone. These policies have proven at best dramatically ineffective. At worst they can be directly antagonistic to the goals they are intended to support.

It must be clear by now that the notion that there is an American "love-affair" with the automobile is missing the point. Those who promote this idea seem to imply that love is some kind of aberration, and with enough psychiatrists we can solve America's commuting problems. Americans love their automobiles about as much as they love their microwave ovens. They have them and use them because they are very efficient tools they are time saving devices. The desire for the personal vehicle in other countries follows this same pattern.

The center of all of these issues is the burden of time pressures that most Americans feel. It is time pressures, particularly on women, that increases personal vehicle use trip chaining, and many of the other patterns we have examined. Decisions regarding household location and mode to work are not made frivolously. People have sound reasons for their choices.

Public policies that try to increase the costs of auto use or increase travel times and congestion to force behavioral shifts to more preferred modes of behavior or locational densities will simply force people to make painful decisions. Many of these will result in the shift of households and jobs to areas where congestion is less obtrusive and where other costs are less; inevitably this will mean greater dispersion of the population, not less. The American commuter is a resilient and innovative character.

Those who see the solution of so many of our present ills by reorganizing society into living at higher densities miss the point. People do not live "efficiently" in order to optimize some imposed societal goal, certainly not commuting. Residential density is one of the most fundamental of choices that households make. It is clear that most people, given the choice, opt for lower density living when income permits. As the society changes and choice patterns evolve, the market place must be ready to respond with development that is responsive to household choices. Any public policies that inhibit a market trend toward higher densities must be addressed. But the market place must be the final arbiter in a free society.

The focus of public policy in this area must be on improving commuting for all workers with better walking and biking opportunities, better transit, and better roads. My proposed goal would be to reduce commuting to an unimportant topic of conversation and public policy.

One effect that needs identification in closing is that many of these trends lead to room for greater optimism regarding commuting solutions. Technological responses increasingly respond effectively to energy and environmental concerns, and congestion, while still a major problem, in many areas is addressable in its new patterns. The beginning of the solutions lie in recognizing that the American public is in charge.

It would be attractive to think that commuting will eventually become an activity of no particular personal or public policy interest. It would be quick and effortless with no detrimental public side-effects. That day will not be arriving soon.

COMMUTING IN AMERICA II

(Prepared by Alan E. Pisarski under the direction of the Steering Committee for the National Commuting Study)

Eno Transportation Foundation, Inc. Lansdowne, VA

FOREWORD

This report, titled *Commuting in America II*, is a followup to the first national report on commuting patterns and trends in the United States, published in 1987 and titled *Commuting in America*. As such, it is subtitled *The Second National Report on Commuting Patterns and Trends*. The 1987 report was based on data gathered during the 1980 Federal census, and this report makes use of similar data obtained in the 1990 Federal census. The 1990 census data show substantial changes in how and why Americans moved about in their daily activities over the decade.

Both reports were prepared at the initiative and under the direction of a group of public and private-sector organizations concerned with national transportation issues, with the member organizations for this report differing somewhat from, and being larger in number than, the organizations that sponsored the 1987 report. Each of the cooperating organizations is active in the development and implementation of public policy. The basic purpose of the report is to provide information that will be of use to them and others in the establishment of transportation policies affecting our metropolitan areas and states.

The list of sponsoring organizations is contained in the report, together with the names of the persons serving on the Steering Committee and the Technical Advisory Committee in early 1996 that directed and guided the effort. The report was prepared by Alan E. Pisarski, who served as both consultant and author. During his many meetings with the two committees, he repeatedly displayed his extensive command of transportation data, his penchant for both accurate and understandable presentations, and his seemingly endless patience. Funding for preparation of the report was provided by several of the sponsoring organizations, which are also identified in the report.

Some of the trends in national commuting between the 1980 census and the 1990 census have persisted in some cases, shifted in character in others, and have been affected by emerging new patterns in still others. Commuting continues to grow and to change. This study is intended to be an objective, factual resource that presents and analyzes key trends, without drawing programmatic or policy judgments. It is a working resource document designed to inform its users.

An extensive array of specialized resources were utilized in the preparation of the study. The primary source was the decennial Federal census of 1990. All of the historical census material, going back to the first statistics of commuting in 1960, was also employed. The Census Transportation Planning Package (CTPP) products were made available from the census, with funding and support from the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration. This document is larger than the 1987 report mainly because of the extensive new material made available by the 1990 Federal census and its specialized tabulations prepared for local, state, and national use. All interested persons and organizations are encouraged to use these data further. They are major national statistical resources.

The editing and publication of *Commuting in America II* was undertaken on behalf of the sponsoring organizations by the Eno Transportation Foundation Inc., which also published the 1987 report. The contributions made by the foundation toward release of the study have permitted the document to be broadly distributed at reasonable cost. The foundation has the deep appreciation of the sponsors.

In conclusion it should be noted that this report was undertaken only to provide an information base from which varied interests can work. It does not purport to reflect the policy positions of any of the sponsoring organizations, and it should not be interpreted in this manner. Furthermore, where the author has expressed his personal views in the report, it is to be understood that such views are his and are not necessarily subscribed to by the sponsoring organizations.

The extent to which the sponsoring organizations, with often disparate views of policy, have been able to come together to prepare this report is a measure of its success in providing a substantive, unbiased source of information. The report is intended to serve as a common resource of factual information upon which policy-

makers can draw in developing and implementing transportation policy and decisions, as our nation moves into the next century.

FRANCIS B. FRANCOIS

Chairman of the Steering Committee for Commuting in America; Executive Director, American Association of State Highway and Transportation Officials

ACKNOWLEDGMENTS

This document really qualifies as a group effort. From the funding, to the data development needed for input, to the planning and preparation of the document and its final production, many thoughtful and dedicated people have been involved.

The document had many sponsors. They are listed in the report, and most of them had representatives on the Steering Committee. It is a hallmark of the document that many organizations see value in it and in what it can contribute to public understanding. I deeply appreciate their faith in the document and wish to thank them all for their support—financial and otherwise.

The document received valuable technical support. Agencies such as the Bureau of the Census and the U.S. Department of Transportation (USDOT) provided specialized data development from which the document benefited greatly. Phil Salopek and his staff at the Journey to Work Division of the Bureau of the Census have produced a valuable national analytical data base that many will use in the future. Richard Forstall, perhaps America's most knowledgeable scientist in matters of commuting and urban geography, and now retired, gave graciously of his time and interest.

The work of the Office of Information Management of the Federal Highway Administration (FHWA) of USDOT in the production of specialized tabulations from the 1990 census was a giant step ahead for national understanding of the commuting phenomenon. I thank Elaine Murakami and Bryant Gross. David McElhaney, former director and now retired, was, as always, a great supporter.

The Technical Advisory Committee formed by the Steering Committee provided valuable support and patient interest over a long period of data development, design, and review. Its leader, George Wickstrom, kept us pointed in the right direction. Thank you, George.

Of all the players in this process over the years, the late Jim McDonnell was the most responsible for forging the consortium of US DOT, Bureau of the Census, American Association of State Highway and Transportation Officials (AASHTO), and others to make the Census Transportation Planning Package (CTPP) a reality. He never diverted his attention from the goal of a national CTPP, and he would not let the rest of us get too far away from that goal either. The strong, continuing program relationship between the Bureau of the Census and US DOT, dedicated to providing better transportation planning data, is his legacy.

The process that produced the document enjoyed tremendous leadership. To Frank Francois, his incredible staff, and AASHTO, I am especially grateful. During the report's almost 5 years in the making, Frank was unstinting in his support. Tom Brahm of the Institute of Transportation Engineers and all the people at the Eno Transportation Foundation and their editor, Kathryn Harrington-Hughes, who helped put the document together, were wonderful. I thank you all.

ALAN E. PISARSKI

EXECUTIVE SUMMARY

The first *Commuting in America*, published in 1987, discussed the need to replace the public's stereotypical images of commuting with a more appropriate picture. Most of the images derived during the 1950's and 1960's and involved a suburban worker leaving a dormitory-like suburban neighborhood to go to an office downtown. Although some commuters still fit that pattern in 1987, a more current picture of commuting was required to make possible the kind of substantive understanding needed for sound public policy.

Commuting in America sought to replace that image with one that was more sound—one that was based on the realities of contemporary commuting characteristics and patterns. The new understanding had three parts: a boom in workers, often from two-worker households; a boom in suburb-to-suburb commuting, becoming the dominant flow pattern; and a boom in the use of private vehicles, as America's vehicle fleet exceeded the number of drivers.

As *Commuting in America II* comes to print, that fundamental pattern shift is widely recognized by public officials and the general public. To further dispel wornout perceptions is one of the goals of this report.

Commuting's impact on land use patterns, urban form, and society in general has been discussed extensively in the policy literature and the public press. The questions then become: "Are the patterns observed in the 1980's still effective descriptors of contemporary patterns of commuting?" and "Are new patterns emerging?" These are important questions that this report seeks to answer.

A major part of this report reassesses the strength of these trends as we move into the mid-1990's, to determine whether they are still strong forces in defining the character of commuting patterns and whether new forces of change have come forward, either replacing, or joining, previous trends.

THE PERSISTENCE OF PAST THEMES

The Worker Boom

The previous study identified three factors operative in the worker boom of the 1970's: large job increases, the baby boom, and rapid increases in women's participation in the work force. These three forces have diminished. The trends depict a clearly visible "bubble" of growth in both the working-age population and the actual labor force during the 1970's and 1980's that explains the great commuting surge of that period and its relative decline in the 1990's. Although the rate of change shows a sharp drop, the total increase for the period is still substantial, over 18 million workers, actually about 300,000 more than in the 1970's—yielding two decades of very substantial increase with which our transportation system has had to deal.

There is reason to believe that the 1990 census results may have signaled the closing of the worker boom. Trends depict a period of relative calm—low overall growth in total population and working-age population for the remainder of the decade and into the next century. Labor-force growth rates will decline to about one-half of the rate in the 1980's, but are still projected to produce an absolute increase in the labor force of between 17 million and 18 million for the decade, or only a little less than the increase that took place in the 1980's. It is expected that the 18-year-old age-group, the source of new workers, will have declined to its nadir in 1995 and then slowly begin recovering; but it will not reach 4 million again until 2008, under present projections.

The growth rate for women in the labor force surged through the 1960's and 1970's and is just now tapering off, but still remains high relative to that for men. Total labor-force increase in the 1980–1990 decade was down from the previous decade, for both men and women, with women contributing 11 million to the labor force in contrast with about 14 million in the previous decade.

The effect of all this is to say "yes, but—" to the question of the worker boom influence in the future of commuting. The strong growth rates characteristic of the boom period are over, but given the large size of our national work force resulting from the strong growth of the past, future growth will continue to yield large numbers of new commuters that will challenge our infrastructure and public policy.

The Private Vehicle Boom

Again, as in the worker boom, there is a qualified answer to the question of the persistence of the trend in private-vehicle ownership and use.

Arrayed on one side is the astonishing fact that we added more vehicles than people to our population in the 1980's. In addition, the private vehicle continued to absolutely dominate the choice of mode of transportation to work. All alternatives to driving alone to work by private vehicle declined between 1980 and 1990. The increase in the number of commuters in single-occupant vehicles exceeded the total increase in commuters. About 19 million workers were added, and over 22 million single-occupant vehicle drivers were added. Effectively, all new workers chose to drive alone, and a few million additional workers shifted from other modes to the single-occupant vehicle. Some alternatives, such as walking and carpooling, declined precipitously, while others, such as transit, declined less dramatically. Only working at home showed growth.

Arrayed on the other side, it is difficult to see continued shifts to the private vehicle, on average, across the Nation beyond the present surge. A number of factors are involved in this:

The shares of automobile ownership by households show clear signs of stabilization at very high levels.

The ratio of cars to workers has actually declined slightly.

Most significantly, the number of vehicles available exceeds the number of drivers; and there is apparent saturation, on average, of driver's licenses.

The prospects for further shifts to the private vehicle seem minor, if only because commuting travel is now so overwhelmingly oriented toward that direction. It seems unfeasible to believe that carpooling or transit levels could drop further—fewer than

1 in 10 cars has an occupant other than the driver, and transit is used by 1 in 20 commuters. On the other hand, the precipitous declines in carpooling during the last decade were likewise unanticipated.

The forces that impel personal vehicle use continue. The factors that will govern private vehicle use for commuting in the future include the following:

- Continued dispersion of jobs and population to the suburbs and beyond
- Continued pressures of time on multiworker households
- Continued low levels of vehicle operating and ownership costs

Of these factors, the pressures of time have immense influence. The fact that 70 percent of commuting households have two or more workers suggests that living near work is no longer a simple option, and the work trip chain—taking care of household needs—daycare, food, laundry—on the way to and from work is central in contemporary lifestyles.

The Suburban Commuting Boom

In regard to the geographic flow patterns of commuting, the trends are unequivocal: the suburban boom continues. Because of changes in the Bureau of the Census definitions, confirmation of this trend will require some statistical manipulation.

Overall, the suburbanization of population and jobs not only continues but has accelerated in pace. Today the dominant commuting flow pattern is suburban, with 50 percent of the nation's commuters living in suburbs and over 41 percent of all jobs located there, up from 37 percent in 1980.

Suburban areas—defined here as metropolitan areas outside of the central city—are now the main destination of work trips. The suburbs were the location of 13 million of the 19 million new jobs created between 1980 and 1990—about a 70 percent share of all job expansion. This is an increase in share of job growth from the 1970–1980 period.

If the focus shifts to commuting within metropolitan areas only and nonmetropolitan areas are excluded, suburbs contain two-thirds of all metropolitan workers and slightly more than one-half of metropolitan job destinations.

The flow patterns with a suburb as a destination account for substantial shares of growth in recent times. Suburb-to-suburb commuting accounted for 44 percent of metropolitan commuting flows in 1990. That share is destined to increase, given that suburb-to-suburb commuting obtained more than 58 percent of all commuting growth from 1980 to 1990, as it did during the 1970–1980 period.

A substantial increase in growth share was also obtained by central city-to-suburb commuting, so-called “reverse commuting,” which rose from a 9 percent share of growth to over 12 percent. Its share of growth actually exceeded the share of flows from central city to central city.

The “traditional commute,” the suburb-to-central city component of flows, decreased its share of growth, accounting for less than 20 percent of total increase during the 1980–1990 period, down from a 25 percent share in the previous decade.

Intermetropolitan commuting has shown substantial growth. In both 1980 and 1990, the dominant part of intermetropolitan commuting was “cross-suburb commuting”—that is, commuting from one suburb to the suburb of a different metropolitan area. This flow pattern grew at more than twice the rate of suburban commuting growth, in general.

As one measure of the suburban effect, the number of Americans who commute outside their county of residence has almost tripled since 1960.

Emerging Trends

In addition to the varied persistence of past trends, new trends are emerging that will sharply modify future commuting patterns.

Immigration

The scale of foreign immigration has become prodigious. It is a major, if not the dominant, factor in national population growth patterns. Total immigration to the United States during the 1980–1990 period was about 8.7 million persons; thus the foreign-born share was almost 40 percent of total population growth. Recent data indicate the pace continues at that rate, with 4.5 million arriving during the 5-year period from 1990 to 1994, twice the rate of the 1970's.

Foreign immigrants tend to locate where Americans reside, but with a somewhat greater focus on central cities. It is the most populous states that receive immigrants.

The arrival of immigrants has affected the number of households without vehicles in the areas with major foreign immigration. Many sunbelt cities had greater percentage increases in population than in vehicles; all had significant increases in the

number of households without vehicles. Even the suburbs of many of these areas saw large increases in households without vehicles.

Most immigrants (80 percent) arrive in the United States at labor-force participation age. They are instantaneous additions to the traffic scene.

Immigrants thus impact the commuting scene in many ways. They are a direct addition in population and an even more substantial increment to the labor force, equaling greater than one-third of all new commuters. Their modal patterns will affect future flows in several modes. Of acute interest will be the rate at which these households "mainstream," i.e., obtain vehicles and begin moving to the suburbs.

The fact that immigration factors can be altered by congressional action at any time tends to create additional uncertainties regarding future commuting patterns.

The Democratization of Mobility

Previous discussion has emphasized the tendency toward saturation in many areas—vehicle ownership, driver's licenses, and the use of the automobile to commute to work. These tendencies can be overstated because of a failure to examine these patterns in sufficient demographic detail. Saturation is a characteristic almost exclusively found among the White non-Hispanic population. There is still substantial room for growth in these characteristics among the Black, Asian, and Hispanic populations.

The key factor is households without vehicles. The proportion of all households that are without vehicles has been in continuous decline since at least 1960, dropping from 21 percent to just above 11 percent by 1990. In terms of absolute numbers, the number of zero-vehicle (vehicle-less) households has remained roughly constant for 30 years (10 million to 11 million). The slight increase from 1980 to 1990 is almost certainly attributable to the immigrant population. Census data indicate that about 5.3 million workers live in vehicle-less households. Thus at most one-half of the vehicle-less households have workers.

On average, more than 30 percent of Black households do not own vehicles, and in central cities the number is over 37 percent. Many central cities have extraordinary high levels of Black households that do not own vehicles—New York City with 61 percent, Philadelphia with 47 percent, and both Chicago and Washington, D.C., with 43 percent.

Hispanics have an overall rate of vehicleless households of 19 percent; that rate rises to 27 percent in central cities. The central cities in metropolitan areas with very high levels of Hispanic households without vehicles are New York City (more than 62 percent) and San Diego (more than 37 percent).

It is clear that renters in central cities are the predominant group of nonvehicle-owning households; as a general rule, renters, rather than homeowners, are more likely to be zero-vehicle households. About 20 percent of all zero-vehicle households were in the New York City metropolitan area in 1990.

One of the most pertinent aspects of this is the variation among racial and ethnic groups regarding the availability of driver's licenses. The White non-Hispanic population is near, or at, effective saturation, especially among men (circa 96 percent); whereas the rate among all other racial and ethnic groups of men is about 80 percent.

All of these differences have effects on the opportunities for work locations, travel times, choice of mode, and so forth. A large part of the population that walks to work or uses transit or taxi is drawn from households without vehicles.

These groups constitute the major sources of growth in vehicle ownership and use in the future. It cannot be assumed that the differences between these groups and the national average are racial, ethnic, or gender-based in character. Rather, age, income level, household size, and the location and type of residence will be the governing factors in future commuting patterns. As the socioeconomic profiles of these groups change, their commuting behavior will shift accordingly. That shift will likely mean an auto-oriented, suburban-based commuting style.

Closing

One element of change in commuting that needs to be addressed in closing is the effect of increased commuting on travel times. Surprisingly, with the sharp increases in automobile use, average travel times did relatively well; average travel times to work increased by 40 seconds, from 21.7 minutes in 1980 to 22.4 minutes in 1990. Seventy percent of Americans reach work in less than 30 minutes.

Only about 6 percent of commuters take longer than an hour to get to work, rising to about 7.5 percent in metropolitan areas with populations over 1 million. In only three areas—Washington, D.C., Chicago, and New York City—do 10 percent or more of commuters travel for more than an hour. This is strongly affected by mode choice; commuter rail and large carpools make up the bulk of this group. Metropolitan size

is also a major factor in travel times, varying from an average of 17 minutes for those areas below 100,000 in population to more than 27 minutes for those over 3 million in population—a 10-minute swing. The average for areas over 1 million is just above 25 minutes.

Travel time changes support the changing flows patterns observed earlier. Although both increased in average travel time, the time advantage of suburb-to-suburb commuting over suburb-to-central city commuting has actually increased.

The average trends tend to imply that things are going relatively well in commuting, which is clearly not the case everywhere. Nothing is so distorted by averages as measures of travel time. Many areas, particularly those undergoing substantial growth—notably the metropolitan South and West—have seen sharp increases in travel times. One reason for the small increases in average travel times is because of the shifts from slower modes to faster modes—for example, from transit to carpooling or from carpooling to driving alone. This is obviously a one-time solution that will be available to only a few in the 1990's. Nor will surplus system capacity be available to absorb additional travelers. As a result, the search for reasonable commuting times will likely lead to further dispersal.

It would be attractive to think that commuting will eventually become an activity of no particular personal or public policy interest and that it would be quick and effortless with no detrimental public side effects. That day will not be arriving soon.

CHAPTER ONE: UNDERSTANDING COMMUTING PATTERNS AND TRENDS

The introduction to the first edition of *Commuting in America*, published in 1987, talked about the need to replace stereotypical images of commuting with a more appropriate picture. Most of those images derived from the 1950's and 1960's and involve a suburban worker leaving a suburban neighborhood for an office downtown. While there were still those who fit that pattern in 1987, the first edition of *Commuting in America* sought to replace that image with one that was more sound—one that was based on the realities of contemporary commuting characteristics and patterns. This updated view of commuting had three parts:

- A boom in the number of workers, accompanied by an increase in worker households;
- A boom in suburb-to-suburb commuting, which had become the dominant flow pattern; and
- A boom in the use of private vehicles, with the number of vehicles having exceeded the number of licensed drivers.

Now, with *Commuting in America II*, that fundamental shift in commuting patterns is widely recognized by both public officials and private citizens. Commuting's impact on land use, urban form, and society in general has been discussed extensively by policymakers and the media. The questions have become, "Are the patterns observed in the 1980's still effective descriptors of contemporary patterns of commuting? Are new patterns emerging?" This report seeks to answer those questions.

REPORT STRUCTURE

This chapter introduces the subject of commuting. Its purpose is to provide an understanding of commuters and commuting, given the complexities of the subject and the vagaries of the available data. The first concern of this chapter is to place commuting activity in context with other travel, so that the role of commuting in the overall structure of transportation policy and planning can be understood. The second concern is to provide definitions for the terminology used in this study.

Data sources that form the basis for this report are identified, including a discussion of their particular strengths and weaknesses in terms of this report. The final part of this chapter discusses the difficult topic of geography. Because of its spatial character, commuting analysis is especially sensitive to the geographic units used to aggregate and present data. This is particularly a concern in a national analysis, where comparability between areas is crucial.

Understanding commuting and commuters requires knowledge of demographics, economics, geography, and other tools. Because commuters are a moving target, they are difficult to capture statistically. Commuting, like all passenger travel, is a social phenomenon, an economic phenomenon, and a technological phenomenon. Each has its influences, and they interact to create new and fascinating behavioral patterns.

Commuters and commuting activity can be described from one of three vantage points:

- The origin of a work trip, usually the home.

- The destination end—the job site.
 - The patterns formed by trips between a multitude of origins and destinations.
- Each of these perspectives is almost an area of study in itself.

Chapter 2, *Commuters in the 1990's*, addresses commuters and their characteristics. It includes a discussion of whether the growth that has occurred since World War II, paralleling the post-war baby boom, has slowed. Chapter 2 also focuses on the changes in demographics of job holders, particularly whether the explosive increases in working women seen in the 1980's will persist into the 1990's. Immigration is also considered, in the context of declining overall rates of population growth. This is followed by a look at where most commuters now live and where their jobs are located in the nation's regions and metropolitan areas. A key issue to be discussed is whether the suburban boom in population and jobs has slackened and whether there are signs of a new revitalization of central city growth. Has the 1980's been like the 1970's, or more like the 1960's? Where do we go from here? The "demography" of the automobile and the other vehicles that are so much a part of our commuting lives is also discussed.

Chapter 3, *Commuting Flow Characteristics*, looks at commuting flows—their patterns and scale. Commuting patterns are examined from the perspective of how commuters travel between central cities, suburbs, and exurban areas. Modes of transportation used for commuting in different markets are described. The emerging boomlet in working at home is examined. The availability, for the first time, of census data on worker starting times permits a discussion of the new patterns of job schedules. Finally, the distances, travel times, and speed characteristics of the new commuting patterns are discussed.

Chapter 4, *Closing Perspectives*, looks at how these changes might affect commuting itself, the infrastructure that supports commuting, and the broader community. This chapter contains the author's views and speculations on the character of the trends identified and the future directions of commuting, with the goal of encouraging further discussion and analysis of this important topic.

COMMUTING AND OVERALL TRAVEL

In this report, "commuting" refers to travel to and from a workplace, including trips to temporary work sites, which are customarily taken by construction workers, household workers, and others with no fixed work location. It does not include travel associated with related work activities—going to a meeting, seeing clients, delivering goods, and so forth.

Although a crucial part of passenger travel, commuting is by no means the entire picture. It is only one of a large number of purposes that generate daily travel activity. It is important to place commuting in the proper overall context so that the material presented here can be fully appreciated.

Commuting exists in a continuum of transportation activities. While it often dominates public discussion about transportation, commuting is just one part of the demand that we make on our transportation system. In a metropolitan area, transportation activities include the following eight categories:

- Commuting
- Other resident travel
- Visitor travel
- Public vehicle travel
- Urban services
- Urban goods movement
- Passenger through-travel
- Freight through-travel

It is uncertain what commuting's share of this total activity is, because of the mix of freight and passenger activities. For instance, there are no comprehensive sources of data on freight movement or visitor travel. The mix of transportation activities will clearly vary with a metropolitan area's size and levels of activity. Despite existing pressures for comprehensive planning and data collection at the state and metropolitan level, there is probably no metropolitan area in the country that can comprehensively describe all eight transportation activities in their region.

Commuting can be placed in context with travel by residents in metropolitan areas by focusing on only the "commuting" and "other resident travel" categories. The Nationwide Personal Transportation Survey conducted in 1990, the same year as the population census, permits timely analysis of commuting in the context of other travel demand. According to the Nationwide Personal Transportation Survey, work travel constitutes just under 20 percent of all persontrips (Table 1-1).

Work travel can be measured as a proportion of person-trips or as a proportion of person-miles of travel, which weights the trip shares by the distance of the trip.

Because work trips tend to be longer than most other local trips, the work trip share of travel is greater than its share of trips. The share for work trips has evidenced a slight downward trend over the years, from about 20.7 percent in 1983 to 19.3 percent in 1990. Yet the share of person-miles increased significantly, from 20.1 percent to 23.2 percent, during that time, apparently as a result of increases in average trip length.

Work travel can also be measured as a share of personal vehicle trips or as a proportion of the total miles traveled by personal vehicles. As a proportion of vehicle trips, work travel amounts to slightly above 26 percent of activity; as a proportion of vehicle miles traveled, it is about 33 percent. These numbers reflect the heavy utilization of personal vehicles for longer work trips, and work trips are typically longer than other local trips.

Work travel is even more important to transit, accounting for about 43 percent of all transit travel.

Commuting bears an importance to transportation beyond its share of total travel for a number of reasons. The first is attributable to the impact it has on the economy and on the development of communities. The second is due to the concentration of work travel in certain time periods and locations, in contrast to the more dispersed patterns of other trips. Commuting is a major factor in determining peak travel demand and therefore serves to define the capacity and service requirements of our transportation system. In certain climates and under certain weather conditions, morning travel generates more air pollution, particularly ozone. In the peak morning hours (6–9 a.m.), work-related travel, which includes work trips and work-related trips, accounts for more than 47 percent of all person-trips and for about 62 percent of vehicle trips and vehicle-miles of travel. Both the morning and afternoon peaking characteristics of work travel seem to be abating both in location and duration. The Nationwide Personal Transportation Survey data and the patterns discernible from the census indicate that, perhaps as a product of work-pattern shifts or congestion pressures, the proportion of work travel in the peak hours is declining; work travel is now spreading into other time periods. The spatial dispersion of the origins and destinations of work trips is a fundamental aspect of contemporary work travel.

Other aspects of commuting are changing in ways that affect other parts of travel and the transportation system serving it. One of these is the increased tendency for commuters to make a work trip part of a trip chain—i.e., taking children to school, picking up necessities, and running household errands in an effort to more efficiently use time (Figure 1–1). Although this increases the efficiency of overall travel, it also increases the number of non-work-related trips occurring in the peak period.

Two other matters are important to an understanding of the commuter and commuting. The first is the information source—the statistics needed to fully understand the complex character of commuting. To identify and analyze trends, comprehensive, detailed information on a national scale is needed.

The second matter is the geography used to assemble and present the statistics. Commuting is a spatial phenomenon, and the geographic units used to aggregate individual trips are key to a correct representation of its character.

TERMS AND DEFINITIONS

One of the obstacles to a better understanding of American commuting is the technical language used by the statisticians and analysts who work in the field. Although that language has value to those professionals, it can hinder the average reader's understanding of the subject. The glossary that begins on page 5 should help in that regard. The more formal definitions of these terms are contained in special guides prepared by the Bureau of the Census for the 1990 census.

DATA SOURCES

The fundamental sources for this report are the journey-to-work data and related characteristics from the 1990, 1980, 1970, and 1960 decennial censuses. These are the sole nationwide sources of detailed data on commuting patterns, and hence the starting point for all credible evaluations of commuting. The census data are a rich source of work travel characteristics, including auto availability, mode, detailed residence and workplace geography, and associated socioeconomic descriptors of travelers and households.

Although these data support national scale reports, such as this one, they are a minor function of the census journey-to-work data set. The main strength of the data set is that it provides small-area statistics, including neighborhoods and even blocks, to support local planning and analysis. While a broad national sample would

probably be adequate for this report, small-area statistics are invaluable for local planning.

The work-related travel questions in the census survey are limited because of constraints on the length of the survey and the broad range of topics covered. The questions represent a minimum data set, particularly for those accustomed to the richer information derived from traditional urban transportation surveys.

GLOSSARY

Demography

Household—A group of persons sharing a separate housing unit, characterized by eating together and sharing other activities, as differentiated from persons living in “group quarters,” such as barracks or dormitories. Families constitute the majority of households. Single individuals living alone, or unrelated persons sharing a housing unit, also constitute households.

Immigrants—As used here, immigrants include foreign-born persons who entered the United States between 1980 and 1990. Persons born abroad of American parents are not considered immigrants. As of 1990, the United States had a foreign-born population of 19.8 million, of whom 8.7 million arrived between 1980 and 1990.

Jobs—In this report, the count of workers is sometimes used as a surrogate for the count of jobs. This is useful only as an estimate. Because multiple jobs are not counted in the census, the number of jobs and therefore of commuters is sometimes underestimated.

Labor Force—The labor force is defined as that part of the noninstitutionalized population aged 16 or over that is working, temporarily absent from work, or actively seeking work.

Vehicles—Between 1960 and 1980, vehicle counts were determined by the number of automobiles available at occupied housing units. In the 1980 census, vans and trucks of 1-ton capacity or less were, for the first time, also counted in a separate category. The 1990 census merged the two counts into one. All vehicles available at home for use by household members, including company cars and leased vehicles, are counted. Accordingly, the count does not necessarily conform with the number of vehicles owned by the household, but rather with the broader, more valid concept of vehicles available to the household. The census survey separately identifies households with 1 through 6 vehicles and then aggregates households with 7 or more vehicles.

Workers—Workers are defined as that part of the population at work or temporarily absent from work. In the U.S. census, a person is defined as a worker if he or she worked full- or part-time during the week prior to the taking of the census. A worker is counted once, regardless of the number of jobs held. Multiple jobs are not counted separately.

Working Age Population—That part of the population of an age considered to be eligible for the labor force. In this report, the working age population is defined as being between the ages of 16 and 65. Although other studies define this category as all persons over the age of 16, the age-group from 16 to 65 is a very useful estimator of the potential labor force.

Geography

Census Region—The United States is subdivided into four main regions, and the regions are further subdivided into nine divisions (Figure 1–2).

Census Tract—The Bureau of the Census defines a census tract as a relatively homogeneous area within a metropolitan area containing about 1,000 households. The geographic size of each tract is dependent on population density.

Central Business District—The central business district is the commercial core of a central city. This term is no longer used by the Bureau of the Census.

Central City—In general, the central city is defined as that part of the city with the densest population, around which the metropolitan area is structured. There have been some cases where more than one central city existed within a metropolitan area. The 1990 census defined any city inside a metropolitan area having a population greater than 25,000 as a “central city” if it met certain other criteria. This resulted in an increase in recognized central cities (525 central cities in 1990 versus 429 in 1980).

Consolidated Metropolitan Statistical Area (CMSA)—The term consolidated metropolitan statistical area refers to large metropolitan complexes with populations over 1 million that comprise identifiable, separate metropolitan groups that might otherwise be freestanding. Each individual component of these clusters is called a primary metropolitan statistical area. For instance, the New York consolidated metropolitan statistical area consists of 12 separate primary metropolitan statistical

areas. There are now 20 consolidated metropolitan statistical areas with 71 component primary metropolitan statistical areas.

Metropolitan Area—The definitions and names for metropolitan units were revised in 1983 for use in the 1990 census. This statistical aggregation of counties around a major city or cities identifies areas with strong social and economic interrelationships, serving as a “commutershed” for the central city. The building blocks of metropolitan areas are counties, and a metropolitan area’s configuration may thus vary substantially. Changes in the criteria for a county to be included in a metropolitan area have resulted in 49 counties no longer being considered part of metropolitan areas since 1980; 60 other counties have, however, taken their place. This makes it difficult to compare data from the 1980 census with that from the 1990 census.

Metropolitan Statistical Area (MSA)—Metropolitan statistical areas are freestanding, as distinguished from clusters of metropolitan areas known as consolidated metropolitan statistical areas. The 1990 census identifies 264 metropolitan statistical areas.

Rural Area—As defined by the Bureau of the Census, the term rural area is almost devoid of useful meaning. Parts of metropolitan areas may be rural. Nonmetropolitan areas are predominantly rural, but they may also contain urban nonmetropolitan units.

Traffic Zone—Metropolitan transportation planning agencies designate traffic zones based on the configuration of the road system and traffic patterns—i.e., a traffic-based neighborhood. At about one-third to one-quarter the size of a census tract, traffic zones do not evidence specific population characteristics, but tend to have populations of about 1,000.

Urbanized Area—An urbanized area consists of the built-up area surrounding a central core, generally exhibiting a density of at least 1,000 people per square mile. The area is defined by development and population, without respect to jurisdictional boundaries. Urbanized areas are thus generally wholly contained within a metropolitan area, which uses county boundaries. That area of the metropolitan area outside the urbanized area may be quite rural in character, although still metropolitan by definition.

Transportation

Auto/Vehicle Occupancy—The number of people in a vehicle, including the driver. This number is generally lower for work trips than for other trips. An auto occupancy of 1.5 means that a vehicle would, on average, carry a driver and half a passenger. The 1990 census tracked occupancy singly through 6, then grouped vehicles with 7 to 9 occupants and with more than 10 occupants. Increasingly, the term “single-occupant vehicle” is used to describe a vehicle containing only the driver.

Carpool—This term is increasingly used to describe any vehicle carrying more than one person to work, rather than in the more specific sense of a group of persons sharing the cost of the trip or taking turns driving.

Mode—A transportation mode refers to a means of transportation. Mass transit can be considered a mode, with bus, subway, and commuter rail as submodes, or each can be considered modes of travel in their own right. In this report, the categories used by the Bureau of the Census to identify how people usually get to work are treated as separate modes. The census data do not permit identification of multimodal work trips, such as auto to bus to train—which are sometimes referred to as intermodal trips. In such cases, the mode used for most of a trip distance is used to describe the total trip. Walking is considered a mode only if it is the sole means of travel to work.

Origin-Destination—Trips are described in terms of their starting (origin) and ending (destination) points. For most, but not all, the origin is the home, and the workplace is the destination. Exceptions include situations involving students working after school and workers traveling to various client locations or construction sites.

Reverse Commute—This term is often used by transportation professionals to denote travel from the center city to suburban locations in the suburbs, going counter to the main volume of traffic flow.

Start Time—A new data item in the 1990 census, start time identifies the time (to the minute) at which the commuter left home for work. This information permits better analysis of traffic loadings around peak periods for local traffic modeling of travel demand and air quality analysis.

Traditional Commute—The pattern of commuting from a suburb-like area outside the city to a downtown work location.

Travel Time—A commuter’s estimate of the time (in minutes) it “usually” took to get from home to work in the previous week. This data item was first collected in

1980; the 1990 census thus allows an opportunity to evaluate trends for the 10-year period.

Trip End—A trip end is either end of a trip. The term is used to describe trips in terms of their common origins or destinations, such as all work trips with a destination in the suburbs.

Work at Home—In the census survey, a person who said his or her residence was the usual place of work in the week prior to the census was counted as working at home. Workers who have variable work locations or who periodically work at home are not included in the work-at-home group. A related, increasingly popular term is telecommuter, which refers to someone who has a regular workplace away from home, but occasionally works at home (for instance, once or twice a week).

The census travel data are something of a compromise. Data quality and scale of coverage are unequaled, but there is less detail than desirable. For example, no information is obtained on:

- work trips using more than one mode of travel,
- travel to a second job, for those with more than one job,
- variations in "usual" travel patterns, such as occur with workers who work at home 1 day per week, or
- other trips linked to the work trip—a "trip chain," such as dropping children off at school picking up laundry, or shopping for groceries.

Nonetheless, the census data are a rich source of fundamental national work travel characteristics. Each census has yielded more comprehensive data on commuting. In 1980, questions on time spent commuting were added to the survey, and questions on vehicle ownership and mode of travel to work were expanded. In 1990, a question about the starting time of the work trip was added, and a question that separately identified trucks and vans was deleted.

There are serious questions about the design of the next census (2000) and its ability to provide crucial journey-to-work data. The census data set has become embedded in the transportation planning, analysis, and policy review fabric of national, state, and metropolitan governments. The 1990 data were compiled in a large-scale package of tabulations to meet both state and metropolitan needs. Viewed at a very fine level of detail, such as down to small traffic zones, the data permit the kind of detailed analysis required in our contemporary policy framework for both transportation planning and energy and air quality evaluations. Loss of these data would impede progress toward many of the goals in the 1991 Intermodal Surface Transportation Efficiency Act and the 1990 Clean Air Act Amendments, as well as other national priorities, such as the National Energy Policy. Work is already under way to define the needs for the data set in 2000.

This report is based on information provided by the Bureau of the Census, as well as data compiled by the Bureau of the Census and the U.S. Department of Transportation (DOT) to summarize national trends. The Bureau of the Census data have changed over time, but the definitions have not; thus it is possible to make meaningful comparisons of commuter travel over the 30 years that the Bureau of the Census has collected commuting data.

Although the primary source of data for this report is the decennial census, other data sets have been used as necessary. Among these data sets are those from the Nationwide Personal Transportation Survey, conducted by the U.S. DOT in 1969, 1977, 1983, 1990, and 1995. The American Housing Survey conducted by the Bureau of the Census and the Consumer Expenditure Survey conducted by the Bureau of Labor Statistics have also provided important information. Together, the three surveys provide information useful in depicting trends for such important factors as trip lengths, travel speed, and vehicle operating costs.

GEOGRAPHY

Perhaps no aspect of the commuting topic creates more confusion and difficulty than questions of geography. Several aspects of geography need to be considered:

- The geographic units into which commuting data are aggregated;
- The level of detail in trip patterns;
- The comparability over time of areas defined by the Office of Management and Budget; and
- The comparability at the national level between various area systems in use from place to place.

The main geographical unit used in this report is metropolitan area. In this report, metropolitan area refers to the metropolitan statistical areas (MSAs) and con-

solidated metropolitan statistical areas (MSAs) identified in 1990, when the census data were collected.

This report uses current definitions to summarize data for metropolitan areas, and it separates data on the central city from data on the remainder of the metropolitan area. The non-central-city area, often called the suburbs or the suburban ring, may evidence considerably different kinds of development and travel behavior from one metropolitan area to the next. Areas outside metropolitan areas are referred to as nonmetropolitan or exurban areas.

To allow consistent comparisons and to minimize any misleading effects of changes in geographic definitions, the 1990 data were tabulated using the definitions in place when the 1980 data were collected.

When referring to work trips in the metropolitan area, three terms are used in this report—central city, suburbs, and surrounding nonmetropolitan area—to create a matrix that tracks nine movements. Although something of an oversimplification, the matrix keeps the constituent parts of the metropolitan commuting phenomenon readily understandable. In addition, sophisticated tabular analyses conducted by the Bureau of the Census make it possible to distinguish trips ending in the suburbs or central city of a metropolitan area other than the one in which the commuter resides.

In the decennial census, both origins and destinations of work trips in metropolitan areas are identified at very fine levels of detail, such as individual blocks, which permits assembly to differing area units. Worktrip origins (the home) are relatively easy to identify. The census data are based on households, and each respondent is identified by address.

Work locations are, however, another matter. Because transportation planners need detailed identification on work locations, an entirely separate system is needed to locate and identify work addresses, according to a set of geographic codes compatible with other census geography and computer operations. The system is not perfect. For example, some workers fail to provide sufficient information on their work location; a Bureau of the Census system is thus used to distribute work locations in proportion to known destinations.

For small-area statistical needs, the Bureau of the Census aggregates the block level data into areas called census tracts. Transportation planners use similar areas—called traffic zones—keyed to the configuration of the road system. A large metropolitan area might have more than a thousand such zones or tracts. Trip origins and destinations must be sufficiently detailed to be assigned within one of these areas, in order to be useful for traffic planning and many other local purposes, such as school redistricting and development zoning. The detailed data are assembled in a format facilitating comparison by local agencies.

Although these detailed data are crucial to transportation models, they are not very useful to an understanding of what is happening in a city or region. For that purpose, the detail needs to be aggregated into larger areal units, such as metropolitan areas or urbanized areas. This must be done with great care, for the process of aggregation can conceal as well as reveal.

There are fundamentally two choices when it comes to aggregating data at the national level:

- Aggregate to areas that have boundaries demarcating a legal geographic unit such as a county, township, or state.
- Let the shape and size of the areas be defined by the nature of the data.

Each approach has its strengths and weaknesses. Clearly, it is necessary to use political units of geography for many purposes—for instance, to relate to other data and to match the boundaries of jurisdictional authority. On the other hand, modern conditions have demonstrated that many problems, such as pollution and transportation, do not respect political boundaries. For transportation purposes it is clear that a metropolitan region does not stop at the city, county, or state line.

The Bureau of the Census and the Office of Management and Budget have responded to these needs with a number of systems of aggregation. They have sought to clearly define a metropolitan area. The definition has changed over time, but the key elements are a major central city and the surrounding related counties. Because it is composed of political units (counties), a metropolitan area will evidence substantial variation in size, shape, and features.

The 1990 census designated 284 metropolitan areas, representing all of the major and some of the relatively minor metropolitan units in the United States. Of these areas, 71 were grouped into 20 larger units called consolidated metropolitan statistical areas, reflecting the immense scale some metropolitan complexes have reached. Over time, the concept of the metropolitan area has become imbedded in Federal programs well beyond any statistical role. Concurrently, the definition of what con-

stitutes a metropolitan area has been relaxed, thus qualifying more and more areas for that title. As a result, the concept of a metropolitan area has lost meaning. Almost 80 percent of the U.S. population now resides in a metropolitan area. With anything remotely urban now being defined as an official metropolitan area, new constructs are needed to more clearly discriminate what is actually happening.

New terminology and new definitions for metropolitan areas were adopted by the Office of Management and Budget in 1983. These were more nomenclature changes than definitional modifications, but several of the changes have severely impacted the ability to analyze trends in transportation.

Most serious of these changes is the redefinition of what is meant by a central city.

On average now there are two central cities for every metropolitan area. This means that many metropolitan areas have several so-called central cities, often small suburban centers that were once freestanding units but that have been engulfed by suburban expansion. To include these in the central cities classification corrupts the concept of metropolitan area. Many users of the census data, not realizing the implications of the redefinition of central city, have noticed that the data indicate a revitalization of central city growth beyond what is actually happening. In this report, the notion of a central city as the major place at the center of the region has been maintained, and other cities have been subsumed under the suburban or noncentral city label. In many cases, 1980 definitions have been retained for 1990 data to avoid the misleading effects of the new definitions. Ultimately, we will need to recognize the rise of suburban activity centers, in some better form, as elements of the metropolitan fabric.

The other areal unit used extensively by the Bureau of the Census is the urbanized area, which takes the second approach to area definition. An urbanized area is the area surrounding a central city and comprising all of the built-up parts of the region, generally defined as that area within which the average population density exceeds 1,000 persons per square mile. The key point about this definition is that it is independent of political boundaries. Its extent is determined by the data itself. Although urbanized area statistics are not extensively used in this report, they have real value—particularly in transit analysis, which often predominantly focuses on the densely built-up parts of a metropolitan area. An attractive concept is the joining of metropolitan areas and urbanized areas to establish a ring-like geography. Until recently, this was not feasible except in special cases because of difficulties in identifying work trip destinations within urbanized areas. Such joined areas are used here whenever the data permit their use.

Figure 1–3 shows the “typical” structures and relationship of a standardized metropolitan statistical area and an urbanized area. But it cannot depict all the potential problems caused by the definitions and their interrelationships with local political boundaries. The following issues can affect the statistical conclusions drawn from data using these typical units:

Many metropolitan areas extend into two or more states, thus adding additional boundaries.

Counties, which vary widely in size, are generally larger in the West, with the result that a Western metropolitan area may wholly reside within one county. Such large counties will often contain vast rural territories within the metropolitan construct.

Boundaries and sizes of cities are often dependent on rules about annexation.

As metropolitan areas grow, they increasingly come into contact with other metropolitan areas also expanding from a distant center, so that the outer areas of metropolitan complexes may serve as a commutershed for more than one center. The growth of suburban complexes, or once-minor towns and cities on the periphery of an urban center, into major centers of economic activity creates multicentered regions that are not easily statistically defined.

These issues suggest that the concept of a metropolitan area is probably clearer than its definition. This further suggests that great care must be used when examining data based on metropolitan aggregates, and particularly when data from all metropolitan areas, with all their local variations in character, are summarized and analyzed at the national level.

One of the more serious consequences of these issues is that the concept of the suburb is not clearly defined. Current definitions are simply inadequate for capturing the spatial boundaries of a suburb. In this report, the suburbs are defined as that part of the metropolitan area outside the central city. This is a rather arbitrary construct determined by the nature of the geographic identification of available data. If a city is large, a large amount of suburb-type development will exist within its boundaries. If the city and surrounding counties are small, the suburbs may extend out through two or three counties. Depending on their size, counties outside

the metropolitan area may generate substantial amounts of commuting to the metropolitan area. These areas may constitute an increasingly important “exurban ring” beyond the suburban area, because suburban areas are increasingly becoming the major destination of work trips. These exurban ring counties are prospective additions to the metropolitan area. These realities are not readily captured statistically.

NEW CONCEPTS IN THE GEOGRAPHIC REPRESENTATION OF TRAVEL DATA

Much of the logic used to define metropolitan areas is based on commuting patterns. In fact, one of the many justifications for collecting commuting data is the Office of Management and Budget’s use of the data in defining and determining metropolitan areas. It is ironic that these geographic constructs are not very useful for commuting analysis.

If we were not restricted to geographical boundaries, we would probably define a commutershed around important economic and social centers that serve as destinations for most commuters. Rings at given radii from the center would be defined based on their degree of focus on the center, an increasingly tenuous quality of the large contemporary metropolitan unit. This would still leave problems of overlap between the areas of commuting influence on large urban complexes and would probably generate new problems. A series of overlapping rings with different centers would result.

New geographical information system techniques and capabilities make possible very impressive analytical tasks, which have been decades in development. Grid systems using latitude and longitude coordinates provide a strong graphical capability, and they have been used as the basis for planning in some major metropolitan areas, including New York and Chicago.

Overall, the areal units used in this report—jurisdictionally based geographical units, consisting of counties as building blocks—are substitutes for that yet-to-be-defined more-perfect system. We must be conscious at all times of the potential “tyranny of geography” and its ability to mislead, as well as to enlighten.

CHAPTER TWO: COMMUTERS IN THE 1990’S

The 1970’s and the 1980’s saw volatile demographic change. Today, some of these trends are losing steam and are having less of an influence on commuting. These trends include population growth, labor force growth, vehicle growth, and geographic shifts of workers and jobs. Although not at peak level, some of these trends still have substantial impact, notably labor-force growth trends. And there are other trends that are just emerging as potential major forces of change. Notable among these is the growth in immigration; however, other trends, particularly the aging of the population and the disparate travel needs of different racial and ethnic groups, will also be factors of great concern in the future.

END OF THE WORKER BOOM

The first edition of *Commuting in America* described at some length the great job boom of the 1970’s that contributed so forcefully to the dramatic increase in commuters. A major factor behind that boom was the tremendous increase in persons of labor-force age—as a product both of the coming of working age of the baby-boom generation and of the surge in women’s participation in the labor force. Of course, the U.S. economy deserves the greatest credit—by creating jobs on such a mammoth scale, it permitted persons of working age to find jobs. For almost 20 years, between 1970 and 1990, the work force grew by an average 2 percent a year in the United States far exceeding the total job growth in all other developed nations combined.

The 1940 census may have documented the high point of the growth period of population and workers and signaled the end of the worker boom. The number of workers grew to 115.1 million in 1990, an increase of 18.4 million workers from the 1980 census and about 300,000 more than the number of new jobs generated between the 1970 and 1980 census periods (Table 2-1). The 19.2 percent increase in workers was substantial, but down significantly from the 23 percent growth rate seen in the 1970’s. By the mid-1990’s, job growth had been slowed by an economic recession, but also because there were fewer people in the labor force. Overall, the number of workers (and thus prospective commuters) has almost doubled since 1950.

Workers and Population

Population change contributed to the decreasing labor force. Table 2-1 shows the continuing decline in the population growth rate from the baby-boom years to the present. The 1980-1990 decade saw the lowest rate of population increase in our nation’s

history, except for the depression of the 1930's, which was the only other time that population growth fell below 10 percent.

More significant for commuting concerns is the rate of population growth by age-group (Figure 2-1). The increase in total population is gradually declining, but the increase in working-age population (16 to 65 years of age) and the labor force is dramatically subsiding. As shown in Figure 2-1, a clearly visible "bubble" of growth in the working-age population and the actual labor force in the 1970's and 1980's explains the substantial surge in commuting during that period. The sharp drop-off in both labor force and working-age population signals the last of the baby boomers entering the labor force in the mid-1980's and the tapering of the surge of women joining the labor force later in the decade.

Although the rate of increase sharply dropped, the total increase for the period is still substantial (more than 18 million workers).

The Bureau of the Census projected increases in working-age population growth and labor-force growth for the 1990's are also shown in Figure 2-1. It depicts a period of calm—about 10 percent overall growth in population and in the working-age population for the decade moving in tandem. In fact, this is the product of a brief growth blip of about 1.1 percent a year for the first 5 years of the decade, and then a return, based on projections, to the same rate as the late 1980's, with continuously declining rates of growth to the year 2050. Labor-force growth rates continue to decline to a rate of just below 15 percent, about half of the rate in the 1980's, but are still projected to produce an absolute increase in labor force of between 17 and 18 million for the decade, or only a little less than the increase that took place in the 1980's.

Figure 2-2 makes this more apparent by differentiating the labor-force growth rates of men and women. The growth in male workers has moved in tandem with the growth in the working-age population. The growth in female workers, on the other hand, has followed a separate course, surging through the 1960's and 1970's and just now tapering off, but with rates of increase considerably higher than those for men.

Looking at the actual changes, rather than rates of change, provides a clearer understanding of what is happening. Figure 2-3 shows the slow tapering in population increases, the precipitous drop in the population aged 16-65 between 1980 and 1990, and the labor-force surge and decline. Of special note is that in 1980 the actual increases in each of the three factors were almost identical.

The most direct way to make the point concerning the end of an era of rapid working-age population growth is to depict the number of people reaching 18 years of age (Figure 2-4). These are the new entrants to the labor force, the new workers, and the new auto drivers who fuel the economy. Figure 2-4 shows the number of persons turning 18 years old in this decade. The number of 18-year-olds peaked at slightly above 4 million in 1990 and had declined almost 5 percent by mid-1993. The age-group is projected to decline to its nadir in 1995 and then slowly begin recovering, but it will not reach 4 million again until 2008.

Furthermore, census projections¹ indicate that those aged 18-21—the primary group of entrants into the work force—peaked at 17.4 million in 1980, declined to 15.2 million in 1991, and declined further to 14 million in 1995; the group is expected to increase to 15.5 million by 2000 and to reach 18 million by 2010.

This discussion has identified the trends in the labor force age-group and the actual labor force, as background to a discussion of workers and job locations.² As shown in Table 2-1, the number of workers almost doubled between 1950 and 1990, adding more than 56 million workers to reach a total of 115.1 million workers.

The Bureau of Labor Statistics places 1990 employment at about 120 million; it dipped sharply to below 117 million in the second quarter of 1991. Employment did not return to 120 million until 1993, reaching 122 million in the second quarter of 1994. Thus in census terms the Nation in mid-1994 was just about 2 percent ahead of the 1990 employment level. It will be difficult, but not impossible, for job growth in the 1990's to reach the 18 million per decade levels seen in the 1970's and 1980's.

¹This study always uses middle series projections. Current Population Reports, 1992, J. Chesseman Day.

²This document continues a convention adopted in the first edition of *Commuting in America*, in which the counts of work trips at their destination ends, as measured by the census, are considered to be a count of jobs. But they are in fact an incomplete measure of jobs. Holders of multiple jobs reported only one job in the census. Thus the journey-to-work data undercount actual jobs. However, they are the most comprehensive national source of at-workplace statistics on the demographics of workers and their travel behavior.

An Aging Working Population

The baby boom has been a bubble making its way through the nation's demographic structure, sharply affecting society at each stage. The baby boomers clogged our grammar schools in the 1950's and our high schools and colleges in the 1960's and 1970's; they are now clogging our transportation system. The baby boomers are in their most productive years, and from a transportation point of view, their most active years. According to the Nationwide Personal Transportation Survey (NPTS), people in the 35-55 age-group, which is the group the baby boomers fall into in the 1990's, have the highest propensity to travel.

The long-term population trends by age-group, including Bureau of the Census projections to 2000, are shown in Figure 2-5.

The population below 16 years of age clearly rose during the baby-boom years and dropped to a stable level of about 50 million. All growth has been attributable to the over 16 years of age population.

The median age of the population has shifted from 28 in 1970, to 30 in 1980, to 32.9 in 1990, and to over 33 in 1992.³ Census projections indicate that the median age will reach 35.7 by 2000 and will hover between 36 and 37 through the first half of the next century.

As shown in Figure 2-6, population declined in all age-groups below 25-29, except for those below school age. All but six states (Alaska, Arizona, Florida, Georgia, Nevada, and New Hampshire) had fewer people in the 20-24 age-group in 1990 than in 1980. Worth noting is the arrival of the "depression babies" at the 65-year-old age point. This group was exceptionally small because of the bad economic times when they were born and then the war years; its size accentuates the size of the baby-boom bubble.

The older population of working age is of interest. In 1980 there were 21.7 million persons aged 55 to 65. This number dropped slightly to 21 million by 1990, but is projected to reach 23.7 million by 2000 and to jump to 34.5 million by 2010, as the baby boomers begin to reach retirement age.

Women in the Workforce

Earlier, this chapter noted that women had been the major factor behind the surge in the labor force from 1960 to 1990. Between 1950 and 1990, the number of workers in the Nation almost doubled. In that period, women's share of total employment rose from under 30 percent to 45 percent.

In 1990 about 192 million people were 16 or older; about 99.8 million (52 percent) were women. Of that group, 56.6 million women were in the labor force—an all-time high for women. These figures mask the participation rates for women in the younger age groups—over 77 percent of women aged 35 to 44 worked, in contrast to about 40 percent in 1960. Furthermore, the number of working women with children is very high—almost 75 percent of married women who work have children over 5 years of age, and almost 60 percent have children under 6. In contrast, 74.4 percent of men were in the labor force at that time.

Since 1990 the labor-force participation rate for women has continued to increase whereas that for men has continued to decline. According to the Bureau of Labor Statistics, the participation rate for women reached 59.2 percent in August 1995.

The relative contribution of men and women to the labor force in the latter half of this century is shown in Figure 2-7. The total labor-force increase in the 1980-1990 decade was clearly down from the previous decade, for both men and women; women contributed 11 million to the labor force, compared with 14 million in the previous decade. Women's share of the labor force increase in the different periods grew from 58 percent in the 1970-1980 period to 61 percent in the 1980-1990 period.

The 56.6 million women in the labor force in 1990 represented about 46 percent of the total labor force. Figure 2-8 traces women's share of the labor force throughout the period.

RESIDENTIAL AND JOB PATTERNS

Population Distribution Patterns

The nation's population grew by only 22.2 million (9.7 percent) between 1980 and 1990, about 1 million less than the number added between 1970 and 1980. Since 1990 that pattern has continued, with about 2.8 million persons added each year.

³The median is that number which is the central item in a distribution when ranked from low to high—thus half the numbers are higher and half lower than the median. It is often used instead of the average in cases where a few high numbers have the potential to distort understanding.

The estimated population reached 265 million in June 1996, with 2.7 million additional people added in 1995. The population is projected to reach more than 276 million in 2000, yielding a growth rate for the decade of just above 10 percent, with declining growth rates in all decades thereafter until mid-century. Table 2-2 summarizes long-term national population trends and their distribution by metropolitan geographic category.

Metropolitan Patterns

Using current metropolitan definitions, the 22.2 million increase in population between 1980 and 1990 occurred almost exclusively in metropolitan areas, with 21 million of the growth occurring there. Of that amount, 15.6 million, or about 75 percent, occurred in suburbs, and the remaining 5.4 million occurred in central cities—a substantial improvement in growth rates for central cities. However, the adjusted column in Table 2-2 clarifies that all of this growth is a statistical artifact. If the definitions that applied in 1980 are retained for the 1990 data, the data show that central city population has actually declined and that all the metropolitan growth of 17 million was in the suburbs. In this restructuring of the data, the nonmetropolitan areas gained 5.2 million rather than 1.2 million. Of most interest is that overall population growth in metropolitan and nonmetropolitan areas was effectively identical to the national average. Given that the suburban share of the metropolitan population was 58 percent in 1980, the 1980-1990 growth pattern contributes to a further increase in suburban share. As a result, the 1990 suburban share now stands at almost 62 percent.

The national long-term distribution between the three major groupings is presented in Figure 2-9 (using adjusted 1990 figures), showing that the suburban share of total national population continues to grow—from 43 percent to 47 percent between 1980 and 1990.⁴ The central city share of population declined to 29 percent.

Overall migration flows are instructive. In the late 1980's nonmetropolitan areas lost small amounts (100,000-250,000) each year to metropolitan areas. Otherwise, nonmetropolitan areas held constant with flows to and from central cities roughly in balance. The flows between central cities and suburbs were more substantial. Central cities lost in the range of 2.5 to 3 million persons per year to the suburbs. These flows were somewhat softened by the 750,000 or so immigrants arriving in the central cities each year. Thus in net terms, central cities continue to experience outward shifts, almost exclusively to suburbs, in excess of 2 million per year. Recent data indicate that nonmetropolitan areas are again experiencing something of a growth renaissance. Less than half of the nation's nonmetropolitan counties were growing in the 1980's. In the 1990's almost three-quarters were gaining population, spurred by immigration.⁵ Many of these growth areas are in recreational and retirement communities.

Actual domestic migration rates appear to have continued unslackened in the 1980's, despite the aging of the population. Most moves involve remaining in the same general area. Three-fourths of suburban or nonmetropolitan moves are within the same geographic category. Central city movers are less devoted to category, with only about two-thirds remaining in a central city.

Figure 2-11 takes this a step further by dividing the suburbs into two zones. The first, the urbanized ring, is defined as the census-defined urbanized area minus the central city; the second, the metro ring, is the metropolitan area minus the urbanized area. The urbanized ring consists of the highly built up areas around the central city, i.e., the inner suburbs; the metro ring is that area outside the urbanized area, but still within the metropolitan area, which can be a large area given the shape of the county boundaries that define metropolitan areas. It typically consists of lower-density developing areas, which often contain heavily rural populations. In fact, 75 percent of this ring's population is defined as rural.

One further point of interest is the shifting in population growth between metropolitan areas of different sizes. An important question is whether population growth is concentrating in the largest metropolitan areas or in smaller geographic areas. This will have implications for the feasibility of certain modes and policies, choice of mode, and commuters' comfort level.

Figure 2-12 shows the population trend by size of metropolitan area. More has happened than is apparent in the figure, because of compensating shifts among the groups. A major shift occurred when San Francisco joined the over 5 million population group in 1980. In 1990, another compensating change occurred when Atlanta

⁴The share held by suburbs varies little under either definition: 46 percent under standard 1990 definitions, 31 percent for central cities, and 23 percent for nonmetropolitan areas.

⁵K. Johnson and C. Beale. *American Demographics*, July, 1995.

and Seattle moved into the over 2.5 million group. A large number of metropolitan areas are poised to join the over 2.5 million group in the 2000 census (Phoenix, Baltimore, St. Louis, Minneapolis-St. Paul, and San Diego). No change, absent a joining of the Washington-Baltimore areas, would move any area into the over 5 million club.

The change in population of the major metropolitan areas is shown in Table 2-3. With the national growth rate from 1980 to 1990 at 9.7 percent, the five metropolitan areas with over 5 million population barely held their share in the 1980-1990 period. However, it should be noted that the growth rate for the group was the product of three eastern areas (New York City, Philadelphia, and Chicago) with minuscule growth rates (approximately 2 percent for the three areas combined) and two western areas (Los Angeles and San Francisco) with a combined growth rate more than double the national average. Future growth in this group will thus clearly be a product of the growth rates in the Western areas, unless some major reversal of trend occurs in the East.

The nine metropolitan areas in the 2.5 to 5 million range grew the most rapidly of all size groups, increasing by over 14 percent. The West-East dichotomy was again crucial to understanding the underlying character of the trend. In particular, two metropolitan areas in the group from the East (Detroit and Cleveland) placed a drag on the group with population losses. Otherwise, the Western areas in the group had very high growth rates.

The two groups in the 0.5 to 2.5 million range had almost identical rates of change, about midway between the national average and the rate for the 2.5 to 5 million group. All areas less than 0.5 million had rates close to the national average.

This suggests that there has been little change in shares of metropolitan population among the different population-size groups. There has been a small shift, less than a 1 percent change in share, from the over 5 million group to the 2.5 to 5 million group.

There was also a small shift from the smallest groups, those below 0.25 million, toward the middle-size groups. The groups from 0.5 to 2.5 million gained slightly in share. All of these overall gains are at the expense of nonmetropolitan areas.

Signs of Moderation in the Sunbelt

The long-term trend in population growth by census region has continued without substantial change since 1970, as shown in Figure 2-13. Notably, the Northeast, showing little growth, has been surpassed in total population by the West. The West appears likely to surpass the Midwest, which has shown similar lack of growth. The South continues to grow and to lengthen its lead over all other regions; it now represents more than 35 percent of the U.S. population.

Examination of the regional growth rates shows that no region has been immune to the decline in growth rates, but the South is the only region with its current growth rate approximating that observed in the 1950-1960 period. The West, with higher rates of growth than the South, has also held steady, after a sharp decline in rates from 1960 to 1970. These shifts provide some evidence of a lessening of the shift to the sunbelt that has dominated national migration patterns since the 1950's. Together, the South and West, with 52 percent of the nation's 1980 population, obtained 94 percent of population growth in the 1980-1985 period. This growth dropped to about 83 percent in the 1985-1990 period, as the Northeast and Midwest showed some growth, primarily a result of foreign immigration. The South and West, together, still represented over 55 percent of the national population by 1990. In the 1990's the rate has dropped further, to an estimated 76 percent of all growth by 1993, but the regions' share of the nation's population still rose to 56 percent.

Further recent evidence of slowing occurred when California, for the first time in 20 years, grew at a slower rate than the Nation as a whole. Between July 1992 and July 1993, California grew 1 percent, slightly less than the national rate; it was the slowest growing state in the West, contrasting with the overall rate of 1.7 percent for the Western states as a group. To place this in perspective, in the 1980's California grew at double the national rate.

If detailed data for annual immigration and emigration are examined by region, the picture is rather glum for the Northeast and the Midwest. In no year in the 1980-1990 decade did the Northeast have a positive net flow of migrants, excluding immigration from abroad. (In 6 of the 10 years foreign immigration overcame negative net domestic flows to create an actual increase in population.) The Midwest picture was not quite as bleak. For the first 5 years of the decade, migration flows were negative despite positive migration from abroad. In the more recent 5-year period, migration flows were positive. In 2 of the 5 years they were even positive in purely domestic terms.

The New Factor of Immigration

Changing population and labor-force growth rates and changing patterns of internal distribution of the population have been, and will continue to be, strongly affected by the size and character of foreign immigration. Because these trends are fundamentally a product of congressional and administrative policies, they make reliable projection of future trends virtually impossible.

The scale of foreign immigration has become prodigious. It is a major, if not the dominant, factor in national population growth patterns. According to the Census Bureau, about 8.7 million immigrants entered the United States in the 1980–1990 period. Given a total population increase of about 22 million, the foreign-born share was almost 40 percent of total growth.⁶ Recent data indicate the pace continues at that rate, with 4.5 million arriving in the 5-year period from 1990 to 1994, twice the rate of the 1970's. Figure 2–14 traces the historical trend in immigration using a more conservative estimate based on Immigration and Naturalization Service statistics. This figure does not show the peak decade of American immigration, 1900–1910; almost the same number of immigrants arrived—8.8 million—in the 1900–1910 period as in the most recent decade, but they arrived to a nation consisting of approximately 75 million—less than one-third of today's population. In 1910 almost 15 percent of the population was foreign born, dropping to only 4.8 percent in 1970. It has now returned to 8.7 percent, well below the peak immigration years but substantially above the post-war years.

There are several ways in which immigration may be critical to transportation in general and commuting in particular. The first obvious point is that without immigration, the total population increase would have been much smaller in the decade. A somewhat less obvious point is that additions to the population in 1995 via births will produce prospective commuters in 2011 or later, but most immigrants are old enough to join the labor force when they arrive in the United States, and most are intent on becoming commuters and vehicle drivers. They are instantaneous additions to the traffic scene. For example, almost 80 percent of the 1.5 million arrivals from abroad in the years 1990–1994 were of labor-force age. The median age of arrivals in that period was 26 years.

Another factor to consider is the immigrants' geographic location. Where do these immigrants go? To what parts of the country? What parts of metropolitan areas?

Previous discussion has stated that immigrants from abroad have been a factor in all census regions of the country, acting to reverse losses in the East and Midwest (the number of foreign immigrants arriving in the East and the number of persons leaving the East for other regions are generally symmetrical) and, in the South and West, acting to substantially expand existing growth trends. The states that received more than 200,000 foreign immigrants in the period from 1985 to 1990 are shown in Figure 2–15. The chart can be characterized in this way: Foreign immigrants tend to go to heavily populated areas. The most populous states tend to receive immigrants.

Foreign immigrants have had direct impact on the growth patterns of many states. Some traditionally rapidly growing states, such as California and Florida, have had their growth expanded—in the case of California, dramatically so. Other states, such as Texas, Pennsylvania, and Massachusetts, have had their population losses reversed by immigrants. Others, such as New York and Ohio, have had their declines reduced, but not reversed. National migration trends differentiated by domestic net flows and foreign immigration are shown in Figure 2–16. Domestic net flow is the difference between flows into and out of a state. Changes in population due to births and deaths are not included in the figure.

The case of California is worth detailing. It has consistently received one-third of all immigrants. In the 5-year period 1975–1979, California received 1.1 million foreign immigrants, more than one-third of the nation's arrivals. In the 1980–1984 period, California received almost 1.5 million immigrants, again more than one-third of national arrivals. In the 5-year period 1985–1990, it received almost 2 million immigrants, well above one-third of national arrivals. In the most recent 5-year period (1990–1994), California received more than 1.5 million immigrants, almost exactly one-third of all immigrants.

The current group of immigrants tend to locate in central cities, as did the many immigrant groups before them. This acts to balance the emigration of the resident populations. In recent years, more than 90 percent of foreign immigrants were des-

⁶National statistics are not usually presented in this way. Generally, they are expressed net of emigration by U.S. citizens. These figures are from the 1990 census and are considerably larger than official immigration statistics, which place immigration for the period at 7.3 million. The official percentage of foreign-born people in the United States for the decade is closer to 34 percent.

tined for metropolitan areas, with a preference favoring central cities over suburbs—roughly a 55/45 split in favor of the central cities. Some metropolitan areas, such as New York City and Chicago, had their population losses reversed by foreign immigration.

One effect of the arrival of immigrants has been the number of households without vehicles in cities with large numbers of foreign immigrants. For instance, Phoenix, Los Angeles, Sacramento, Houston, and Dallas all had greater percentage increases in population than in vehicles. And all had significant increases in the number of households without vehicles. The places with highest increases in zero-vehicle households were Miami, San Diego, and Phoenix. The suburbs of many of these areas saw large increases in households without vehicles.

Of great interest will be the rate at which these households “mainstream,” i.e., obtain vehicles and begin moving to the suburbs. Historical data indicate that foreign-born persons reach levels of income approximately the same as native-born citizens in about 15 years. Foreign immigrants are not unlike others moving within the United States. The average foreign immigrant had 12.9 years of education in 1989–1990, almost identical to the average years of schooling for all migrating residents. More recent data indicate that this average has an unusual distribution because foreign-born persons over 25 years of age have a greater likelihood of having a college degree than native-born citizens; however, they are also more likely not to have a high school degree.

Job and Worker Patterns

Worker and job location data from the 1990 census indicate that the patterns have continued to follow their historical trends. Workers are counted at their residences, and jobs are counted at their work locations (which could be the residence). The number of workers equals the number of jobs.

A simple way to summarize the locations of workers and jobs is shown in Table 2–4. This breakdown of metropolitan area worker data also depicts a suburban division between the urbanized ring (urbanized area minus the central city) and the metro ring (metro area minus the urbanized area).

A series of figures portrays the patterns behind these data. Figure 2–17 shows the distribution of workers by major geographic area. Half of all workers reside in the suburbs. Figure 2–18 shows these data in greater detail, indicating that most of the workers reside within the urbanized ring. Figure 2–19 compares the share of workers with share of population by jurisdiction. Central cities have a lesser share of workers than population; this is sharply reversed in the urbanized ring, which has a high proportion of workers to population. The nonmetropolitan area also has a low population/worker relationship.

Figure 2–20 shows the growth in workers between 1980 and 1990 by broad geographic areas. As can be seen from comparison with Figure 2–17, growth in workers has predominantly occurred in suburban areas, with two-thirds of all worker growth there; although the growth is in excess of its present share, it is still not as strongly disproportionate as its share of population growth. Both central cities and nonmetropolitan areas shared the remaining worker growth about evenly, but both areas lost share to the suburbs.

Figure 2–21 provides similar data for worker growth at the work location end (i.e., jobs). The first chart represents the distribution of job locations in 1980; the second chart shows job locations in 1990, and the third chart shows how the distribution of shares of jobs changed from 1980 to 1990.

These figures use a slightly different geographic structuring of the data than in the preceding discussion—one that recognizes how commuting patterns work in the 1990’s. It differentiates those who work in the central city of a different metropolitan area from those who work in the central city of their own area, and similarly differentiates suburbs. The data indicate that there has been a significant alteration in the location of jobs over the 10-year period. When the two suburban areas are added, they constitute 42 percent of the job locations in 1990, up from 37 percent in 1980, obtaining a two-thirds share of the growth in the period. As shown in the charts, a substantial share of growth (one-quarter) occurs in suburbs and central cities outside the residence area of the commuter.

Detailed Metropolitan Trends

Over 95 percent of metropolitan population growth and about 66 percent of jobs in the 1970’s were absorbed in the suburbs. In the 1980–1990 period, if 1980 definitions are retained, all population growth occurred in the suburbs, with central cities

showing a slight decline of 0.7 percent, losing roughly half a million people. Almost 75 percent of metropolitan job growth took place in the suburbs.⁷

Metropolitan growth rates have been highly variable from area to area. Table 2-3 provided detailed population growth rates in the 1980's by metropolitan area size group. Figure 2-22 displays the distribution of metropolitan areas over 1 million by population growth rate. Those areas with under 5 percent growth, roughly half the national growth rate, are designated as "low growth," and those with a growth rate above 20 percent, roughly double the national rate, are designated as "high growth." All the high-growth metro areas were in the West or the South, with the exception of Minneapolis-St. Paul. Conversely, almost all the low-growth areas were in the Northeast. The two exceptions were Portland, Oregon, and New Orleans, Louisiana.

In percentage terms, overall worker growth rates exceeded population growth rates by substantial amounts, as expected. Suburban worker growth rates were even greater—in some cases double the population growth rate. Figure 2-23 provides the detail on these patterns. The general decline in the overall rates from the 1970-1980 high-growth areas is worth noting. In that period, the lowest suburban growth rate among the high-growth areas was just about 60 percent. In the 1980-1990 period, only two areas exceed 60 percent in suburban growth.

The 12 low-growth areas shown in Figure 2-24 have growth patterns more like the patterns of the previous decade, although there is apparent softening of the extremes here as well. Many of the population losers in the 1970's continued to be population losers in the 1980's—Pittsburgh, Buffalo, Detroit, and Cleveland. As in the 1970's, all but Pittsburgh showed substantial overall worker growth and even more dramatic suburban worker growth, although the contrast in suburban worker growth and overall worker growth rates is not as extreme as in the earlier decade. New York and Portland actually show overall rates equal or better than suburban rates.

Even when areas have declining or limited population growth, worker growth (particularly suburban worker growth) is still an important transportation growth factor. Perhaps the best example is Buffalo, which in 1980 had seen an 8 percent population loss, but still sustained a 7 percent increase in suburban workers. In 1990 it incurred a loss in population, this time of about 4 percent, but again obtained a 7 percent increase in suburban workers. New Orleans and Detroit were also notable in this regard. Four of the areas obtained suburban worker growth rates in the range of 20 percent. Table 2-5 summarizes the overall data for all areas over 1 million population.

HOUSEHOLDS AND VEHICLES

Trends in Household Size

In many respects, the fundamental unit of metropolitan travel is the household. Incomes and vehicles are typically household-based rather than person-based. Many trips can be attributed to household activities such as food shopping, appliance repairs, and laundry. Child care and children's needs, such as medical visits or music lessons, are a significant part of the pattern of travel demand. The linking of trips serving the household to the journey-to-work trip—so called trip chaining—is very much a family/household characteristic, and an increasingly important factor in transportation policy issues. Also, the potential for linking persons to form carpools is strongly related to household size, which will be discussed later.

Given these factors, it is important that the interrelationship among the trends in population, households,⁸ and workers be clear. The basic relationship is shown in Figure 2-25, which portrays the trend in growth in population, households, and labor force from 1950 to 1990, indexed to 1950. The chart shows a close parallel between household and labor-force growth; the overall growth rate from 1950 to 1990 for the labor force was 200 percent and for households 211 percent, indicating that labor force (or workers) per household changed little in the period.

The greater growth in households relative to population (211 percent vs. 164 percent) continues the trend toward smaller household size. The average household size in 1950 was 3.37 persons; by 1990, it had declined rather dramatically to 2.63 persons, with the greatest changes occurring in the 1960's and 1970's.

⁷If 1990 definitions are used, suburbs gained about 75 percent of population and 51 percent of jobs.

⁸Not all of the population is in households. Those members of the population not in households are in group quarters, such as college dormitories, army barracks, prisons, nursing homes, and psychiatric institutions. Only 6.7 million of the almost 250 million persons in the 1990 population were in group quarters. Between 1980 and 1990 this group grew almost twice as fast as the population in general.

Two factors that affect household size are pertinent to transportation planning. The first factor concerns shifts in family structure; the second concerns the changing distribution of households by number of persons per household.

The Structure of Households

In 1990 there were 242 million people living in 91.9 million households. Of these households, 64.5 million were families with about 204 million people. The remainder of the population was living in 27.4 million nonfamily units, 22.6 million of which were composed of single persons living alone and 4.8 million were nonfamily units of more than one person. Table 2-6 summarizes these patterns for 1980 and 1990 and shows the rates of change in the elements. Several points are worth emphasizing:

- Although population increased by less than 10 percent of the households increased by almost 14 percent.
- Population in family households increased only 4 percent. The major growth occurred in non-family households, which increased almost 30 percent.
- Of the total increase in population of 22 million, over 13 million, or 60 percent, occurred in nonfamily households. The share of the total population represented by nonfamily households rose from 11 percent to over 15 percent.
- Great growth was registered in nonfamily households consisting of persons living alone and, in particular, in multiperson nonfamily households.
- A significant portion of those living alone are over 65 years and female.

These trends suggest that the notion that incomes and vehicles are household-based rather than person-based may be changing somewhat, because if increasing shares of households are nonfamily households, it would be more likely that incomes and possessions could remain separate and not function as a shared asset.

Since 1990, family households with children have grown at the minuscule rate of 0.2 percent per year, while nonfamily households grew at the rate of 1.2 percent per year. The impacts of these changes are just being revealed in terms of travel patterns. Although considerably greater than the rate for family households with children, the rate for nonfamily households has declined considerably from its high levels in the 1970's, which were almost 6 percent per year.

If households are distinguished by the number of persons per household, as depicted in Figure 2-26, it is evident that large households—those of five, six, or more persons—are declining as a component of all households. Most growth in households is occurring among one- and two-person households. This is confirmed by the previous discussion of nonfamily households.

These household trends tend to have negative effects on the potential for family carpooling and support increased use of single-occupant-vehicular travel. But remember, a significant portion of those in single-person households are over 65 years of age and therefore not likely to be commuters. The following discussion expands on this point.

Workers Per Household

Figure 2-27 shows the number of workers per household, according to location. This chart says a great deal about commuting and commuting possibilities:

Seventy percent of workers live in households of two or more workers. This indicates that the option for workers to live closer to work is a two-way or more tug-of-war, even if workers were interested in living closer to work.

It tells us a great deal about carpooling potential among households.

Most households with workers have two workers.

Workers Per Family

Although nonfamily households have distinct worker characteristics, with many single-person/single-worker households, the family household is of special interest. Only 13 percent of family households have no workers, while more than 40 percent of those living in single-person households are over 65 and are therefore less likely to be working. Table 2-7 shows the distribution of workers in family-based households, and also identifies the subset of those family households containing a husband and wife.

Stabilization of Vehicle Ownership Trends

Although population grew by less than 10 percent and households by about 14 percent between 1980 and 1990, total vehicles available to households jumped by over 17 percent.

Nothing better depicts the scale of vehicle growth than the fact that the number of vehicles added in the past decade exceeded the number of people added. The majority of U.S. households have two or more vehicles, with an average vehicle avail-

ability of 1.66 vehicles per household, up from 1.61 in 1980. These increases in vehicles per household are occurring against a backdrop of declining number of persons per household.

At the same time there are indications that the rate of growth in vehicles in America is diminishing. As shown in Table 2-8, the number of vehicles grew slower than the growth in workers (17.4 percent vs. 19.1 percent), with the result that vehicles per worker actually declined slightly, from 1.34 to 1.32, after jumping from 0.85 vehicles per worker as recently as 1960. Still, the fact that every worker has, on average, 1.3 vehicles available for work travel suggests that almost everyone who wishes to commute by vehicle has the means to do so. Source data from the 1990 NPTS indicate that the reality goes well beyond simple averages, because the majority of one-worker households have one or more vehicles, the majority of two-worker households have two or more vehicles, and the majority of three-worker households have three or more vehicles. This clearly indicates that vehicles tend to be where the workers are. Total households by vehicles available are identified in Figure 2-28. Note that the growth in households is almost exclusively in households with two or more vehicles.

The case for stabilization of vehicle ownership can still be made despite these growth numbers:

There has been a small decline in vehicles per worker, following years of rapid growth.

The share of households with three or more vehicles decreased from 1980 to 1990. Although only a 1 percent drop, the drop is significant after periods of extraordinary growth (jumping from 1.3 million households in 1960 to over 14 million in 1980). Despite the percentage drop, the number of households with three or more vehicles grew by 1.8 million between 1980 and 1990.

The number of vehicles now exceeds the number of licensed drivers, suggesting that there is a saturation setting in because there is saturation of the number of licensed drivers independent of the number of vehicles. It will not matter how many vehicles people own as long as the number of licensed drivers remains stable. There is clear evidence of saturation in licensed drivers.

- As shown in Figure 2-29, the share of households by vehicle ownership does seem to have stabilized, remaining relatively unchanged since 1980.

Households Without Vehicles

The proportion of all households that are without vehicles has been in continuous decline since at least 1960. In 1960, 21 percent of households were without vehicles, dropping to just above 11 percent by 1990. However, the percentage decline between 1980 and 1990 was just slightly more than 1 percentage point—from 12.9 to 11.5 percent—supporting the viewpoint regarding the trend toward stabilization.

In terms of absolute numbers, the number of zero-vehicle (vehicle-less) households has remained roughly constant for 30 years, as shown in Figure 2-28. In fact, the number of zero-vehicle households rose slightly from 10.4 million in 1980 to 10.6 million in 1990—not far from the 11.4 million households without vehicles in 1960.

Who Are The Vehicle-Less?

A number of demographic factors that are contributing to the stability in the number of vehicle-less households also help explain who these households are.

One of these is the increase in single-person households, particularly those consisting of older women. In 1990 there were 22.6 million households consisting of an individual living alone, 8.8 million of which were over 65—almost 80 percent of this group were women, who, as a group, have the lowest ownership of drivers' licensees. These women are most likely to be vehicle-less and also in a retired or otherwise nonemployed situation. This confirms that although vehicle-less households represent 11.5 percent of households, they represent a much smaller percentage of the population.

In Search of the Three-Vehicle Household

The number of households with three or more vehicles has grown by almost 1.8 million households, despite a declining share of all households. Almost 16 million households are in this category today.

Who are these people and where are they? For the most part they appear to be large households with two or three drivers and are frequently located in rural farming communities. The following table lists the states with the highest percentage of households with three or more vehicles.

The midwestern farm states also tend to be above the average. New York, the state with the lowest overall level of vehicle ownership, is lowest in this area as well, with only 11 percent of households in the three-vehicles-and-above category.

Only California seems to have high shares of urban households with three or more vehicles.

Census data indicate that about 5.3 million workers live in vehicle-less households, which means that, at most, one-half of the vehicle-less households have workers.

Another factor to consider is the surge of immigrants in the period, most of whom are unlikely to have vehicles in their first years of residence. One way to observe this trend is to look at the patterns in the major immigration centers. A particularly effective measure is the ratio of population growth to vehicle growth. On a national basis, vehicle growth exceeded population growth, but in many metropolitan areas—including Phoenix, Sacramento, Los Angeles, and Houston—the population growth exceeded vehicle growth.

Where Are the Vehicle-Less Households?

Most households without vehicles are located in central cities. Figure 2-30 expands on this fact by adding the factor of housing type. In the figure, working households without vehicles are stratified by both area and home ownership. It is clear that central city renters are the predominant group of nonvehicle-owning households; as a general rule, zero-vehicle households are more likely to be renters than home owners.

The New York metropolitan area accounted for about one-fifth of all zero-vehicle households in 1980. Despite the fact that New York lost about 90,000 zero-vehicle households in the 1980-1990 decade, it still accounts for one-fifth of all such households.

Another one-fifth of zero-vehicle households are located in the seven major metropolitan areas listed in Figure 2-31. The remaining metropolitan areas with populations over 1 million contained another one-fifth, and the rest of the country was responsible for the remaining two-fifths.

Another way to look at the location of the vehicle-less is presented in Figure 2-32, which shows that almost 60 percent of vehicle-less households are in the central places of urbanized areas, typically the central city. Another 18 percent reside in the fringe of these urban areas—i.e., the inner suburbs. About 11 percent reside in urban areas too small to qualify as urbanized areas, and a similar percentage reside in the remaining rural nonfarm areas of the country. Farm areas account for a minuscule part of vehicle-less households.

Racial and Ethnic Factors in Vehicle Availability

The preceding discussion on vehicle availability was, for the most part, based on national averages. Many of the perspectives require sharp reappraisal when viewed in light of the vehicle ownership characteristics of different racial and ethnic groups.

One of the most pertinent characteristics is the variation in licensed drivers among racial and ethnic groups. The nation is, on average, near saturation with regard to license holding. But as shown in the top part of Figure 2-33, the White, non-Hispanic population in urban areas is near, or at, effective saturation, especially among men (96 percent); in contrast, the rate for men in all other racial and ethnic groups is about 80 percent. The disparities among women of different racial and ethnic groups and between women and men are even greater. Rural license holders, shown in the same figure, exhibit a parallel pattern, but with all groups having higher rates of license holding than their urban counterparts.

As shown in the figure, sharper disparities exist between Hispanic men and women and between men and women in the "other" groups than between Black or White men and women. Whether this is a product of cultural factors, such as gender-based roles, or other factors, such as age, remains to be determined.

As noted earlier, 11.5 percent of all households are without vehicles. Figure 2-34 shows the racial and ethnic composition of those households. Although White, non-Hispanic households account for 59 percent of all vehicle-less households, the rates among the groups are much more revealing. The most remarkable attribute of the table is that the Black population as a whole averages over 30 percent non-vehicle households, and in central cities the number is over 37 percent. Many central cities have extraordinary levels of Black households without vehicles—New York with 61 percent, Philadelphia with 47 percent, and Chicago and Washington, D.C., with 43 percent. However, these households may not be as transportation disadvantaged, given the availability of transit services, as others in smaller areas, such as Wheeling, W.Va., with 57 percent vehicle-less households, or Utica, N.Y., with 44 percent.

Hispanics have an overall rate of vehicle-less households of 19 percent, and a central-city rate of 27 percent. Among the central cities in metropolitan areas with very high levels of Hispanic households without vehicles are New York, with over

62 percent, and San Diego, with 37 percent. Hispanic rates tend to follow the pattern of high rates in the East, where densities are high, and low rates in the more spread out cities of the West.

THE AGING OF THE COMMUTING FLEET

Information on the age of the vehicle fleet is not available from the census, but it is available from NPTS. In combination with other data from the 1990 NPTS, insight can be gained about the vehicle fleet used for commuting. This information could be critical in dealing with important questions such as air quality and safety.

The main NPTS finding on vehicle age is that the American vehicle fleet is aging rather substantially. The fleet's average age now exceeds 8 years, in contrast to less than 5.6 years in 1969. Perhaps more noteworthy is the fact that older vehicles not only exist but are actively used—vehicles that are 6 or more years old account for almost one-half of all travel.

Figure 2-35 describes the age of the vehicle fleet as observed in the four NPTS survey cycles. The size of the fleet that is less than 2 years old has changed little over the 20-year period. The immense increases in the vehicle fleet since 1969 are not so much the result of increasing vehicle sales, but the result of fewer aging vehicles being scrapped. Older vehicles are being retained and used as second or third cars by more-affluent households or are being sold as used cars, fueling the supply of low-cost vehicles that is making vehicle ownership accessible to lower income groups.

The NPTS data show that the high-income segments of the population own most of the older cars, which serve as second or third vehicles (i.e., not the primary vehicle). Older vehicles owned by lower income groups are usually the only house hold vehicle. For instance, 60 percent of all travel by persons with incomes under \$10,000 in 1990 was produced by vehicles of 1983 vintage or older, whereas such vehicles provided only about 30 percent of the travel of those households earning more than \$40,000. Black and Hispanic households tend to also own older vehicles than do White households.

The NPTS data indicate that older vehicles are used differentially for commuting—not surprisingly, the older the vehicle, the more it is used for commuting. Many work trips are reasonably short and over known terrain, making commuters more willing to use a car that is “reliable transportation” and that can be left all day on the street or in a lot or garage without concern. The data indicate that newer vehicles tend to be used for longer trips, such as vacations, and by women transporting children (safety concerns and the new family van designs are undoubtedly factors here). On average, commuting accounts for 21.6 percent of vehicle travel. New cars typically have less than 20 percent of their travel allocated to commuting, whereas older vehicles have upwards of 24 percent of their travel allocated to commuting. This is a significant concern because the older fleet is more likely to release more pollutants and to be less fuel efficient.

COMMUTING COSTS

A major part of the cost of commuting is associated with the cost of owning and operating a vehicle. Roughly 100 million of the 115 million commuters each day use a private vehicle, and the cost of owning and operating a personal vehicle is one of the major factors in determining the financial viability of the other commuting alternatives.

Except for some special cases, it is not possible, or appropriate, to separate vehicle commuting costs from general vehicle operating costs. Therefore, most of the following vehicle cost discussion is based on total annual averages. Special commuting costs are discussed later in this chapter.

Figure 2-36 provides an overall context for an investigation of household-based transportation costs. The two lines that closely track one another are the consumer price index, composed of a weighted “marketbasket” of all consumer purchase items, and the transportation cost index, composed of the costs of owning and operating private vehicles and also proportional inputs from taxi fares, transit fares, airline fares, and other transport costs. Since 1986, transport costs have been rising slower than overall consumer costs. By 1992, transportation costs had risen to 3.5 times 1970 costs.

The other two lines in the figure trace new and used vehicle purchase costs. New car costs have risen appreciably less rapidly than general costs and far less rapidly than used car costs. New car costs increased about 2.5 times since 1970, while used car costs rose 4 times. This increase is largely attributable to the increased longevity of the typical vehicle. With the average vehicle age approaching 8 years today,

a 3- or 4-year-old vehicle is only part way through its useful life rather than close to its end.

New Car Costs

Average new car prices are traced in Figure 2-37. In current dollars (the price in dollars prevalent in each year of the 22-year period observed), the price of the typical new car rose from around \$4,000 in 1970 to almost \$18,000 in 1992. Restating these values in 1990 dollars, after inflation has been removed, shows that the prices hovered around \$12,000 throughout the 1970's and rose to around \$16,000 by 1992. Thus, in constant dollar terms, the increase in price was only about 33 percent.

Figure 2-38 helps to explain the rising trend in vehicle prices. The lower tier of the area depicted in the chart tracks the slowly rising price trend of a basic vehicle, comparable in design and equipment to a 1967 vehicle. This trend takes vehicle prices from around \$3,600 to about \$8,400. The second layer, bringing the price to about \$11,500, is the increased cost due to the modifications and added equipment required to bring the vehicle into compliance with mandated safety and pollution emissions regulations. The final tier represents the price increases attributable to improvements and amenities that consumers increasingly demand be standard items on new vehicles, such as air conditioning, power-assists, and sound systems.

Figure 2-39 places all of these patterns and trends in perspective by expressing new car prices in terms of the number of weeks of median family earnings needed to pay for them. This figure shows a similar pattern to the constant 1990 dollar pattern in Figure 2-37—a stable pattern throughout the 1970's at about 20 weeks pay, rising to about 25 weeks pay (a 25 percent increase) by 1991. Thus, an average vehicle costs about 6 months pay for the family earning the median national income.

Vehicle Operating Costs

The major component of operating costs that varies per mile of travel is the price of fuel. The price of unleaded regular fuel has substantially declined in both current dollars and inflation-adjusted dollars. In 1990 dollars, the price of unleaded regular gasoline reached an effective price of \$2 per gallon after the oil shortages in 1979-1980. Since then, it has descended to almost half that value.

If improvements in vehicle fuel efficiency are taken into account, the cost of fuel per mile of travel drops even farther. Figure 21 shows that fuel costs per mile of travel dropped from above 9 cents a mile in the high-cost 1980-1982 period to 5.5 cents in 1992.

The overall operating costs of automobiles are shown in Figure 2-42. Variable costs are shown in three categories: gas and oil, maintenance, and tires. As shown in the figure, fuel costs dominate variable costs. Fixed costs, including the depreciation of vehicle purchase costs, interest costs, insurance, and other fees, are the dominant factor in total costs. This chart may be somewhat misleading because assumptions about depreciation were modified after 1984, shifting from 4 years to 6 years, to respond to the increase in longevity of new vehicles. Of note is that fuel and oil costs, as a percentage of total vehicle operating costs, declined from over 26 percent in 1975 to about 13 percent by 1992.

Commuting Vehicle Costs

One way to allocate overall vehicle costs to commuting would simply be to allocate the percentage of total vehicle miles traveled for commuting relative to all vehicle travel in a household. This would yield a value of 23 percent of total costs. This could be understating the cost to the user in a number of ways:

- Because commuting often occurs in congested peak periods, fuel and other costs per mile would tend to be higher than average vehicle costs. If relative time shares were used to allocate costs, the values would vary sharply; roughly two-thirds of time spent in vehicles would be attributable to commuting.
- Because vehicle ownership is closely linked to workers and commuting needs, it may be argued that a greater share of the fixed costs of owning a vehicle should be allocated to commuting, rather than simply using its proportionate share of total travel as the basis for allocation.

If only out-of-pocket costs are considered, as the typical commuter seems to do, then daily commuting costs would consist of variable vehicle costs, as identified above, plus any toll and parking costs. National statistics are not available on either parking or toll costs for commuters that can be reliably reported. It can be generally stated that these factors are small and, in most cases, do not figure into commuting costs. For example, according to NPTS, only about 5 percent of commuters pay to park.

The Federal Highway Administration's most recent study (1991) of overall operating costs places parking costs at about 4 percent of total costs, or roughly 1 cent per mile. The 1992 Economic Census places total annual parking revenues in tax-paying establishments at about \$3.66 billion per year, which is a relatively minor sum compared with the scale of the fleet. Of course these costs are highly variable geographically. In central cities, parking would be a far greater factor, both in terms of the prevalence of paid parking and, more particularly, the price.

Tolls have a similar characteristic: in most cases, they are not significant, and where they do exist, they are not high cost. However, where they exist in large metropolitan areas, such as New York and San Francisco, they clearly are a factor. However, the total national revenue of toll roads and bridges, even including major intercity routes, is not substantial alongside the national scale of commuting. Table 2-10 summarizes these data as of 1993. Most of the state-administered toll revenues are produced on intercity routes, such as the New York Thruway and the Pennsylvania and Ohio turnpikes, which do not serve as key commuter routes.

The American Automobile Association (AAA) provides detailed vehicle operating cost information every year, which many organizations and government agencies use in their work. In the second quarter of 1994, AAA placed total average operating costs at 39.4 cents per mile for a vehicle traveling 15,000 miles per year. These costs vary by region of the country, with the lowest costs typically in the Midwest and the highest costs in New England. The detailed elements of that cost for selected years in the 1990's are shown in Table 2-11. Costs have risen appreciably over the 5 years since 1990 and are roughly the result of proportionate increases in all cost areas.

Transit Costs

Transit fares are presented in Figure 2-43. The rates shown in this figure represent a composite fare based on weighted averages of fares by type of transit and location. Between 1960 and 1992 transit fares grew fivefold. Tracing the pattern since 1970 would place it just below the range of the overall consumer price index and transportation cost index. Fares operated well below the consumer price index and remained almost constant throughout the 1970's, but gained rapidly in the 1980's.

Time Costs

One of the real costs of commuting is the amount of time spent in the activity. Only the broad aspects of travel time trends are summarized here. Detailed travel time data are presented in Chapter 3, which traces travel times for each mode of transport for specific commuting flow categories and socioeconomic groups.

Overall, commuting travel time for all modes averaged 22.4 minutes one way in 1990, up by about 3 percent, from 21.7 minutes, in 1980—an increase of roughly 40 seconds. This qualifies as a trivial amount given that the total increase in travel was prodigious—an increase in total commuting vehicles of 30 percent. First, of all the statistical measures that may be distorted by using national averages, average travel times are the most obviously susceptible to this problem. Many areas showed large swings in travel times, both upward and downward. The most pertinent fact about these relationships is the more specific the area of observation—that is, the smaller the area—the more likely it is that large swings will be observed. For example, the average for the 39 metropolitan areas with populations over 1 million was 25.2 minutes, in contrast to 19.3 minutes for the balance of the nation. The State of New York had the worst travel time, at 27.8 minutes; the New York metropolitan area was at 31.1 minutes and New York City itself was at 35.3 minutes.

At the broadest scale, most states cluster around the national average, with the greatest deviations being New York State (1.24 times the national average) and North Dakota (13 minutes, 58 percent of the national average). Several states showed actual improvements in overall travel times between 1980 and 1990, including New York, Pennsylvania, Alabama, Kentucky, Wyoming, and North Dakota. These improvements in travel times were often not positive events, because they often accompanied declining populations and economic difficulties.

The rates of change are also volatile. Although travel times increased nationally by only 3 percent, some areas saw substantial increases; for example, California, Hawaii, and New Hampshire all had gains above 10 percent.

Overall national patterns are shown in Table 2-12. About 3 percent of commuters work at home and thus have effective travel times of zero. The travel times in the table are for those who work away from home. About 16 percent of the nation's commuters, roughly 13 percent in metropolitan areas and 26 percent in rural areas, are at work within 10 minutes of leaving home. It may be overstatement, but it does not seem inappropriate to infer that for these people commuting is not much of an

issue. If we add those who work at home, commuting is thus a minor factor for about one-fifth of the worker population. It is difficult to know where to draw the line and say that any time spent in commuting less than a specified amount is a "reasonable commute." If one accepts less than 15 minutes, then another roughly 16 percent of the population is added to the "no problem" category. If less than 20 minutes is the threshold of acceptability, then one-half of the population (almost two-thirds in rural areas) is enjoying a reasonable commuting situation, as far as time goes.

If we shift to the other end of the table and begin to work down from the longest trips, we see 12.5 percent of the population has a commute of more than 45 minutes; in fact, the average for these people is 58 minutes. For those in rural areas who commute more than 45 minutes, the average is over 1 hour, suggesting that rural commuters have the best and the worst of commuting. That group of rural commuters who work locally have very short work trips, but those who commute the long distances into metropolitan areas have very long travel times.

The proportion of commuters with travel times beyond 60 minutes is just below 6 percent. The average for all metropolitan areas over 1 million population is 7.5 percent. Three areas have percentages over 10 percent—New York (16.5), Chicago (10.7), and Washington, D.C. (10.7).

THE NOTION OF ACCEPTABLE TRAVEL TIMES

Attitudes toward commuting travel times are relative. Anecdotally, at least, it is clear that people can complain about unacceptable commuting times at almost any level of actual travel time. Much of the problem is a product of what the actual travel time is versus what it "ought to be," as determined by the commuter. Thus a 1-hour commute can be acceptable, and a 10-minute commute can be unacceptable. In many instances the commuter has made the mental tradeoff of what nominal travel time is acceptable in relation to housing costs or other amenities, and when that perceived time is violated, dissatisfaction becomes evident. This is evidenced by the different speeds people find acceptable in using different modes for the same trip. If a commuter walked to work in 10 minutes 1 day and drove the same distance in 10 minutes another day, that would probably be cause for serious dissatisfaction.

A better public policy question is, "Is there an acceptable travel time or speed that governments owe their electorate?" Stated another way, "At what speed do commuters start voting against elected officials?"

There are very real issues. Travel times have important economics and social consequences, involving household tradeoffs between housing location and cost and with other activities such as community participation. On the business side, they impact employers' access to a pool of skilled employees in an acceptable travel time range. It is clear that in a world that places increasing value on time, even the same levels of travel time from one period to the next will be less tolerable.

CHAPTER THREE: COMMUTING FLOW CHARACTERISTICS

MODAL SHARE

Commuters' choice of mode of travel and the resultant split among the different modal sectors is a key issue in commuting analysis. The data on modal share are often viewed as the "Dow-Jones average" for commuting and are closely watched for changes or evidence of a new trend. This is largely because modal share is seen as having substantial bearing on energy consumption, environmental quality, facility operation, and investment needs. In no other area of commuting is public policy so focused on affecting commuter behavior; modal share data are thus seen as a barometer of the effectiveness of that policy. The data are not always easy to decipher because of the inherent measurement complexity of the subject.

Deficiencies in the Data on Modal Share

Modal choice is a complex topic, with variations that are difficult to capture statistically.

In the Bureau of the Census data, the single mode used for most of the distance is recorded as the mode choice for the total trip. However, in some areas, the use of multiple modes to get to and from work (e.g., automobile to transit and rail transit to taxi) can be a significant factor. The Nationwide Personal Transportation Survey found that the use of multiple modes (excluding walking, which is a part of every trip) is a small factor at the national level, but can be significant in selected

large metropolitan areas. Part of this issue has particular bearing on the submodes within transit (bus versus rail).

Where workers have more than one job, the census survey collects travel data for only the main job. Mode choice for trips to second jobs is unknown, although it is probably very similar to the choice for the primary job.

The census survey collects information on the mode usually used last week. This precludes the counting of modes that are only occasionally used, which, given the heavy orientation toward the automobile, can have substantial impact on other modes with small shares. The incidental and occasional use of transit by auto users, such as when vehicles are in repair, will have a much greater effect on transit share than will the incidental use of autos by transit users. In some areas, this can add 15 percent to transit and carpool used, Census responses can be misconstrued to lead to the assumption that everyone in the United States who has a job goes to work every day, when of course they do not. Total reported commuting travel must be adjusted downward because of absenteeism, vacations, illness, and so forth. These factors reduce total work travel to about 85 percent of the total for all workers, varying by month. It does not appear to vary significantly by mode on average, but can vary substantially on any given day.¹

Broad Modal Share Trends

The increasing orientation toward private vehicles for commuting is continuing (Figure 3-1). Between 1980 and 1990 the number of total commuters increased by almost 19 million; in the same period, the number of commuters using single-occupant private vehicles increased by over 22 million. One way to understand what has happened is to consider that even if all the new commuters are assumed to be exclusively using single-occupant vehicles, about 4 million commuters (almost 12 percent of all commuters that do not drive alone) must have shifted from other modes to the single-occupant vehicle. The statistical reality in net terms follows this characterization very closely. No other mode of travel increased in the period. Some modes, such as carpooling, motorcycles, and walking, saw dramatic reductions; others, such as transit and bicycling, evidenced less reduction.

The one category of behavior (not a mode of travel) that gained in absolute numbers and in share was working at home, which is evidence, perhaps, of what has been the long-expected boom in working at home, brought on by the microcomputer. Figure 3-2 shows the broad modal changes in net terms between 1980 and 1990.

The swing to single-occupant vehicles raised the share of this mode from 64.4 percent to 73.2 percent. The overall personal vehicle share only shifted from 84.1 percent to 86.5 percent as a result of the extraordinary decline in carpooling shares (from 19.7 percent to 13.4 percent, about a one-third loss in share). Other significant swings in shares were a loss of 1.1 percentage points for transit (from 6.4 percent to 5.3 percent) and a loss of 1.7 percentage points for walking (from 5.6 percent to 3.9 percent). In relative terms, the roughly 17 percent loss in share for transit was better than the results among other alternatives to the auto, as indicated by the 30 percent loss in walking share. Figure 3-3 shows the overall modal shares for 1980 and 1990.

When these trends are investigated below the national level, it is clear that the patterns are not the product of distorting events in one area of the country; they are consistent across the nation. Figure 3-4 shows the broad modal share patterns for the nation's four census-defined regions for 1990. The four regions closely track the national values. The exception is the greater use of transit in the older, denser Northeast.

Overall, the modal shift pattern is consistent nationwide. Figure 3-5 makes this clearer by showing the net changes from 1980 to 1990. This chart must be interpreted with some care. It shows the difference in percentage points from 1980 to 1990, thus measuring the depth of the swings observed. For example, single-occupant vehicles in the Northeast gained almost 10 percentage points from 1980 to 1990 (from 58 percent to 68 percent, as previously shown in Figure 3-4). The chart does make clear that the pattern is uniform. The only case that could be made for deviation from the pattern is that the West does not exhibit as strong a pattern of change as the other regions.

¹ Studies by the Washington, D.C., Council of Governments and the Delaware Valley Regional Planning Commission (Philadelphia) adjust carpools and transit upward by about 15 percent and single-occupancy auto use downward by about 8 percent for a given day's actual travel activity.

Current Detailed Modal Shares

In broad outline, the current² statistics on modal share are as follows:

- There are about 115 million commuters, based on the Bureau of the Census definition.
- About 100 million commuters use a private vehicle—roughly 85 million in single-occupant vehicles and 15 million in carpools.
- Of the remaining 15 million commuters, about 8 million walk to work or work at home, 6 million travel by transit, and 1 million use other alternatives.

The national values and percentage shares for the most detailed modal categories are shown in Table 3–1. Because of changes in the census questions on travel mode, there is not strict comparability between the two periods. Most of the differences are the result of attempting to clarify the various submodes of transit uses.

The remainder of this topical area will focus on the significant demographic variables that affect mode choice and then undertake individual treatment of each modal area. It will describe the nature of the trends in each area, and examine the factors that formed the foundation for the trends. It is hoped that this examination will permit isolation of those factors that will guide the trends in the future.

MAJOR DEMOGRAPHIC FACTORS IN MODE CHOICE

This report can only begin to examine the major demographic factors involved in mode choice. The availability of new data sources provides an exciting opportunity to expand our research and analysis and hence our understanding.

The dominance of the private vehicle, with almost a 90 percent share in many areas, often overwhelms the ability to depict other patterns effectively. The approach that is least misleading is to provide overall coverage and then treat the smaller modes as a group. These data include many surprises that suggest the variety in behavior that constitutes national commuting patterns.

Mode Choice Patterns by Age and Sex

As shown in Figure 3–6, the private vehicle, whether used for driving alone or carpooling, predominates in all age-groups. Its use increases with age until the mid-fifties age-group and then slowly tapers off. This pattern is repeated when men and women are analyzed separately. As auto use declines among the older age-groups, walking to work and working at home gain. Although auto use has tended to decline with age, it is not apparent that the pattern will be repeated by today's workers.

The discernible differences between men and women's mode choice have tended to diminish over time as women's work characteristics have become more like men's. Figure 3–7 provides a comparison of mode choice behavior. Men and women have very similar tendencies to drive alone and to carpool. Men show a greater tendency to commute by rail and are the predominant users of motorcycles and bicycles, while women more frequently use transit and taxis and are more likely to work at home. The only areas where there are enormous differences are in motorcycling and bicycling.

Older Commuters

As the general population ages, commuting travel patterns will undergo related shifts. Auto use tends to decline with age, and walking and working at home tend to take its place. Figure 3–8 details that pattern, with the patterns displayed as percentage shares of travel in each age-group. Thus, although the over-75 age-group shows a greater than typical tendency toward working at home, that age-group, because it is such a small component of total workers, represents only a very small share of all those who work at home. The heavy shift among older workers toward walking to work and working at home is accentuated by the heavier participation of nonmetropolitan workers in the older work force, among whom these modes are heavily used. This may also have some effect on transit. In metropolitan areas, transit use shows some tendency to increase with age of the commuters.³

²Although these data are for 1990, the decline in workers in the early 1990's and the slow recovery afterward brought the number of workers only back to 1990 levels by early 1994.

³There is a semantics problem with these descriptions. We usually say that this tendency increases with age. This is accurate as far as the graph is concerned—that is, as one's eyes traverse the age-groups, the factor does increase. However, this does not mean causality—namely, that as an individual ages, his use will increase. People over 75 years of age may have the same characteristics that they had at 55.

Mode Choice Patterns by Household Structure

A number of variables can be included under the household structure label. Among those examined here are the type of housing, the number of workers, and the number of vehicles available to the household.

One element of Figure 3-9 presents modal travel choices by a segment of the population that is often overlooked—namely, the 1.6 million people that do not live in households but rather in group quarters, such as college dormitories and military barracks. (People who are in institutionalized group quarters, such as prisons or health care facilities, are not included.) This group evidences an extraordinary use of walking.

The mode choices of renters and homeowners are also shown in Figure 3-9. When the overall owner-renter choices are stratified by metropolitan area category, there is clearly a strong interaction between the categories. Figure 3-10 shows how renters and homeowners are distributed across the metropolitan rings.

Figure 3-11 depicts the mode choice shares by the six own-rent groups. As a group, renters drive alone less and use transit more than homeowners, wherever they are. But location is an important intervening factor. Central city dwellers are less auto oriented and more transit oriented than suburbanites and those in non-metropolitan areas. Thus, as expected, central city renters, constituting about 17 percent of households, are the least auto-oriented group, yet still with a 70 percent private-vehicle share. Although all homeowners are highly oriented toward the use of private vehicles, suburban homeowners are the most so, with over 90 percent use of private vehicles. The importance of working at home to nonmetropolitan workers (often farmers), whether renters or owners, is also evident.

The number of workers in the household also has some bearing on selective elements of mode choice. Driving alone is not one of them, with only a slight tendency to drive alone less as one reaches three- and four-worker households. Carpooling, transit, and some other modes are more affected. To understand these patterns it is necessary to go back to the demography of these households, and perhaps best to see them from the perspective of the household with two workers. This is often the husband-and-wife, both-working household, with or without small children. Three- and four-worker households tend to be households with working parents and their grown working children. One-worker households are more difficult to characterize: they can be younger or older and central city oriented, or fit the standard 1950's suburban commuter image.

Mode choices reflect this demographic structuring. Two-worker households, representing 50 percent of all workers, are slightly more likely to carpool and to carpool together, and much less likely to use transit or any other auto alternative, except for working at home. Three- or four-worker households, with 20 percent of workers, are the most likely sources of carpooling (typically within the family) and, particularly among four-worker households, the source of transit users and bicyclists.

The one-worker household is the most difficult to characterize because of its varied composition. The worker is highly unlikely to carpool (30 percent of workers and only 20 percent of carpoolers). One-worker households compensate for the carpooling void by a mix of means—with some greater emphasis on transit, much greater reliance on taxicabs (accounting for over 45 percent of taxicab users), and somewhat greater than typical use of motorcycles, bicycles, and walking. One reason for the complexity of patterns in one-worker households is the sharp division between those in central cities, about one-third of all such households, and all other one-worker households. Those in central cities are much more likely to use transit and not to use an auto, while the reverse is true among the suburban and nonmetropolitan one-worker households. Figure 3-12 shows the carpooling pattern for households by number of workers per household.

Another facet of household structure that affects mode choice is the number of vehicles per household. The presence of vehicles tends to parallel the number of workers, and it adds an additional dimension to modal choice. As depicted in Figure 3-13, after the first vehicle, modal choice shows little variation, being almost exclusively oriented to the private vehicle. Transit use and walking, as expected, are almost exclusively concentrated among the zero-vehicle and one-vehicle households. Households without vehicles depend on transit for 40 percent of their work travel, dropping dramatically to 8 percent among one-vehicle households. The one-vehicle ownership pattern is most typical of one-worker and central city households.

A closer inspection of the mode choices of those without vehicles is imperative, especially when mode choices for households without vehicles are disaggregated geographically by residence. Not surprisingly, those in central cities are more heavily oriented toward transit than the average of 40 percent cited above; more than 51 percent of work travel by those in central cities without vehicles is by various transit modes. Even suburban zero-vehicle households show extensive use of transit (al-

most 20 percent). Nonmetropolitan use remains limited (about 3 percent). Walking is of great importance to those without vehicles, with rates between 15 percent and 20 percent in the different geographic areas. Taxicab use in each of the three geographic areas, while still small in share, is 10 times the level of all workers. With the exception of central city dwellers, the private vehicle still provides the majority of work travel for households without vehicles; even in central cities, it handles about 25 percent. Figure 3–14 compares the mode choice pattern at the central city, suburban, and nonmetropolitan levels for households without vehicles.

Mode Choice Patterns by Income Group

Figure 3–15 shows the mode choice distribution by income category. The most evident effect of income is that as income increases, so does driving alone (from about 60 percent to over 80 percent); correspondingly, carpooling decreases. However, it is worth noting that after the \$25,000 level, the differences are minor. The detailed chart (Figure 3–16) for nonprivate-vehicle-oriented modes shows some surprises. As expected, walking and biking decline with income, but working at home and to some extent taxicab use are more prevalent at the extremes of income. Interestingly, transit does not appear to be oriented toward the low-income population, as is commonly thought. Although bus use does decline with income, the use of other transit modes, particularly commuter railroads, increases with rising income.

The very high income groups represent very small segments of the population and therefore do not substantially affect total ridership in any mode.

Mode Choice Patterns by Race and Ethnicity

The topic of racial and ethnic mode choice patterns takes on a different dimension than the previous demographic perspectives on the subject. The value of this dimension is to develop a status report on the choice patterns of different racial and ethnic groups; it is not to suggest that these choice patterns are either racially or ethnically determined.

The factors that affect modal choice—age, income, geographic location of residence and workplace, and household structure—all vary substantially by race and ethnicity. A question of some interest is whether, after all these factors are taken into account, any residual difference in behavior can be attributed to race or ethnicity. The more important function here is to identify the linkages that support the trends and to understand them better.

The variations by race and ethnicity in licensed drivers and in vehicle age and availability were presented and discussed in Chapter 2. Location is another key factor in modal choice. The distribution of the nation's population by location of residence for selected racial and ethnic groups is shown in Figure 3–17, which basically provides a sense of scale. Figure 3–18 shifts these data to a distribution of the selected racial and ethnic groups for the same geographic areas. With this figure, the percentage shares of each group by residence area can be established. As shown in the figure, American Indians are the most oriented toward nonmetropolitan areas; Asians, on the other hand, are the least oriented toward nonmetropolitan areas. Black households are least oriented toward the suburbs and most likely to reside in central cities. Hispanic and Asian households tend to have relatively similar geographic locations.

When driving alone is examined for the main racial and ethnic groups, the patterns follow similar tracks. Black and Hispanic drive-alone commuters have very similar patterns, with White non-Hispanics exhibiting an identical pattern but with a higher overall utilization rate. Carpooling shows a similar pattern except for the stronger tendency to carpool among Black nonmetropolitan residents. Figure 3–19 depicts the drive-alone and carpooling tendencies for White non-Hispanics, Hispanics, and Blacks.

Shifting the analysis to the nonprivate-vehicle modes reveals an exceptional use of transit modes by the Black population. Hispanics, and particularly White non-Hispanics, lag in overall transit use by considerable margins. The pattern is similar in both suburban and central city locations. Black households also lead in taxicab use in both locations. Black households lag both White non-Hispanic and Hispanic households in the use of bicycles and motorcycles and in working at home. Figure 3–20 shows these patterns in detail. Figure 3–21 adds a depiction of mode choice among nonmetropolitan workers. American Indians are included in the nonmetropolitan areas. The strong role of walking is noticeable, but the predominance of the private vehicle is the main characteristic.

MODE USAGE

This segment addresses each major modal group and summarizes some key demographic and geographic factors. Figure 3–22 provides an overall guide to the income

distribution of users of each mode. Note that the bar labeled "All Commuters" shows the income distribution for the entire commuting population and serves as a gauge as to whether a given mode serves certain income segments more than others.

Each modal discussion follows a relatively standard format, identifying key user groups in the following two ways: those that are more oriented toward the mode than the average for all groups, and those that make up a dominant share of users of the mode.

Private Vehicle

Private vehicles dominate commuting travel, used by 100 million of the 115 million commuters. Between 1980 and 1990, more than 18 million private vehicle users were added to the commuting ranks, about a 22 percent increase; however, because the number of carpoolers decreased substantially, almost 21 million cars were added during that time. The number of vehicles used in the commuting fleet reached over 91 million vehicles, a 30 percent increase from 1980.

The overall male/female split in the use of the private vehicle has now become almost exactly proportional to each group's share of all commuters. Men, who compose 54.8 percent of all workers, account for 55.3 percent of private vehicle users.

The single-occupant vehicle category most closely parallels the general income distribution of the worker population (as shown in Figure 3-22), indicating that its large user group is drawn in almost equal proportions from all income segments. This group is the predominant mode for commuting travel in almost all demographic sectors. Among the exceptions are those workers in group quarters and those workers in households without vehicles. The drive-alone mode is no longer dominated by men.

The drive-alone shares for the nation, metropolitan and nonmetropolitan areas, central cities, and suburbs are shown in Table 3-3. When individual metropolitan areas with populations over 1 million are reviewed, several areas stand out at either end of the spectrum (Table 3-4). Most notable is that after New York City, drive-alone shares look more alike than not. The average drive-alone rate for all metropolitan areas over 1 million population is 71 percent, which is not that different from the national average of 73.2 percent. Excluding New York, the variation across all 39 areas with populations over 1 million is very narrow, from 11 percent below average to 17 percent above. There is a tendency for areas to decrease in drive-alone share as area size increases, but with significant exceptions, such as Los Angeles, Detroit, and most of the larger cities in the West.

Carpooling

One of the central questions in this review of commuting modal choice is, what happened to carpooling in the 1980's? There were over 19 million carpoolers in 1980—almost 20 percent of all commuters. By 1990 that number had dropped to less than 15.4 million carpoolers, accounting for 13.4 percent of all commuters (Table 3-5). What accounts for this one-fifth decline at a time when the total number of commuters increased by one-fifth? Table 3-6 shows the auto occupancy rates for 1970 through 1990.

Table 3-6 indicates that the downward trend in vehicle occupancy rates is long term and widespread, reaching across metropolitan boundaries and accelerating. Carpooling in America is now fundamentally a two-person phenomenon, as shown in Figure 3-23. Although two-person carpools account for 10.1 percent to 11.4 percent of all commuting, depending on the area, all other groupings of persons in carpools account for only another 2.8 percent to 3.8 percent of activity, depending on the area of residence. More to the point, the decline in carpooling seems most pronounced among the larger carpools (Table 3-7). In fact, the larger the carpool category, the more decline is sustained. While two-person carpools had less than a 10 percent decrease, three-person carpools declined by over 40 percent, four-person carpools by more than 50 percent, and carpools with five or more people by 40 percent.

It is clear that a major component in the decline of carpooling, accounting for two-thirds of the loss, is the decline in large carpools. That loss can be partially explained by the fact that residents of nonmetropolitan areas are heavily involved in carpooling, and in particular large carpools. These residents showed the largest decrease in carpooling. This may be a product of rising incomes, which make vehicles more accessible, or of declining operating costs, which encourage driving alone. Or it may be that as employers and residences become more dispersed, it is more difficult for nonmetropolitan residents to match up with other commuters traveling in the same direction at the same time.

Another component behind the decline is that workers are less likely to join a carpool of strangers. The Nationwide Personal Transportation Survey data indicate that carpools are usually composed of workers from a single household, and that

carpooling among nonfamily members is increasingly unlikely. This favors smaller carpools, most likely two-person groups. Two-person carpools are the only carpool group in which persons in two-worker households are disproportionately likely to participate. They are underrepresented in all other carpool groups.

In the 1983 Nationwide Personal Transportation Survey, two persons from the same household constituted about one-half of all two-person carpools; by 1990, the percentage had increased to over 60 percent. Households with more workers are responsible for a large share of carpoolers. A person in a four-worker household is more than twice as likely to carpool than a person who is the sole worker in a household. Three- or four-worker households, which account for 20 percent of workers, are the source of 26 percent of all carpoolers. Almost 60 percent of commuters in three-person carpools are all from the same household, and more than one-half of four-person carpools are from the same household.

Some metropolitan areas seemed to counter the national trend and to limit the decline in carpools. Salt Lake City was the only area that actually saw an increase in carpool average occupancy (from 1.07, well below the average of 1.15 in 1980, to 1.09, the national average, in 1990). Notably, Salt Lake City has the highest household size of all metropolitan areas with populations over 1 million (3.04 persons/household versus the national average of 2.63). The other area that managed to limit the decline was Los Angeles (with 2.91 persons/household), where the occupancy rate managed to stay above the national average, dropping only from 1.12 to 1.11. Washington, D.C., had mixed results: it is the national carpool leader, with an average occupancy of 1.13, but it lost the greatest share (down from 1.23 in 1980).

Public Transit

Public transit use remained relatively stable from 1980 to 1990. About 6 million riders used transit in 1980; by 1990, the number had dropped by only 100,000, to roughly 5.9 million. Overall, the transit share of all commuters declined from 6.3 percent to 5.1 percent (Table 3-8). Table 3-9, which provides summary data, shows that although bus service, the major mode used in transit, lost riders, other transit modes, specifically subways and commuter railroads, gained riders. Much of the total increase (40 percent) occurred in New York City. The remaining gains were largely attributable to new or expanded systems in San Francisco, Washington, D.C., Baltimore, Miami, and Atlanta.

The size of the metropolitan area is a critical factor in transit use. Areas with populations over 1 million, which account for one-half the national population, are responsible for 88 percent of the nation's transit use; areas over 5 million account for 61 percent. The concentration of transit usage in the largest metropolitan areas has increased since 1980. For instance, New York had a 32 percent share of all transit in 1980 and now has a 37 percent share. In Figure 3-24, transit shares are compared by population size for 1980 and 1990. Most notable is the decline in transit usage in areas with populations below 1 million (from 18 percent of transit to 14 percent).

Figure 3-25 places these changes in perspective by showing the actual transit share in metropolitan areas with populations over 1 million in 1990. The New York area stands alone at over 26 percent; Chicago and Washington, D.C., are in a second cluster at roughly one-half that level, and Boston and Philadelphia round out the number of areas with a share greater than 10 percent. Seven areas are in the 5 percent to 10 percent range, with all others below 5 percent. Of these 39 metropolitan areas, about two-thirds lost total transit riders and one-third gained. Overall, there was almost no change.

Among the gainers were important markets such as New York, Los Angeles, San Francisco, and Washington, D.C. Most of the gainers were areas that had added rail service. Some important exceptions were rapidly growing Western areas, such as Houston, Phoenix, and San Diego, which saw their very small bus systems achieve substantial percentage gains. Areas losing riders mostly encompassed large Eastern areas, such as Philadelphia, Chicago, and Detroit. Figure 3-26 shows the net changes for bus riders for the major metropolitan areas of the nation. Figure 3-27 provides the bus and rail detail for areas with more than 10,000 rail transit users.

In terms of share of total commuting, two areas did not have a loss in transit share in the 1980-1990 period; Houston gained share (from 2.85 percent to 3.67 percent), as did Phoenix (from 1.96 percent to 2.01 percent). All major East Coast areas saw their shares decrease; notably, New York's share declined from 29.61 percent to 26.85 percent. Other East Coast areas also lost about 3 percentage points.

If transit shares are examined by geographic area of residence, the patterns show negative shifts in both metropolitan and nonmetropolitan areas and in the central cities and suburbs of the metro areas, as shown in Figure 3-28. Although the

central city loss looks larger, the suburbs had a greater proportionate loss, and non-metropolitan areas had the greatest proportionate loss of all. The figure also shows the variation in use of transit by area type. Central cities, with 20 percent of workers, account for 69 percent of transit use, while suburbs account for 29 percent of transit users, in contrast to their 50 percent share of workers.

Many of the key points regarding the composition of transit users have already been made. Transit users disproportionately do not own vehicles, and they are also disproportionately renters, central city residents, female, and non-White. They frequently are drawn from single-person households or from households with many workers. Given the influence of New York City on the averages, this characterization is not surprising. Table 3-10 identifies the socioeconomic factors that generate higher proportions of transit users.

Walk to Work

Commuters in several groups are more likely to walk to work—namely, the young and the old, women, third and fourth workers in a household, and those living in group quarters. Between 1980 and 1990, the number of people who walked to work declined by almost 1 million (from 5.4 million to 4.5 million). As a share of commuters, walkers dropped from 5.6 percent to 3.9 percent (Table 3-11). As shown in Figure 3-29, about two-thirds of the losses were in nonmetropolitan areas, where walkers declined by about one-third. The remaining losses were almost entirely in the suburbs; central cities showed almost no decline at all, with a loss of less than 2 percent.

Walkers are heavily represented in the lower income ranges. More than one-half of walkers earn less than \$10,000 per year, and 80 percent of walkers earn less than \$25,000 per year. Much of this may be a product of young workers with limited work schedules. Slightly more women than men walk to work; this is partly attributable to the fact that women seem to prefer walking over bicycling, which is the other mode commonly used for short distances.

Work at Home

Working at home (Table 3-12) was the only category, other than the single-occupant vehicle, that has increased in share since 1980. The overall gain was dramatic—a 50 percent increase (from 2.2 million in 1980 to 3.4 million in 1990).

The groups most oriented toward working at home include women, homeowners, older people, Nonmetropolitan residents, and the White non-Hispanic population. Nonmetropolitan residents, who compose 20 percent of all commuters, constitute 30 percent of those who work at home. Suburbanites have a slightly greater share of those who work at home, compared with their proportion in the total population. However, in terms of growth, the picture was quite different. Nonmetropolitan areas showed little growth, exhibiting only an 8 percent increase, while central city workers, who had been the smallest component of the work-at-home group, more than doubled, from 400,000 in 1980 to more than 800,000 in 1990. Suburban workers also exhibited substantial growth, increasing more than 80 percent. Almost 60 percent of the 1.2 million increase occurred in the suburbs. Figure 3-30 depicts these trends.

In every metropolitan area with a population over 1 million and with comparable data for 1980 and 1990, the increase in people working at home outpaced the total increase in workers. Several high-growth areas, such as San Diego, Phoenix, and Atlanta, saw the percentage of home workers double.

Working at home appears to be a lower income activity. This seemingly contradicts the generally held belief that those working at home are involved in high-tech, computer-based activities.

Women, who constitute 45 percent of all workers, make up 52 percent of those working at home. Given the following, it can be inferred that working at home is often a secondary activity:

- Neither female nor male workers living alone are an important component of those who work at home; the percentage of single individuals who work at home is much lower than the national average.
- Persons identified as “the householder” have work-at-home rates that are just about average, but the persons listed as “spouse of householder” have work-at-home rates twice the national average.

Other

Although the share of commuters using motorcycles is very small, the number has precipitously declined since 1980. Motorcycling as a mode of commuting declined more than any other mode in the 1980-1990 period (from 419,000 to 237,000 users and from a 0.4 percent share to a 0.2 percent share) (Table 3-13). Some of this decline is certainly due to the aging of the population, because most motorcycle riders

are in the younger age-groups. In addition, the decline in the relative cost of owning and operating an automobile, and particularly small pickup trucks, could be a factor.

The aging population also certainly affected the number of commuters opting to bicycle to work. Most bicyclists are young, male, and the third or fourth worker in a household. Bicycle use declined only slightly between 1980 and 1990, to about 468,000, equaling about 0.4 percent of all commuters, down from 0.5 percent in 1980.

Location is a major factor in bicycling. Certain areas of the country, particularly metropolitan areas with large concentrations of university students or military personnel, tend to have higher than typical usage rates. Metropolitan areas with populations over 1 million that have significant amounts of bicycle commuters (more than 1 percent) include San Diego, San Francisco, Sacramento, Phoenix, and Tampa. Among non-Black central city dwellers, commuters without access to an automobile have a greater tendency to travel by bicycle.

Taxi use is also worth a brief reference, particularly because of its nonintuitive use characteristics. The 180,000 taxi riders are largely female, Black, and residents of central cities. Low- and high-income groups make greater than average use of taxis. The most notable fact about taxi use is that more than one-third of all taxi commuters are in New York City.

Summary Data

If the walking, bicycling, and working at home categories—i.e., the categories that do not rely on motorized conveyance—are aggregated, they provide some insight into the range of energy efficiency in American commuting. Figure 3-31 depicts this distribution for metropolitan areas with populations over 1 million. Notably, the areas with heavy military employment—San Diego and Norfolk—lead in share, with San Diego's 10 percent exceeding the national average of 7.3 percent. Figure 3-32 shows the sharp break in these categories by income class, with households with \$10,000-\$15,000 incomes at one-half the level of those below \$5,000. However, a notable increase in both walking to work and working at home is evident in the higher income brackets.

Another measure of overall modal distributions is the average vehicle ratio, which indicates the ratio of all commuters to the total number of private vehicles used to transport them. This value was about 1.26 nationally in 1990 (down from 1.37 in 1980)—i.e., the total number of commuters amounted to 1.26 times the number of private vehicles used to get people to work. In 1990, the average vehicle ratio for all metropolitan areas over 1 million was 1.31, varying from 1.76 in New York City to 1.14 in Detroit. This value is interesting because it has many components. New York City clearly leads because of heavy transit use; other areas gain from higher carpooling levels. Despite the highest level of nonmotorized vehicle use, San Diego did not score high because of low transit and carpool use.

The average vehicle ratios for the largest metropolitan areas are listed in Table 3-14. All areas other than New York City fall roughly in a band of 1.30+10. In fact, without New York City, the average for all metropolitan areas drops to the national average of 1.26.

CURRENT COMMUTING PATTERNS

This section of Chapter 3 presents a detailed picture of commuting patterns and trends. The first edition of *Commuting in America* described how commuting patterns in metropolitan regions had shifted from an orientation on the metropolitan center to a more dispersed and circumferential pattern, heavily influenced by the travel of suburban workers to suburban jobs. This edition examines the persistence of that pattern and seeks to quantify its growth.⁴ Furthermore, it describes the shares of commuting gained by each available mode of transport, based on the flow "markets" identified, describes the socioeconomic characteristics of the users of the different modes, and examines the travel time patterns of commuting movements.

Commuting flows are best described at the individual metropolitan level. At this level, complex patterns can be individually treated and qualified.⁵ Many readers are familiar with geography at this level, if not with the actual routes and patterns. At the national level, the process must be more abstract; metropolitan areas must be

⁴The 1990 data benefit from census-allocated distributions of worker destinations in cases in which the respondent did not provide detailed address data. These allocations are superior to the previous process, which required that 8 percent to 10 percent of commuter trips be dropped from the analysis.

⁵Perhaps the best example of this can be found in *Census Mapbook for Transportation Planning*, published by the Federal Highway Administration, U.S. Department of Transportation.

grouped in convenient clusters, and the flows need to be synthesized into homogeneous groupings that overcome the singularities of individual areas.

The pattern analysis system employed includes the following four flows within metropolitan areas, which form a two-by-two flow matrix:

- Central city to central city
- Suburb to suburb
- Central city to suburb
- Suburb to central city

This basic matrix expands to include the following patterns flowing beyond the metropolitan area:

- Central city to nonmetropolitan area
- Central city to other metropolitan area—Central city—Suburb
- Suburb to nonmetropolitan area
- Suburb to other metropolitan area—Central city—Suburb

The matrix includes residents of nonmetropolitan areas who work in their own area or commute into a metropolitan area:

- Nonmetropolitan area to central city
- Nonmetropolitan area to suburb
- Nonmetropolitan area to nonmetropolitan area

These elements can be displayed in a comprehensive matrix, such as shown in Figure 3-33. The increase in commuting from one metropolitan area to another requires this more extensive treatment. The flow elements are treated in logical parts: first, commuting within metropolitan areas; second, commuting across metropolitan borders; and, third, commuting to a nonmetropolitan area.

Table 3-15 provides a breakdown of workers by location of residence. The table indicates that about 90 million of the 115 million commuters live in metropolitan areas, with the remaining 25 million living in nonmetropolitan areas.⁶ Almost 80 percent of workers live in metropolitan areas, with the remainder residing in nonmetropolitan areas. America's suburbs are now the residence of one-half of all workers, up from 47 percent in 1980. Most of the shift came from central cities, where the share of commuters declined from 30 percent to 28 percent; nonmetropolitan areas declined in share from 23 percent to 22 percent.

Table 3-16 identifies the major internal patterns of metropolitan travel.

In this flow pattern, suburb-to-suburb commuting accounts for 44 percent of metropolitan commuting activity; commuting from suburb to central city, the "traditional" commute, accounts for 20 percent. Central city commuting accounts for 28 percent, and commuting from central city to suburb, known as "reverse commuting," accounts for 8 percent. The suburbs now account for the majority of metropolitan job destinations, with more than 41 million of the 80 million intrametropolitan flows.

Almost 9 million commuters cross metropolitan borders as they travel to work (1.94 million leave the central city and 6.79 leave the suburbs). The details on cross-metropolitan commuting are provided in Table 3-17.

The largest segments of these flows center on suburbs and may include short trips from one suburb to the nearby suburb of an adjacent metropolitan area; however, they could also represent very long trips. Trips from one central city to another, presumably in an adjacent metropolitan area, involve a very small contingent of travelers taking long trips.⁷

The remaining group of commuters to consider is that group living in nonmetropolitan areas. These commuters' travel destinations are shown in Table 3-18.

The overall metropolitan pattern indicates that the typical commuter travels within his or her own central city or suburban area, with most residents working in the same area as their residence. The Nonmetropolitan pattern further accentuates the point that residents tend to stay in their local areas for work, with 87 percent of Nonmetropolitan residents working in Nonmetropolitan areas.

Although the proportion of commuters staying in their own area is high, the number of those leaving the area is increasing rapidly; they are important beyond their numbers alone because their long trip lengths have a disproportionate effect on total travel. For example, the approximately 1.4 million commuters from nonmetropolitan areas who have destinations in central cities traverse an entire suburban ring to

⁶For purposes of comparability in flow measurements, these numbers vary from those appearing elsewhere. They are based on the 1980 definitions, rather than the revised 1990 definitions that distort geographic flow patterns. They also exclude the small number of U.S. workers who work outside the United States.

⁷Some of these travelers might be temporarily working in cities other than their home residence.

get to work. So do the 1.9 million central city residents who work outside their metropolitan area. Commuters who leave a metropolitan area and commute to a job location within an adjacent metropolitan area are significant not only for the length of their trips, but also because their trips have an impact on two areas, once outbound and once inbound. When all individual crossmetropolitan-area flows are tallied, metropolitan borders are found to be crossed 10.6 million times in the inbound direction each morning—which represents a major commuting segment.

These tabular segments are assembled to produce Table 3-19 (The Table is presented in map form in Figure 3-34).

County-to-County Flows

A different statistical approach helps refine our understanding of the tendency to commute to other areas. In this case, the home area is defined as the county of residence, and all commutes crossing the county boundary are tallied. These data indicate that 76 percent of commuters work within their county of residence. The percentage for metropolitan counties and for nonmetropolitan counties mirrors the national average. However, significant variation exists among those living in central cities or suburbs. Central city residents are more home-area-oriented, with almost 85 percent working in their home county, while suburbanites are much less oriented in this way, with slightly more than 71 percent remaining in their home county. Within nonmetropolitan areas, those living in small cities and towns (populations above 5,000) are the most locally oriented, with 85 percent working in their home county.

The tendency to work within one's home county declines as the size of the metropolitan area increases. Figure 3-35 demonstrates that point for both central city and suburban counties, showing that the percentage of commuters leaving their home county roughly doubles in areas with populations below 100,000 or over 1 million. This is significant because crossing county boundaries implies that trips are longer than trips wholly inside the county borders, although it is not conclusively determined.

Commuting Pattern Summary

About 90 million of the 115 million workers live in metropolitan areas; about 80 million work within the metropolitan area and 10 million work outside it, often in other metropolitan areas.

The remaining 25 million workers live in nonmetropolitan areas and for the most part work within the same nonmetropolitan areas; about 3 million enter metropolitan areas every day to work.

Most travel takes place in the suburbs, with one-half of all metropolitan commuters living in the suburbs and with suburb-to-suburb commuting accounting for 44 percent of metropolitan commuting flows. Suburban areas are now the destination of most work trips.

Commuting Flow Pattern Trends

More than 87 million commuters—76 percent of all commuters—work within their county of residence. More than 27 million leave their county of residence—almost triple the number who commuted beyond their county of residence in 1960. The percentage of those commuting outside their residence county has risen steadily from 14 percent to 24 percent since 1960.

Metropolitan Area Trends

As a group, the 88.4 million commuters who both live and work in a metropolitan area are more than double the number of metropolitan commuters in 1960. The top portion of Figure 3-37 depicts the long-term growth trend in metropolitan commuting, divided into its four flow elements.⁸ The dominant growth element has been suburb-to-suburb commuting, as shown in the bottom portion of Figure 3-37. Suburb-to-suburb commuting has almost quadrupled since 1960.

Figure 3-38 presents the share of 1980-1990 growth in commuters obtained by the individual flows and indicates flows with significant growth. By comparing the shares of growth to the shares of current total flows, the flow categories that are the prospective growth areas in the future can be determined.

- Suburb-to-suburb commuting, with 44 percent of metropolitan commuting, accounted for more than 58 percent of the growth.
- Commuting from central city to suburb, which had an 8 percent share in 1990, accounted for 12 percent of the total increase in metropolitan commuting.
- Commuting from central city to central city, which represents 28 percent of all commuting, accounted for only 10 percent of the overall increase in commuting.
- The "traditional" commute (suburb to central city) accounted for about 20 percent of the growth in commuting.

The suburbs obtained an overall share of 78 percent of commuting growth—a decline from the 83 percent share in the 1970–1980 period. But it is the changes in the components that are of most interest. The suburb-to-suburb share of growth (58 percent) was identical to its share of growth from 1970 to 1980, but the suburb-to-central-city share of growth was significantly less—a 20 percent share, in contrast with the 25 percent share in the 1970–1980 period. The suburb-to-central city commute thus kept pace with overall growth, but did not gain share in the period. The suburbs were the location of 13 million of the 19 million new jobs, or about a 70 percent share of the growth in jobs—an increase from the 1970–1980 period.

Intermetropolitan Area Trends

The geographic detail is not available to permit extensive historical analysis of intermetropolitan trends. It is clear, however, that the pace of activity has clearly accelerated since the 1970's. The data indicate that outbound flows to other metropolitan areas and to nonmetropolitan areas amounted to about 5.4 percent of all commuting in 1980 and rose to over 7.5 percent in 1990. Moreover, intermetropolitan commuting increased at a rate more than double that of metropolitan growth.

One-half of all intermetropolitan commuting was to a suburb, with the remainder split between central cities (two-thirds) and nonmetropolitan areas (one-third). This contrasted with about a 41 percent share in 1980. In both 1980 and 1990, the dominant pattern of intermetropolitan commuting was cross-suburb commuting—that is, commuting from one suburb to a suburb of a different metropolitan area. It amounted to about 31 percent of all intermetropolitan commuting in 1980, rising to almost 39 percent in 1990. This flow pattern grew at more than twice the rate of suburban commuting growth in general.

Trends by Metro Area Size Groups

Commuting flows vary significantly among metropolitan areas of different sizes, as shown in Table 3–20. If each flow category is considered a commuting market, then the scale of the different markets begins to emerge. As noted earlier, the suburb-to-suburb flow is the predominant metropolitan market, but the table shows this to be true only in the larger metropolitan areas. Areas with populations below one-half million are central city dominant, but in more populated areas, suburb-to-suburb travel predominates. This confirms earlier observations about declining orientation to the central city as a function of the size of the metropolitan area.

The pattern between areas can be better observed when the values in Table 3–20 are converted to percentages, as shown in Figure 3–39.

- As a share of total commuting, the flow from central city to central city tends to decline as an area's size increases, with the dramatic exception of metropolitan areas over 3 million in population. This pattern is consistent with 1980 findings.
- The reverse pattern occurs in suburb-to-suburb commuting, increasing with area size and with a sharp drop in the largest area grouping—again a parallel to the 1980 pattern.
- The other flows from central cities are most significant among the smallest size areas, as might be expected, although patterns from central city to suburb are more stable across size groups.
- Suburb-to-central-city patterns are more variable than in the past. In 1980 all areas tended to cluster around 20 percent of all commuting. There was greater variability across areas in 1990.

If all the different commuting flows in each metropolitan area size group are viewed as distinct markets, the major markets in commuting can be identified. Table 3–21 presents the top 10 markets in descending order of size. The biggest market is the suburb-to-suburb market within metropolitan areas with populations ranging from 1 million to 3 million. The top-10 pattern has been very stable. The top 4 markets have the same ranking as in 1980, and the only changes are that the markets in fifth and sixth place have switched places and the market that was in ninth place has jumped to seventh place. The two markets moving up in rank are both suburb-to-suburb markets. As in 1980, only 1 of the top 10 markets has a suburb-to-central city commuting flow, dropping from fifth to sixth place. The top-10 markets' share of total commuting has declined slightly from roughly 70 percent in 1980.

Commuting Destination Patterns

When commuting flows are summarized at the destination end they provide a unique demographic perspective.⁹ Table 3-22 summarizes total flows by commuter destination to establish the basic perspective on destinations.

If these categories are subdivided into their intermetropolitan elements, the 38 percent of commuters who work in a central city consist of those traveling within the same metropolitan area (34 percent) and those commuting to the central city from outside the metropolitan area, including both nonmetropolitan areas and other metropolitan areas (4 percent). Similarly, the suburban destination category consists of 36 percent from the same metropolitan area and 6 percent destined to a suburb from outside their residence area.

Central Cities as Destinations

The top part of Figure 3-40 provides a sense of scale as to where commuters to central cities live. The details are provided in Table 3-23, which indicates that about 24 million of the roughly 44 million of those who work in a central city, or about 55 percent, are residents of that city. An additional 10 percent arrive from outside the metropolitan area, with the balance from the suburbs of the same metropolitan area. These locational characteristics have implications for workers' trip lengths and choice of travel mode.

Suburbs as Destinations

The middle part of Figure 3-40 illustrates commuting flows into the suburbs. Suburbs are more self-contained than central cities because almost 75 percent of commuters to a suburb are residents of the suburban portion of the same metropolitan area in which they work. The inflow is almost equally divided between central city residents commuting outbound and inbound commuters from other metropolitan and nonmetropolitan areas.

Of course, suburbs are large places, often spreading out from the central city across several counties and even tiers of counties. One mechanism that can help qualify the high percentage of intrasuburb workers is to examine county-level data from metropolitan areas with populations over 1 million. Such an examination reveals that 60 percent of those working in suburbs work in the same suburban county as their residence, with 15 percent working in a different suburban county. The 60 percent figure is not that different from the 55 percent figure for central cities. The intercounty figure indicates an increase in share of intercounty commuting since 1980, when that share was just above 13 percent. Areas vary significantly in intersuburban county commuting; for example, in the New York City area, almost 25 percent of commuters travel between suburban counties, while in Los Angeles, fewer than 7 percent do.¹⁰

Nonmetropolitan Areas as Destinations

Figure 3-40 illustrates that the pattern in Nonmetropolitan areas is relatively straightforward—almost 94 percent of workers in Nonmetropolitan areas are residents of a Nonmetropolitan area.

COMMUTING BALANCE

The concept of "balance" in commuting has gained importance in recent years. Balance refers to the relationship of the number of jobs to the number of workers in a selected area. This relationship is clearly a product of scale. In a metropolitan region the ratio is generally close to one—that is, one job per worker—which might be a viable mechanism for defining a metropolitan area. But the broad-scale use of the job-worker ratio is rather meaningless in this case. The statistic is significant because of its variation in relatively small areas (counties or smaller units, such as individual communities or emerging centers).

Historically, small towns in nonmetropolitan areas evidenced a rough balance between jobs and workers. This pattern holds true today. Central cities nearly always had more jobs than workers, which could be construed as the definition of a city.

⁹ Socioeconomic analysis is based almost exclusively on the residence of the subjects. Commuting analyses permit an inversion of the data so that the working population can be studied in groups, based on their workplace. This opportunity is only mildly realized here. The census data permit aggregation by age, sex, race, income, numbers of vehicles, occupation, industry, etc., at the workplace. Daytime population estimates differ from all other population data, which are based on counts where people sleep.

¹⁰ Obviously this is sharply affected by the size and number of counties in the area. New York City has more than 20 suburban counties; Los Angeles has 4 very large counties, Seattle and Orlando are perhaps the most exceptional in geography, with each having 2 suburban counties separated by the central city county; less than 1 percent commute between suburban counties.

Cities were job rich, importing workers each day. Suburban counties tended to be, and still are, bedroom communities with more workers than jobs. The metropolitan pattern has changed as suburban job growth has dominated development in recent decades. More important, skills-mix issues became more significant as employers competed for skilled employees and sought to locate in areas most attractive to employees with skills that are in short supply. Communities in suburban residential areas more readily accepted these new employment centers because the jobs were generally technical services that were cleaner and more attractive than the noisy, polluting jobs of the past.

New York's central county, Manhattan, has a job-worker ratio of over 2.5; Washington, D.C., has a ratio of about 2.3. Overall, the national job-worker ratio for central cities (note the differentiation from central counties) is 1.36. The overall national job-worker ratio for suburbs is 0.83 and for nonmetropolitan areas 0.92. Review of national patterns suggests that something closer to balance is occurring in both central cities and suburbs. The number of workers is increasing faster than the number of jobs in central cities, and the number of workers is increasing slower than jobs in the suburbs.

The physical conjunction of jobs and workers does not reveal everything we need to know about the linkage between residences and job sites. It does not answer the critical question about the match-up of skills with job requirements. If the workers do not have the necessary skills, it does not matter that jobs are nearby. Skill levels and salary levels do not necessarily correspond with job requirements. People tend to not limit their job searches to only those jobs close to home, nor do they necessarily seek to live near work. One reason for this is that workers do not change their residences as frequently as they change their jobs. Few workers, and particularly those in households with two or more workers (70 percent of worker households), hold much hope for a job located close to home. Some workers may even still hold the view that living too close to work has negative connotations, associated with unattractive living conditions and factory-spawned pollution. Today's high-mobility workers have the option to live and work where they choose. How they exercise that option and how tradeoffs are made between home and job locations requires more extensive research. Nonetheless, the key point is that decisions on where to work and live are often viewed and made independently, with commuting an implication of those decisions.

Figure 3-41 seeks to provide some understanding of the balance question by using a specific example. In this case, the example is Fairfax County, a rapidly developing Virginia suburb in the Washington, D.C., metropolitan area. The figure provides the basis for the following key statistics for the county.

- The job-worker ratio is almost 0.79 (79 jobs per 100 workers).¹¹ Thus, if all jobs were taken by residents, 21 percent of workers residing in the county would have to leave the county to travel to work each day. This is a dramatic increase over 1980, when the ratio was 0.54; jobs in the county have increased by about 100,000, a substantially greater increase than in the number of workers.
- Of course, county residents do not work exclusively in the county. In reality, about one-half of working residents work in the county, a considerable increase from the 35 percent in 1980. The share of all jobs in the county filled by residents has changed little as job growth outpaced worker growth. In 1980, about 64 percent of county jobs were filled by residents of the county; in 1990, this figure was down slightly, to about 62 percent. The remainder of county jobs are filled by non-resident workers, who travel to the county every day.
- The net effect is that about 240,000 Fairfax County residents work outside their home county each day, and at least 140,000 people come into the county to work. These numbers represent significant changes from 1980 (206,000 leaving the county to work and 61,000 entering the county to work), but the changes are small compared with overall growth.

Many believe that if the job-worker balance were closer to one and a larger share of workers worked in their home counties (that is, if more of those 240,000 workers leaving each day filled some of the 140,000 jobs now filled by nonresidents), then commuting, infrastructure, and other costs could be appreciably reduced. Fairfax County is moving closer to that pattern, whether as a result of conscious planning or the play of market forces.

¹¹ In this example, "job" is defined as a commuter destination in the county "Destination" only counts those residents in the metropolitan area who had a job destination in Fairfax County. The actual job count would be slightly higher if residents from outside the metropolitan area were counted. "Workers" equals the number of commuters counted in the 1990 census.

Figure 3–42 shows the central county job-worker ratios for the major metropolitan areas. Surprisingly, few central counties have high job-worker ratios; 18 have ratios below 1.1, and some counties have ratios around 1.¹² Of course, central counties, in contrast with central cities, generally have more territory and encompass part of the suburbs. This supports the idea that suburban job development is shifting metropolitan job location patterns to bring job-worker ratios in all areas closer to being in balance.

Modal Shares by Flow Pattern

The destinations of commuting trips, and more particularly the origin-destination flow patterns involved, can reveal a lot about why particular modal choices are made and what travel times those choices will yield. This part of Chapter 3 addresses these questions.

The majority of commuters work in the same area in which they live. Figure 3–43 illustrates this point, showing that 56 percent of those who work in a central city are residents of that central city, 74 percent of those who work in a suburb are residents of that suburb, and 94 percent of those who work in a nonmetropolitan area are residents of that nonmetropolitan area. These factors are affected by the population of the metropolitan area, which also has a significant effect on mode choice and travel times. As shown in Figure 3–44, the role of the central city declines and the role of suburbs increases as the population of the metropolitan area increases.

Central City Destinations

Significant differences appear when the five categories of flow into central cities are examined for modal choice patterns, as shown in Figure 3–45. Note that the relative share of total commuters for each flow segment is shown at the top of each bar. This helps to maintain a sense of scale about the relative role of each flow. In each case, the private automobile is dominant, but the variances are of interest. Private automobile use is least dominant in the flows from central city to central city, where transit and walking are more visible. The suburban and nonmetropolitan flows have very similar shares of private automobile use and two-person carpools. Larger carpools are key in central city flows from nonmetropolitan areas, while transit plays a larger role in the flow from suburb to central city. The flow between central cities shows a striking use of larger carpools and railroads.

Modal Composition. Figure 3–46 shows each mode of travel into the central city, where its users come from, and what part of total travel they represent. The drive? alone and carpool segments have similar compositions, except the carpool segments show a greater share of intermetropolitan components as the size of the carpool increases. Transit origins and destinations are heavily oriented toward the central city, with the dramatic exception of railroad commuting, which is dominated by suburban and other metropolitan flows. The “bicycle or walk” and “other” categories dominate the central city flow.

Suburban Destinations

Figure 3–47 shows the modal shares of the commuter flows to suburban areas. One factor is immediately clear—namely, the greater similarity among the modal choice patterns of the suburban flows than among comparable central city flows. Variation occurs in the modes that supplement the vehicle use pattern. Travel within the same suburb is almost completely represented by driving alone, walking, and working at home. Carpool use is greater in all flows except travel within the same suburb. The reverse-commute flow (i.e., from central city to suburbs) shows some variation in carpooling and transit use. The commute from central cities of other metropolitan areas also exhibits stronger use of transit and carpools.

Modal Composition. The modal composition chart for suburbs, which parallels that for central cities, is shown in Figure 3–48. This figure supports some of the observations above. The role of the central city becomes more important as carpool size increases. The role of the central city in transit is substantial, and the role of other areas becomes a major element in the rail modes. Figure 3–49 shows the relative scale of each mode.

Nonmetropolitan Destinations

The nonmetropolitan destination pattern is easier to depict and describe, as shown in Figure 3–50. Nonmetropolitan destinations have only three elements, dominated by flows from one nonmetropolitan area to another (94 percent of all

¹²San Diego and Phoenix are one-county metropolitan areas, but Providence, San Antonio, Sacramento, and Buffalo are not.

commuters). Central city flows to nonmetropolitan destinations are heavily oriented toward private vehicles, with a strong carpool component and some bus use.

Modal Composition. Modal composition is overwhelmed by the trips within the same area. Only transit modes have some significant role in flows from central city or suburban areas. All other modes have less than a 10 percent component for travel from other areas.

Destination Summary

Table 3-24 summarizes mode use by destination from all origins. Only flows to the central city show drive-alone shares of less than 70 percent; carpooling tends to be relatively stable among all destinations, with a somewhat greater tendency exhibited by the intermetropolitan flows. Transit use is center-oriented, as noted previously. The short-distance and work-at-home modes exhibit the expected patterns, with greatest shares in nonmetropolitan areas.

A final depiction of modal patterns is presented in Figure 3-51. This three-dimensional figure provides a relative scale of national patterns. Modal shares are presented in absolute terms, grouped by size of metropolitan area. A number of points stand out. The focus on driving alone in private vehicles is obvious, but more significant perhaps is the limited role of all other modes, such as carpooling and transit, except in the largest areas. Work at home is not shown in this figure.

TRAVEL TIME OVERVIEW

Aspects of travel time as a component of commuting costs were identified earlier in this chapter. The following discussion takes a more extensive look at travel times, although hardly exhausting the topic.

General statements about travel time are not very useful. On the average, the capacity of the U.S. transportation system is excellent, and travel times, on average, are also excellent. But the average is not a particularly good guide to commuting—most people do not go to work at 3 a.m., when there is a lot of spare capacity in the transportation system. It is the variation—in mode, flow pattern, size of metropolitan area, area, and time of day—that is the key to understanding.

MODAL DISTRIBUTION

Table 3-25 summarizes the census information on travel time for the major modes. The average travel time for all modes is strongly influenced by the drive-alone travel time, given the high proportion of the population that drives alone. Carpool travel time increases as the size of the Carpool increases—partially because of the time spent picking up members of the carpool. Transit modes tend to have longer travel times than automobile modes, with railroad the longest of all. Walking and bicycling tend to have the lowest travel times, indicating upper limits on the use of those modes.

There is a certain self-selection in these travel times that may not be apparent. For instance, people are more likely to join large carpools when they have very long distances to traverse; a similar situation applies to railroads. These modes are rarely selected for very short trips. Thus it is partially the typical trip distances for these modes that are being observed, rather than the effects of relative speeds.

Figure 3-52 illustrates this point by looking at the modal composition of different travel-time groups. For example, the 10 minutes-or-less range is characterized by drive-alone commuters, two-person carpools, and walking; in contrast, the 60 or more minutes category has the lowest (but still significant) drive-alone share, with extensive use of large carpools and transit, especially commuter railroad. Driving alone is most dominant in the 15–30 minute categories; its share declines with travel times above 30 minutes.

Male-Female Differences

Table 3-25 lists the travel times by mode for men and women, as well as the ratios of men's travel time to women's. In almost every case, men's travel times exceed women's, most likely because men's work trips tend to be longer in distance than women's.

The ratios for the private vehicle modes place men at about 20 percent greater travel time than women. Transit modes place them at very similar levels of travel time.

Within-Mode Travel Distributions

Figure 3-53 displays the elements of the modes used by travel time. Note that the travel time distribution by all modes parallels the drive-alone mode. Both modes show about 16 percent of users in the less than 10 minutes travel range and exhibit similar values throughout all travel times. As carpool size increases, the distribution

shifts toward the high end. The bus mode exhibits very few users in the less-than-15-minute categories. More than 60 percent of railroad commuters spend more than 60 minutes traveling to work. Just over one-half of walkers and bicyclists have travel times under 10 minutes. The median travel time for each mode can be estimated by tracing the 50 percent point in the figure.¹³

TRAVEL TIME BY METROPOLITAN AREA SIZE

The size of the metropolitan area is critical to travel time characteristics. Previous figures have shown that commuters are heavily centered in the larger metropolitan areas, which tend to be areas with long travel distances and times, significantly affecting overall averages. In particular, the transit modes are disproportionately centered in the largest areas, where travel times by all modes tend to be high. Travel times for all modes range from less than 17 minutes in areas with populations under 100,000 to approximately 27 minutes in metropolitan areas with more than 3 million population—a 10-minute difference. Figure 3-54 shows the almost linear trend in travel time for all modes and for some of the major modes of travel. The stability of walking times is noteworthy, ranging above 10 minutes only in the largest areas. Also to be noted is that the slope of change is greatest for bus.

Figures 3-55 and 3-56 provide additional detail on the individual modes. The car-pool travel time factors are addressed later and are shown to be a product of travel flow patterns. The transit figure must be considered in light of the sharply skewed locations of transit users, particularly rail commuters.

Figure 3-57 shows the distribution of drive-alone travel times by metropolitan area population. The percentage of commuters driving alone for more than 60 minutes is small, except in areas with populations over 3 million.

The significance of the over-60-minutes group is displayed for all modes in Figure 3-58, which shows the percentage of commuters traveling over 60 minutes for all areas with populations over 1 million. Only about one-third of those areas have more than 5 percent of commuters traveling more than 60 minutes, and only three areas (Washington, D.C., Chicago, and New York) have above 10 percent. Metropolitan areas are ranked in descending order of population in the figure, which points out that although population size is a factor, it is certainly not the only factor, in determining long travel times. In a number of areas (New Orleans, Baltimore, Houston, and Washington, D.C.), the percentage of commuters traveling for more than 60 minutes is inappropriate for the population size. Other areas, particularly the so-called rust-belt cities of the Northeast—Milwaukee, Buffalo, Detroit, Cleveland—exhibit very low values for their size. This may be a product of declining jobs in the central city or a heavier than typical orientation to the private vehicle.

TRAVELTIME BY FLOW PATTERNS

A useful way to further understand these patterns is to look at the flows that were identified earlier in this chapter and examine their effect on travel times. Table 3-26, which uses the same standard summary form used earlier to depict commuting flows, presents the average travel times for various flow patterns. The following factors in the table are of interest:

- Internal flows have the lowest travel times, with flows from one nonmetropolitan area to another the shortest (16.5 minutes), followed by flows within the same central city (18.15 minutes) and then within a suburb (19.4 minutes).
- On average, a suburban resident who commutes to a job within the same suburb has a 7-minute travel time advantage over a commuter to the central city of the same metropolitan area.
- With an average travel time of 23 minutes, reverse commutes take 3 or 4 minutes less in the nonpeak direction than in the peak direction.
- All other moves (i.e., between metropolitan areas and nonmetropolitan areas) involve average travel times well above 30 minutes and above 40 minutes in some cases.

Figure 3-59 presents the travel time distribution of commuters destined for central cities, suburbs, and nonmetropolitan areas. The nonmetropolitan areas are notable in that more than 25 percent of commuters arrive in less than 10 minutes, whereas only 10 percent in central cities enjoy that travel time. Eight percent of commuters to central cities travel more than an hour; in the nonmetropolitan areas,

¹³The median is a measure of central tendency, like the average. It is the central item in the high to low distribution—i.e., half of the items in the distribution are higher and half lower. It is free of the distorting effects of a few high values. In a travel time distribution, the median will be lower than the average.

the proportion is about 4 percent. Suburban arrivals occupy a position midway between the extremes of the central city and the outer rural areas.

Flows and Modes

One effect of metropolitan flows on modal travel times is shown in Figure 3-60, which compares travel times by area of trip origin. For all modes but ferry, taxi, and bike/ walk, the suburban trips take the longest. For most modes, nonmetropolitan trips are shorter than either suburban or central city trips. The exceptions are important. For each of the carpool modes, nonmetropolitan area trips are quite long relative to other areas, indicating the long distances traveled by carpools in nonmetropolitan areas.

Figure 3-61 further traces the effect of carpool size on travel time, with revealing results. The four private-vehicle modes are traced by travel time for each of the nine flow categories. The flows tend to group into two distinct families. One family consists of the internal flows (nonmetropolitan area to nonmetropolitan area, central city to central city, suburb to suburb, and central city to suburb) and centers around 20 minutes of travel time for driving alone. Another group centers around 35 minutes and consists of the intermetropolitan flows. In each case, carpooling adds about 3 to 4 minutes for each person added to the carpool, regardless of flow category. The internal flows reach an average of about 32 minutes for large carpools, and the intermetropolitan flows reach almost 50 minutes.

Flows and Metropolitan Area Size Group

The combination of trends in flows and in metropolitan area size is difficult to depict clearly. But useful observations can be made. Trips to the central city appear to increase in travel time far more rapidly as metropolitan size increases than do trips to suburbs or to other central cities or suburbs, as shown in Figure 3-62. This suggests one reason for the growing significance of suburbs in large metropolitan areas.

TRAVEL TIME TRENDS

The 1980 census was the first census to collect travel time data. The travel time data collected in 1990 allows trends to be compared across the 10-year period. The overall national average travel time in 1980 was 21.7 minutes, rising by 40 seconds to 22.3 minutes in 1990. This is a tribute to the American transportation system, given the prodigious increases in the number of commuters in the period.

Table 3-27 shows the 1980 and 1990 flow trend travel times; note that the 1980 data did not differentiate between central cities and suburbs in the same or other metropolitan area.

These numbers are interesting, if not astonishing. They convey the following messages:

- Contrary to conventional wisdom, travel times have not changed much, despite large increases in commuting, particularly with private vehicles.
- Some travel flows have seen improved travel times, albeit only as related to Nonmetropolitan flows.
- Flows from one Nonmetropolitan area to another saw no change in travel time.
- The greatest increases in travel time occurred in the flow from suburbs to central city (a 3.6 minute increase)—a larger increase than in the flow from suburb to suburb (a 2.5 minute increase).
- The 7-minute advantage of the suburb-to-suburb trip over the suburb-to-central-city trip increased to 8 minutes.
- Central city trips within the central city or to the suburbs increased little (about 1.3 minutes), gaining some advantage over the suburb-to-suburb trip.

Although it is hard to accept that travel times have improved, it must be remembered that the shift to the automobile, particularly to driving alone, by former carpools, transit users, and walkers led to improved travel times for many, despite the fact that actual travel speeds on roadways may have declined.

Drive-alone travel times are perhaps the best basis for comparing travel times between periods. They do not involve dealing with other people or a mix of modes that can vary the time of travel. Figure 3-63 compares 1980 and 1990 drive-alone travel times by flow pattern. The figure shows that travel times for a number of flow patterns actually improved. In general, driving alone increased in travel time, but not as much as other modes. Drive-alone travel times for flows from suburb to suburb and from suburb to central city increased, but not as significantly as did other modes. Drive-alone travel times for other flows decreased.

Figure 3-64 shows the average travel times for 1980 and 1990 for metropolitan areas with populations over 1 million. Many of the metropolitan areas show only

limited increases in travel times, with no apparent pattern. Some of the largest increases in travel time occurred in areas with significant population increases in the period. Areas such as San Diego, Sacramento, Orlando, and Los Angeles had increases of over 12 percent. Several areas had small decreases in travel times, including Pittsburgh, New Orleans, and Salt Lake City. The most notable improvement was New York City, with almost an 8 percent decrease in overall travel times.

STARTING TIMES AND TRAVEL TIMES

For the first time, in 1990 the Bureau of the Census collected starting times—that is, the time the commuter left home, rather than the time the commuter began working. There was considerable interest in obtaining data on the time the commuter left for work because of its effect on congestion. The peaking characteristics of commuting have tremendous bearing on travel congestion, facility planning, and so forth. Moreover, there was suspicion that congestion was pushing travelers into earlier or later “shoulder” periods of the peak, thus broadening the peak.

Figure 3-65 shows the commute starting times for men and women. Men’s starting times are considerably earlier than women’s. As more men and women enter the work force, the peak tends to broaden. The causes are open for further analysis. One factor is women’s shorter trip distances, which allow them to depart later than men yet arrive at about the same time at the work site. Occupational differences in work hours and family needs are also factors. The data presented in the figure are absolute quantities. If the data are looked at as percentage distributions, there is a small but significant shift in the shapes of the distributions. The peak period for women commuters, from 7:30 a.m. to 8 a.m., contains a greater share of total women’s travel than does the peak period for men. Men’s travel is spread more throughout the peak. Surprisingly, women’s total travel from noon to midnight is less than men’s, yet as a percentage of total travel is greater than men’s—i.e., a higher percentage of women’s work trips take place from 4 p.m. to midnight. The reasons for this may include a statistical artifact, because women have such a small share of their starting times from midnight to 5:30 a.m.

Figure 3-66 shows the travel time distributions for all commuters by start time. Although complex, the chart is worth inspection. There are two equal peaks (from 7 a.m. to 7:29 a.m. and from 7:30 a.m. to 8:59 a.m.), consisting of a male-worker peak followed by a female-worker peak. Even in the peak period, the majority of commuters travel less than 20 minutes. The half-hour segment just before the peak period has many more long-distance (in time) travelers. After 8 a.m., the pattern follows the short time trend. The early morning hours are much more heavily oriented to long-distance travelers.

Another way to reveal some of the factors at work here is to invert these data and show the start time composition of different trips by trip length and by sex. The tendency of these patterns to rise to the right for both men and women is because a greater share of total travel in each travel time period begins early in the morning. For example, a high proportion of workers with commutes longer than 60 minutes leave for work before 5 a.m.

CHAPTER FOUR: CLOSING PERSPECTIVES

In this report, we have examined the dominant trends in commuting today. While this examination may have seemed comprehensive, it is clear, to me at least, that a wealth of information that can bring light on the subject remains to be tapped. Even if we restrict our focus to data already available, there is valuable material waiting to be examined. If the data that are needed but that are not now available are brought into consideration, the work to be done is monumental.

Throughout this report, I have rigorously tried to stay within the bounds of what the data can tell us. The sponsors of this research recognize the benefit to public policy in assembling the facts regarding commuting into a common resource, which each organization can employ for its own purpose. While the sponsors may disagree from time to time on policies regarding commuting, their sponsorship of this report affirms their belief that public policy can only benefit from a common understanding of the basic facts of the matter.

This final section is a bit more relaxed in content and tone. It allows me to speculate on what the trends mean and where they are going. Any perspectives or interpretations of trends contained herein are mine alone.

DIRECTION OF THE TRENDS

In 1987 the trends were readily discernible, summarized as three dominant patterns: a boom in workers; a growing orientation to the suburbs; and increased use of the automobile. The trends now seem less clear in some respects, perhaps because the patterns are so much a part of us that they no longer seem exceptional.

But it is also true that the course of some of those patterns are no longer so clear. Furthermore, as new patterns emerge, they modify or even replace the dominant patterns.

New Commuters

The boom in workers is at an end. The two demographic surges that fed it—the baby boomers coming of working age and the entry of large numbers of women into the working world—have run their course. This by no means suggests that there will be a sharp decline in annual increases in workers, only that the scale of the trend will not be so extreme, particularly as a proportion of the population. It will not stress the transportation system so dramatically. The oft-discussed baby-boom echo is but a pale shadow of the original. The total numbers of workers expected to be added each decade in the future are not that different from past numbers.

Notions that there would be a great swing of women out of the labor force and back to the home have not been substantiated by events. It has been more a case of younger women drifting in and out of the labor force in response to educational activities and childbearing events, rather than a permanent shift in labor force status.

The great question mark is the factor of immigration, which could dramatically change the number of commuters in some areas and modify the nature of commuting patterns.

New Auto Users

There is little in present patterns of behavior and demography to suggest that there will be a significant reversal in the private vehicle orientation of commuters. The dominant factor here is the continued dispersal of populations out from metropolitan areas and the pressure of time on workers. As long as the private vehicle remains at all affordable to own and operate, the pattern will continue. The shifts in age structure of commuters abet this trend.

This does not suggest that all is lost for public transit or other alternatives. The cases where transit, carpooling, walking, and biking are successful need to be studied for clues to their appeal to commuters. Those areas where transit is a major factor (predominantly in the center of major metropolitan areas) need to sustain and intensify transit service. In areas with significant transit use, users are generally happy with the services provided. This market needs to be preserved. Transit providers will need to come up with innovative ways to sustain or gain market share. Some of the innovative responses to suburban demands in the Chicago, Philadelphia, and New Jersey areas may yield successful models.

It is difficult to be optimistic regarding a renaissance in carpooling. Most carpooling today is not carpooling as we knew it just a few years ago—a voluntary arrangement among coworkers or neighbors. That type of carpooling is dying; most of the surviving “carpool” activity consists of family members with similar destinations and timing. Maybe these need a new name—fampools? Carpoolers using restricted carpool lanes have significant advantages on roads with low average traffic speeds, but as noted in Chapter 3, there are time costs to carpooling as well. Carpooling is a changing environment that requires continual attention from the commuter as jobs change, work patterns shift, and travel times change.

Density and Dispersal

Continued dispersal toward the fringes of metropolitan areas seems a given for both jobs and population. The cloaking of these patterns by the vagaries of redefinition of metropolitan boundaries has not helped our understanding of these trends. Rapid growth on the metropolitan fringes has been masked by definitional changes. By modifying geographical definitions, the Bureau of the Census shifted 6 million of the new population growth in the 1980's from the suburbs to the central city and 4 million from nonmetropolitan areas to metropolitan areas.

Prospects for a reformation in land preferences toward higher densities are limited, but have several avenues of potential development. The first is that as the population ages, there may be greater interest in higher density housing clusters, where walking is convenient and automobiles are not a necessity. The second is the growing interest in family oriented communities that provide more opportunities for walking and greater control over vehicle access. Developers are responding to both these interests. If these concepts are successful, they will be quickly copied by others

in the marketplace. Whether this becomes a minor market niche or the basis for retrofitting our suburbs remains to be seen. There still seems to be a strong aversion to high-density development on the part of most households, which becomes a motivator in housing choice as soon as family finances permit.

The future of local nonwork travel belongs to the auto and to walking. The American public will embrace opportunities to visit areas where walking is pleasant and secure. Shopping malls, the new main streets of America, have responded to this need. These preferences could begin to have substantial bearing on work travel patterns as well.

Variations on a Theme

We are becoming increasingly conscious of a set of developments that add to the volatility of commuting. Simply described, this is the tendency for greater variability in the location, path, time, and mode of travel to work. It is difficult to say whether this tendency is increasing or whether it has just become more evident to researchers in recent times. Our data collection approaches, which focus on 1 day's travel by a set of selected individuals or households, would typically not catch this kind of variability. Surveys that track an individual's daily travel over the course of several weeks would be needed to establish some sense of the scale and character of variation.

Locational Variability

There have always been those whose workplace is not fixed. Construction workers and cleaning people come to mind. The new factor is the worker who occasionally works at home. Although there have always been those who work at home—and this group is growing—the interest here is in those who have a workplace elsewhere, but who occasionally work at home, either as a regularly scheduled event (e.g., once a week) or sporadically, as events demand. Much has been made in the press and elsewhere of the “boom” in telecommuting. Many of the reports have been overstated and exaggerated out of all sense of scale, raising very unrealistic expectations. But there is still an important element in telecommuting that we need to get a better sense of, preferably without all the hyperbole. If 10 percent of workers work at home once a week, that would cut commuting flows by 2 percent. The result would be a reduction in peak-hour commuting conflicts—and a greater dispersion of population.

Working at home (where home is not a farm) is a factor to be considered in future transportation planning, even when it is only an occasional activity. We need to know more about it. Part of the stimulus for working at home is that knowledge workers can function readily at home and may in fact be more productive there. Another factor centers on concern about child care. The costs and frustrations of commuting may also be factors for many, especially those commuting long distances. As noted earlier, workers who have more than an hour's commute have a higher propensity to change jobs than others.

Time. There is a sense, supported by limited research, that the public is increasingly aware of congestion bottlenecks and its effects. There are also increasingly better means to communicate to travelers information about emergencies and other incidents affecting travel times. This has led many workers to start for work and to return home at times that are more responsive to actual traffic patterns than to a fixed schedule. This is in many ways the goal of the intelligent transportation systems (ITS) programs—namely, to permit the traveling public to respond to events based on better information.

Path. The same point made just above can be made regarding the choice of path to work, specifically for private vehicles. As people become more aware of the effects of congestion, they are more able to consider alternate paths to work. This again is one of the elements of ITS technology, wherein new techniques are employed to direct travelers to less congested routes. But it is unlikely that computers will surprise commuters with new ways to get to work that they hadn't already tested. Particularly for work trips, people generally know all of the available alternates and understand their characteristics.

The more significant factor in path determination may be the phenomenon of trip chaining—the linking of the work trip with trips to meet household needs. This has the effect of shifting the direction and path of work trips as events dictate, creating situations, for instance, where the trip to work and the trip back home are not symmetric.

These trip patterns have proven highly time efficient to commuters and may be energy efficient and environmentally efficient as well. They are the key to understanding future commuting behavior.

Mode. Variability in modal choice is not a major factor in overall commuting patterns. Nonetheless, as a product of the increasingly disproportionate relative shares of travel obtained by the private vehicle, relatively small shifts out of the private vehicle, even on the most sporadic and limited basis, can have substantial effects on other modes. For instance, transit operators have long been aware that a significant part of their ridership is composed not of regular users but of those who use transit only a few times a year—such as when a household vehicle is unavailable. If 1 percent of the vehicle fleet is in the shop for repairs on a given day, that can cause a 10 percent to 20 percent swing in transit use. Similar factors affect carpooling, and even walking and bicycling.

Planners need to be more conscious of these variabilities in behavior, whether they are tending to grow as a factor or not, and what implications they might have for transportation planning.

Sources of Change

Economic and Social Factors. The nature of work is changing. More work can be done in small work units of a few people, or even one. This adds to the potential for dispersal of jobs. It also adds to the greater freedom, in many cases, for people to set their hours of work to match their personal preferences.

Paralleling this trend is the fact that many jobs are services-oriented, requiring workers to work odd hours and on weekends. This adds to the greater dispersion of jobs in time, as well as in space.

The power of communications and data processing are only beginning to be felt. These tools are becoming ubiquitous. [I recall a recent experience in which an upscale, national chain restaurant had to send diners away because the “computers were down.” I wonder how many restaurants had computers 5 or 10 years ago.] The power of telecommunications is accidentally focused on permitting greater dispersal of people and jobs; it reduces the penalty of distance.

The effect of women in the workplace has been unmistakable and will further influence trends in the future. One of these effects is the growing humanization of work activities. There seems to be a greater understanding of people’s needs to care for children, and to take time off for other family needs as well. This has led to greater work scheduling flexibility in many firms, both large and small. That flexibility supports variation in work arrival and departure times, as well as work days. Certainly, part of this is the sharp competition among firms for highly skilled employees, many of them women.

It is to be expected that this willingness to be flexible on the part of management will only increase in the future as some skills become even scarcer and firms compete for the best workers. This also means that firms will tend to relocate where their scarcest resource—skilled employees—is located. Being a short commute away will be a benefit that firms can offer. This will tend to push firm locations to where people want to be, generally pushing employers toward higher income neighborhoods and leading to longer commutes for lower income workers. Regionally, this means the outer edges of the metropolitan area; nationally, it means those areas that are pleasant and attractive to live in. This will keep national growth focused on the sunbelt and on the West. This could also lead to increasing growth in smaller areas, such as university towns, rather than in the very large metropolitan areas of the nation.

Immigration. Immigration is the great wild card in all this. The scale of immigration, and in some respects its character, is a product of a stroke of a pen in Washington. Immigration will be the dominant population factor in many areas of the nation, in the large population centers in general, and in particular in the centers of the West and South. Immigrants are heavily represented in the labor force. Their bimodal distribution in education will create strange frictions in the national labor force, competing at both the highest and the lowest skill levels.

Not surprisingly, their orientation to the private vehicle is less than that of other Americans. The question is, how long will it take before their behavior patterns are symmetric with others of similar income and age characteristics? Or are there substantial cultural variations that will manifest themselves?

The Democratization of Mobility. The private vehicle has become the tool of mass mobility. While we tend to think of auto ownership as all-pervasive in this society, this study has shown that this is strongly skewed by race, ethnicity, and other factors. One has to believe that the expansion of opportunity in America to immigrants and to those born here will expand ownership and use of private vehicles as well—generating growth in private vehicle ownership and travel in the coming years.

The growth in vehicle travel in the remaining years of this decade and into the next century will be predominantly a product of new access to personal vehicle use

on the part of young people, the older population, women, and racial and ethnic minorities—the mobility “have-nots” of our society.

Just as we have cited the competition for skilled workers at the high end of the job spectrum, there will likely be more workers than jobs at the low end. This will mean workers traveling great distances for not particularly attractive jobs. The dramatic growth in intermetropolitan travel and in reverse commuting (from the city out to the suburbs) is a product of that reality.

Society then is faced with an unpleasant challenge. Much of current public policy on commuting is aimed at suppressing auto ownership and use. These policies are unintentionally aimed squarely at those on the margin of the ability to own and operate a vehicle, particularly those policies aimed at increasing the cost of driving. It is clear that those most affected by such policies will be those on the lower rungs of the economic ladder. Often these people will be those who are most auto-dependent.

Public Policy and Commuting. Much of public policy today is focused on modifying societal behavior in commuting, and specifically the preference for driving alone. These policies have proven dramatically ineffective, at best. At worst, they can be directly antagonistic to the goals they are intended to support.

It must be clear by now that the notion that there is an American “love-affair” with the automobile is missing the point. Those who promote this idea seem to imply that that love is some kind of aberration, and with enough psychiatrists we can solve America’s commuting problems. Americans love their automobiles about as much as they love their microwave ovens. They have them and use them because they are very efficient tools—they are time-saving devices. The desire for the personal vehicle in other countries follows this same pattern.

At the center of all of these issues is the burden of time pressures that most Americans feel. It is time pressures, particularly on women, that increase personal vehicle use, trip chaining, and many of the other patterns we have examined. Decisions regarding household location and mode to work are not made frivolously. People have sound reasons for their choices.

Public policies that try to increase the costs of auto use or increase travel times and congestion to force behavioral shifts to more preferred modes of behavior or locational densities will simply force people to make painful decisions. Many of these will result in the shift of households and jobs to areas where congestion is less obtrusive and where other costs are less; inevitably this will mean greater dispersion of the population, not less. The American commuter is a resilient and innovative character.

Those who see the solution of so many of our present ills by reorganizing society into living at higher densities miss the point. People do not live “efficiently” in order to optimize some imposed societal goal, certainly not commuting. Residential density is one of the most fundamental of choices that households make. It is clear that most people, given the choice, opt for lower density living when income permits. As society changes and choice patterns evolve, the marketplace must be ready to respond with development that is responsive to household choices. Any public policies that inhibit a market trend toward higher densities must be addressed. But the marketplace must be the final arbiter in a free society.

In this environment, transit has to compete with speed, reliability, and security. The focus of public policy in this area must be on improving commuting for all workers, with better walking and biking opportunities, better transit, and better roads. My proposed goal would be to reduce commuting to an unimportant topic of conversation and public policy.

Many of these trends leave room for greater optimism regarding commuting solutions. Technological responses increasingly respond effectively to energy and environmental concerns, and congestion, while still a major problem, in many areas is addressable in its new patterns. The beginning of the solution lies in recognizing that the American public is in charge.

PATTERNS TO WATCH

There are a number of patterns that bear watching over the coming years, as they signal the direction some of the trends will take. The patterns to watch are:

1. Will the force of immigration continue, or taper off?
2. Will immigrants join the typical patterns of vehicle ownership and travel behavior, or will new patterns emerge?
3. Will greater balance of jobs and workers occur in the suburbs, or will things stabilize at present levels?
4. Will racial and ethnic minorities fully join the mainstream car-owning classes?

5. Will technological fixes continue to be effective in responding to environmental concerns?
6. Will telecommunications and growth in working at home abet dispersal and take the edge off commuting problems in many areas?
7. Will ITS technologies begin to assert an influence on travel times or other factors of commuting?
8. Will aging commuters generate shifts in mode of commuting?
9. Will population growth shift toward the lower end of the metropolitan size spectrum?
10. Will the public find new, higher density communities attractive alternative lifestyles?

THE SOURCES OF UNDERSTANDING

A final word about data is needed. There is something of a renaissance in transportation data under way. The creation of the Bureau of Transportation Statistics (BTS) at the U.S. Department of Transportation has reinvigorated interest in better data by many in the profession. That influence goes well beyond BTS's own programs.

The Data

The sources of data that will be available to us for monitoring the questions posed above are strong and improving, with one gigantic "if."

The Nationwide Personal Transportation Survey has been established in a strong, steady program, and adequately sized surveys are conducted every 5 years. Data collected in 1995 will soon be available to address many of the questions posed here. This survey is now the preeminent source of travel behavior information in the country.

As part of its monitoring of housing conditions, the American Housing Survey (AHS) obtains journey-to-work data every other year for a national sample. This provides very valuable trend information. The cessation of journey-to-work data collection for individual metropolitan areas in the AHS cycle is a great loss.

The 1990 census has been the dominant source of information for this report and for metropolitan analyses across the nation. The work of the Bureau of the Census and of the states, working through the American Association of State Highway and Transportation Officials, has been incredibly valuable. For the first time we have had national, comprehensive coverage of commuting in detail.

The Future of Data

The great "if" is the 2000 census, which is in greater jeopardy than any census has ever been in our era. This transcends the usual disinterest regarding the census when it is 4 years away. There is pressure to reduce the data collected to the absolute minimum needed for legislative redistricting. While all would agree that streamlining and improvements in efficiency would certainly be in order, the collapse of the census would be a disaster for public understanding of our society. The journey-to-work questions are of unquestioned value to public policy and public investment decisions in the range of hundreds of billions of dollars. But it is the fundamental small-area demographic data that underlies the specialized questions that are most critical to effective public policy at the local level.

There is a sense that we are on the cusp of major shifts from old methods of data collection to new means just emerging—means that promise greater efficiency and speed. We must not lose the continuity of the data resources we depend on as these new techniques evolve.

ECONOMIC RETURNS FROM TRANSPORTATION INVESTMENT

(By Jeffrey Madrick, Eno Transportation Foundation, Inc., Lansdowne, VA, 1996)

PREFACE

From the time of the nation's first transportation plan—the Gallatin Report at the beginning of the 19th century—U.S. political leaders have recognized the developmental and economic benefit of investment in transportation. As different ports competed to be the supplier of the original colonies, as different routes competed to be the gateway to the west, as the first national system of post roads was designated, and as the Interstate Highway System was designed, states and regions have competed for access. Transportation facilities are more than magnets that draw growth to one point instead of another: they also create economic growth that is shared by the Nation as a whole.

This national economic benefit has been measured in a recent study by M. Ishaq Nadiri, an economist at New York University. He found that there is a strong relationship between the capital stock of highways and the net social rate of return. During the 1950's and the 1960's, the net social rate of return of the nation's highway network was very high, while in the 1970's and 1980's the returns on highway investment were lower—roughly the same as that realized on private capital in those decades. What led to the extremely high returns in the 1950–1970 period, and what future public investments in transportation infrastructure might have similarly massive impacts? Can public policy be targeted to produce such high returns in the future, and continue to benefit the nation's economic health, its international competitiveness, and its quality of life?

The Eno Foundation held a public policy forum on July 23, 1996 to explore these important questions. Leaders in government and industry, specialists on economic development, investment analysts, and other experts came together to examine recent research on this subject, to discuss its possible policy implications, and to identify ways to make such analysis more useful to policymakers.

We are deeply indebted to all the thoughtful leaders, listed at the start of this report, who contributed to these discussions. We are especially thankful to Professor M. Ishaq Nadiri for his stimulating analysis and his willingness to defend this work before a diverse community of interested professionals; to Professor Jose A. Gomez-Ibanez who chaired the forum; to Jeffrey Madrick, who prepared the forum report; and to Jennifer Clinger, who organized the forum and oversaw all the arrangements. We are also grateful to the Federal Highway Administration, the relational Cooperative Highway Research Program, and the American Association of State Highway and Transportation Officials for their financial and professional support. Thanks are also due to the forum participants who reviewed the draft report and made useful corrections.

The message that came through loud and clear at the forum is that the economic impacts of transportation are important, and that new findings bearing on them deserves serious attention. The Eno Foundation is pleased that the insights contributed by participants at our forum are now publicly available, and that this report will help to give the economic consequences of transportation the consideration that they deserve.

DAMIAN KULASH,

President and CEO, Eno Transportation Foundation

SUMMARY

Economic productivity is key to maintaining the nation's global competitiveness and a rising standard of living. However, productivity, along with overall economic growth, has slowed considerably in the U.S. since the 1970's. Investments in transportation infrastructure benefit economic productivity by allowing more efficient processes, economies of scale, changes in distribution or logistics patterns, and reduced costs. Although the impacts of the system surround us, few attempts have been made to estimate the overall, program-wide economic benefits of public investments in transportation facilities.

Recently, Dr. Ishaq Nadiri, an economist at New York University, has found that there has indeed been a significant positive rate of return from public investment in highways in the United States in recent decades, although the magnitude of this return tapered off in the 1980's. As the Nation prepares to design highway legislation for the next 5 years, the implications of this most recent work on economic returns could have major implications.

The Eno Transportation Foundation convened a public policy forum to discuss the economic return on transportation investment. About 35 people with varied perspectives on this issue attended this day-long discussion on July 23, 1996.

The Federal Highway Administrator, Rodney Slater, opened the forum by saying that the FHWA has made fostering productivity growth through investment in highways one of its primary goals. He emphasized the importance of high-quality economic research to find the linkage between highway investments and economic performance.

Professor Nadiri described that there has indeed been a significant positive rate of return from public investment in highways in the United States in recent decades, although the magnitude of this return has tapered off in later decades. During the 1950's and 1960's, the social return on these investments—the total return to business less depreciation—far exceeded those earned on private capital. During the 1980's, these returns were roughly equivalent to the rate of return earned on private capital investment over the same period. Investment in national systems in

particular, which usually involve larger networks of roads and highways than local projects, had a higher rate of return than private capital over this period.

The high rates of return in earlier years and their rapid decline in subsequent years were largely the result of at least three factors. First, in the 1950's and 1960's, transportation demand was strong as the American economy expanded rapidly. The investments in the Interstate Highway System naturally produced high returns because the rapid growth in the post-war economy required an expansion in infrastructure to accommodate it. Second, unlike for private capital, the benefits of public investment in transportation were shared by many industries. Third, as initial needs were met and the highway system matured, it was only natural that subsequent investments produced lower rates of return. Nevertheless, recent returns, although lower, are positive and significant.

Nadiri also concluded that investment in highway capital made a significant positive contribution to the economy's rate of productivity growth. But the declining rate of growth in highway capital made only a minor contribution to the slow rate of growth in economic productivity in the 1980's. This refuted the conclusions of earlier studies which showed that there was a dramatically higher contribution to productivity from infrastructure investment than from private capital investment.

While existing studies generally report a positive contribution from infrastructure investment, there is a wide variety of results. Rates of return on public infrastructure investment clearly vary significantly over time, place, and according to the economic context of the region or nation in which the investment is made. Future research should be directed toward determining which kinds of infrastructure investment will make the largest contributions to aggregate and sector productivity growth.

An overriding issue is how to continue to make significant investments in transportation infrastructure in an era of scarce public resources. The use of public-private partnerships may be able to make up for shortfalls in new capacity in the Federal, state and local transportation programs. Innovative financing methods involving both public and private sectors may also be effective in a time of more limited public resources.

In general, forum participants agreed that a public awareness must be created for thinking about how infrastructure investment can promote the growth of the nation's productivity. These impacts are significant and of a national, not local, character. They should be at the center of the debate, yet public policy discourse does not yet take into account these far reaching impacts. Participants urged policymakers to apply the results of new economic research to their decision-making processes and to develop new ways to present the case to legislators and to the public that infrastructure investment can improve productivity and economic growth.

While the results of the new research analysis are powerful and promising, it would be self-defeating to exaggerate the new research findings. The new research has corrected many of the flaws of earlier studies, but its results need to be presented cautiously and understandably.

Professor Jose Gomez-Ibanez, chairman of the forum, summarized the main points of the forum as follows:

First, the Nadiri research shows that there have been significant returns to public highway investment. While these returns have declined over time, they are still significant. They are the equivalent of returns to private capital.

Second, these returns vary significantly, and we do not always understand why this is so. They vary over time. In the 1950's and 1960's, the interstate highways replaced the open-access roads that came before them, which may explain much of the decline in returns. But they also vary according to place. Additional highway investment may be useful in some regions or areas and not in others.

Returns can also appear to vary according to where in the overall sequence they are made. The first roads or highways in a region appear to generate higher returns than subsequent ones.

Returns can also vary depending on the institutional context. If trucking in a nation is a monopoly, the benefits of infrastructure investment will accrue to truckers rather than the economy as a whole. So, for the potential returns of transportation to be fully realized, the context must permit the interacting institutions to exploit new efficiencies.

Infrastructure investments can produce sizable returns, but only if they are the right investments at the right time—investments that create growing room. The fact that policymakers appear to have selected such investment in the 1950's and 1960's does not tell us much about what the best opportunities are today.

Third, we may never know the full effects of highway investment on productivity. This is not merely because our statistical tools are not perfect. Few infrastructure creates a context for further innovation that cannot usually be predicted. People are

enabled by the new infrastructure to create different ways of doing things that are subtle and have long lead times. They are the sorts of things that can never really be traced out beforehand—or sometimes even after the fact. For example, we still have difficulty disentangling the effects the railroads had on 19th century America.

Finally, how can the new research be used? To be valuable to policymakers it must be phrased in plain English and must not exaggerate findings, which would undermine their credibility. It must also communicate a vision or story that is credible, specific, and moves beyond the abstraction inherent in measures like the rate of return. Such a vision may be more complex and harder to communicate than the case made to justify the interstate highway system in the 1950's. Nevertheless, the public may be prepared for a more sophisticated vision than they were a generation or two ago.

FORUM PROCEEDINGS

Background and Introduction

A national debate is gathering momentum over whether the U.S. economy can grow faster than it has over the past two decades. During the 1970's and 1980's, the economy's rate of growth slowed dramatically from its historical average. Between 1870 and the early 1970's, the best data show that the American economy grew at an average rate of nearly 3.5 percent a year. Since 1975, the economy has grown at only 2.4 percent a year.

Whether the Nation is better off in the future depends on whether the rate of growth of productivity can be raised. Productivity is the main source of economic growth and a rising standard of living. Its growth has slowed even more dramatically over the past two decades than did overall growth. Labor productivity—the output of goods and service per hour of work—grew at a rate of more than 2 percent a year since just after the Civil War. Since 1973, it has managed to grow at only 1 percent a year. Total factor productivity—the output per unit of labor and capital—has slowed down to a similar degree.

Had productivity grown at its long-term rate since 1973, another \$13 trillion in national income would have been produced by the economy. As a consequence, tax revenues would have risen so much that there would be no Federal deficit today. In fact, at current levels of Federal spending, there would be a substantial budget surplus.

Investments in infrastructure, particularly transportation projects, may have significant impacts upon economic productivity. Governments make investments in transportation facilities to support development, to spur economic growth, to alleviate existing deficiencies, or to increase public convenience. In the 19th century, the large positive economic value derived from investments in transportation systems was taken to be self-evident, and major investments in roads, railroads, and canals were made on this basis. As the U.S. developed, transportation investments were used to transform the economic environment profoundly. Similarly, historians attribute the Industrial Revolution to various transportation investments that preceded it. Today, developing nations view transportation investments as key ingredients for economic development and growth.

No one living in contemporary America can overlook the profound changes brought about by the Interstate Highway System on where people live, work, and shop. It has expanded the range over which goods can be marketed, has created opportunities for economies of scale and for increased specialization, and has brought the efficiencies of just-in-time inventory systems to businesses across the land. Although the impacts of the system surround us, few attempts have been made to estimate the overall, program-wide economic value of public investments in transportation facilities.

Because of the importance of productivity growth to the economy, and in anticipation of the reauthorization of the nation's surface transportation programs next year, the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO), through the National Cooperative Highway Research Program (NCHRP), asked the Eno Transportation Foundation to call a conference of transportation experts and policymakers from the public and private sectors and academia to discuss whether transportation infrastructure investment can play a critical part in improving America's productivity.

In the 1950's, the rate of growth of highway capital surged. After declining slightly in 1950 and 1951, the capital stock grew at an annual rate of 6.2 percent until 1959. But beginning in the 1960's and on through the 1970's, the rate of growth slowed continuously. Since 1982, highway capital stock has been growing at an average rate of 1.2 percent a year.

This increased rate of growth has not kept pace with the increase in demand for highway transportation. The slow rate of investment has contributed to increased congestion and poor maintenance. It has also resulted in fewer large-scale transportation projects, and required proportionately more funding from state and local levels of government for transportation improvements.

But has the lower rate of investment in transportation infrastructure since the 1950's contributed significantly to the general slowdown in productivity growth? Can raising the rate of investment in transportation infrastructure enhance overall productivity for the entire nation? The Eno policy forum addressed these fundamental questions.

The starting place for this discussion was a new econometric study by M. Ishaq Nadiri of New York University and the National Bureau of Economic Research and Theofanis P. Mamuneas of the University of Cyprus. It is a comprehensive analysis of how investment in highway infrastructure affects the nation's output, the commercial sector's costs of doing business, and private sector productivity in general. The expert participants agreed that the Nadiri model had corrected the most important flaws of earlier studies on this subject. The general consensus, among both skeptics and supporters of this type of analysis, was that Nadiri's analysis was one of the most comprehensive pieces of work that has been done in the infrastructure area in the last 10 years, which is when the main growth of literature has occurred.

Approximately 35 professionals from academia and the private and public sectors participated in the forum, including top government officials, academic leaders, and industry executives. There were three general areas of discussion. The first concerned Professor Nadiri's model, and an interpretation of its results. The second concerned the policy implications of new research, and ensuring that investments in highway infrastructure are targeted to have the maximum net benefits. The third area of discussion concerned how to frame public policy issues in light of the new research, as well as how to make the public understand potential contribution to the economy's productivity of infrastructure investment.

The Need for this Forum

Federal Highway Administration (FHWA) Administrator Rodney Slater introduced the topic of the forum by observing that FHWA has traditionally focused its attention on the direct benefits to travelers and commuters of better, faster, safer roads and highways as well as the employment generated by construction and maintenance. But now, FHWA is intensifying its focus on a third area: the benefits that infrastructure investment has for industry, business and the economy in general.

"Until recently, discussions about the relationship between public capital, and economic performance were based on evidence that was largely descriptive in nature," Slater said. However, descriptive and anecdotal evidence is not sufficient to support public investment decisions that have significant social, environmental, and economic impacts. In a fiscally stringent time when every Federal expenditure requires justification, he said, "the objective here is to gain the evidence we need, and to carry forth the strong message."

Slater explained that this was why the FHWA funded the Nadiri study. Now that it is completed, the discussion needs to focus on three questions: "What do these findings mean? How are industries affected by what we discover? And what are the implications for future transportation policy?"

Administrator Slater said that he was ready to use well-done research to make the case for infrastructure investment if it is justified. "If truth was self-evident, there would be no need for eloquence," he said. The Job, Slater concluded, is, "to create a story that people can understand, buy into, and give themselves to, much as we have given ourselves to creating a rail system, an aviation system, a highway system, and all of the transit facilities that exist around this country. Many people would like to rest on those accomplishments. Well, we are gathered here today to examine the question of why we cannot rest on those accomplishments."

New Research on the Economic Returns from Transportation Investment

Professor M. Ishaq Nadiri, the Jay Gould Professor of Economics at New York University and a member of the National Bureau of Economic Research, explained that his research in how infrastructure investment affects economic output was initiated by several well-known studies in the late 1980's that concluded that infrastructure investment had a dramatic impact on the rate of economic growth. These original studies were done, most notably by Professor David Aschauer, now of Bates College, and later by Alicia Munnell of the Boston Federal Reserve Bank (now on the Council of Economic Advisers). Before Aschauer, Nadiri noted, many applied economists had not estimated how public investments affect the nation's productive capacity. They focused almost exclusively on how private-sector decisions with re-

spect to output, employment, and capital accumulation contributed to economic productivity growth.

The methodology of these first studies was widely challenged by the academic community and the conclusions were severely scaled back. An extensive list of new research then followed. If criticized, however, the Aschauer and Munnell work did serve as a challenging beginning.

Aschauer's model rested on a form of economic analysis known as a production function. It assumes that the output of the economy (Gross Domestic Product) is a function of the total supply of labor hours and available private capital stock as well as the rate of technological progress. In trying to measure the impact of infrastructure capital, a production function can be expanded to include the supply of infrastructure investment as a variable as well. If the relationship between changes in infrastructure investment and the economy's output is one possible interpretation is that infrastructure investment is an important determinant of economic output.

The main criticism of this methodology is that even though there may be a close relationship between the rate of infrastructure investment and the economy's output, this does not necessarily imply a causal relationship between the two. There can be many other reasons why the rate of change in infrastructure investment and the economy's output would rise and fall simultaneously. When other academic researchers factored out the possible simultaneity and "auto-correlations," which are especially significant when comparing investment and growth, they concluded that infrastructure investment had a much smaller impact on the economy's output than Aschauer initially maintained.

To avoid such ambiguities, Professor Nadiri took a different approach to the issue that bypasses the problems usually associated with production function studies (refer to Appendix A for the complete study). His analysis did not use generalized production functions to represent the economy. Rather, it used a series of cost functions for all the individual industries that make up the economy (there are 35 industry categories in the model). This determines how the costs of doing business are affected by many factors, one of which is the stock of public infrastructure capital. In the case of this model, highway capital is used. In general, this econometric research attempts to take account of all the major factors that might potentially affect productivity growth. It then isolates the contribution made by investment in highways, covering the years of 1950 to 1989.

What are cost functions? The costs of an industry are a function of several key factors, including the cost of capital and labor, the prices of raw materials and other inputs, the level of the industry's output, and the stock of infrastructure capital. Nadiri's analysis also included the rate of technical change and capacity utilization rates. As each of these elements change, so do the costs of production for an individual industry.

But to avoid spurious correlations, the factors that affect costs are not simply taken as constants. Just as it occurs in the real world, a change in one variable in the model will affect the other variables in the equation. For example, if capital stock goes up, there may be less need for labor. The share of labor and its cost will therefore carry less weight in the cost function. Nadiri adjusted for these inter-related changes among all the key factors that affect an industry's costs. In the language of economists, cost factors are arrived at endogenously rather than exogenously.

The Nadiri research also estimated independently a demand function for each industry, allowing for likely changes in the demand for the output and productivity of a particular industry. If the output of an industry changes, its costs will also change.

A complex series of regression equations were also run in several stages to arrive at a final relationship between the factors that determine supply and demand. Output and cost elasticities with respect to highway infrastructure capital were calculated for each industry. Elasticity is defined as the amount that output would rise or costs fall for each percent increase in the nation's highway capital stock. The analysis also calculated rates of returns for total highway investment by relating cost reduction benefits to the opportunity costs of public roads. These were then aggregated to arrive at results for the entire economy, which is called the social rate of return. These results were checked against a model for the entire economy as well.

The analysis also broke down the components of the nation's productivity growth so that the contribution made by highway capital could be compared to the contribution made by other factors. Total Factor Productivity (TFP) is the output of the economy per factor of input—specifically, per hour of work and dollar of capital. The model decomposed TFP growth into four basic determinants. One is exogenous demand for goods and services, which is a function of changes in population and ag-

gregate income on the demand side. A second is the change in relative prices of such key inputs for an industry as raw materials and intermediate products. A third is autonomous technological change, a residual number that includes things that economists usually can't specify. The fourth is, the level of the highway capital stock. The analysis shows the degree to which each of these factors contributes to the nation's productivity growth.

Professor Nadiri points out that his analysis is "a work in progress." As we shall see, there are still certain inconsistencies in results that require explanations. And there is the underlying question that all statistical studies utilizing even the most rigorous regression analysis raises: even when a relationship is found between infrastructure investment and productivity, we cannot be certain based on such techniques alone whether more investment has caused productivity to rise or whether rising demand in the economy has raised the returns on such investments.

Annual Rate of Return by Type of Investment

	1950-89	1950-59	1960-69	1970-79	1980-89
Total highway capital	28 %	35 %	35 %	16 %	10 %
Non-local highway capital	34 %	48 %	47 %	24 %	16 %
Private capital	13 %	13 %	14 %	12 %	11 %

Nevertheless, the Nadiri analysis is one of the most comprehensive econometric studies of its kind. As noted, the study circumvents many of the problems with former studies, including spurious correlations. It has made key variables endogenous rather than exogenous—that is, rather than being constant, key variables are allowed to change as they are affected by other changes in other variables. This better reflects the real world than do many models based on production functions.

The study's conclusions are also subject to a variety of checks. The study aggregated both the demand and supply sides of his industries to be sure they tally. Bottom-up industry aggregates were compared to an economy-wide model, and they were also in accord. Statistical tests were made to avoid basic errors about spurious correlations.

The social rates of return on public investments in highway capital were positive and significant throughout the 1950's to the 1980's. In the 1980's, these returns were competitive with returns on private capital. Both the returns on highway capital and private capital averaged 10 percent a year in the 1980's. This suggests that public highway investment in all classes of roads should at least be increased at the same rate as total private capital investment.

The rate of return on highway investment in the 1950's and 1960's was much higher than in the 1980's, averaging about 35 percent a year, much higher than the return on private capital, which averaged about 14 percent a year in this period. The average rate of return on highway capital over the entire 40-year period was 28 percent.

Nadiri also estimated the effects of highway capital invested in non-local roads. These larger systems of interconnected higher-order roads make up the network that essentially serves commercial interests. Such investments may presumably contribute more to productivity because their benefits are shared by so many users over a wide geographical area. These may be an example of network effects. The return on this capital, called non-local highway capital, was significantly higher than it was on total highway capital or on total private capital. Even during the 1980's, it averaged 16 percent a year.

Of the four factors that determine the nation's total factor productivity, the most important by a significant margin was exogenous demand for goods and services. It accounted for more than half the change in total factor productivity. Highway investment is the second most important contributor to productivity of the four, ranking well ahead of either changes in factor prices or autonomous technological change as a determinant of TFP. It is noteworthy that when TFP was growing fastest, between 1952 and 1973, infrastructure investment accounted for a larger portion of the gain than when TFP growth slowed between 1973 and 1989. Come interpret this as a suggestion, which still needs further corroboration, that large infrastructure programs resulting in added capacity may have contributed more to economic growth and productivity than highway programs focused on preservation and maintenance. Alternatively, the differential in TFP contribution over time implies a synergistic effect between public policy decisions and the general economic condition.

Nadiri also examined the elasticity of highway investments, but did not reproduce the stunning results arrived at by earlier economists. For every additional dollar of infrastructure capital stock, the output of the economy (in terms of physical goods and services) rises by 5 percent (output elasticity = 0.051). The costs of doing business (cost elasticity) fall by about 4 percent in response to a 1 percent increase in highway capital stock (cost elasticity = 0.044). These elasticities are significant, but they are only about one-eighth of the elasticities previous studies estimated.

An important conclusion of the study is that an increase in infrastructure investment reduces costs in almost all manufacturing industries and in many service industries. In some industries, however, costs are raised, though only slightly. This apparent inconsistency provoked considerable discussion among the participants, as is amplified later in the report. Nadiri and most of the forum participants agreed that this is an area where further research should be targeted.

Contributions of Highway Capital and Other Factors to Productivity
Annual Growth Rates

	1952-89	1952-63	1964-72	1973-79	1980-89
Total Factor Productivity .....	.68 %	.94 %	1.03 %	.13 %	.42 %
Exogenous Demand .....	.60 %	.30 %	.60 %	.75 %	.84 %
Highway Capital .....	.17 %	.30 %	.26 %	.03 %	.03 %
Price Changes	-.06 %	-.06 %	-.10 %	-1.70 %	.07 %
					%

While the direct local and regional benefits of highway investments are immediately recognized, investments in a network of facilities may produce productivity gains to entire industries nationwide. Are there efficiencies and productivity gains that result from the fact that resources are pooled by the government to build a broad, flexible system of roads and highways that serves many users simultaneously? Nadiri's work suggests that they do.

What would happen to costs of production if the private sector undertook its own infrastructure investment? Nadiri's analysis created a counter-factual situation in which each industry is responsible for building its own roads, bridges, and highways. For most industries, the returns on such investment would have been negative. Therefore, most industries would not have built the infrastructure. Based on this counterfactual evidence, the system of infrastructure as it currently exists would simply not have been developed.

Since the large majority of industries benefited from the infrastructure system built by government, most industries would have lost the advantages of such a system had it been left to themselves to build one. Without government investment, these network benefits would have been lost.

The forum participants generally applauded the new research. But there were concerns. While Nadiri's analysis accounted for network effects, it did not reflect the possibility that some network benefits can subside over time. Early in the development of a highway system, the second highway in a region usually makes the first highway more valuable by efficiently feeding it traffic from a wider geographical area. In this early stage, highway investment is usually complementary and highly beneficial. But as new transportation investment is made, new roads and highways eventually become substitutes for rather than complements to existing roads and highways. The benefits of new investment naturally diminish. 50, while infrastructure investment may well be a public good with significant network benefits, these benefits may diminish rapidly over time. When making new infrastructure investments, such dynamic network effects must be taken into account.

One of the more technical concerns was that infrastructure investment appeared to have no positive impact on the transportation industry itself. If any industry benefits directly from such investment, it should be the transportation industry. Yet the model showed that infrastructure investment raised costs in this industry, if only slightly. The seeming inconsistency had to be explained, though analytic experts pointed out that such complex models often have some inconsistencies; indeed seasoned analysts feel if there are no such problems, they would question whether the analysis is intricate enough. Nevertheless, such inconsistencies may suggest there are inaccuracies in the model.

In fact, infrastructure investment has a negative impact on service industries in general, according to the Nadiri model. This is counter-intuitive, although there may be several technical explanations for this result. One explanation is that the model

is based on average slope variables for classes of industries. The actual production functions of each individual industry may often differ from this dummy variable.

In some cases these negative impacts may be sensible. For example, some kinds of services might suffer if transportation was improved. This is because in service industries, the impacts of transportation costs fall on the customer rather than the business itself, unlike in a manufacturing industry. In addition, some industries do not utilize transportation infrastructure as intensely as others, although this does not mean that they do not benefit from highways at all. For the most part, the negative effects for service industries found by the model are small.

Another technical concern was that highway capital was not broken down according to its quality or the changing nature of the investment over the course of nearly 40 years. For example, facilities built during the 1950's and 1960's were built using specifications that would be considered deficient by today's standards, such as standard lane widths, slope gradients, and curve radii. These standards impact the total capacity of a facility, especially as it reaches congested levels. If highway capital could be decomposed according to the types of project or by quality, it could provide more useful information.

In general, the historical patterns of the rates of return—high in the 1950's and 1960's, and lower but equivalent to private capital returns in the 1980's—suggest that the types and categories of investments undertaken may be crucial. In the first 20 years covered by Nadiri's analysis, the Nation was making major expansions in the highway network. The question is whether the Nation can find similarly productive investments in terms of capacity additions in the future.

Professor Nadiri agreed that a careful assessment of future infrastructure needs is essential. But he concluded that, because the rates of return on infrastructure and private capital were similar, the stock of public investment in infrastructure should at least keep pace with the accumulation of private capital in order to achieve balanced growth.

Methodological Issues

Dr. Randall Eberts, who has long done economic research in this field, pointed out that earlier studies he had completed based on local rather than national data were consistent with the findings of the Nadiri study. In general, he found an elasticity of 0.03.

Dr. Eberts said that we need more research to find out "what is in the black box." In other words, we need to know how improved infrastructure is specifically translated into higher productivity for firms. Infrastructure investment in general must make business inputs more productive. For example, companies should be able to get their workers to the workplace more quickly. Better infrastructure should allow them to draw from a larger labor pool. Inventory can be transported more quickly and inexpensively as well. Improved infrastructure also attracts more companies because, he said, highway infrastructure is probably the No. 1 attraction in the minds of local economic developers. It should also be kept in mind that infrastructure investment is a direct stimulus to growth for most regions. Most of the funding usually comes from outside the community.

Companies orient themselves spatially to the infrastructure that exists. It takes about 10 years for a metropolitan area to adjust fully to a large infrastructure investment. There is evidence that high levels of public capital can raise productivity locally through economies of scale due to agglomeration, through higher land prices, and the ability to pay higher wages.

Research on whether infrastructure investment leads or lags economic growth has shown diverse results. One study found that economic growth in the southern U.S. would have occurred anyway even without infrastructure investment. That is, in the south, infrastructure investment may have followed growth. In northern states, however, it appeared to be the other way around. Infrastructure investment was more influential in raising the rate of growth. Eberts also found a correlation between infrastructure investment and openings and expansions of business. Such infrastructure investment also seems to also slow down the pace of business closings.

Professor Charles Hulten warned about making broad conclusions based on what he calls "uncut econometrics." The new statistical analyses produce an average constant relationship between infrastructure investment and productivity. But there is no reason to think that the average relationship is actually constant. In actuality, the relationship can vary across geographical regions, over time, and in different segments of the economy. Depending on all these criteria, infrastructure investment can produce high or low rates of return.

Dr. Hulten said that more research must be done in these areas. He suggested that public policy analysts and economic researchers should take into account three different mechanisms for determining how public investment may specifically affect

productivity. The first is location theory. Why do companies locate where they do? Reduced transportation costs is one reason. There are also economies of scale and scope that accrue to agglomeration. But this might be offset if a company's demand is spread over a large area. It will make sense to disperse locations under such circumstances. The rate of return on infrastructure investment may depend on the interaction of these three factors.

A second consideration is that infrastructure investments are long-lived and ultimately serve users well into the future. In other words, capacity being built today is partly being banked for the future. Any correlation with contemporaneous growth is therefore questionable because much of the capital is not expected to be consumed until the future. Isolating such time-dependent effects will require more research. Also, it must be kept in mind that public and private investments may have different useful lives. This timing difference should be factored when comparing rates of return between the two.

The third consideration is how the network effect works. It is difficult to assess these effects. The same amount of capital devoted to two different locations may well result in vibrant network effects in one area and almost none in another. Early on in the development of such a system, as noted earlier, the network effect may provide large returns on investment as new roads make existing roads even more valuable. But there will often come a point when capital merely involves a substitution of new or different roads for older ones. At this point, returns can fall dramatically or even turn negative.

Professor Jose Gomez-Ibanez noted that Professor Nadiri appeared to have solved the essential problem associated with production-function studies. He observed that for the study to be praised even by skeptical and vociferous critics of previous studies, Professor Nadiri appears to have done an excellent job. But he also noted that this was nonetheless a pioneering effort, with some unexplainable features such as negative returns to service industries. Additional research in the following areas could further substantiate Nadiri's analysis:

Disaggregating total infrastructure investment by the quality of investment to determine whether some kinds of projects, perhaps those that are larger in nature, are likely to provide bigger economic payoffs than others projects.

Adjusting for the longer time spans of infrastructure investment to determine the degree of long-term payoffs that may now be mismeasured. Assessing the many ways in which network effects can build upon each other and the duration of network benefits as regional economies mature.

Micro-level assessments of how transportation affects productivity utilizing location theory, assessing economies of scale, and other factors.

Historical and International Experience

The World Bank has been involved in more than 1,000 transport projects throughout the world totaling about \$50 billion of investment. For the most part, the World Bank assesses these projects on a "micro" rather than a "macro" basis. The objectives are to reduce transportation costs for the distribution of products, to improve access to the workplace for workers from a wide geographical area, and to improve access to the site for materials and other inputs. The World Bank also finances projects that specifically develop links from the farm to the factory, ports and onto international markets. To the World Bank, transportation investment is a key engine of economic development.

Colin Gannon, a senior transport economist at the World Bank, provided a table (shown below) of the rates of return on World Bank transportation investments that have been completed. "In general, there has been a high social value from transportation investment", he concluded. The projects documented below were largely undertaken in the late 1970's and early 1980's and the disbursement of funds was completed by 1994. The annual rates of returns are calculated at the time the project was completed, and then brought forward by making a forecast of supply and demand and the expected rate of return in the future.

Estimated Returns from World Bank Transportation Projects

Type of Project	Number of Projects	Annual Rate of Return
Airports	8	21 %
Highways	306	26 %
Rail	72	14 %

Estimated Returns from World Bank Transportation Projects

Type of Project	Number of Projects	Annual Rate of Return
Ports	96	20 %
All Transport Projects	482	22 %
All Sectors	n/a	15 %

The average annual return for all transport projects was 22 percent, similar to that reported by Nadiri. This was higher than the average annual return of 15 percent for all World Bank projects (within all sectors) over this period.

In many countries the role of government is shifting from being the provider of infrastructure to being an enabler of infrastructure development. Creating too many governmental institutions can be inefficient. Maintenance is being badly neglected. The best route to the improvement of institutions may be carefully managed participation by the private sector with appropriate regulations. The role of the private sector as a partner or initiator of projects was embraced by several forum participants. In recent international research, the efficiency of local institutions appears to be highly important in determining the rate of return on infrastructure projects. Looking backward in time, transportation investment was a key determinant of economic growth in the 19th and 20th centuries. During these formative years, transportation investment contributed significantly to growth. However, history also reveals many instances in which the Nation made poor transportation investments. The most rewarding transportation projects were often the first and most innovative ones, such as the first canals and the early railroads. In retrospect, however, there has probably never been any one optimal transportation scheme. Many combinations of roads, canals, highways and rails lines may have worked as well or better than what was eventually built (Appendix B contains a bibliography of key historical works.)

An overview of international research on the effectiveness of transportation investment since the 1940's shows that these investments have often had substantial economic impact. This research was carried on in the U.S. and in a variety of countries. The use of production functions dominated the older research, but cost functions were occasionally also used. The standard measure of results were cost and output elasticities. Within the U.S., research was done on an aggregate nationwide basis as well as on a state-by-state basis. Similarly, research overseas was done on both a national and regional basis. Total public capital, transportation and highway capital, and other variations of infrastructure investment were the variables most frequently measured in these studies.

Statistical research was done as early as the mid-1940's to determine the influence of infrastructure investment on a nation's growth. The initial studies found that infrastructure was a positive catalyst for economic development in eastern Europe and Third World countries. In the early 1970's, research done in Japan was the first to show that public infrastructure investment could contribute to a nation's productivity. This study concluded that the elasticity of output was high. The first study to find that public capital contributed to productivity in the U.S. was undertaken in the early 1980's. The elasticity of output was 0.05, similar to that reported by Nadiri, Aschauer's, and similar studies, such as those based on state-by-state research done by Alicia Munnell, were undertaken in the late 1980's. They concluded that elasticities were as high as 0.4 and 0.5.

The critical reaction to the Aschauer and Munnell studies has been intense, but has also provided positive results. Some of the critical studies yielded significantly lower cost and output elasticities, as well as lower rates of return than those found by Aschauer and Munnell. Nevertheless, many of these showed that infrastructure investment made a positive contribution to productivity. In sum, a wide variety of research shows that infrastructure investment is productive at the margin. Studies in other countries reinforce this suggestion.

Nevertheless, the wide range of different results for rates of returns and elasticities tends to diminish the confidence in this research. Dr. T.R. Lakshmanan of the Bureau of Transportation Statistics summarized this wide variation in previous studies conducted internationally. Appendix C contains a table which summarizes this information, part of which is included in the exhibit below.

Variation of Elasticities Among International Studies

Country	Sample	Type of Capital	Range of Elasticities
United States	Aggregate	All public	Output: .05 to .39
	By States	Highway	Output: .19 to .26
	By States	All Public	Output: .19 to .26
Japan	Regions	Transport, Communica- tions.	Output: .35 to .42
India	Aggregate	Roads, Rail, Electric	Cost: -.01 to .47

Some, but probably not all, of these variations might be explained by such effects as spill-overs from state to state and region to region. One of the contributions of the Nadiri model has been to resolve some of the fundamental concerns of earlier studies. Dr. Lakshmanan predicted, based on his reading of the new study, that "from now on there is going to be a fundamental distinction of before Nadiri and after Nadiri" in the literature on economic impacts of infrastructure investments.

Investments Must Fit The Context and Create Room for Growth

Forum participants were eager to get beneath the broad, aggregate impacts and to determine how specific infrastructure investment decisions may affect the economy today. More complex times today stand in stark contrast to the simpler, more straightforward decisionmaking of the 1950's that was required to build the inter-state highway system.

One major problem in applying the results of econometric research is that even rigorous regression analyses cannot unequivocally determine the nature of cause and effect. As noted by Robert Gallamore of Union Pacific Railroad, the ancient Greek philosopher Democritus said, "I would rather discover a single causal connection than win the throne of Persia." The question the forum faced is whether investment causes productivity to rise or is fulfilling existing demand that is generated by other forces, even though the research has demonstrated a clear-cut relationship between infrastructure investment and economic productivity. Citing the Princeton economist Albert Hirschman, Dr. Molten noted that the rate of return is not necessarily what matters most in determining how important investment is for economic growth. What may matter most is whether investment "leads growth or follows it."

A good example is the high social returns on infrastructure investment in the 1950's and 1960's. Dr. Hulten said that the time may have simply been ripe for such investment as the American economy expanded rapidly toward the west and the south. How does one determine whether the same kinds of opportunities exist today? The forum agreed that more research into the value of specific projects and how they improve productivity is necessary. There was also widespread agreement that what should be avoided is a "field-of-dreams" approach—that is, just because we construct a facility does not mean that people will automatically come to use it to its full capacity.

Tests and studies can be undertaken to try to isolate the question of cause and effect. For example, Dr. Eberts has conducted additional economic research to try to determine whether infrastructure investment leads or lags economic growth. 50 far, the research has found the effect can work both ways. According to one study, the growth in America's south would have occurred without infrastructure investment. In the north, however, it appeared that infrastructure investment did produce more growth. His research has also found a significant correlation between infrastructure investment and more openings of new business as well as expansion of existing businesses. he found evidence of the opposite relationship as well. Such infrastructure investment seems to slow down the pace of business closings. In general, however, research aimed specifically at isolating the cause-and-effect issue has found evidence that infrastructure investment both leads and lags economic growth, and may be both a cause and an effect.

It should be clear that the same questions about cause and effect also apply to other types of investment, including private capital investment. Those who claim today that America does not invest enough in plant and equipment, for example, face the same issue. Is private capital investment a cause of growth or a consequence of it? One significant difference between infrastructure investment and private capital investment, however, is the time span of economic payoffs. Infrastructure investment creates conditions for growth that can extend well into the future. To measure the true pay-off of such capital investment is difficult. But it is

clear that more than private capital spending, infrastructure investment, as Professor Nadiri noted, creates room for future growth.

What must be analyzed is whether creating conditions for future growth will be necessitated by demand. The Interstate Highway System is a successful example. It was underutilized initially, but created room for rapid future growth. But we do not truly know what would have happened had there been no such system. Further complicating these questions is the increasing role of services and telecommunications in the economy. This may reduce the need in the future for traditional means of transportation. Yet, an argument can also be made that they might increase demand more than expected.

The forum participants generally agreed that this is where the debate about economic returns centers. How do we utilize transportation best? Which transportation investments fit the “growing room” of today? This need should be coupled with the need to invest in new technologies—what Stanford economist Paul Romer has called “wetwear”. One example of wetwear is the groundbreaking spreadsheet package Lotus 1–2–3. Another is intelligent transportation systems (ITS) technology. These new tools create whole new fields of economic opportunity. Many argue that privatization may be the best way to maximize the benefits of infrastructure investment.

Transportation shares many of the characteristics of new software. It has enabled corporations to take advantage of their existing technologies, as well as new technological developments. So investing in it is much like investing in wetwear—such improvements have the potential to have widespread impacts on many sectors of the economy.

The complementary relationship between transportation and communications, as noted, also needs to be better understood. Many of the benefits of infrastructure improvements have come from its complementarity with the information infrastructure. Looking to the future, particularly to the potential of intelligent transportation systems, this link could be crucial.

How do you select those investments that offer the most growing room for the economy? Looking to past experience, some government investments have been quite rational, but others not at all. Participants identified numerous examples which they felt were ill-timed. Econometric research cannot yet distinguish between periods of rational public infrastructure investment and irrational periods when specific investments are not fruitful. There were many similar mistakes made in the 19th century, often provoked by pork-barrel decisionmaking but also simply by duplicating what had already existed or once seemed to work. For example, many of America’s early canals proved to be poor investments.

Ms. Gloria Jeff, the associate administrator for policy in the FHWA, pointed out that sometimes we do know what the alternatives would have been had the government not made the kind of investments it did. We don’t always have to speculate about field-of-dreams exercises that are fictitious in nature. “There are living, breathing examples of alternatives,” she pointed out. The southeast Michigan area and the metropolitan Toronto area were almost “twins” until after World War 11. But Toronto did not invest in highway infrastructure to the extent Detroit did. Rather it invested in public transportation. “We know the results”, she said.

The participants noted, however, that what might be right for one environment is not necessarily right for another. Detroit may have suffered from highway investment, but Seattle has thrived because of its highway system. What might be right for Phoenix is not necessarily right for Philadelphia. Solutions must be tailored to the local conditions that exist.

The World Bank tries to take such local considerations into account when determining what kind of infrastructure investment to make in developing countries. Cities in developing countries are growing rapidly and putting in durable infrastructure capital. But will they grow like Los Angeles or like Amsterdam? These are difficult issues to sort out, and only time will tell the results.

The distinction between visionary targeting of “growing room” and wishful “field-of-dreams” targeting may be even more difficult to make in advanced industrial nations. Transportation decisions have become extraordinarily complex in Western Europe, where roads are now crowded with trucks. Should these nations encourage short-sea shipping to reduce this congestion? More than at any other time in history, participants believed that vision is now required to make the right investment choices.

Obviously it is not always possible to accurately predict future conditions, but economists are typically very conservative, one participant noted. They want to know exactly what is going to happen. Nevertheless decisions must be made in real time, and in a different framework now than in the past. Therefore some level of uncertainty must be accepted as policymaking proceeds.

Industry Examples

Private industries must also make projections about where transportation investments are most needed and most likely to occur. As a manufacturer of enzymes, Glenencor International must analyze carefully where to place its distribution centers, for example. As the company has grown this has increasingly become an international question. There are four criteria the firm applies when seeking a location. The first and most pertinent is the quality of the infrastructure that is already in place in the area. Glenencor situates distribution centers only in locations with a highly dense transportation infrastructure. The other criteria are the ability and availability of the work force, the sophistication of information systems, and taxes, customs and other trade regulations.

One reason Glenencor placed a distribution center in Rotterdam, for example, was that it was able to find enough information to give confidence that the infrastructure was adequate. The company could judge the density of infrastructure, including the number of seaports and activity in those seaports, measured for example by the number of containers that go in and out. Information regarding the freight tonnage handled by the airport allowed Glenencor to make an "educated decision" rather than merely a guess about the merits of the location. In sum, Glenencor will only locate where infrastructure is currently adequate, not where it must await further development.

General Motors spends about \$4 billion a year in direct outlays to transportation companies. GM utilizes about 15,000 vehicles daily, many of them tractor-trailers, to handle GM products in the 50 states. Speed of delivery is now the driving force behind many of GM's decisions because of the emphasis the industry places on inventory control and the resulting need "to synchronize transportation with manufacturing cycles."

Highway congestion is becoming an ever-bigger problem for GM as a major shipper. GM is trying to encourage railroads to improve their efficiencies in order to create competition for motor carriers and also to relieve congestion on the road. Currently, shipments to GM via rail average a speed of only about 6 miles per hour on some links. GM would like to increase that to 25 miles per hour.

On the other hand, GM makes highly efficient use of motor transport to meet their just-in-time inventory requirements. One truckload of materials now travels between Windsor, Ontario and Detroit eight to ten times a day. A truck can make the trip across the Ambassador Bridge and through Windsor and Detroit in only 40 minutes. This is remarkable given the density of both Windsor and Detroit. One main reason for the efficiency are the improvements that have been made to the Ambassador Bridge. GM is working with the city and state to improve further the access to the highways that serve the bridge. This will not only improve speed, but also increase safety by reducing the number of tight turns.

Another example of how important transportation infrastructure is to making location decisions for plants in the auto-manufacturing industry is Toyota's decision to build in Indiana and West Virginia. These decisions were probably driven by transportation considerations. Intermodal transportation promises to be increasingly important for the auto industry in the future. GM has a joint effort underway with the three U.S. auto companies to put up a facility that can coordinate rail and motor vehicles.

GM is not putting more effort into trying to relieve congestion on the roads because it believes that congestion is inescapable. For example, some forecasts predict that Dayton, Ohio will be completely gridlocked by the year 2000 or 2010. The ensuing discussion pointed out that new railroad lines may still be stuck with local congestion to and from the railhead.

Some investment firms are working with private companies to build their own infrastructure. Lehman Brothers has teamed up with Walt Disney Co. In Florida, for example, to put up infrastructure rather than the local government. GM has long put in lanes and bought property around their plants to ease access, although the company has not yet looked into private investment in order to reduce bottlenecks along the delivery lines.

The results of some of the research suggest that the use of general obligation bonds to finance local and regional projects makes sense. The research implies that there are significant network benefits, as noted earlier. An entire community benefits from such pooled investment. However such investments are usually financed through revenue bonds. These bonds are often backed by toll revenue or other user fees. But given that they may have broad benefit for the community, as the new econometric research suggests, other ways to finance them may be practicable. New financial tools such as Section 1012 loans and state infrastructure banks can be used. One important new trend is to get private industry involved, show them how they will benefit, and encourage them to pool together to make a project.

The Stark County Intermodal Facility in Ohio is an example of such a public-private partnership. One company in this area threatened to move out of the community if it couldn't get a \$35 million intermodal service facility built. But this company alone could not provide sufficient demand to convince the railroads that they should make the investment. A group of companies was ultimately combined to guarantee to the railroads that demand was sufficient to make a \$24 million investment in the project. The remaining \$11 million was borrowed from the state DOT. Every time a box moves through the intermodal facility, the state DOT is now paid a dollar.

One concern expressed at the forum was that much of the discussion focused on the manufacturing industry while the U.S. economy is now dominated by services industries. Participants noted that service companies might well assess a location decision differently than a company such as GM would.

But others indicated that because services industries require large numbers of workers, or often serve many customers, efficient transportation could be even more important to them than of Southern California to manufacturers. In fact, many services companies have benefited from better transportation systems. Walmart, for example, has become the world's largest retailer in part because of its transportation logistics. The slow growth in consumer price inflation in the economy in general may partly be the consequence of improved logistics at retail outlets.

Indeed, logistics costs as a percentage of GNP have fallen from 17.2 percent in 1980 to 10.4 percent in 1995. This has resulted in a \$68 billion a year savings to the economy. What accounted for this? Much of it may have been attributable to the deregulation of trucking, according to one participant. But participants pointed out several other contributory factors. Logistics costs were driven down by the building of hundreds of industrial parks across the country with efficient transportation systems. High interest rates in the 1980's especially motivated businesses to seek more efficient transportation in order to keep inventory costs low. There are many other examples of how industries have changed the way they do business to accommodate their transportation needs, including new transportation systems, as well as new technologies involving everything from electronic just-in-time inventory controls to high-speed coordination between suppliers and manufacturers.

Nevertheless, different kinds of transportation systems might be necessary for services industries. The FHWA has recently initiated a program to improve the estimates of service sector total factor productivity. This may improve future research in this area.

Implications For Future Policy

While participants agreed that there is more research to be done, there was widespread agreement that the new research has important implications for future policy. Does the research change the emphasis the government should place on its own transportation objectives? How can the government ensure that the right kinds of infrastructure investments are being promoted? Finally, how can the importance of infrastructure investment to the economy as a whole be articulated to a larger audience, especially as we face the reauthorization of ISTEA?

The new research doesn't only imply that new infrastructure investment can promote economic growth and productivity. It also implies that if capital stock in infrastructure falls, productivity will be reduced. The cost and output elasticities imply that a dollar less capital stock will reduce output, income and consumption as much as a dollar of increased investment will raise it.

The FHWA finds that demand is vastly exceeding additions to highway capacity, even though this capacity is rising by 3 percent a year. Capacity is also being raised by the addition of HOV lanes and local projects. Nevertheless, Ms. Maria Jeff of FHWA pointed out that we don't know what will happen if the Nation doesn't invest more in capacity but simply concentrates on maintenance and improving efficiency. Other participants noted that we are not thinking about requirements in 15 or 20 years, not to mention in just 5 years.

The FHWA has made economic prosperity one of its five main principles for future transportation policy. These objectives are:

- Improving the quality of life
- Enhancing the environment
- Raising the level of safety
- Ensuring national security
- Promoting economic prosperity

In determining how to meet the last objective, participants agreed that it is not necessarily aggregate demand that is most important. The key question is whether transportation investments are targeted in the right locations and times in order to

achieve the highest returns within their respective contexts. Another participant urged the government to keep economic research in “context, context, context.” In the current environment, he pointed out, maintenance and managerial issues are what keep coming up. Rather than more investment, people are increasingly talking about disinvestment.

Ms. Jeff noted that the FHWA traditionally has taken a “micro” view of the impact of infrastructure investment. This has usually involved a cost-benefit analysis of specific projects and their immediate effects on localities. In the past, FHWA asked how highway system users would benefit directly from transportation systems. Inflow, the agency must take a more macroeconomic point of view. The agency asks not only how a transportation system can help companies and workers live better and safer lives, but also how it affects their economic well-being in general.

How can the advantages for the general economy of infrastructure investment be better communicated both to lawmakers and the public? One example of the difficulty is that transportation did not appear as an issue in the Presidential primaries nor has it appeared in the Presidential election race, either. One reason is that transportation issues rarely if ever appear on national polls. This stands in stark contrast to the interests of local communities, where transportation issues do often rank high in the polls. New roads, widenings, truck traffic volumes, congestion and related issues come alive and are concrete at local levels. Localities often vote to finance such projects. When they are raised to a national level, however, these concerns become generalized, abstract, and vague.

This wasn't true historically. In the 1920's, for example, people knew what they wanted from roads. We had to get America out of the mud. In the 1950's, America knew it needed highways. Today, with the Interstate system completed, it is more difficult to explain why investment in highways makes sense. Safety and congestion are two issues that carry weight with people in general, but little else does.

On the other hand, some participants said there is a demand for more information that would demonstrate the impact of infrastructure investment on economic growth. Frank Francois of AASHTO reported that his organization believes economic returns should be part of the argument. He has found that Congressional leaders are beginning to ask how productivity can be improved by highway investment.

This most recent research, and the work of others, can be used to fill this gap. In the Nadiri model, social returns for non-local highway investments averaged well above returns on private capital investment, as noted. In general, even though returns have fallen over the past 40 years, they are the equivalent of returns on private capital.

For all their encouragement, however, participants urged that the results of the new research should not be overplayed. Credibility is very important. The results should be neither oversimplified nor exaggerated.

Conclusions

After several years when research about the effects of infrastructure investment on U.S. economic growth, productivity, and rates of return had little credibility, new research has now reinforced the view that infrastructure investment plays a significant role in the nation's economic health. The new work by Professor Ishaq Nadiri, in addition to a wide range of historical and international studies, finds that social rates of return on infrastructure investment are significant and positive. They were very high in the 1950's and 1960's, and comparable to returns on private investments in later decades. The research concludes that infrastructure investment has helped raise the nation's productivity and reduce its costs of doing business.

The impacts of transportation vary widely from time to time and from place to place. Rates of return and cost elasticities that come from economic analysis represent average relationships that, in fact, usually vary over time. Most notably, social rates of return have fallen rapidly during the period under study. These returns also vary according to place and the economic environment. The first roads in a region may provide especially strong returns, for example, but eventually new roads are merely substitutes for older ones as localities mature. Returns naturally fall. To maximize the positive economic impacts of transportation investments, we must examine how and when this effect is likely to occur.

Network benefits are especially hard to measure. The new research strongly suggests that they exist—that is, that industries benefit from shared capital investment. But there are dynamic effects that are difficult to assess. One of the most important of these is that infrastructure investment, more than most other types of investment, creates conditions for future growth well into the long run. Idiot only are these benefits especially hard to estimate: because the total payoffs for such public investment are rarely immediate, they also do not receive much attention

from the political system. But they are the key to making successful transportation investments.

In sum, transportation investments have had broad positive impacts upon the economy in general. Future infrastructure investments can also produce sizable returns, but only if they are the right investments at the right time—investments that create growing room; investments compatible with the institutional context. The fact that policymakers appear to have selected such investment in the 1950's and 1960's does not tell us much about what the best opportunities are today. The challenge facing the Nation now is to determine how to choose the best infrastructure projects to enhance our growth and productivity.

There are several implications of these results for future transportation policy. First, the objective of public investment in infrastructure is not simply to solve a locality's immediate transportation problem—be it potholes or congestion. Rather, it is to enhance the general prosperity of a region and the Nation as a whole. Neglecting public investment in infrastructure can retard economic growth and diminish the nation's productivity. Second, more analysis should be undertaken about the specific conditions needed to maximize the value of investment projects. Third, new means of financing can be linked to the broader economic payoffs of such investments. Finally, these conclusions need to be phrased in a credible, specific vision to guide future transportation policies and investment decisions.

APPENDIX A

HIGHWAY CAPITAL AND PRODUCTIVITY GROWTH

(By M. Ishaq Nadiri, New York University and NBER Theofanis P. Mamuneas, University of Cyprus June, 1996)

Recent discussions have emphasized inadequate growth of infrastructure capital as a cause of the slowdown in productivity at the aggregate and industry levels. Numerous studies have been undertaken to clarify the relationship between productivity growth and public infrastructure capital. These studies can be broadly classified as those which estimate a neoclassical production function augmented to include the publicly financed infrastructure capital stock as a factor of production, and those which utilize the dual approach to production function analysis by estimating cost or profit functions. The level of aggregation used in estimating production and cost functions varies considerably among the different studies. Some studies use highly aggregate national or international data and others use regional or state level data. Some studies use cross-section-time series data covering metropolitan SMSAs, while others employ industry-level data. Studies often differ in their coverage of industries, geographic regions, modeling methodology and use of econometric estimation techniques. Because of such analytical differences and data limitations, the statistical results reported in the literature measuring the effects of infrastructure capital on the economy are often quite diverse and sometimes contradictory. Clearly, no consensus has yet emerged on the precise causes of the productivity growth slowdown and the specific contribution of public infrastructure capital in this process.

To provide a context for this study, a literature review is included in the following section. The analytical framework used in this study possesses several advantages over existing models reported in the literature:

- The effect of aggregate demand on the productivity growth of individual industries is explicitly taken into account. That is, the effects of changes in aggregate income and population on industry demand and, consequently, on its productivity growth are estimated.
- Account is taken of the contribution of changes in real factor prices, including wages and capital rental prices, on productivity growth;
- The direct and indirect effects of an increase in highway capital on total and industry output and productivity growth are estimated;
- The impact of highway capital, both total stock and the the subset, on demand for inputs such as demand for employment and private sector physical capital are estimated.
- The industry level estimates are aggregated up to obtain the determinants of aggregate productivity growth.

A unique feature of this study is its comprehensiveness.¹ This study estimates a model which encompasses both demand and supply factors that may influence industry and total economy productivity growth and uses data on 35 industries that covers the entire U.S. economy for the period 1950–1989. The focus of the study is to identify the contribution of highway capital to productivity growth. Two measures

of highway capital are used: total highway capital including roads under Federal, state, and local government Jurisdiction; and the stock of upper level roads excluding local government investments in roads and streets.² Since the results of our study did not change much except with respect to the magnitude of some elasticities whichever of these two measures of highway capital are used, the discussion here after will focus on total highway capital. The major changes in the results when non-local highway system (ICILY) capital stock is used as a measure of highway capital will be noted at the concluding section.

The relevant policy questions addressed in this research are as follows:

- What is the productivity of highway capital and what is its overall social rate of return?
- Is there any evidence of over- or under-supply of this capital in the postwar period?
- If a shortage of highway capital is evident, can it explain some of the decline in the aggregate productivity growth? If so, by how much?
- What is the optimal level of highway capital from the perspective of the private production sector and how does it compare to its actual level?
- What is the effect of highway capital on the private sector cost of, and demand for, labor, capital, and intermediate inputs?, and
- What are the marginal benefits to the private sector of an increase in highway capital and how do they differ across industries?

Literature Review

A brief review of the literature on the contribution of public infrastructure (highway) capital suggest that:³

1. Early estimates based on aggregate production function analyses are likely to have overstated the magnitude of the effects of public infrastructure capital on output and productivity growth;
2. Estimates based on state level data indicate a relatively smaller contribution of infrastructure and that the composition of infrastructure capital matters; some types of infrastructure may have a greater effect on productivity than others;
3. There are serious estimation problems in both aggregate national level time series studies and state and regional level studies that lead to highly disparate results; and
4. Overall, it seems that the recent studies point to a positive but lower elasticity of output with respect to public infrastructure capital of about 0.20 to 0.30 at the national level and possibly a lower range at the regional level.

Similarly, from the view of cost and profit function studies⁴ the following statements may be in order:

1. There is a preponderance of evidence that suggests that infrastructure capital contributes significantly to growth in output, reductions in cost and increases in profitability. The magnitude of these contributions, however, vary considerably from one study to another because of differences in econometric methodology and level of data aggregation.
2. There appears to be a convergence toward a much lower estimate of the magnitude of the contribution of infrastructure capital to output and productivity growth than suggested in earlier studies. Output elasticity estimates of infrastructure capital at the national level in the range of 0.16 to 0.25 appear to be in order. Estimates based on state and metropolitan level data suggest elasticities of approximately 0.06 to 0.20.
3. Most studies indicate an under-investment in public infrastructure capital, the degree of which varies among different studies. Most of the cost function studies suggest a substitutional relationship between private capital and infrastructure capital, although some studies report a complementary relationship.
4. The available studies are either too aggregate or partial in their coverage of the economy. Most of these studies, particularly those at the national level, use real GDP, a value-added measure, as the dependent variable. However, the appropriate measure for an analysis of the contribution of infrastructure (highway) capital is gross output. Gross output includes purchases of intermediate inputs, along with primary inputs private capital and labor. Because highways are used to transport intermediate inputs, the relationship between public capital and intermediate purchases can be taken into account.⁵
5. Studies at the industry level are generally confined to the manufacturing sector or a specific subset of this sector. Infrastructure capital, however, may have important effects on other industries outside the manufacturing sector as well. It is very important to undertake a comprehensive study that includes all sectors of an economy in order to study the role and degree of externalities generated by publicly financed infrastructure capital such as highway capital.

Most of the studies of both production function or cost function have been challenged on conceptual and econometric grounds.⁶

Estimation Framework and Descriptive Data

The approach developed in our study explicitly incorporates demand and supply forces, including the contribution of highway capital, that may affect industry productivity performance. For each industry, cost and demand functions are estimated separately and the parameter estimates of the model used to decompose Total Factor Productivity (TFP) growth. The critical estimates for decomposition of TFP are the price and income elasticities of output demand and the degree of scale and input substitution derived from the cost function. In formulating industry output demand, changes in quantity demanded in an industry are related to its own price movement in comparison to the GRIP deflator and changes in the level of aggregate income and population of the economy. The estimates show that the price elasticity of output demand is negative and statistically significant in almost all industries, and with few exceptions, less than one.

The parameters of the underlying cost function are estimated by using a system of input-output equations which include a labor to output equation, a capital to output equation and an intermediate input to output equation. These input-output ratios functionally depend on private input prices, level of industry output, industry's capacity utilization rate, time trend, and level of total highway capital stock. In order to capture industry specific effects we introduce industry specific intercept terms and a limited number of slope dummy variables.⁷ There are of course other more elaborate ways to take account of inter-industry differences that could be undertaken in future research.⁸

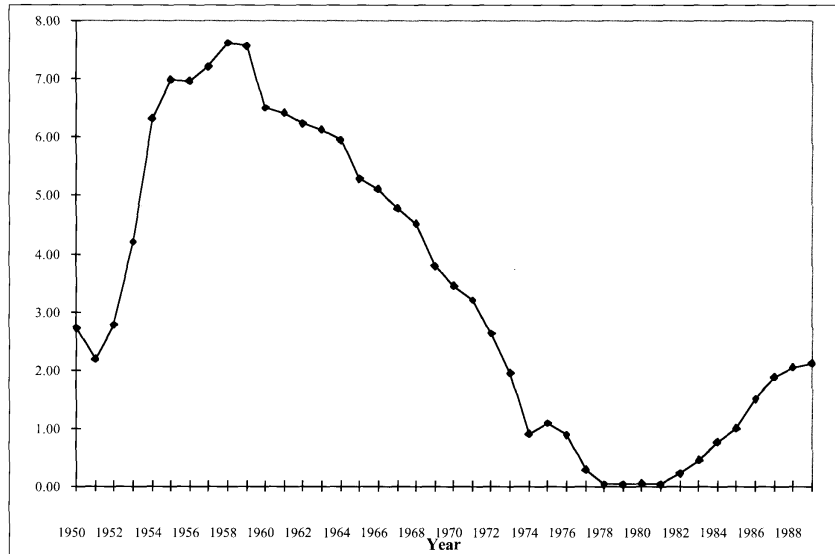
Previous studies have been criticized on modeling and econometric estimation issues. This study has responded to these criticisms by accounting for several estimation problems in the estimation process. We examine the possibility of spurious correlation by estimating our model in first difference form. A flexible form for the cost function is used to allow interaction between highway capital and private sector output and inputs. No *a priori* restrictions, such as constant returns to scale are imposed, on the parameters of the cost function. The issue of simultaneity is addressed by estimating the model using appropriate econometric estimation techniques. Extensive hypothesis testing was also carried out to test the specification of the model and the stability of its results.

The data used in this study covers the entire U.S. economy for the period 1947–1989. The industry coverage is derived from a detailed 80 industry classification that Jorgenson, Gollop and Fraumeni carefully aggregated into 35 larger categories.⁹ Data for the value of gross output and costs of labor, capital services and intermediate inputs as well as their price indices for all industries are from Jorgenson, Gallop and Fraumeni.¹⁰ Data on capacity utilization rate for the manufacturing industries for the period 1950–1966 have been obtained from Klein and Summers (1966) and for the period 1967–1989 from the WEFA group (1992). Data on real GNP and population, used to estimate the demand functions, are obtained from the Bureau of Economic Analysis and the Bureau of the Census, respectively.¹¹

Data on net highway capital stock are from Apogee Research, Inc., which was constructed using Federal Highway Administration's investment expenditure data on highways from 1921 to 1990. Total net highway capital and non-local net highway capital (ICILY) are constructed using the perpetual inventory method with an assumed economic rate of depreciation of 0.9. Capital expenditures are distributed in the following way; 52 percent to paving, 26.5 percent to grading, and 21.5 percent to structures. The average lives of paving, grading, and structures are assumed to be 14, 80, and 50 years, respectively.

An examination of the data indicate substantial diversity among the 35 industries examined in the study. The size of the industries, measured by total cost, vary considerably among industries. Factor cost shares also vary considerably across industry sectors. For example, labor's share ranges from a low of about 0.06 in petroleum refining to a high of 0.51 in trade. Capital's share of total cost ranges from 0.04 in apparel and other textile products to 0.38 in crude petroleum and natural gas. Generally, capital's share in total cost, with few exceptions, is less than labor's share. Material inputs, on the other hand, have the largest share in total cost in almost all sectors or industries, ranging from 0.86 in petroleum refining to 0.25 in other transportation equipment.

Figure 1
Growth Rate of Highway Capital (%)
1950-1989



The growth rate of total highway capital is shown in Figure 1. After an initial decline between 1950 and 1951, the growth rate of highway capital surged growing at the average rate of 6.2 per cent during 1952-1959. From 1960 onward, the growth rate declined continuously until 1979. It grew very little during 1979-1981. Since 1982 the high way capital stock has been growing at an average rate of 1.2 percent per annum.

Table 1: Cost Function Elasticities
Averages: 1950 - 1989

Industry Code	Industry Title	Cost Elasticities		
		h_{CS}	h	h^*
1	Agriculture, Forestry and Fisheries	0.0531	0.9573	1.0122
2	Metal Mining	0.0458	0.8049	0.8484
3	Coal Mining	0.0488	0.9271	0.9775
4	Crude Petroleum and Natural Gas	0.0615	0.9302	0.9953
5	Nonmetallic Mineral Mining	0.0591	0.9231	0.9843
6	Construction	0.0683	0.8280	0.8889
7	Food and Kindred Products	-0.1677	0.9204	0.7911
8	Tobacco Manufactures	-0.2245	0.9801	0.8040
9	Textile Mill products	-0.1502	0.9742	0.8494
10	Apparel and Other Textile Products	-0.1463	0.9743	0.8521
11	Lumber and Wood Products	-0.1640	0.9758	0.8401
12	Furniture and Fixtures	-0.1585	0.9639	0.8334
13	Paper and Allied Products	-0.1678	0.9642	0.8273
14	Printing and Publishing	-0.2024	0.9562	0.7972
15	Chemicals and Allied Products	-0.1558	0.9557	0.8295
16	Petroleum Refining	-0.1740	0.9480	0.8096
17	Rubber and Plastic Products	-0.1625	0.9585	0.8262
18	Leather and Leather Products	-0.1676	0.9095	0.7805
19	Stone, Clay and Glass Products	-0.1771	0.9607	0.8174
20	Primary Metals	-0.2164	0.9166	0.7544
21	Fabricated Metal Products	-0.1728	0.9561	0.8169
22	Machinery, Except Electrical	-0.1553	0.9464	0.8206
23	Electrical Machinery	-0.1520	0.9534	0.8297
24	Motor Vehicles	-0.1897	0.9341	0.7872
25	Other Transportation Equipment	-0.1658	0.9599	0.8248
26	Instruments	-0.1876	0.8941	0.7528
27	Miscellaneous Manufacturing	-0.1469	0.9686	0.8464
28	Transportation and Warehousing	0.0287	0.9318	0.9593
29	Communication	0.0264	0.9607	0.9870
30	Electric Utilities	0.0354	0.9559	0.9916
31	Gas Utilities	0.0209	0.9452	0.9672
32	Trade	0.0209	0.7303	0.7431
33	Finance, Insurance, and Real Estate	0.0242	0.7530	0.7689
34	Other Services	0.0315	0.7548	0.7762
35	Government Enterprises	0.0240	0.9698	0.9940

Results at the Industry Level

The model used in this study built up from industry-level estimates to obtain appropriate results for the economy as a whole. Therefore, the careful estimation of

the structure and properties of the disaggregated industries plays a critical role in the design of this research. The following sections present some of the basic industry-level results before describing the contribution of highway capital to the aggregate economy. These results include the impact of highway investments on industry cost reductions and economies of scale; effects upon labor, capital and material inputs; the marginal benefits of highway capital to industries; and the analysis of growth if total factor productivity (TFP).

Cost Reduction and Degree of Scale—The first column in Table 1 shows the elasticity of cost with respect to highway capital (hcs). Magnitudes of the cost elasticities vary among the industries. The cost elasticities in manufacturing industries range from -0.146 to 0.220 while in the non-manufacturing industries they range from $+0.02$ to $+0.06$. Positive cost elasticities imply that the demand for highway capital services in these industries is less than the available supply at the price the industries are willing to pay. This does not mean that these industries do not demand highway capital services. What is implied is that these industries face “excess capacity” in highway capital, a situation similar to the notion of excess capacity in private capital stock in a private firm. If the firm cannot freely dispose of this capacity and is instead required to keep its capital stock fully utilized, regardless of changes in demand for its product, the cost to the firm will rise. In the case of highway capital, the entire capital stock enters the cost function of each industry. The optimal level of these services can be estimated from the model which is the level at which the marginal benefit of highway capital is equal to an industry’s marginal cost or willingness to pay. As noted later, these estimates imply a set of national subsidies and taxes that would allow industries to use the optimum amount of highway capital services.

The cost elasticities h and h^* shown in column 2 and 3 of table 1 have a returns to scale interpretation. The inverse of h represents internal returns to scale, or the effect on output of an equal proportional increase in all inputs except highway capital. Similarly, the inverse of h^* represents total returns to scale, meaning that an equal proportional increase in all inputs, including highway capital, yields a $1/h$ -proportional increase in output. The results show that both $1/h$ and $1/h^*$ are greater than one for all industries except agriculture, indicating increasing internal and total returns to scale. The degree of internal returns to scale in each industry is smaller, as expected, compared with the degree of total returns to scale which accounts for the contribution of highway capital.

Effects on Labor, Capital and Materials—Highway capital has both direct and indirect effects on the productivity of the private sector. The direct effect of infrastructure capital is measured by the magnitude of the cost reduction due to an increase in highway capital. The indirect effect is given by the magnitude of its effect on the demand for private sector factors of production.

Conditional input demands refer to the demand for labor, capital, and intermediate inputs holding output constant. Elasticities of employment, private capital and intermediate inputs with respect to highway capital vary considerably across industries. The general conclusion that arises from the empirical results is that changes in total highway capital have significant effects on the demand for private sector inputs in all industries. The conditional demand for labor, private capital and material inputs in the manufacturing industries will decline when investment in highway capital is increased. In the non-manufacturing industries, however, demand for labor and material is increased while demand for private capital is decreased in response to an increase in highway capital. However, if the level of output is free to change, the demand for employment, capital and materials inputs in each industry will increase as a consequence of an increase in highway capital. This arises because the direct cost reduction effect of highway capital will in turn lead to the expansion of output. This expansion in output will require more inputs which will likely offset the substitutional effects at a given level of output.¹³

Table 2: Marginal Benefits (MB) of Highway Capital
Mean Values 1950 - 1989

Code	Industry	MB	Tax(+) / Subsidy(-)
1	Agriculture, Forestry and Fisheries	-0.01174	-0.01518
2	Metal Mining	-0.00041	-0.00061
3	Coal Mining	-0.00125	-0.00163
4	Crude Petroleum and Natural Gas	-0.00483	-0.00681
5	Nonmetallic Mineral Mining	-0.00071	-0.00092
6	Construction	-0.03465	-0.04384
7	Food and Kindred Products	0.04464	0.03936
8	Tobacco Manufactures	0.00339	0.00295
9	Textile Mill products	0.00735	0.00639
10	Apparel and Other Textile Products	0.01059	0.00927
11	Lumber and Wood Products	0.00816	0.00721
12	Furniture and Fixtures	0.00414	0.00367
13	Paper and Allied Products	0.01309	0.01168
14	Printing and Publishing	0.01624	0.01448
15	Chemicals and Allied Products	0.02228	0.02007
16	Petroleum Refining	0.02052	0.01858
17	Rubber and Plastic Products	0.01301	0.01178
18	Leather and Leather Products	0.00200	0.00164
19	Stone, Clay and Glass Products	0.00904	0.00791
20	Primary Metals	0.02850	0.02413
21	Fabricated Metal Products	0.01887	0.01667
22	Machinery, Except Electrical	0.02582	0.02308
23	Electrical Machinery	0.02073	0.01870
24	Motor Vehicles	0.02711	0.02382
25	Other Transportation Equipment	0.01726	0.01519
26	Instruments	0.01016	0.00919
27	Miscellaneous Manufacturing	0.00398	0.00353
28	Transportation and Warehousing	-0.00718	-0.01080
29	Communication	-0.00348	-0.00472
30	Electric Utilities	-0.00468	-0.00627
31	Gas Utilities	-0.00275	-0.00400
32	Trade	-0.02178	-0.03594
33	Finance, Insurance, and Real Estate	-0.02331	-0.03530
34	Other Services	-0.02805	-0.03873
35	Government Enterprises	-0.00219	-0.00328

Marginal Benefits—Table 2 reports the average marginal benefit (MB) of highway capital in current dollars for each industry over the sample period. The marginal benefits indicate how much each industry is willing to pay for an additional unit of highway capital services. The magnitudes of the marginal benefits vary, consider-

ably across industries and over time. After taking into account price changes, however, the marginal benefits in real terms appear to increase from 1950 to 1969 but decrease from 1970 to 1989 in each industry. Another interesting feature is that all manufacturing industries have positive marginal benefits, i.e., they would be willing to pay a positive amount for additional highway capital services, the amounts ranging from 0.02 in the leather and leather products industry to 0.029 in primary metals. Nonmanufacturing industries, on the other hand, are willing to pay negative amounts, i.e., require a subsidy, to use the entire stock of highway capital. That is, the estimated demand for highway capital services in these industries at a price they are willing to pay, falls short of the available supply.

Table 3: Decomposition of Total Factor Productivity Growth
 Mean Values: 1951 - 1989

Industry Code	Industry Title	Exogenous Demand	Relative Input Price	Highway Capital	Adjusted TFP	TFP
1	Agriculture, Forestry and Fisheries	0.002	-0.052	-0.107	1.510	1.353
2	Metal Mining	0.234	0.058	-0.060	-0.432	-0.200
3	Coal Mining	0.030	0.010	-0.098	1.120	1.060
4	Crude Petroleum and Natural Gas	0.015	-0.021	-0.123	-1.243	-1.372
5	Nonmetallic Mineral Mining	0.098	-0.005	-0.105	0.883	0.856
6	Construction	0.453	0.162	-0.158	-0.345	0.092
7	Food and Kindred Products	0.399	-0.169	0.430	-0.126	0.577
8	Tobacco Manufactures	0.117	0.022	0.558	-0.421	0.209
9	Textile Mill products	0.292	-0.103	0.353	0.746	1.293
10	Apparel and Other Textile Products	0.082	-0.141	0.390	0.841	1.282
11	Lumber and Wood Products	0.330	-0.321	0.406	0.206	0.621
12	Furniture and Fixtures	0.409	-0.347	0.503	0.035	0.639
13	Paper and Allied Products	0.589	-0.426	0.420	-0.300	0.280
14	Printing and Publishing	0.684	-0.562	0.649	-0.808	-0.048
15	Chemicals and Allied Products	0.729	-0.592	0.384	0.386	0.904
16	Petroleum Refining	0.518	-0.121	0.427	0.111	0.933
17	Rubber and Plastic Products	0.827	-0.508	0.429	0.173	0.938
18	Leather and Leather Products	-0.441	0.237	0.474	0.258	0.537
19	Stone, Clay and Glass Products	0.419	-0.268	0.445	-0.287	0.310
20	Primary Metals	0.196	-0.146	0.667	-0.956	-0.285
21	Fabricated Metal Products	0.444	-0.246	0.440	-0.172	0.460
22	Machinery, Except Electrical	0.792	-0.427	0.400	0.298	1.072
23	Electrical Machinery	0.752	-0.409	0.406	0.722	1.512
24	Motor Vehicles	0.635	-0.355	0.645	-0.748	0.368
25	Other Transportation Equipment	0.973	-0.480	0.420	-0.364	0.548
26	Instruments	1.543	-0.750	0.469	-0.279	0.989
27	Miscellaneous Manufacturing	0.263	-0.196	0.412	0.824	1.280
28	Transportation and Warehousing	0.105	0.056	-0.043	0.927	1.060
29	Communication	0.075	0.356	-0.038	2.079	2.457
30	Electric Utilities	0.056	0.041	-0.048	1.168	1.222
31	Gas Utilities	0.125	-0.208	0.014	-0.188	-0.256
32	Trade	1.071	0.301	-0.026	-0.386	1.005
33	Finance, Insurance, and Real Estate	1.033	0.118	-0.028	-0.894	0.218
34	Other Services	0.768	0.086	-0.098	-2.169	0.091
35	Government Enterprises	0.034	-0.802	-0.044	-0.330	-1.144

The implied taxes and subsidies for various industries are shown in Table 2. These refer to the differences between the amount an industry is willing to pay for highway capital services and the actual price required to use the entire amount of available capital. These estimates are calculated at the optimal level of highway

capital services demanded for both manufacturing and non-manufacturing industries. The magnitudes of taxes and subsidies vary considerably. The largest taxes in manufacturing are in food and kindred products, chemicals and chemical products, primary metals, machinery (except electrical), and motor vehicles. Construction, trade, finance, insurance, real estate, and other services require relatively large subsidies to encourage them to use the entire highway capital. Those that would "pay" the lowest taxes are tobacco manufacturing and leather and leather products. The lowest subsidies are in three industries: metal mining, coal mining and nonmetallic mineral mining.

More careful analysis is required to examine further the size and pattern of these implied taxes and subsidies. It is important to note that the benefits of highway capital vary across industries. Demand for highway services are likely to diverge over time and the degree of benefits of any new highway capital expansion may differ considerably among industries. That is, there is an important distributional effect of the public highway capital across industries

Industry TFP Growth Decomposition—The decomposition of TFP growth estimates at the industry level are provided in Table 3. These estimates reflect the effects of:

Exogenous Demand: This refers to increased demand due to growth of real national income, aggregate population and changes in the utilization rate.

Relative Input Price: This factor captures the growth of input prices.

Highway Capital: This factor captures the combined direct and indirect effects of the growth of highway capital.

Total Highway Capital	h_{CS}	h_{IS}	h_{KS}	h_{MS}	h	h^*	$\sum_{E=1}^F m_E$
"Aggregated"	-.044	-.083	-.122	-.013	.862	.826	.18

In general, changes in exogenous demand contribute over half of TFP growth, mainly in the manufacturing industries. Its contribution in agriculture, extractive and mining industries and government enterprises are rather small. In construction, instruments, transportation equipment and trade and finance, the contribution of an increase in demand is relatively large. The contribution of relative input prices could be positive or negative depending on whether industry factor price changes exceed those of the general economy. When an industry's rate of input price inflation exceeds the national inflation rate, productivity growth is hampered. Generally, growth in relative input prices contributes negatively to TFP, and the magnitude of its effect varies across industries. Compared to the contribution of exogenous demand, the effects of relative input prices on TFP growth are small.

The contribution of highway capital to TFP growth is positive in all the manufacturing industries. In some of these industries its contribution is relatively large, accounting for almost one-third of TFP growth. In non-manufacturing sectors, growth in highway capital contributes negatively to productivity growth. As explained earlier, this indicates that the supply of highway capital exceeds the demand at the prices these industries are willing to pay. When the effects of exogenous demand, relative input price changes, and highway capital are accounted for, the rate of technological change is much smaller than conventionally calculated. In general, the main causes of TFP growth in the manufacturing industries are exogenous shifts in demand, relative price changes, and highway capital, while in the non-manufacturing industries the dominant factor is the scale effect, or exogenous technological change. Highway capital plays only a minor role in the acceleration or deceleration of TFP growth at the industry level.¹⁴ The evidence supports the notion that total highway capital contributes at varying degrees to the long term growth of TFP in different industries, and its contribution to the short run acceleration or deceleration of industry TFP growth over the sub-periods is negligible.

Model	Labor	Capital	Materials	Highway capital output	Utilization rate	Technology
"Aggregated"	.384	.185	.605	.051	.142	.001

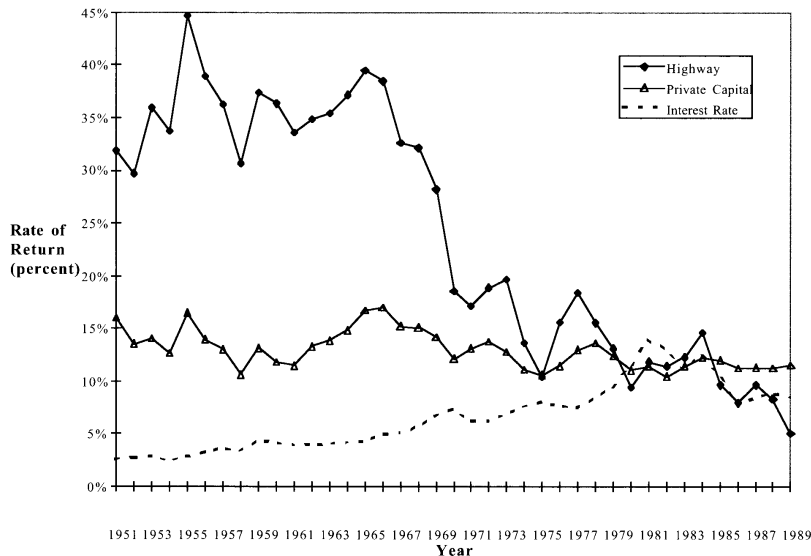
Contribution of Highway Capital at the Total Economy Level

To calculate the contribution of highway capital stock to the total productivity of the aggregate economy, we explored two different approaches: (1) the individual industry elasticity estimates were averaged (using industry input and output shares

as weights) to obtain the "aggregated" estimates; (2) the industry level data were summed to the national level and the model was re-estimated with the aggregate data to obtain the "aggregate" estimates for the cost and demand equations. The results were quite similar. In what follows we present the results based on the "aggregated" estimates.

Aggregate Output and Cost Elasticities—Table 4 presents the effect of the total highway capital stock, respectively, on aggregate private sector cost and aggregate input demand functions. The "aggregated" cost elasticity is about $-.044$, which is considerably smaller than estimates from previous studies. The elasticity of labor with respect to highway capital is negative, which suggests that any increase in highway capital is labor-saving at the aggregate economy level when the level of output is held constant. The elasticity of private capital with respect to total highway capital is also negative and slightly higher than that of labor. The elasticity of intermediate inputs with respect to total highway capital is negative and very small. Cost elasticities (h and h^*) suggest increasing returns to scale and the sum of marginal benefits (SMB), shown in last column is approximately 0.18. The output elasticities of inputs, the utilization rate, and the rate of technical change at the aggregate economy level show that the output elasticity of material inputs is large (around 0.60 to 0.70), followed by that of labor (approximately 0.40 to 0.45), and private capital (approximately 0.20). The rate of autonomous technical change is comparatively small (about 0.001). The output elasticity of highway capital is also relatively small compared to materials, labor, and private capital, averaging 0.051 for the period as a whole.

Figure 2
Net Rate of Return of Highway Capital, Private Capital,
and Private Interest Rate (1951-1989)



Compared to the results reported in the literature, this estimate of output elasticity of highway capital is very small. In fact, the elasticity estimates originally reported in Aschauer (1989), Holtz-Eakin (1991) and Bunnell (1990) are about eight times as large as our estimates for the national economy. Our estimates are more comparable to output elasticities of public capital reported in Duffy Deno and Eberts (1989) and Eberts (1986) for the highly disaggregate level of the Metropolitan Area. In particular, the output elasticity of private sector capital is clearly larger than the output elasticity of highway capital. The results indicate that a 1-percent change in private capital stock contributes almost four times as much to economic output as a 1-percent change in highway capital stock to growth of output of the economy.

Net Social Rates of Return—Past literature has questioned whether public capital is over- or under-supplied. One way to determine whether public capital is provided optimally is to compute the rate of return to highway capital and compare it with the rate of return to private capital for the whole economy. The optimal provision

of public capital requires that the rates of publicly provided and private capital be equalized. Thus, if the rate of return of highway capital is higher than that of private capital, highway capital is under-supplied and an increase of public investment is necessary. The net social rate of return of highway capital can be derived as the ratio of the sum of industry marginal benefits to cost minus the depreciation rate of highway capital. This calculation assumes that the user cost of highway capital includes the acquisition price, the relative discount rate, the depreciation rate of highway capital, and the price distortion effect of taxes levied to finance highway capital.¹⁵

Table 5
Net Rate of Return from Total Highway Capital,
Private Physical Capital, and Interest Rates

Net Social Rate of Return	1950-1959	1960-1969	1970-1979	1980-1989	1950-1989
Total Highway Capital	.352	.348	.161	.100	.281
NLS Capital	.479	.474	.238	.161	.338
Private Capital Stock	.134	.140	.120	.110	.133
Interest Rate	.04	.05	.08	.110	.07

Table 6
The Ratio of Optimal to Actual Stock of
Highway Capital (S*/S)

Ratio of S*/S	1950-1959	1960-1969	1970-1979	1980-1989	1950-1989
Total Highway Capital	3.057	1.678	1.112	0.995	1.710
NLS Capital	3.831	1.851	1.186	1.043	1.978

Table 5 presents the net social rate of return to total highway capital, the net rate of return to private capital stock and interest rates for four different sub-periods. The social rate of return on total highway capital was very high during the 1950's and 1960's, reflecting the shortage of highway capital stock during the 1950's when the Interstate Highway System was under construction. This rate has declined continuously since the late 1960's and in 1989 it is barely above the level of the long term interest rate. The time profile of the net social rate of return for total highway capital is presented in Figure 2. The rate begins at a relatively high level, rises to its maximum level in 1955, and fluctuates around 37 percent until 1968. Thereafter, the rate starts to decline and falls from 10 percent in 1985 to about 5 percent in 1989. When the net rate of return is compared to the long-term interest rate on government securities from 1950 to 1989, the gap between the two is very large until the 1970's. The gap narrows considerably and almost disappears in the 1980's. The net rate of return on private capital averaged approximately 14 percent from 1950 to 1969, and then declined in the 1970's and 1980's. However, it exceeded the interest rate over most of period, as shown in Figure 2.

Table 7
Aggregate TFP Decomposition
Total Highway Capital Mean Values

TFP	Exogenous Demand	Relative Price	Highway Capital	Capacity Utilization	Adjusted TFP
.6783	.5960	-.0571	.1767	.0069	-.0484

Aggregate TFP Decomposition
NLS Capital Mean Values

TFP	Exogenous Demand	Relative Price	Highway Capital g_1	Highway Capital g_2	Capacity Utilization	Adjusted TFP
0.6783	0.6029	-0.0571	0.1649	0.0118	0.0069	-0.0411

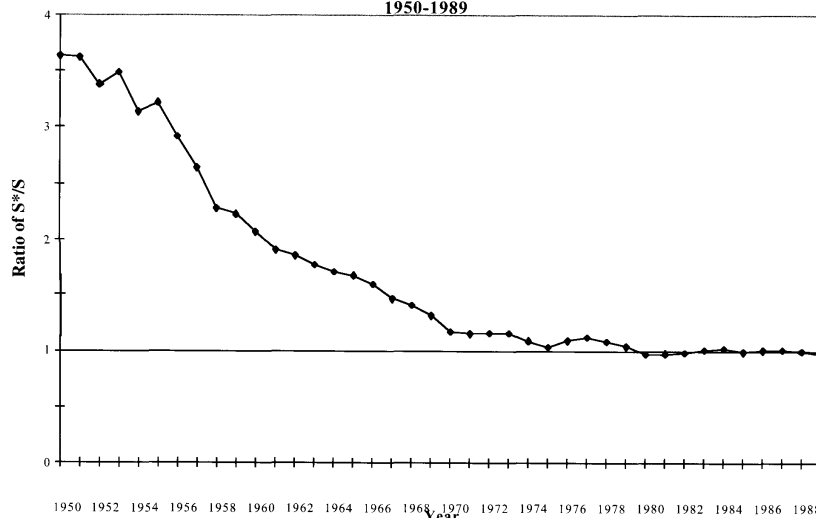
g_1 = highway capital stock NLS

g_2 = other than NLS highway capital

Our estimates of the rate of return on highway capital are much lower than reported in previous literature. Recently, Fernald (1992) estimated the rate of return to investment in roads using essentially the same set of data as used in this study. He concluded that "a conservative statement—is that the data strongly supports the view that roads investments are highly productive, offering rates of return of 50 percent to 100 percent, perhaps more."¹⁶ Our results suggest rates of return well below Fernald's lower bound estimated rate of return. Our average rate of return for the period of 1950 to 1989 is 28 percent, about half of his rate of return of 50 percent. The rate of return over the postwar period has still been quite impressive, although in recent years the returns to highway capital are more similar to those estimated for private capital stock.

Optimal Highway Capital Stock—The optimal level of highway capital is obtained by comparing the industry marginal benefits for each year to the actual level of highway capital. The average ratio of optimal highway stock to actual highway capital is reported in Table 6. The striking result that emerges from this comparison is that the ratio is very high during the 1950's, then declines dramatically thereafter until 1989, when the ratio is approximately one. This suggests that there was significant underinvestment in highway capital immediately after World War II but the gap between optimal and actual capital stocks narrowed between 1959 and 1969 as the Interstate Highway System and other road systems were completed. The ratio of optimal to actual stock of highway capital declined by about 50 percent from 1960 to 1969 and further decreased from 1970 to 1979. Interestingly, in the 1980's there is no significant evidence of overall under- or overinvestment in the highway capital stock.

Figure 3
Ratio of Optimal to Actual Highway Capital
1950-1989



The decline in the ratio of optimal to actual highway capital shown in Figure 3 is due in part to public investment decisions and to economic and demographic changes. (growth in the stock of highways and streets, as shown in Figure 1, rose sharply from 1955 to 1975, the period when the U.S. Interstate Highway System was under construction, and leveled off since that time as construction of the Interstate slowed and previously built highways depreciated. The net stock of total highway capital grew at an annual rate of approximately 5 percent from the mid-1950's to the late 1960's. It began to decline in the 1970's, reaching a minimum growth rate of 0.7 percent in 1983. Since then it has gradually increased, but the growth rate of 2.3 percent in 1993 is still less than half the average growth rate of the mid-1950's to late 1960's period.¹⁷

Decomposition of Aggregate Total Factor Production (TFP) Growth—The results in Table 7 indicate that growth in exogenous demand is the most important contributor to aggregate TFP growth between 1950 and 1989, as almost 87 percent of TFP growth is accounted for by changes in aggregate demand. Input price movements contribute negatively to TFP growth (about 8 percent) while highway capital contributes positively (about 25 percent) to TFP growth. The contribution of the capacity utilization rate is very small (about 1 percent). Table 8a and 8b demonstrate that the same patterns are evident over different sub-periods. The contribution of highway capital to TFP growth was much larger in the early periods, but has declined significantly since 1972. This reflects two sets of factors: the pattern of marginal benefits of highway capital stock; and, more importantly, the growth rate of highway capital stock exhibited in Figure 1. Highway capital's contribution to TFP growth was less than 0.18 until 1953 when the investment in Interstate highway System started; its contribution rose to almost twice as much during the period of 1954 to 1967. After 1967, the contribution declined considerably until reaching about .001 in 1981. After 1981, the contribution of highway capital to TFP growth grew to about 0.06 in 1989.

A central issue in the debate on the role of infrastructure or highway capital is its contribution to the deceleration of TFP growth in the period 1973-1979. Aschauer (1989), Munnell (1990a) and others claim the decline in this period was mainly, if not exclusively, due to the decline in growth of infrastructure capital. Hulten and Schwab (1991a), Gramlich (1994) and others have argued for minimal contribution of infrastructure capital to productively slowdown.

When TFP growth is decomposed into trend and deviation from the trend, the trend TFP growth is highly correlated with the trend contribution of highway capital, trend exogenous demand and trend in relative factor prices. The deviation from trend of TFP growth is correlated with deviation of the exogenous demand and relative prices from their trend. The conclusion to be drawn is that highway capital

stock contributes to growth of total factor productivity; its contribution is much smaller in comparison of the contribution of exogenous demand.

Most of the contribution of highway capital to productivity growth occurred in the 1950's and 1960's. Since 1973, highway capital has made a small contribution to trend TFP. Highway capital, whether measured by total highway capital or P1L5 (non-local system) capital, does not contribute much to the acceleration or deceleration of TFP growth.

Table 8a:

Average growth rate of TFP and contributions of exogenous demand, total highway capital and relative prices
1952-1989 and sub periods

	1952-1989	I 1952-1963	II 1964-1972	III 1973-1979	IV 1980-1989
TFP	.68	.94	1.03	.13	.42
EXD	.60	.30	.60	.75	.84
TGG	.17	.30	.26	.03	.03
PPF	-.06	-.06	-.10	-.17	.07

Table 8b:

Average growth rate of TFP and contributions of exogenous demand, NLS highway capital,
other highway capital and relative prices
1952-1989 and sub periods

	1952-1989	I 1952-1963	II 1964-1972	III 1973-1979	IV 1980-1989
TFP	0.6783	0.9402	1.034	0.1327	0.4255
EXD	0.6029	0.3185	0.5945	0.7392	0.8563
TGI	0.1649	0.2966	0.2463	0.0195	0.0353
TGO	0.0118	0.0188	0.0121	0.0080	0.0058
PPF	-0.0571	-0.0566	-0.1089	-0.1698	0.0678

EXD: Exogenous Demand TGG: Total Highway Capital TFP: Relative Input Prices

TGI: NLS Highway Capital TGO: other than NLS Highway Capital

These results stands in contrast to those reported by Aschauer, Munnell and other proponents of large contributions to infrastructure and also to those reported by researchers who have denied any role for infrastructure in enhancing the growth rate of productivity. Our analysis suggests that highway capital stock has contributed to the expansion of the productive capacity of the economy. It has contributed to total TFP growth of the U.S. economy, although its contribution has been much smaller than has been claimed in the production function research. Expansion of highway capital has had significant effects on the pattern of, and demand for, labor, capital and material inputs in different industries.

Summary and Policy Implications

Summary of Main Results—The specific quantitative results of this report can be briefly summarized as follows:

- Total highway capital and NLS capital contribute significantly to economic growth and productivity at the industry and national economy levels. Their contribution varies across industries and over time. The magnitude of the elasticity of output with respect to total highway capital at the aggregate level is about

0.05, which is much smaller than comparable estimates reported in previous literature.

- The contribution of highway capital to TFP growth is positive in almost all industries, except in some non-manufacturing industries. In these nonmanufacturing industries, the supply of capital exceeds that which the industries are willing to pay at that price. The magnitudes of the contribution varies among industries, although the most significant contribution of highway capital is to the productivity of manufacturing industries. At the aggregate level, highway capital contribution to TFP growth is about.¹⁷

- There is some evidence of increasing returns to scale in most industries and at the national level. Both at the industry and national levels, the contribution of private capital to economic output dominates that of total highway capital or FILE capital by almost four times. This is in sharp contrast to the results reported in the literature.

- Total highway capital and NLS capital have a significant effect on employment, private capital formation and demand for materials inputs in all industries. For a given level of output, an increase in highway capital and FILE capital can lead to a reduction in demand for all inputs in manufacturing, while in non-manufacturing industries the pattern is mixed. The magnitude of these effects varies among the three inputs in a given industry and among the industries, and does not consider output expansion aspects of lower costs.

- The marginal benefits of total highway capital and NLS capital at the industry level were calculated by using the estimated cost elasticities. Demand for highway capital services varies across industries as do the marginal benefits. The marginal benefits are negative for all non-manufacturing industries, but their magnitudes are small suggesting that the demand for highway capital services at the price these industries were willing to pay (if free disposal condition was operative) is slightly less than the available supply. This issue, however, requires further research (Appendix B includes a summary of important issues that require future research).

- The results indicate that net social rate of return on total highway capital was high (about 35 percent) in the 1950's and 1960's, then declined considerably until the 1980's to about 10 percent. The same pattern holds for NLS capital although the net social rates of return are higher for NLS, approximately 16 percent. In the 1980's the rates of return on total highway capital and private sector capital seem to have converged, and are basically equal to the long term rate of interest.

- The ratio of optimum to actual highway capital, measured by either total or FILL highway capital, was high in the 1950's and then declined throughout the 1960's as construction of the Interstate Highway system neared completion.

- The main contributor to productivity both at the industry and aggregate level is aggregate demand. Relative prices, the capacity utilization rate and technical change also contribute to the growth of TFP, but their contributions are generally smaller and vary across industries. The contribution of highway capital is to long run trend TFP growth and only minimally to its acceleration or deceleration over different periods such as the period 1973–76.

Policy Considerations—The results of this research suggest a number of policy implications:

- To have high and sustained TFP growth both at the industry and national level it is very important that aggregate demand be sustained and Pectoral input price inflation rates are kept in check. This would require appropriate fiscal and monetary policies to maintain growth rate of the aggregate demand in conjunction with public infrastructure policy.

- The analytical challenge is to see whether the quantity and quality of services provided by this type of infrastructure is adequate to meet future needs. Two sets of policies are needed: one is to look specifically at the quality of services and potential utilization of the existing highway capital network. To achieve this aim a more intensive look at quality adjustment of highway capital stock and construction of a more appropriate index of utilization of this capital. The other challenge is to elaborate the future needs for highway capital to potential growth of the economy and the spatial distribution of economic activities.

- The distinction between gross and net investment in highway capital require proper estimation of the depreciation rate of the capital stock. If the depreciation rate is under estimated, the net expansion of highway capital for the future will be understated. Adequacy of investment allocations can be best evaluated if the replacement investment for highway is correctly determined first. This would require an evaluation of existing and future policies for repair and maintenance of the highway network.

- Since the benefits of highway capital services differ across industries, one policy consideration is the need of the industries in planning of future highway services.
- The externalities of highway capital services to the production has been well documented but two further policy issues require attention. They are the benefits of highways to generate public (consumers) and the geographical distribution of these benefits among different states and localities. The contribution of highways to local and regional areas is an important issue for policy decision process because of the rate of this type of infrastructure to regional economic development.
- Finally, policies for investment allocation and financing of highway capital require closer attention. Such assessments require that highway capital investment be compared in terms of importance and rates of return to long term private sector capital investment.

Future Research

This study raises a number of important issues which should be addressed in future research. These issues include: adjustments for additional variables not included in this research; examining the productivity effects of highway capital under varying levels of output; estimated depreciation rates; further detail about industry types; and the welfare benefits of highway capital to groups other than private sector industries.

Omitted Variables—One of the most important issues to consider in future research is the effect of omitted variables on our results. Two types of adjustments are desirable: one related to quality changes in highway capital stock and the other is the contribution of infrastructure capital other than highway capital. The quality adjustments can take different dimensions. For example adjustments are needed to account for the effects of congestion and other environmental factors such as noise, smog, etc. The highway capital stock needs to be adjusted for quality of roads, degree of maintenance and intensity of use. Besides these types of adjustments, the effects of infrastructure capital other than highway capital should be specifically introduced in our model. Clearly there is considerable evidence that other types of public infrastructure contribute to growth of output and productivity. Including the “other” infrastructure capital may affect the magnitudes and even sign of the elasticities and marginal benefits of highway capital (or NLS) reported in this study.

Allowing Output to Vary—In this study we have evaluated the productivity effect of highway capital and its effect on demand for labor, capital and materials under the assumption that the level of output is given. This assumption needs to be relaxed to take account of output expansion induced by investment in highway capital. Highway capital investment reduces costs, i.e. the average cost shifts downward (productivity effect). This in turn, given a downward sloping output demand curve, leads to a decline in output prices and an increase in quantity demanded. The induced output expansion leads to increases in demand for each of the private sector inputs. This indirect expansion effect of highway capital investment will likely to offset any potential substitution effects on demand for labor, capital and materials. This issue is an important challenge to be taken up also in future research.

Depreciation of Highway Capital—Another issue is to examine more closely the depreciation rate estimates that are used to generate the total highway or NLS capital. If the depreciation rate is not an accurate measure of the decline in production services then the results on marginal benefit, net social rate of return and productivity contribution of highway capital reported here will be affected. Analytical models are available to estimate the depreciation rate from available investment data. Also, availability of data on maintenance expenditures and other relevant data may allow estimating a more precise measure of the depreciation rate and thus better measures of total highway and NHS capital stocks.

Further Industry Detail—In this study, industries were divided into three broad categories. A more refined classification such as that used by Fernald may be necessary to capture the industry variations in demand for highway capital services. As a result, our measures of industry marginal benefits, social rate of return and contribution to productivity at the industry and aggregate level are likely to be affected. Also, we need to improve our estimation of the output demand function. Furthermore, the demand and cost functions are estimated separately. What is required is to jointly estimate the two functions and allow for the effect of highway capital on the demand for output of an industry.

Benefits to Other Groups—Finally, in this study we have concentrated on the benefits of highway capital to private sector industries. The welfare benefits of highway capital services to the consumers have not been addressed. To do so requires modeling the consumption sector of the economy and integrating it with the production sector in a general equilibrium model. Such an attempt, though extremely important, at present remains outside the scope of our current research.

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¹For a full description see Nadiri and Mamuneas, "Contribution of Highway Capital Infrastructure to Industry and Aggregate Productivity regrowth," March 1996, a report prepared (Apogee Research Inc.) for the Federal Highway Administration Office of Policy Development, Work Order flo. BAT–94–008.

²The latter includes the Federal-aid highway system, with the exception of expenditures on secondary rural roads, and represents approximately 70 percent of total highway capital stock. It is referred to in this paper as the non-local highway system.

³See Nadiri and Mamuneas, (1996) "Contribution of Highway Capital to Industry and National Productivity Growth," opt. cit. for a more comprehensive survey of substantive and technical issues.

⁴Opt. cit.

⁵Use of value-added data can be Justified If there Is no substitution between intermediate inputs such as materials and energy and the primary factors of production like capital and labor. If intermediate input prices are relatively stable, the use of value added in productivity analysis can be justified on practical grounds. However, on price shocks substantially affected the course of the U.S. economy in the 1970's and 1980's. Similar effects to a lesser extent were associated with price increases in other intermediate inputs. Therefore, It is important to explicitly include energy and material inputs in the productivity analysis.

⁶See Nadiri and Mamuneas, "Contribution of Highway Capital Infrastructure to Industry and Aggregate Productivity Growth," opt.cit., 1996 for further discussion.

⁷In principle, we could introduce a full set of slope dummy variables (102 additional parameters) but it not possible in an already complicated model. Rather, we classified the 35 industries into three groups—manufacturing (industry codes 7 through 27), service industries (industry codes 28 through 35), and other industries (industry codes 1 through 6).

⁸An interesting approach is suggested by Fernald (1992). He uses "vehicle Intensity" as a proxy for use of road infrastructure. It Is measured as the ratio of the stock of trucks and cars in an industry to its total output. If an industry is vehicle-intense, then presumably it receives a lot of direct productive services from roads.

⁹See Nadiri and Mamuneas, "Contribution of Highway Capital Infrastructure to Industry and Aggregate Productivity Regrowth," *opt. cit.* for further details.

¹⁰For a description of data construction, see Jorgenson, Gallop, and Fraumeni (1987). Also see Jorgenson (1990).

¹²The magnitudes of the labor elasticity ranges generally from 0.06 in Industry 29 to a high of 0.97 in industry 16. The elasticities are generally small in industries 28 through 35 except for Industry 31. The elasticities of private capital with respect to total highway capital are larger in magnitude in the manufacturing Industries than in non-manufacturing Industries. The magnitudes of elasticities of intermediate Inputs with respect to total highway capital are generally small, particularly in industries 1 through 6. They are relatively larger and positive in transportation, trade, and services. The pattern that emerges from these elasticities is that highway capital is a substitute for private capital in all Industries, a substitute with labor in all manufacturing (industry codes 7–27) and services (industry code 28–35) while it is a complement to labor in other Industries (Industry codes 1–6). Finally, highway capital and intermediate inputs are complements in non-manufacturing industries and substitutes in the manufacturing industries.

¹³In the next phase our study the level of output will be allowed to vary and the new set of results will separate the likely substitutional and expansion effects on private sector Inputs of a given increase in highway capital.

¹⁴The sample period was divided into four sub-periods: period I, 1952–1963; period II, 1964–1972; period III, 1973–1979; and period IV, 1980–1989. In a few Industries, the contribution of highway capital to the deceleration of TFP growth between periods II and III was fairly large, but in the majority of industries, there was little or no systematic relationship. The magnitudes of the contribution of highway capital between to the rate of change of TFP periods III and IV were generally very small.

¹⁵See Jorgenson and Yun (1990). This distortion effect arises because no country relies extensively on head taxes to finance infrastructure capital. Distortionary taxes (e.g., an income tax) are often used to fund public investments. Therefore, the social cost of additional public capital, the sum of the direct burden of the taxes needed to pay for the infrastructure and the dead weight cost associated with these taxes. The issue of an appropriate cost of investment of highway system requires a careful analysis in future research.

¹⁶Bernard (1992) p. 26

¹⁷One factor contributing to the growth pattern in highway capital was the sharp rise in the price of gasoline in the 1970's that increased the cost of travel significantly.

APPENDIX B

ECONOMIC RETURNS FROM TRANSPORTATION INVESTMENT: NINETEENTH CENTURY EXPERIENCES AND CONTEMPORARY ISSUES

(by Charles David Jacobson, Morgan, Angel & Associates)

This short bibliography represents a sample of some of the more important works in what is a vast economic and historical literature on 19th century transportation infrastructure. More recent scholarship on post World War II infrastructure development is not included.

Fishlow, Albert, *American Railroads and the Transformation of the Antebellum Economy* (Cambridge: Harvard University Press, 1965)

In this volume, Fishlow attempts to "quantify the social savings of the railroads and their impact through forward and backward linkages on the various branches of the economy . . ." ¹Whereas Fogel's *Railroads and American Economic Development* (published at about the same time) was concerned with whether U.S. could have developed without the railroad, Fishlow asks "How much stimulus did the railroad afford to the economy of the United States and by what means?" ²Fishlow identifies three major ways in which transportation innovation can be expected to benefit other areas of the economy:

1) Innovations have direct consequences in lower costs of carriage. When costs are lower, resources can be applied to other tasks.

2) Increased size of markets affects production decisions of manufacturers and farmers, by making possible greater specialization and ability to exploit economies of scale elsewhere.

3) Resource demands of building and operating transport systems can themselves stimulate other areas of economy. These in turn might create benefits elsewhere.

Fishlow concludes that before 1859 the direct advantages of the railroad were fairly modest because of the prior development of the canal and the steamboat. These innovations lowered transport costs far more than did the railroad in its turn. But even during this early period, Fishlow concludes railroad investment paid off in social terms.

"... railroad returns to capital, in the shape of net earnings and transport cost savings alone, fully justified the investment even before 1860. Fifteen percent per annum on the investment despite the arbitrary time horizon, and the limited calculation of returns is impressive. It is difficult to imagine the country doing much better than that in any reasonable alternative."³

Fishlow concludes that railroad development played a role in stimulating agricultural expansion and specialization. Demands on the part of railroads themselves, Fishlow concludes, also played a role in disseminating industrial skills through out the economy and afforded stimulus to the development of iron and steel industry.⁴ However, these effects were limited.⁵ Nor did railroad development stimulate antebellum industrialization in the South despite hopes that it do so.

Overall, Fishlow concludes, railroads can not be said to have caused economic growth. Indeed the benefits of railroad development were so great in some cases only because other human and geographical and institutional conditions for growth were already present. Fishlow also concludes that government subsidy and competition amongst railroads themselves tended in some cases toward over-building and wasteful expenditure of resources.⁶

Fogel, Robert William *Railroads and American Economic Growth: Essays in Econometric History* (Baltimore: Johns Hopkins, 1964)

This is a controversial and Influential book. Fogel evaluates the claim that railroads were essential to economic growth in the 19th century by setting forth a hypothetical world in which railroads do not exist. Fogel concludes that while railroad development and rates structures could determine the destinies of individual firms and even entire cities and regions, railroads were not indispensable to the economy of the United States during the 19th century. Other forms of transportation could and would have been developed more intensively in the absence of railroads. More broadly, Fogel asserts that economic growth can best be understood not as the product of any single kind of technology but of knowledge applied to development of multitude of innovations in a broad range of domains.

Emphasis on the multiplicity of opportunities does not mean that the particular nature of the solutions society selects are without significance. Cheap inland transportation was a necessary condition for economic growth. Satisfaction of this condition did not entail a specific form of transportation. The form by which the condition was in fact satisfied did effect, however, particular features of the observed growth process. In other words, the fact that the condition of cheap transportation was satisfied was satisfied by one innovation rather than another determined, not whether growth would take place, but which of many possible growth paths would be followed.⁷

Goodrich, Carter, *Canals and American Economic Development* (New York: Columbia University Press, 1961)

Goodrich's collection, first published in 1961, was the product of Columbia University's graduate workshop on the Economic Development of the Industrial Countries. The aim of the workshop was to reexamine the economic history of developed industrial areas of the world in light of contemporary concerns with Third World development. The essays conclude that, overall, development of canals did make a significant contribution to economic growth in the United States. While the Erie Canal was a spectacular success, many other canals were almost certainly failures no matter how evaluated. Causes of failure included ill conceived and poorly designed projects and railroad competition.

Hay, Suellen and Michael C. Robinson, *Public Works History in the United States: A Guide to the Literature* (Nashville, TN: American Association for State and Local History, 1982)

This annotated bibliography is an indispensable resource. The work does not cover railroads but contains a good selection of entries on the history of roads, streets, and highways in the United States.

Lee, Susan and Peter Passes, *A New Economic View of American History* (New York: W.W. Norton, 1979)

This textbook written for advanced undergraduates contains good overview on debates amongst economic historians concerning 19th century transportation and economic development. The book also contains extensive bibliographical material.

Rostow, Walter, *The Stages of Economic Growth* (Cambridge: Cambridge University Press, 1960).

Rostow suggests that largely because of demand for materials, railroads played a leading role in propelling industrial take-off in the United States during the 1840's. The book is largely important as a foil for subsequent scholars who found that elements of the chronology do not fit. Much industrial development took place in the United States, for example, before railroads were significant as either a source of demand for materials or as a form of transportation itself.

Rauch, James E., "Bureaucracy, Infrastructure, and Economic Growth: Evidence from U.S. Cities during the Progressive Era" *American Economic Review* Vol. 85, No. 4 September 1995.

On the basis of a regression analysis, Rauch finds that investment in road, water, and sewer systems in early twentieth century American cities was statistically correlated with growth in manufacturing employment.

Rose, Mark H. *Interstate: Express Highway Politics, 1941-1956* (Lawrence: The Regents Press of Kansas, 1979)

This is a detailed historical account of the political maneuvering that culminated in passage of laws establishing the Interstate highway System. Rose describes tensions amongst engineers concerned with moving the traffic, economic and regional interest groups, and those who viewed highways as means to realize broader planning and urban redevelopment objectives.

Scheiber, Harry N., *The Ohio Canal Era: A Case Study of Government and the Economy, 1800-1861* (Athens: Ohio University Press, 1969)

This is a richly detailed account written by an historian of the development of a major system of canals in Ohio before the Civil War. The book contains much discussion of the effects of canal and later railroad development on patterns of trade. Scheiber finds that the Ohio and Erie Canal completed in 1827 was a "spectacular success" in its contribution to population growth and economic development in the region served. Population and land values increased, farmers enjoyed higher prices for grains and turned to commercial agriculture, and development of manufacturing was stimulated due to lower prices for raw materials and development of water powers from the canal itself. Canals completed in other parts of the state, Scheiber maintains, had similar effects.

ENDNOTES

¹ Alexander Gerschenkron, "Foreword" in Albert Fishlow, *American Railroads and the Transformation of the Ante-Bellum Economy* (Cambridge, Mass, Harvard University Press, 1965) viii.

² Albert Fishlow, *American Railroads and the Transformation of the Ante-Bellum Economy* (Cambridge, Mass, Harvard University Press, 1965) ix.

³ Albert Fishlow, *American Railroads and the Transformation of the Ante-Bellum Economy* (Cambridge, Mass, Harvard University Press, 1965) 301.

⁴ Albert Fishlow, *American Railroads and the Transformation of the Ante-Bellum Economy* (Cambridge, Mass, Harvard University Press, 1965) 302.

⁵ Albert Fishlow, *American Railroads and the Transformation of the Ante-Bellum Economy* (Cambridge, Mass, Harvard University Press, 1965) 303.

⁶ Albert Fishlow, *American Railroads and the Transformation of the Ante-Bellum Economy* (Cambridge, Mass, Harvard University Press, 1965) 310.

⁷ Robert William Fogel, *Railroads and American Economic Growth: Essays in Econometric History* (Baltimore: Johns Hopkins, 1964) 237.

STATEMENT OF DARREL RENSINK PRESIDENT, AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS¹ AND DIRECTOR, IOWA DEPARTMENT OF TRANSPORTATION

Mr. Chairman, my name is Darrel Rensink, I am President of the American Association of State Highway and Transportation Officials and Director of the Iowa Department of Transportation. On behalf of AASHTO, I am pleased to accept your invitation to testify on issues related to the reauthorization of the surface transportation programs, and to provide the views of the Association.

As members of the Environment and Public Works Committee you are well aware of both the benefits and needs of transportation into the 21st century, so what I am

¹ Founded in 1914, AASHTO represents the departments concerned with highways and transportation in the 50 States, the District of Columbia and Puerto Rico. Its mission is a transportation system for the Nation that balances mobility, economic prosperity, safety and the environment. AASHTO is the only national public sector association that represents all transportation modes—air, highways, public transportation, rail and water—and it works to foster the development, operation and maintenance of an integrated national transportation system. The active members of AASHTO are the duly constituted heads and other chief directing officials of the member transportation and highway agencies.

about to say will come as no surprise. However, the importance of transportation for a competitive America and for the nation's future requires that we continue to focus our attention on transportation.

America's transportation network has played a major role in our nation's economic success. Just as in the past, the future of America will depend to a great extent on how we support our transportation system. The legislation you will be considering is therefore of great importance to the people of America as we approach the 21st century.

Perhaps no other Federal investment has such far-reaching implications on every aspect of our quality of life. Transportation serves all of our citizens daily in traveling to their jobs, day care centers and markets; in providing goods to wholesale and retail outlets; in traveling to recreational activities; and in a variety of other activities in which we all participate. Welfare reform will only succeed when wage-earners have access to places of employment. Quality health care depends upon the ability of the patient and the care-giver to come together.

Most important, transportation is the backbone for our State, national and international economies. Transportation is our nation's economic engine which is built on an efficient transportation system, a key component to our global competitiveness. Industry, much of which now relies on "just in time" delivery of raw materials, must have an effective and efficient transportation system.

Mr. Chairman, we commend you and the subcommittee for undertaking the reauthorization of our surface transportation program. We have provided to the subcommittee copies of the documents that AASHTO has prepared outlining our policy on many of the issues that we will be addressing. In my comments today I will summarize the Association's views and respond directly to the themes you have stated for this hearing.

AASHTO'S REAUTHORIZATION VIEWS

The enacted Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) was important legislation, and it improved our ability to provide better transportation in many ways. Some additional funding was provided, although not all that was authorized has been made available. The planning and decisionmaking processes for surface transportation were changed by the ISTEA, to move more decision-making to States and localities, to encourage looking intermodally at the whole system, and to allow for tradeoffs. Greater flexibility in utilizing Federal funding was provided under the ISTEA, allowing States and localities to better target transportation facilities they and their citizens believe are important. And very importantly, the National Highway System sought by AASHTO's member departments was authorized in the ISTEA, and has been established by Congress with the enactment of the National Highway System Designation Act of 1995.

These concepts and features have increased our ability to address the nation's transportation needs, and AASHTO believes that the reauthorization legislation should continue to support them. At the same time, AASHTO believes there are a number of areas that can be improved as you reauthorize ISTEA. These areas are described in the policy documents we have provided to you, and were discussed by AASHTO President William G. Burnett in his September 11, 1996 testimony to this subcommittee. For the convenience of the subcommittee, a copy of that September 11, 1996 testimony, which outlines our views on the role of Federal, State and local governments in surface transportation, is attached.

With respect to our recommendations for reauthorization, I want to refer you to our Transportation for a Competitive America report, copies of which have been provided to the subcommittee. This report details our recommendations, which are summarized in four key recommendations:

- The maintenance needs of the nation's highways and transit systems outstrip the funds currently available. The 4.3 cents per gallon in user taxes collected from motorists should be deposited in the Highway Trust Fund and be spent on system maintenance, rather than diverted to the General Fund.
- State and local governments should be given more flexibility in determining how, when, and where transportation resources are spent, to maximize the benefit to mobility, safety, and the environment.
- Many of the key concepts of ISTEA, such as State and local cooperation, intermodal planning, and public participation, should be retained.
- Burdensome and unnecessary provisions imposed by ISTEA and earlier laws should be eliminated or reduced. The National Highway System Designation Act was a first, and major, step in this direction.

To further explain AASHTO's position on issues in reauthorization of the Federal highway and transit programs, we refer you to the attached one-page document

"Summary of AASHTO Recommendations on the Reauthorization of the Federal-aid Highway and Transit Programs," which was included in a brochure we recently sent to all Members of the Congress.

Mr. Chairman, you have focused this hearing on three topics, transportation trends, transportation's benefits to the economy, and infrastructure funding requirements. Let me now address each of these.

TRANSPORTATION TRENDS

Mr. Chairman, the most important transportation trend to note is that transportation continues to play a major role in the well-being of this nation. This role is demonstrated by the growth we have seen in the number of drivers, vehicles and passengers on our highway and transit systems and the reliance of industry and economic development on the availability of efficient transportation.

Vehicle miles of travel on our highways increased 40 percent in the 1980's. If the 1990 to 1994 trend continues, total miles traveled may increase by more than 20 percent in the 1990's. At the present time over 6 billion miles of vehicle travel are logged on the nation's highways every day. The number of passengers utilizing transit services has also increased with over 6.8 million Americans using mass transit each day, with over 30 million people depending on it.

Just-in-time production is one of the most significant trends in U.S. manufacturing in recent years. This trend has allowed many businesses to sharply reduce or eliminate inventories. In 1990 just-in-time manufacturing accounted for 18 percent of U.S. production; by 1995 this percentage had increased to 28 percent. Just-in-time production and reduced inventories require dependable and efficient transportation facilities, and are major sources of increased productivity in our economy.

These trends are expected to continue, placing an ever increasing demand on our transportation systems.

Our highway system is suffering from increased congestion in many areas of the nation. The urbanization of America is creating new challenges for urban areas while at the same time rural transportation needs are continuing to increase. New demands are being placed upon the highway system by shifts in both the volume and direction of world trade. For example, the focus of our major highways are essentially east-west, in keeping with the movement of goods between the east and west coasts. However, the North American Free Trade Agreement (NAFTA) has required us to evaluate and improve our systems to accommodate an increasing number of north-south transportation patterns.

Our nation's transit systems remain vital in most areas of the nation. Today, a variety of passenger mobility needs, and efforts to solve our air quality problems across America, require transit to do even more.

In short, Mr. Chairman, while our nation still has the best transportation system in the world, current trends demonstrate that it is aging and is not keeping up with the mobility needs of our citizens, our commerce, our industries and our economy.

TRANSPORTATION'S BENEFITS TO THE ECONOMY

Mr. Chairman, throughout the history of our nation transportation has been assumed to be a key driving force in building and maintaining our economy, based on what Americans have seen and experienced. In recent years some have requested documentation of this assumption, and in particular have asked whether or not our nation is receiving a fair return on its investment in our highway system. In response, AASHTO, through our National Cooperative Highway Research Program (NCHRP), the Federal Highway Administration, and other transportation agencies have sponsored many efforts to determine the economic value of transportation, and investments in our highway system.

A copy of Chapters I and II of a report prepared under AASHTO's sponsorship by the NCHRP entitled The Economic Importance of Transportation: Talking Points and References is attached, without the voluminous materials of Chapters III and IV. The following are a few of the significant findings in this report, all of which demonstrate the benefits of transportation to our economy:

- Reliable transportation is essential for America's businesses to achieve their objectives of reduced inventories and improved distribution systems. It is estimated that logistics and transportation account for 20 to 25 percent of the value of a product on the shelf.

- Wal-Mart has become the largest retailer in the U.S. by demanding that manufacturers deliver products reliably and ready for the selling floor. Wal-Mart has only about 10 percent of their square footage devoted to inventory compared to 25 percent for the average retailer.

- To remain competitive, American companies and businesses demand quick turn-around and are reducing the time it takes for products to reach their markets.

The NCHRP report refers to recent studies of the economic effects of highway investment conducted by Professor Ishaq Nadiri of New York University. Professor Nadiri's work indicates that investments in highways have a strong effect on productivity. He found that transportation improvements lower distribution costs, allow the shrinking of inventory that saves money, improves firms' access to labor, and lowers production costs. Overall, Professor Nadiri's studies show a 28 percent return per year between 1950–1989 for total highway capital.

In addition to the efficiency and production benefits for the manufacturing sector, investments in transportation are important for job creation. The Federal Highway Administration's most recent report on job generation for highway investment finds that every \$1 billion of investment in the Federal highway program supports more than 42,000 full-time jobs.

Also, according to the U.S. Department of Transportation, every dollar invested in the highway system will return more than \$2.60 in benefits to the economy.

As indicated in the few examples shown above, investing in the nation's transportation facilities is important to ensuring long-term economic growth. Americans have longed believe this, and we are now finding through research work by several economists and other experts that what we intuitively believe is in fact true.

INFRASTRUCTURE FUNDING REQUIREMENTS

Mr. Chairman, you also requested testimony on infrastructure funding requirements. Simply described, our need for investments to adequately support the nation's surface transportation system far exceeds current investment levels.

AASHTO has comprehensively analyzed the investment requirements of our transportation systems, based on information received from the U.S. Department of Transportation. This analysis is detailed in our report *The Bottom Line: Transportation Investment Needs 1998–2002*, copies of which have also been provided to the subcommittee.

To summarize the AASHTO report, over the next 5 years, total highway investment requirements just to maintain the current condition and performance of the system are \$264 billion. An additional investment of \$94 billion is required to improve the condition and performance of this essential system, for a total investment requirement of \$358 billion over 5 years. Transit investment requirements to maintain and improve are identified as \$39 billion and \$33 billion, respectively, for a total of \$72 billion over 5 years. Attached are three pages from the folder AASHTO recently sent to Members of Congress, titled "Our Transportation Needs." They provide more details on our findings, with the third page displaying the summary information in graphic form.

While the estimated amounts to maintain and improve our highway and transit systems are daunting, the situation is made troublesome because significantly more funding is being collected by the Federal Government from highway users than is being made available for transportation. If we could fully utilize the funds already going to the Highway Trust Fund, it would improve the situation. If we could also add to this the 4.3 cents per gallon now used to support general fund programs, as shown on the attached bar graph we would then just have enough funding to maintain current highway and transit conditions.

It is very difficult to explain to highway users who are paying fuel and other taxes into the Highway Trust Fund why we do not have access to all the funding that is being collected, when our transportation investment needs far exceed current funding levels. If we could simply have access to all the funding flowing into the Highway Trust Fund and the revenue from the 4.3 cent tax, we could at least maintain current conditions.

As stated earlier, it is AASHTO's position that:

"The 4.3 cents per gallon in user taxes collected from motorists should be deposited in the Highway Trust Fund and be spent on system maintenance, rather than diverted to the General Fund."

AASHTO commends Senators John Warner and Max Baucus and the 55 Senators who joined them in writing to Senator Pete Domenici, Chairman of the Senate Budget Committee, seeking a highway program level of \$27 billion, which has been demonstrated to be sustainable by the Highway Trust Fund. We also commend Senators Alfonse D'Amato and Daniel Patrick Moynihan for their similar letter, which also urges a transit program of \$5 billion.

AASHTO hopes that these funding levels will be approved, and that the revenue from the 4.3 cent fuel tax will be placed in the Highway Trust Fund and utilized to meet our highway and transit investment requirements.

When the nation's Governor's met in Washington last week, they addressed the transportation funding situation and adopted resolution EDC-21, "Surface Transportation Financing." It included the following paragraphs, and a full copy of EDC-21 is attached:

"Growing Highway Trust Fund revenues will permit significantly higher Federal spending for transportation programs over the next 5 years. A much greater share of Highway Trust Fund revenues can and should be spent for transportation investments than is implied in recent Congressional and Administration budget proposals. Governors are aware of and support the movement in Congress for increased transportation spending."

"Governors are aware that Federal fiscal circumstances require prudence in setting spending priorities and continue to support efforts to balance the budget. However, reducing Federal transportation investment and allowing our nation's transportation infrastructure to fall further into disrepair will result in lost profits, jobs, and productivity, and ultimately lower tax revenues to the Federal Government."

The NGA resolution then goes on to urge that the Federal Government:

"Reinstate the nation's long-standing policy of dedicating Federal transportation-related motor fuel taxes and excise taxes exclusively for transportation purposes. If the 4.3 cents per gallon of fuel tax that is currently being used for General Fund purposes continues to be assessed, it should be deposited in the Highway Trust Fund and used for transportation purposes."

"Restore the integrity of the dedicated trust fund. All dedicated user fees and the interest accrued on trust fund balances should be promptly distributed for their intended purposes."

Mr. Chairman, we share the view of the Governors.

SUMMARY

In summary, AASHTO believes that there will be no more important legislation before this Congress for the future of America than the reauthorization of our surface transportation program.

We must either meet our investment needs, or face a decline in American mobility as we enter the 21st century.

We have provided you with AASHTO's recommendations for reauthorization and stand ready to provide any further information which would be of assistance as you move forward in the legislative process.

Mr. Chairman, this concludes my remarks. Again, thank you for the invitation to present our views and we will be pleased to respond to questions now or in writing.

RESPONSES BY DARREL RENSINK TO QUESTIONS FROM SENATOR CHAFEE

Question 1. I think we can all agree that investments in transportation yield a high return in terms of economic productivity, efficiency and job creation. However, we are unlikely to have adequate public resources to address all transportation needs. Strategic transportation investment is therefore critical. In your opinion, which transportation investments will yield the greatest return in the future?

Response 1. As we look to establishing our investment priorities, the partnerships established through ISTEA with local governments and the public must be used to help guide our investment decisions. At the Federal level, the congressionally identified National Highway System (NHS), including the Interstate system, must remain a focus of Federal involvement and investment in highways. The NHS is the backbone of the nation's transportation system, and the efficient operation of this system is essential to the nation's well-being. Recognizing that there is no one definition of what is of national importance, Federal investments in the other modes should also focus on those systems of international, national or regional importance.

Historically, Federal investment in our nation's transportation infrastructure has focused on capital improvements. State and local governments have the primary responsibility for the maintenance and preservation of the systems. While the need for capital investments which expand the capacity of our systems will remain, we need to recognize the long-term benefits which we can achieve with proper preservation and maintenance of our infrastructure.

A key principle to help guide the discussion of investment priorities is the need to also focus on "safety." The public deserves both a safe and efficient transportation system. Investments necessary to improve safety must receive a high priority.

The responsibility for addressing our critical transportation needs does not solely rest with the public sector. As public resources fall short of meeting critical needs, we must partner with the private sector as we look toward the future. We must explore innovative financing opportunities in partnership with the private sector.

The public expects and demands a first-rate transportation system. The challenge is providing the best we can with the resources at hand.

Question 2. One of the four principle recommendations made in AASHTO's *Transportation for a Competitive America* study is that States and local governments should be given more flexibility in determining how, when and where transportation resources are spent. In your view, what aspects of the current program inhibit the flexibility of State and local government in spending transportation resources?

Response. Since the enactment of ISTEA we have been working to achieve the balance between the flexibility necessary to effectively administer the transportation program within our States and the oversight responsibility at the Federal level. We are still learning and beginning to implement the many changes brought about by ISTEA and the NHS Designation Act. We will continue to explore how, when and where the Federal investments can be directed within the context of ISTEA or Federal regulations and areas where additional flexibility would result in a more efficient and effective delivery of transportation services.

While we continue to look for that balance, we are encouraged by the list of changes included in the Administration's reauthorization proposal in the areas of program delivery and project oversight. Many of these areas are consistent with the ASHTO reauthorization recommendations. The following changes would bring us closer to that balance.

- Annual program-wide approval for Surface Transportation Program (STP) projects, rather than the current quarterly project-by-project certification and notification.
- Remove a restriction which applies Federal share to each progress payment to the State and allows a variable Federal share on progress payments.
- Remove a restriction that prohibited reimbursement of certain indirect costs to the States, thereby making Federal-aid highway funding more compatible with grants from Federal Transit Administration (FTA) and other Federal agencies.
- Permit merger of Plan Specifications and Estimates (PS&E) approval and Project Agreement execution and provide for obligation of Federal share on a project when the Project Agreement is executed.
- Expand flexibility to States and FHWA to mutually determine the appropriate level and extent of State and FHWA oversight on NHS projects.
- Provide that FHWA's oversight responsibilities shall not be greater than they are under Certification Acceptance and ISTEA, unless the State and FHWA mutually decide otherwise.
- Provide that States must assume Title 23 oversight responsibilities on non-NHS projects. (FHWA would retain oversight responsibility for non-Title 23 requirements, e.g. NEPA, on all projects.)

An additional item which has been the subject of considerable concern is the fiscal constraint requirements for long-range plans, State Transportation Improvement Plan (STIP) and Transportation Improvement Program (TIP) documents.

The States believe in fiscal accountability and, prior to the enactment of ISTEA, have recognized that planning and programming documents must consider the availability of fiscal resources. In developing long-range plans, anticipating funding beyond a 5-year future timeframe is very much of a crystal ball. As a result, the absolute requirements for fiscal constraint should be made more flexible.

The regulations for the STIP and TIP require the States' program be balanced by type of funding and the year of expenditure, with no over-programming to allow for project delays or cost under-runs. However, States only know how much funding will be available through the annual appropriations cycle. The programming documents become little more than a "stapling" exercise, or the States have been forced into endless rounds of amendments as projects are delayed, costs change, or the funding mix on projects changes. The STIP fiscal constraint should be based on total Federal funds anticipated each year, rather than requiring constraint by fund or categorical program.

STATEMENT OF DAMIAN J. KULASH, PRESIDENT AND CEO, ENO TRANSPORTATION FOUNDATION, INC.

Good morning, Mr. Chairman and members of the committee. My name is Damian J. Kulash, and I am the President and CEO of the Eno Transportation Foundation, Inc. The Eno Foundation is a 501(c)(3) operating foundation. William Phelps Eno started the Foundation in 1921 to improve traffic control and highway safety. Most of the Foundation's initial work dealt with improved traffic-control techniques and development of more effective safety policies during the 1920's when the Nation was rapidly turning to automotive transportation. As times have changed, the Foundation's activities have evolved to meet emerging needs. Today, the Foundation remains dedicated to transportation improvement, and has become truly multimodal in its activities, its Board of Directors and its Board of Advisors, and in the many contributions of professional effort that advance its work. Its activities have earned an excellent reputation for objectivity and reliability. Most of the Foundation's work is supported from its endowment; about a third of its work is supported by contracts or grants from government and industry. The Foundation operates educational study programs, publishes technical monographs, produces a quarterly journal dealing with transportation policy, and conducts policy forums which bring together people from different perspectives to share their views in a neutral, constructive setting. One of the topics that we addressed in the policy forum series this past year is very close to the focus of this hearing, namely how transportation investment can be targeted to produce the greatest economic return.

The next surface transportation authorization bill will have far-reaching effects. All Americans have a massive, shared interest in the total economic benefits of the transportation system: it increases the productivity of each industrial sector, it boosts our competitiveness in the global economy, it increases the market for goods and services, and it widens the market for labor and for the other factors of production. Too often in the authorization process, these shared objectives are left unstated, and the discussion immediately turns to the distributive implications of the subject: which programs go up and which go down; which States get more and which less; which modes and regions will grow; which States will be net donors, and the like. These are important issues that are closely watched by transportation interests, but the overriding goal should be to select an investment strategy that gives the greatest boost to the nation's economy and which targets that investment on the most effective programs.

Clearly transportation investments influence the location of economic activity. From the time of the nation's first transportation plan the Gallatin Report at the beginning of the 19th century political leaders responsible for transportation investment have been keenly attentive to the substantial regional impacts of such investments. Even earlier, as different ports competed to be the supplier of the original colonies, then as different routes competed to be the gateway to the west, as the first national system of post roads was designed, and later as the Interstate Highway System was designed, States and regions have vied for access. Transportation facilities are major magnets for growth. Many kinds of economic growth will be attracted to one of these magnets or another, at the expense of points in between. States and regions do not want to be left in those gaps. These local economic consequences are obvious and important, but they are not the key to developing an effective national investment strategy.

Developing countries place high priority in investments in rail, port, highway, transit, and other transportation facilities, recognizing the strong ties between transportation infrastructure and overall economic performance. Many historians and developmental economists believe that the Industrial Revolution was a direct consequence of the transportation development that preceded it. One study found that the reason there was an Industrial Revolution in England during the 18th century but not in France can be traced partly to their different transportation policies. Specifically, England had a flexible system for investing in turnpikes and canals as opportunities emerged, while France clung to a system of regulations and central plans that could not keep up with changing economic opportunities. (1.)

The economic history of the United States can be traced from its transportation investment history from the initial dominance of eastern port cities like New York and Boston, to the growth of railheads like Chicago and Omaha, to the boom in the Sunbelt which is possible because of ubiquitous air and road access. The linkage between the overall economy and investment in power supply, water supply, and transportation has been of particular interest to developmental economists. All industrial revolutions have been accompanied by development and expansion of such infrastructure. While there has always been a vigorous debate about how to trace the linkage between public investment and economic return, the British economist

A. J. Youngston sums the matter up by noting that the vital significance of improved transportation to economic development is "one of the few general truths which it is possible to derive from economic history." (2.) Surprisingly, this "general truth" often gets ignored in the economic analysis of national budget issues.

A recent study by the World Bank found that the importance of transportation does not diminish as countries industrialize. (3.) The growth of Japan, Korea, Taiwan, Malaysia, and Thailand has been spurred by globally integrated production and assembly chains that depend critically on high quality domestic, regional, and international transportation. The World Bank report observes that cross-country studies have confirmed that investment in transport raises growth by increasing the social return to private investment without "crowding out" other productive investment. The Bank's transport investments at completion have shown a rate of return of about 22 percent, comparing favorably with a rate of about 15 percent for all World Bank investments.

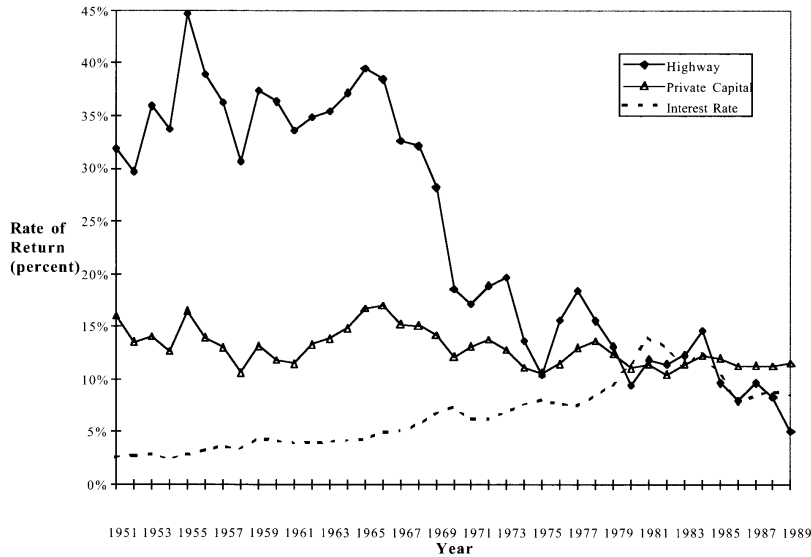
Investments in transportation infrastructure in the United States have also stimulated sizable economic returns. Several years ago, Bates College economist David Aschauer performed a simple analysis in which he separated the economic investment in infrastructure from other government, and he found a high rate of return on such public investments. (4.) This study flew in the face of the prevailing economic assumptions used in budgetary analysis, which was, in effect, that the return on investments in infrastructure are no different from any other government spending, and could be lumped in with other government spending when economic impacts are being estimated. This analysis stirred up considerable controversy, both about the methods used and the significance of the findings. Although the methodology can be refined in various ways, this work nonetheless helped to focus renewed attention on the returns from public investments in infrastructure.

It also pointed out that this topic has not received adequate attention. In most cases, economists do not separate public investments in transportation from other Federal spending, implicitly assuming that such investments cannot yield rates of return higher than those produced by private investments. But historical experience casts doubt on this assumption, as do other recent economic analyses. They show that the return on transportation capital has in fact been higher than that of other government spending, and also higher than what private capital has earned. To ignore these differences is to sell the Nation short.

NEW FINDINGS

This past year, M. Ishaq Nadiri, an economist at New York University, developed a cost-function model to estimate the relationship between the capital stock of highways and the net social rate of return. (5.) He found that during the 1950's and the 1960's, the net social rate of return of the nation's highway network was extremely high around 35 percent, which is far above the rate of return that could be expected from private investments. This means that public funds invested in transportation in the 1950's were paid back, through growth realized by private industry, in only three to 4 years. Around 1970 this changed. In the past two decades, the net rate of return fell to levels that were comparable to those earned by private capital. (see Figure)

Figure 2
Net Rate of Return of Highway Capital, Private Capital,
and Private Interest Rate (1951-1989)



These patterns are important for two reasons. First, they show that transportation investments can have a profound effect on the economy, if they are targeted on the right projects and programs. Second, they show that the targets change over time.

What are right targets for government investment in transportation today? Will future investments in the highway system yield returns above 30 percent, as in the 1950-1970 period, or 10 percent, as in the last decade? Was it the building of the Interstate Highway System that caused the high rates of return, and are there similar public investments facing us today? Do the National Highway System or the widespread introduction of Intelligent Transportation Systems have similar potential? Do investments in airports, transit, ports, intermodal facilities, and other forms of transportation promise similar economic benefits? This past July the Eno Transportation Foundation, with sponsorship from the Federal Highway Administration, the American Association of State Highway and Transportation Officials, and the National Cooperative Highway Research Program, held a forum to examine the implications of this work in the current context. We brought together a group of economists, industrial representatives, and government officials to explore what led to the very high net social rates of return that resulted from highway investment in the 1950's and 1960's, and whether public investments could be targeted to produce such high returns in the future.

This forum concluded that the social rates of return on infrastructure have been significant and positive. It also concluded that the high returns found in earlier decades trace from what are called network and dynamic effects things that create growing room in the economy; investments that fit the economic conditions of the time. They pointed out that the objective of public investment in infrastructure is not simply to solve a locality's immediate transportation problem, be it potholes or congestion. Rather, it is to enhance the prosperity of the region and the Nation as a whole. They also recognized that this does not really answer the question of which programs best serve this goal, and that additional analysis is needed to pinpoint the specific conditions needed to maximize the value of investment projects.

THE INTERSTATE HIGHWAY SYSTEM AND NETWORK EFFECTS

As we search for possible causes of the pattern of returns shown in Figure 1, by far the most obvious change during the period was the building of the Interstate Highway System, a huge program of unprecedented proportions. Some 45,000 miles of multilane, limited access freeways linking coast to coast and north to south. We

all know that this system has profoundly reshaped our economy and our lives. Trips and shipments that formerly were long and unreliable have become routine. Although the new system added barely more than 1 percent to the nation's total road mileage, today nearly one mile in four of all our highway travel takes place on this system. It made high speed travel possible in many areas where it had not been possible before. The biggest changes in door-to-door speeds probably came from eliminating urban bottlenecks. You can now ship goods from Richmond to Hartford without wondering if you would ever get through Washington, Baltimore, Wilmington, New York, and New Haven. One quarter of our personal travel and our truck freight now occurs on these roads that were not here 40 years ago. The Interstate has not only changed where we live, work, and shop: it has also allowed industry to reduce inventories, achieve economies of scale, access broader markets, and operate plant and equipment more economically.

The economic consequences that are most critical are network and dynamic effects. Transportation investments do more than change where economic growth happens: they also influence how much growth occurs. They should be weighed in terms of the social rate of return they create for the Nation as a whole; not just their impacts on specific affected areas.

The nation's successful companies reap these benefits every day. (6.) For example, the Coca Cola Midwest bottling plant has been shipping its product over highways using "double bottoming," a tandem trailer arrangement that reduces handling costs, reduces overall mileage, and increases driver productivity. Special refrigerated "Rolling Warehouses" make it possible for the Coca Cola plants to pre-load trailers to meet orders at the point the product is manufactured. Drivers come with their tractors and have the trailers ready to deliver, with exactly the right mix of products. The Wal-Mart Stores, Inc. quick response program works out of a set of distribution centers located on key north-south and east-west routes on the Interstate Highway System. It has improved its ability to schedule production and reduce its inventory, as well as improve customer service. General Motors' Just-in-Time production system uses about 7,000 trucks to provide daily support to its 29 domestic assembly plants. A typical plant unloads about 120 truckloads of parts and supplies each day, and speedy, reliable highway access allows General Motors to meet very precise production schedules. This system has reduced inventory costs and improved competitiveness. Campbell Soup Company is also using Just-in-Time delivery, together with its Select Supplier program, to reduce inventory, cut waste, and reduce handling costs. It has also allowed the company to improve product quality by using fresher ingredients.

As these illustrations show, the benefits of the nation's highway system are felt by a diverse array of industries. One of the key findings of the Nadiri analysis, which examined the rate of return of the highway stock on 35 different industries, is that the economic benefits are distributed widely, across almost all sectors of the economy.

Throughout the economy, highway transportation is doing things today that it could not do before the Interstate System was built. Elimination of congested urban bottlenecks allows intercity shipments to extend for longer ranges with greater reliability. This allows consolidation of production and warehousing facilities, lets industries reach broader markets, and creates economies of scale. Companies are able to locate facilities on lower-cost land, reach larger labor markets, and cut inventory, storage, and handling costs. By reducing the costs of haulage, transportation investments have broadened the market area for industry, both domestically and internationally. Improvements in the speed and reliability of transportation permit the uninterrupted supply of raw materials, components, and finished goods, allowing plants and equipment to run more efficiently. Reliable transportation is key to Just-In-Time inventory systems, which diminish the need for large inventories.

Productivity improvements like these have been stimulated in all transportation-using industries, and that means virtually every sector of the economy. These are network effects: the key economic benefits come through the provision of a national network. Additions to the system not only benefit the localities affected, but they also permit the entire network to perform better. Thus elimination of a bottleneck in St. Louis may benefit a manufacturer in San Francisco or a retailer in Orlando. The interstate interdependency of haulage is reflected in the pattern of ever longer shipments. An average shipment by truck traveled 416 miles in 1995, up by 77 percent above the average shipment length of 235 miles in 1950. The substitution of highway transportation for other factors of production is also reflected in total trucking tonnage, which grew by 324 percent between 1950 and 1995, while the GNP grew by 273 percent during that same period. (7.)

WHICH INVESTMENTS CREATE GROWING ROOM?

Pressures to balance the budget mean that any investments in surface transportation infrastructure must compete for the limited funds available. Public funds have often fallen short of the mark, and throughout our nation's history we have augmented direct authorizations of public funds by using land grants, tolling authorities, bonding, and numerous other devices to make long-term investments without being unduly constrained by short-term financial limitations. With today's intense concern about budgetary pressures, the pendulum appears to have swung to the other extreme, however: the nation's highway program is increasingly being used to bankroll deficit-reduction efforts. Is it sound policy to fund deficit reduction at the expense of transportation investment? No, if you can select investments in transportation that outperform public and private investments, as was the case in the 1950's. Yes, if there are no such opportunities to create growing room in the current context. That is the crux of the issue at this juncture.

The nation's stake in this matter is vast, and it pervades every sector of the economy. The nation spent \$1,150 billion on transportation in 1995—about one sixth of the GNP. This includes \$348 billion in trucking expenditures; \$599 billion that people spent to buy cars, gasoline, tires, insurance, parking, and the like; \$70 billion for passenger airline fares; and \$127 billion that Federal, State, and local governments spent on transportation services and facilities. (7.) The U.S. total transportation bill is about three quarters the size the Federal Budget. The reauthorization of surface transportation programs will have profound effects not only on this huge sector, but on the entire economy. The efficiency, speed, and reliability of transportation have vital consequences on agriculture, construction, manufacturing, service industries, and every other sector of the economy. Public investments in facilities and private investments in vehicles, communications, and control systems are key to continued economic growth.

The economy and the transportation system will continue to grow. If the past is a guide, this growth will be substantial. During the past decade, freight transportation, measured in ton-miles, grew by 37 percent and passenger transportation grew by 44 percent. The highway portions of these totals grew even faster: intercity truck ton-miles increased by 50 percent, and intercity automobile passenger miles increased by 44 percent. If these growth rates persist throughout the next decade, both passenger and freight volumes on the nation's roads will be more than double what they were 10 years ago.

Which transportation investments will yield the greatest economic benefits? One of the morals of recent economic explorations of this question is that the investments must fit the context, and the context is constantly changing. Public investments in transportation in the past appear to have been most successful when they could create a new environment that bred new uses of the system. These appear to have been to network improvements rather than stand-alone projects. Four parts of the program authorized in the previous surface transportation bill deserve special attention in this respect: preservation of the Interstate System, the National Highway System, the capacity to fill intermodal gaps, and Intelligent Transportation Systems.

PRESERVATION OF THE INTERSTATE SYSTEM

Although the Interstate System has been completed and most program attention is rightfully focused on other needs, the maintenance of the Interstate System, both physically and functionally, continues to be of prime economic importance. The initial investment in this system produced very high social rates of return. Disinvestment in this system could cause correspondingly large economic disruption. While it is difficult to interpret historic studies of economic impacts in terms of today's programs, one of the most applicable inferences is that keeping the Interstate in good repair is a top priority.

Closely tied to this is preserving the functional capacity of the system. Local traffic congestion threatens national network performance in many places. There are no easy solutions. The strong economic performance of past investments on this system, however, also signal the high looming costs of not keeping ahead of the needs.

THE NATIONAL HIGHWAY SYSTEM

The participants at the Eno Forum on the Economic Returns from Transportation Investment noted that the Interstate Highway System was underutilized at first, but it created room for rapid future growth. New tools or new capabilities can create unanticipated new fields of economic opportunity. Investments of this sort do not simply meet an existing demand. They create new demands by opening the door to

entirely new activities. This is perhaps most easily seen in the case of computers, where applications that appeared exotic a few years ago have become commonplace components of household appliances and automobiles. Similarly, new transportation system capabilities have contributed to the creation of catalog businesses, overnight package delivery services, and just-in-time manufacturing. Many of these new businesses or capabilities were not foreseen before the supporting communications, computing, and transportation investments to support them were made: the new businesses seized the "growing room" that the new investments created.

The National Highway System, like the Interstate Highway System, could improve the reliability and throughput of those parts of the surface transportation system that will be most heavily used. Just as the creation of the Interstate Highway System brought important network benefits by tying together the leading centers of production and activity, so too might the National Highway System have similar effects by targeting national priority on the key routes selected for the National Highway System. Is this the right investment for today's context? Nadiri's analysis sheds some encouraging light on this question. He separately examined the net social rate of return from investments in non-local roads, using the same general approach that he used for his analysis of total highway capital stock. He found that returns had fallen over the decades in both cases, but that capital invested in non-local roads always showed a return about which was about one and one half times that estimated for the total highway stock. Even in recent years, the investment in non-local roads showed a return of 16 percent, or paid back the public investment in 6 years. This compared favorably to private investments in general, which showed a return of 11 percent.

Table 1—Percent Annual Net Social Rate of Return on Investment

Net Social Rate of Return	1950-1959	1960-1969	1970-1979	1980-1989
Total Highway Capital Stock	35.2	34.8	16.1	10.0
Non-local Highway Capital Stock	47.9	47.4	23.8	16.1
Private Capital Stock	13.4	14.0	12.0	11.0

These findings, which apply to the actual investments made in non-local roads during the 1980's, do not necessarily apply to the investments the National Highway System in future years. Nevertheless, they do suggest that one key target of opportunity lies in expansion of the national network to include additional heavily traveled routes.

INTERMODAL GAPS

Most transportation is planned, managed, and run one mode at a time. Things that happen between the modes have been outside the scope of most companies or organizations. Customer demands are changing this. In the case of freight transportation, huge investments in ports, containers and terminals that have made intermodal freight traffic one of the fastest growing parts of the overall transportation scene. In the case of passenger transportation, government agencies are increasingly seeing their role tied to improving overall performance, not merely building infrastructure or running a certain kind of vehicle.

The "intermodal" emphasis in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 targeted an important feature of the overall network the often neglected edges between the modes. Rather than tightly limiting the way that Federal funds for infrastructure can be used, ISTEA allowed flexibility in substituting other projects that would increase system performance. It encouraged planning that embraced all the modes. It created new program categories to address emerging needs.

Intermodalism brings a new solution to an old problem. The fact that individual modes are poorly coordinated parts of a larger system has been recognized for years. It was this insight that drove the creation of the U.S. Department of Transportation in 1966. Administration after administration has called for an integrated, national transportation system, but the challenge has proven far easier to repeat than to meet. Every individual and every business in the country has a stake in transportation, and the organizations and topical jurisdictions that have evolved reflect pervasive interests. Parts of transportation are private, parts public; parts are Federal, and others State or local. Earlier calls for an integrated national transportation system appeared to hint at some sort of command and control superstructure, a specter that spread paralyzing fear among virtually every firm and organization involved. Intermodalism represents a strategy for getting better coordination without the

threat of excessive central control. It targets the rough edges between current divisions of responsibility. It may offer a strategy for achieving the economic benefits associated with network effects, not just for the highway network, but for the transportation network as a whole.

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

The stunning rate of progress in communications, computer, automated identification, global positioning systems, and other areas have opened vast new windows of opportunity in the degree of coordination that is technologically and economically viable. Activities that were too complex to manage previously show great potential today. Continued advances in Intelligent Transportation Systems could yield great benefits in efficiency, safety, and service. These emerging systems could potentially improve the coordination of transportation services, permit better use of existing facilities, introduce new navigational capabilities, make travel safer, lead to more efficient management of highway incidents, and bring many other benefits. With or without government investment here, there is little doubt that the vehicle/highway system 50 years from now or even 20 years from now will embody products and capabilities that are unimaginable today. Like the Interstate Highway System, which created unanticipated growing room for many economic opportunities, ITS has the potential to bring radical change to how the nation's surface transportation affects the economy.

CONCLUSION

This is a critical period in the evolution of the nation's surface transportation programs. The current reauthorization comes at a time of intense budgetary pressures. It comes at a time when the national stake in transportation is not clearly defined and not well recognized. The Interstate Highway System has been completed, but keeping it in repair and preserving the type of service it provides will continue to be top priorities. As this system has been completed, other highway and bridge programs have not generated the same commitment to common purpose that characterized the Interstate System. The National Highway System, which focuses on the principal routes of interstate commerce and travel, is still emerging and the funding to maintain this system has yet to be provided. Intermodalism, which might offer an effective strategy for setting priorities and focusing resources on key opportunities in the overall transportation network, still represents only a very small part of the program. Without additional resources, this set of opportunities will appear to be a diversion from existing highway and transit programs, which are struggling to deal with their traditional scope. Intelligent Transportation Systems promise many benefits, but most of these will take years to realize. In the absence of a strong and unifying interest in the nation's transportation programs, rivalries between States, modes, or projects are eclipsing the fundamental questions.

Growth in the economy will continue to hinge on wise transportation investments. Budgetary pressures will make it exceedingly difficult to free the funds that are needed for investment. The Congress will have to make the difficult allocation of resources between transportation investments, deficit reduction, and other priorities. The new investments are made will have immense economic consequences, as will any net disinvestments that result if the service provided by existing systems is allowed to deteriorate. It is essential for continued economic health that you target the available funds on those programs and systems that will do the most for economic growth.

Recent economic analysis has shown that the returns from investment have varied widely in recent years. Sometimes they have been dramatically stronger than what private investments have earned, sometimes about the same. Finding investments that produce maximum economic growing room appears to be key to effectiveness. Forty years ago, that meant channeling funds into the creation of the Interstate Highway network, an investment which generated very high economic returns. It is not clear which, if any, programs would yield similar benefits today. Inasmuch as past experience suggests that network effects are at the core of effectiveness, four programs preservation of the Interstate Highway System, improving the National Highway System, filling intermodal gaps, and Intelligent Transportation Systems appear to warrant special consideration. These programs have the potential to afford the growing room that has characterized effective programs in the past. In the current struggle for funds, however, these programs particularly the newer ones are apt to be shortchanged and cast as diversions. That would be unfortunate. To achieve the high rates of return that history shows to be possible, it is important to look past the immediate, site-specific consequences of the program and support the program elements that fuel the nation's economy as a whole.

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REAUTHORIZATION OF THE INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT

WEDNESDAY, FEBRUARY 26, 1997

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

ADMINISTRATION'S TRANSPORTATION POLICIES AND PROPOSALS

The committee met, pursuant to notice, at 9:34 a.m., in room 406, Dirksen Senate Office Building, Honorable John W. Warner (chairman of the committee) presiding.

Present: Senators Warner, Smith, Kempthorne, Inhofe, Thomas, Wyden, Moynihan, Reid, Graham, Boxer, Baucus, and Chafee [ex officio].

OPENING STATEMENT OF HON. JOHN W. WARNER, U.S. SENATOR FROM THE COMMONWEALTH OF VIRGINIA

Senator WARNER. The Subcommittee on Transportation and Infrastructure will come to order.

We are convened today to receive testimony from the Honorable Rodney Slater, Secretary of Transportation, on the Department of Transportation's ISTEA reauthorization proposal and program performance. In our second panel we will hear from Mr. William Fay of the American Highway Users Alliance, and Mr. Hank Dittmar of the Surface Transportation Policy Project.

Before we receive the Secretary's testimony, let me turn to the distinguished chairman of the full committee, Senator Chafee, for any opening remarks he may care to make.

Senator Chafee.

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator CHAFEE. Thank you, Mr. Chairman.

Mr. Secretary, welcome. We have had the pleasure of working with you over several years now and we look forward to continuing that.

I might say, Mr. Chairman, during the recess I had the privilege of going to Germany to see the magnetic levitation train that Senator Moynihan has been talking about and urging us to go see. It was a wonderful experience. I urge any of our colleagues who can to go over there and take a look at that train. It has a 20-mile run they have set up in the test facility. It was cruising along at 430

kilometers per hour, which works out to 250 miles per hour, with no friction because it is raised up off the track. Therefore, there is no metal on metal.

Mr. Chairman, I want to commend you for these hearings and commend the Department for preserving and building upon the key goals of ISTEA, which we passed in 1991. This is a reauthorization of that.

I am pleased that, in your materials you are presenting to us, you have several strong innovative finance provisions. It seems to me with the fiscal constraints that are upon us, we have to reach out for creative ways of financing our substantial infrastructure needs. The Administration's decision to expand the State Infrastructure Bank—so-called SIB—and to create a new infrastructure credit program demonstrates a solid commitment to do this. These ideas, along with others, will encourage the private sector participation. Senator Warner, Senator Moynihan, Senator Bond, and I introduced legislation to permit and encourage private sector participation.

I would like to just mention the controversial issue of funding formulas. I am concerned that much of the current discussion focuses on gasoline taxes and other trust fund contributions. I believe that gasoline taxes are a simple and efficient way to raise revenue for transportation. In fact, Senator Bond and I are cosponsoring a bill to strengthen the relationship between gas taxes and other trust fund contributions and transportation spending. We make that nexus, that connection.

It seems to me, however, that gasoline taxes and other contributions should not drive national policy. Our national transportation program should focus on needs—what do we need out there—as do almost all the other Federal programs. The other Federal programs are based upon need. Using gas tax contributions is a primary means of distributing funds. It seems to me if you can only get out what you put in, that undermines incentives to be more frugal in the use of gasoline. We will be able to discuss that at greater length when we discuss the formula.

So what I see out of this ISTEA and what we did in 1991 was very innovative. I hope we can continue that innovation with the reauthorization this year.

Thank you very much, Mr. Chairman.
Senator WARNER. Senator Baucus.

**OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR
FROM THE STATE OF MONTANA**

Senator BAUCUS. Thank you, Mr. Chairman.

I would like to say a word about the levels of funding which the Administration and the Budget Committee apparently are proposing for ISTEA. I think those levels are inadequate.

I mentioned at our last ISTEA hearing my disappointment that the Administration's fiscal year 1998 budget proposed a \$500 million decrease in highway programs, not level funding, but effectively a \$500 million decrease. I was further disappointed when I learned that the Administration's ISTEA reauthorization bill would be proposing authorization levels far below that which the highway

trust fund could sustain. These authorization levels actually decline each year of the bill.

It has been estimated that the balances in the fund will be \$44 billion to \$48 billion at the end of the authorization period. I think we all agree that is unacceptable. I have long been an advocate for spending these balances, plus the revenue we collect every year. We are cheating the American taxpayers every time we short-change them in transportation spending.

We made a deal with motorists that the user fees they pay in Federal fuel taxes would be used to improve our transportation system. Sadly, this has not been the case. And it appears the Administration bill will come up short again.

This is unfortunate. While many of the priorities of the Administration you will discuss today, Mr. Slater, deserve praise, without the necessary resources these priorities will not be realized. Enhancing and protecting the environment, increased safety standards, and welfare to work programs all may suffer because funding is not available to achieve these goals and still maintain our thousands of miles of highways and bridges.

There is a very broad support for increased transportation funding from the highway industry to organized labor to the environmental community. I can guarantee my colleagues that this may be one of the only areas during reauthorization where there is agreement among competing interests. We should not lose this opportunity to capitalize on this consensus.

So with my colleagues on this committee, I intend to continue to push the Senate Budget Committee to understand the importance of transportation spending. We all want to balance the budget—and we will—but let's be smart about it.

Mr. Slater, I have other questions which I will ask you at other times, but I urge you to take this message back to the Administration and to all those who have something to say about how many highway dollars we spend. I think right now we are missing a major opportunity and we are, in fact, shortchanging Americans who pay for gasoline and diesel fuel and expect that those payments will go to the highway program, when we are not doing that thus far.

Senator WARNER. Thank you very much, Senator Baucus.

I wish to associate myself with your remarks with regard to the higher expenditures which the highway trust fund can sustain, and I hope will sustain. I have joined with my colleague from Montana and we are going to have a fun, relenting drive against all to get a higher level of funding for America's highways.

I regret that the Administration, Mr. Secretary, has not submitted this morning its proposed bill. Nevertheless, we are glad that you are here to give us certain highlights of that bill. Some parts of that bill have been shared with me. I must say that I wouldn't pronounce it dead on arrival, but Mr. Secretary, it falls short in my judgment unless major changes are made in the next few days reflecting what I believe is the proper role of leadership for the President and for yourself. And I say that most respectfully to my good friend.

This particular bill—call it what you wish, ISTEA renewal, or whatever it is, I think it is neither ISTEA renewal or a new one—

it is building on certain goals in ISTEA, but recognizing that other parts of ISTEA require change. I will address the formula as a particular example momentarily. But we need more active leadership from the President and yourself.

This is the largest money bill going through the Congress, and that is really the Department of Defense bill, a single piece of legislation uncontrolled by entitlements or otherwise. Therefore, it is going to require the strong leadership from the Administration and from the Congress to do what is proper and fair for the American people.

I urge you, and I know you well, and I think you are up to it. It is only a question of whether those to whom you report will give you that free reign. I hope they will.

On the formula, I disagree with my distinguished colleague very strongly about your approach to it. Senator, as I listen to you, maybe we ought to repeal the gas tax and see if we can start all over again. The legislative history on the Federal highway trust fund is very clear. It was put on the log books to take care of America's highways and not an ever-expanding array of other needs. If it is the intention of Congress to go back on those commitments when this law was written, then I think we had better take it off the law books and start over again.

I say that most respectfully to my distinguished colleague from Rhode Island.

We are limiting ourselves to just a few minutes here, gentlemen. The gentleman from Idaho.

**OPENING STATEMENT OF HON. DIRK KEMPTHORNE,
U.S. SENATOR FROM THE STATE OF IDAHO**

Senator KEMPTHORNE. Thank you very much, Mr. Chairman.

I would just like to publicly congratulate our new Secretary of Transportation. I was proud to support his nomination. In light of your urging that we get to the questions, I would withhold further comments and will point to some of my areas of concern through the questioning.

Thank you.

Senator WARNER. Fine.

Senator Boxer.

**OPENING STATEMENT OF HON. BARBARA BOXER,
U.S. SENATOR FROM THE STATE OF CALIFORNIA**

Senator BOXER. Mr. Chairman, I would like to submit my statement for the record. I would like to make about 2 minutes worth of comments because for me, despite some of the negativity—and I know we all have problems with this—it is a very exciting day because I view transportation as the life blood for California, and I know it is true for many other States. I do look forward to working with our new Secretary, for whom I have the greatest respect, and with you, Mr. Chairman, and our ranking member, and our full committee chair so that we come up with a formula that is fair.

Of course, as the representative from the largest State of the Union, I would like to see it based on population and the actual miles of highway. So I will of course be taking a position that is best for my State, as we all will do.

But I think truly that what is best for California in many ways, as the largest State of the Union, is good for our country—and I will tell you why. I think the future of our country rests on our ability to be a global economic leader. To do that, we have to make sure that we can move goods, we can move people, we don't waste time in gridlock. I will tell you, Mr. Chairman, right now that NAFTA has brought with it a lot more trade, but also the most incredible gridlock you have ever seen. I would hope that some of you may be able to accompany me to the border so that you can see it for yourself. We just did not think ahead.

I have spoken to the distinguished Secretary and I am pleased he has some initiatives to share with us about this, but our border checkpoints are becoming border choke points. If we are going to continue to lead in the world, this cannot be the case.

So there are many other comments I have. I will withhold them for the questions, but Mr. Chairman, I am so pleased to be on this subcommittee. I want to thank Senator Baucus for his incredible help in giving me some advice so that I could get onto this subcommittee. Hopefully, I will be a productive member.

Thank you.

[The prepared statement of Senator Boxer follows:]

PREPARED STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM THE
STATE OF CALIFORNIA

Today is an exciting day for me because I view the reauthorization of our surface transportation law as an absolutely critical part of our country's economic growth strategy. In California transportation is our life-blood. And I know that is true for many other States.

I look forward to working with my colleagues on this committee and with Secretary Slater to do what is best, and I truly believe what is best for California is really best for the entire country. Why do I say that? Because California's economic future and America's economic future are tied to the efficient movement of goods and people both in and out of our country and across our country. We cannot be the economic leader of the world if gridlock wins the day. America's main ports are working at capacity. Expansions are planned or underway at every major airport, seaport, and border point of entry in the State to meet the challenge of global economic competition. And we need to improve access to those ports by rail and highway.

That is why I am pleased to see that the Administration's next TEA plan focuses in part on enhancing trade movement with the Border Crossing and Trade Corridor Grant Program. The Administration is proposing to allow more highway spending for rail-related transportation facilities to enhance the movement of goods.

The plan is to expand the flexibility of States and local agencies to fund publicly owned rail and rail-related passenger and freight projects, such as passenger rail terminals and transfer facilities for freight. These must demonstrate a public benefit such as improved air quality and reduced congestion.

The Administration also proposes a \$100 million transportation credit enhancement program that will help fund nationally significant transportation projects.

The Alameda Transportation Corridor, serving the ports of Los Angeles and Long Beach is a perfect example. It will eliminate 200 rail and street intersections that tie up southeast Los Angeles and raise pollution from idling car emissions. There are similar projects needing assistance in California and other States.

I would like to see more assistance for our international border chokepoints. They should be checkpoints, but they are actually chokepoints. Providing safe and efficient trade corridors at our borders is a responsibility that was neglected when NAFTA passed. We must correct this in the Next TEA, and I will offer a plan for the committee's consideration.

In addition to slowing down trade, gridlock greatly impacts commuters. The annual Bay Area survey in San Francisco recently found a third of the residents cited transportation as the most vexing problem, surpassing crime as the region's chief worry.

Four of the 10 most congested urban areas in the country are in California—San Francisco, San Bernardino and Riverside counties, Los Angeles and San Diego—according to one congestion study released last year. Commuting times are slowing to a crawl. It's no surprise that Los Angeles tops the list of cities in the U.S. in terms of traffic delays. We lose productivity from our workers in these traffic snarls and we waste fuel, too.

Now is the time to strengthen our national transportation commitment. We need to fine-tune ISTEA, in ways that we can provide efficient transportation for commuters and freight. We should consider ways to streamline the permitting process for transportation projects, and we should adequately fund the Congestion Mitigation and Air Quality Program which provides flexible spending on clean transportation alternatives.

We should also put a higher premium on maintenance. In California, maintenance and operations for highway and traffic is underfunded by about \$1.5 billion a year, according to a private study. We all know that we pay a heavy price for neglect. I look forward to a spirited discussion of all these issues.

Senator WARNER. We are delighted to have you, Senator. Thank you very much.

Senator Smith.

Senator SMITH. Thank you, Mr. Chairman.

I will submit my statement for the record, but just say on the record my congratulations to the Secretary and to say that we look forward to working with you.

[The prepared statement of Senator Smith follows:]

PREPARED STATEMENT OF HON. ROBERT SMITH, U.S. SENATOR FROM THE
STATE OF NEW HAMPSHIRE

Thank you, Mr. Chairman, for holding this hearing today on the Administration's proposal for ISTEA reauthorization. I first want to welcome and congratulate Secretary Slater on his confirmation and express my desire to work with him and his department in developing a fair, common sense, forward-looking reauthorization bill that meets both our local and national transportation needs.

While I am disappointed that the Administration could not complete its work in time for this hearing today, I trust that Secretary Slater will be as forthcoming as possible about the details of their proposal. I have some general concerns about the Administration's budget request for our highway program, including DOT's suggestion to fund certain entities such as Amtrak from the Highway Trust Fund. I hope to hear from Secretary Slater as to the rationale for some of these policy decisions.

I think we can all agree that an efficient and well-maintained transportation system is critical to our nation's economy and personal mobility. ISTEA was certainly landmark legislation in a number of ways, particularly in the area of giving States and local communities increased input and flexibility in the transportation planning process. In that regard, I will be interested in hearing from our witnesses how we can make improvements in the area of flexibility and devolution of decisionmaking authority without compromising our national interests.

With that, Mr. Chairman, I will yield so that we have sufficient time to hear from the Secretary and the other panel of witnesses.

Senator WARNER. Thank you.

Senator Thomas.

**OPENING STATEMENT OF HON. CRAIG THOMAS, U.S. SENATOR
FROM THE STATE OF WYOMING**

Senator THOMAS. Thank you, Mr. Chairman.

I, too, want to say how pleased I am to be in this subcommittee and am glad to have you here, Mr. Secretary. I entered just in time to hear my friend from California talk about a formula based on population.

[Laughter.]

Senator THOMAS. I have a little different point of view.

[Laughter.]

Senator BOXER. We will work together.

[Laughter.]

Senator THOMAS. I would like to talk a little bit about miles and about Federal land and some of the other peculiarities that do go with the various States we have.

I submit my statement for the record, too, Mr. Chairman.

[The prepared statement of Senator Thomas follows:]

PREPARED STATEMENT OF HON. CRAIG THOMAS, U.S. SENATOR FROM THE
STATE OF WYOMING

Mr. Chairman, thank you for holding this hearing today. Two weeks ago the subcommittee examined our country's transportation infrastructure funding requirements and the national economic benefits that result from a good transportation system. I look forward to the discussion at this hearing regarding whether the current ISTEA program structure is meeting these needs and how the Clinton Administration's proposal addresses these issues.

In my view, the current ISTEA law was a helpful first step toward shaping transportation policy to take this country into the 21st century. It maintained a national commitment to transportation, but made some necessary changes to surface transportation policies. However, it failed to address important issues that will make our transportation program more flexible and efficient in order to respond to changing transportation needs.

I look forward to listening to the Secretary today regarding the administration's proposal to address these concerns. I must say that I am not enthusiastic about what I have heard so far, but I will reserve judgment until I examine the final proposal and have heard from the Secretary.

Some of the issues I am concerned about include: a substantially stronger investment in our transportation infrastructure, a strengthened Federal Lands Highways Program, reducing regulations and streamlining program structure. Any reauthorization proposal I ultimately support must address these critical issues.

Again, Mr. Chairman, I am pleased you are holding this hearing so the subcommittee can explore these important national issues.

Senator WARNER. Thank you, Senator. I also place in the record the statement of Senator Reid.

[The prepared statement of Senator Reid follows:]

PREPARED STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE
STATE OF NEVADA

Mr. Chairman, there is little doubt that the issues we will address in today's hearing are issues that are of great interest to every member of both bodies. Transportation represents a truly national concern. All of us have a stake in ensuring that America's transportation policies are coherent and efficient. More importantly, all of us have a vested interest in ensuring that the goals of our transportation policies are capable of being achieved.

This session of Congress will likely include extensive consideration of not only how we finance our national infrastructure but also what our transportation policies should aim for as we head into the 21st century.

The dynamic flow of commerce and individuals is continually subject to change. While our transportation policies may not always be able to anticipate these changes, they must be flexible enough to accommodate them. All of us have varying opinions about the best way to meet these changes. However, I believe there are some areas of common ground that all of us can agree on as we establish the framework for reauthorizing the ISTEA.

- Our transportation policies must recognize the importance of providing adequate dollars for improvement and maintenance of our infrastructure.
- The policies should not favor one region over another, as the steady flow of commerce across State lines is in the Nation's best interests.
- Funding formulas should provide States with sufficient funding to meet the changing infrastructure needs they face.
- While some push for devolution, all of us agree that Federal regulations have to recognize the need for greater flexibility at the State level.
- Because we have a national transportation policy we must recognize that there are often unique interstate needs that otherwise would not be addressed but for a Federal program.

I believe the unique regional perspectives all of us bring to this issue will ultimately allow us to forge a coherent national policy. I represent a State that just happens to be the fastest growing State in the country. We have 5,000 new people moving into the State of Nevada every month. Because funding formulas in the past have been based on old census data it has been nearly impossible for Nevada to receive the proper financing necessary to accommodate this growth. Therefore, I am delighted to hear that the Administration is proposing to use the most up-to-date information available in the reauthorization package.

Nevada is also unique in that 87 percent of the land is owned by the Federal Government. To appreciate how much land this is, consider the fact that in the areas in between our interstates, you can fit the States of New Jersey, Connecticut, Massachusetts, Rhode Island, Vermont, New Hampshire and Delaware. That's a lot of Federal land. Because the Federal Government owns these lands the State of Nevada receives little or no taxes from these lands but must still provide for intercontinental activity across these areas. In order for all States to enjoy the benefits of our economy we must be able to build and maintain these lines of commerce, and Federal lands programs are the source of much of the funding for these areas.

Nevada is also a bridge State. Much of the traffic is interstate traffic. We play an important role in interstate commerce. But the need for improving and maintaining these interstates arises out of the damage caused largely by non-Nevada traffic. It is difficult for me to explain to my constituents why we are underfunding basic maintenance projects when they see firsthand the infrastructure degradation caused by out-of-State traffic traveling on our interstates.

Finally, I am concerned that while we have consistently articulated a coherent national transportation policy, we have failed to provide the adequate funding necessary to support these policies. Specifically, I am troubled by the current budgetary gimmickry being played with the Highway Trust Funds. The games being played with the highway trust fund are penny wise and pound foolish. I have introduced legislation to take the highway trust fund off budget and believe this action is necessary if we are serious about meeting our transportation objectives.

Our nation's infrastructure represents the lifeline that fuels our economy. When we neglect to adequately provide for the health of this lifeline all of us suffer. Whether its unsafe and degraded roads or pollution caused from over congestion, all of us are affected. The price is not only the inconvenience of traversing a dilapidated infrastructure. Indeed, the real price is the increased costs all of us pay for goods and services because of the burdens placed on a steady flow of the stream of commerce. It's similar to cholesterol buildup in the arteries—eventually there is a steep price to pay.

I look forward to being an active participant in rewriting a bill that will allow us to continue into the next millennium as the world's foremost economic powerhouse. By providing coherent, efficient and flexible transportation policies we will surely rise to the great challenges of the 21st century.

Senator WARNER. Mr. Secretary, it is your moment. Your prepared statement will appear in the record.

**STATEMENT OF HON. RODNEY E. SLATER, SECRETARY,
DEPARTMENT OF TRANSPORTATION**

Secretary SLATER. Thank you, Mr. Chairman.

Mr. Chairman, Senator Baucus, and members of the committee, I am honored to appear before the Senate Environment and Public Works Committee, the committee that confirmed me in 1993 as the Federal Highway Administrator, my first Federal position. President Clinton has entrusted me with the significant responsibilities that come with the Secretary's job, but I would also like to note that the Senate has entrusted me with that responsibility as well, having confirmed the President's nomination of me as Secretary of Transportation.

I accept these responsibilities humbly, but with full confidence gained over the past 4 years in the outstanding staff of the Department of Transportation, who will work with me as we respond to you and the needs and concerns of your constituents as we move

America forward and as we provide a transportation system that responds to the needs of our citizens in the coming century.

I appreciated the opportunity to appear before you on January 31 to talk to you prior to my confirmation as Secretary about the future of transportation in our country. You know, therefore, that I consider transportation to be vitally important to our Nation, as has been stated by all of you from your individual perspectives as well. Its historic development has played a part in our Nation's historic development. Its current relationship to our economic strength and military security as a Nation are also apparent; and transportation's future and its ability to help us compete and win in a global economy are also important.

Sometimes I think we lose sight of the fact that transportation affects every citizen in the United States. Our transportation network has sustained not only the strongest economy in the world, but it has also helped to make us the most mobile society in human history. But this same transportation network that supports our national defense needs also serves us in our most personal moments: rushing to the hospital for the birth of a child, going on vacation, or going to a rewarding and fulfilling job that enables each and every one of us to provide for the needs of our families.

Through the cooperation in years past of succeeding congresses and administrations, in partnership with State and local officials and with the private sector, the United States has built a transportation network that is second to none in the world. In fact, second to none in all of human history.

This committee can be proud of what it has contributed to this record of achievement, and we will talk a lot about that as it relates to ISTEA as we go through this hearing. The Department of Transportation can be proud as well, and we are certainly proud of the dedicated men and women throughout the transportation community who have worked with us to make all of this possible.

On a personal level, I am humbled yet proud to have been part of the President's first Administration wherein we worked with all of our partners to make this committee's vision of ISTEA a reality in practice. Yet I say to you, for all that we have accomplished, the best is yet to come. I think I echo the comments and the sentiments expressed by the Chairman earlier in his remarks in that regard.

More than ever, we understand that transportation is about creating access to opportunity for all Americans and about empowering Americans in their enjoyment of life, liberty, and the pursuit of happiness. The echoes of history tell us the story. George Washington understood, as all Presidents must understand. At the dawn of our new Nation, he understood that to hold the western settlements along the Ohio Valley to the eastern States, we must do certain things. He said, "We must open a wide door and make smooth the way for the produce of that country to pass to our markets before the trade may get into another channel." Yes, George Washington understood.

President Thomas Jefferson understood. In 1806, he opened that wide door even wider by approving legislation to build a national road that would knit what was even then a diverse nation together in what he called a "union of sentiment" brought on by commercial

interests, but I also have to believe brought on by his understanding of the true meaning of the ideals found in the Declaration of Independence that he wrote, especially dealing with the whole question of the pursuit of life, liberty, and happiness.

For that same reason, he dispatched Lewis and Clarke to explore the vast expanse of the Louisiana Purchase from the Mississippi River to the Pacific Coast, partly in search of a water route that would bind those uncharted territories to the Nation that now owned them.

President Abraham Lincoln understood as well. In July 1862, even while trying to hold a Nation together in war, he took an important step to hold it together in peace by signing the Pacific Railroad Act that made the Transcontinental Railroad possible. He knew it would not only link a Nation, but enhance the lives of people on both ends of the line.

And yes, President Woodrow Wilson understood. When the Federal Aid Road Act of 1916, which created the Federal Aid Highway Program, reached his desk, he was happy to sign it because this new law, “tends to thread the various parts of our country together.”

And yes, Franklin Delano Roosevelt also understood. When we faced the worst economic catastrophe this Nation has ever experienced, transportation was an integral part of our recovery. Public Works would provide jobs to the unemployed and create a revenue stream to help businesses. But he also had a vision of a national network of superhighways that he nurtured throughout his presidency. This was the dawn of the interstate era.

But there was really probably no President who better understood, than President Dwight David Eisenhower. His words speak to us across the generations and also across political parties as eloquently and as true today as they were when he uttered them to Congress asking for support of his interstate highway program. He said, “Our unity as a Nation is sustained by free communication of thought and by easy transportation of people and goods. Together, the united forces of our communication and transportation systems are dynamic elements in the very name we bear, United States. Without them, we would be a mere alliance of many separate parts.”

Members of the committee, I take my cue from these great leaders as well as from the visionary individual whom we today call Mr. President. For these are individuals who recognize that the tools of transportation—concrete asphalt, and steel—are but means to an end, and that the end is the unity of our Nation and the mobility and prosperity of our people.

On January 20, during his inaugural address, President Clinton talked about the choice we faced at the start of the 20th century to harness the industrial revolution to our values of free enterprise, conservation, and human decency. He said, “Those choices made all the difference.” Today, as we approach the 21st century, the President described a choice we now face “to shape the forces of the information age and the global society to unleash the limitless potential of all our people and, yes, to form a more perfect union.”

On February 26, when Vice President Gore administered my oath of office, I could not help but recall the President’s words be-

cause there right before me was a man whose family reflected those choices as well. His father, Senator Albert Gore, Sr., was one of the chief authors of the bill that launched the Eisenhower Interstate System, and thereby did more to shape the second half of the 20th century than perhaps any other. Yes, that bill was the Federal Aid Highway Act of 1956.

The son who stood before me, Vice President Albert Gore, Jr., is an apostle of a new transportation network, which he has coined the information superhighway, that will transform the 21st century in ways we cannot yet even imagine. For their example as a family, we see how one family can make a difference. We see how much difference a piece of legislation that emerges from this committee can make a difference as well.

And through the leadership of a President who has challenged us to rebuild America and to put people first, we also see how important the business that I have come before you today to discuss really is. That business is the reauthorization of the Intermodal Surface Transportation Efficiency Act of 1991. I respectfully submit to you that the ISTEA reauthorization is the most important transportation bill the 105th Congress will consider. But I also respectfully submit that it is simply one of the most important bills of any type that will come before the 105th Congress. Its scope and its impact will be that important.

The President has challenged all of us to play a role in building a bridge to the 21st century. Nowhere is that metaphor more real than this vital piece of legislation. It is indeed the bridge between the 20th century interstate era and the 21st century intermodal transportation network era that will be essential to sustain our economy, our economic growth, our international competitiveness, and our freedom of mobility.

I am pleased to be here today to talk to you about this Administration's legislative proposal, which will be submitted to you shortly. It is a piece of legislation that we style the National Economic Crossroads Transportation Efficiency Act of 1997, NEXTEA. In this statement, I want to outline the key provisions of this proposal, but I ask that you consider them with the backdrop I have laid before you speaking to the very difficult decisions that congresses and administrations have had to make in the past to ensure that investment in transportation infrastructure was sufficient, was effective, and was forthcoming.

With your permission, I am also providing a lengthier discussion of the proposal for the record.

Let me quickly move through the specifics of our proposal.

As I talk to you today, you may recall that my three highest priorities in leading what I want to see as a visionary and vigilant Department of Transportation I discussed before you on January 31. They are: safety as our No. 1 priority, the north star, the moral imperative by which we will be guided. Also we talked about working to ensure that America's transportation system meets the needs and desires of the American people in the 21st century. And then finally using a common sense approach to running a Government that works better and costs less.

These priorities are important to me because they are critical to achieve that which the President has called upon us to do, namely

to unleash the limitless potential of all our people and yes, to help form a more perfect union. NEXTEA reflects those goals and is an important step in that direction.

Let me now move through the particular provisions.

In the last decade of the 20th century, ISTEA has given us the tools and the flexibility to respond not only to our vital transportation needs, but also to respond to many of the economic, environmental, safety, and social challenges we face. For that, this committee is to be commended. It recognized that Federal investment must do more than build roads and mass transit systems, but that it must build a seamless intermodal system in which each mode can do the work it does best. At the same time, it must help strengthen communities, improve productivity, preserve our environment, and protect the safety of all Americans.

Under the leadership of this committee and the vision given forth to us through ISTEA, and under the leadership of President Clinton, we have tried to make good the promise of ISTEA. Working with the Congress, we have increased transportation infrastructure investment to record levels. These investments have paid off in substantial improvements to the condition and performance of our highway and mass transit systems.

But from my prior vantage point as Federal Highway Administrator, I also want to say to you that the Federal Highway Administration has changed in response to the legislation that you have given us to direct us and to guide us in our way. The FHWA has become an agency committed not only to building highways, but to building a transportation system, to building communities and to building bridges with our partners and other modal administrations within the Department of Transportation as well as State transportation departments, local governments, and the private sector. The FHWA today is truly a visionary and vigilant agency not only committed to the words of ISTEA but to its ideals as well.

This was not always easy. You as much as anyone understand that ISTEA rocked the boat, but the Federal Highway Administration, with its offices in every State, working with the Federal Transit Administration, has worked to balance the playing field through which many of our important transportation decisions are made. Its transformation of the State-wide and metropolitan planning process is at the core of this change and transformation. It balanced the highway and transit programs to give State and local officials balanced and real choices.

Thanks to ISTEA and with the encouragement of the Federal Transit and Federal Highway officials, we have seen an unprecedented transfer of highway funds to transit projects, approximately \$3 billion.

In creating this flexibility, and in granting this authority, and in requiring the responsibility of choice, ISTEA laid the groundwork for State and local officials to begin thinking in intermodal terms. We want to continue that with NEXTEA. And to begin thinking about how transportation can best serve communities—we want to continue that as well. -

Under Secretary Pena's leadership, we in the Department have looked closely at the planning process and all aspects of ISTEA. I can tell you that we have listened, learned, and we have tried to

respond, as reflected in the specifics of our proposal. Again, a proposal that you will receive in the near term.

The challenge is now to create and shape the vision of transportation for the future. To prepare for the future, Congress and the Department reached out to the transportation community last year and to State and local officials, the private sector, academia, individual citizens, and others across the country. The clear message that emerged from that outreach effort—all those forums—really was no surprise to us, that ISTEA is working and is working better as the days go by.

Therefore, in preparing NEXTEA for submission to Congress, we have listened to what we have heard and seen and responded with a bill that builds on and enhances the very best aspects of ISTEA. That was a point that was made in your introductory remarks.

Our proposal will enhance the partnerships that are already growing and growing stronger, will increase flexibility while retaining accountability, will advance development of the intermodal transportation network that is already taking place, will ensure that transportation serves not just trips but people of all walks of life—whether they live in rural, urban, or suburban areas—and will enable this Congress and this President to find common cause and common ground for the betterment of our Nation, even as a Republican President, Dwight Eisenhower, found common ground and common cause with a Democratic Congress in 1956.

My long statement will describe many features of NEXTEA, but I would give just a few more to highlight.

One of the biggest changes we face is to provide adequate resources and sufficient flexibility to maintain and improve our surface transportation system while moving toward a balanced budget. Senator Baucus, you speak to this issue when you challenge us—as you do as well, Mr. Chairman—to seek to provide more resources for this very important piece of legislation. This Administration is committed to that end, providing as much in the area of resources as possible as we also seek to fulfill a commitment to balance the budget.

Through the cooperation of the Congress and the President, we have been fortunate in raising Federal expenditures for surface transportation to record levels under ISTEA, but we must continue this effort. NEXTEA will authorize a total of approximately \$175 billion for surface transportation programs over a 6-year period. This funding will sustain our core programs such as the National Highway System, the Interstate System, bridge reconstruction and rehabilitation, and transit programs. I repeat the amount again, approximately \$175 billion.

We also are expanding the innovative finance measures that have been so successful over the last few years. Here I would like to note the very special effort on the part of my Deputy Administrator, who was recently named to be the Acting Administrator of the Federal Highway Administration, Jane Garvey, who along with Louise Stoll, head of our Budget Office, and Mort Downey, our Deputy Secretary, and others within the Department, have really put forth a very aggressive, thoughtful, and innovative financing strategy. This strategy proposes now to expand the seed money available for State Infrastructure Banks and to dedicate \$100 million to

a new credit program that will support multi-State projects of national significance.

We also are proposing to invest in the research and technology that are vital to building that bridge to the 21st century. Today's network is really just a stage in the evolution of a constantly changing transportation landscape, from stagecoaches to railroads, from bicycles to automobiles, from ships to airplanes, and from the telegraph to the internet. We hope that our proposals reflect our understanding of these various stages and our commitment to be eternally vigilant in offering forward the kinds of proposals that will move us from a state-of-the-practice that is an exception today, to a state-of-the-art that will be the rule of tomorrow.

Through NEXTEA, we will continue to build the future by sound investment in intelligent transportation systems. Chairman Chafee, I do believe that that means focusing on maglev in the long term. I say that also to you, Senator Moynihan.

These major public/private initiatives are already paying dividends, our investment in intelligent transportation systems efforts. These dividends are coming forth based on a relatively small investment thus far, but its potential is tremendous. Think about how President Eisenhower talked about two systems: transportation and communications. When we add the concrete, asphalt, and steel of transportation to the innovations of ITS, we really have a smart information-based transportation system that allows us to do, as President Eisenhower said we were doing in his day, and that is to be a United States rather than a mere alliance of separate States.

These are but a few examples of the hardware of NEXTEA. If you would permit me, I would now like to talk about some programs that are also vital, those dealing with safety, the environment, and community.

I have said that safety must be our north star, must be our No. 1 priority, and must be the one thing that guides us in all of our decisions and in all of our activities. We have seen progress in recent decades as the fatality rate has fallen to new lows and as the number of fatalities has hovered in the low 40,000's, if you will, for the first time in decades, even as motor vehicle usage has tripled. We commit ourselves to the fact that this figure is yet too high.

In return for the great freedom brought to this Nation by the motor vehicle, we have paid a terrible toll of suffering of lost potential and lost dreams. Even though we have done much over the last few years to improve the safety of our transportation system, we still have more to do, for the loss of one life is one life too many.

To improve safety, NEXTEA proposes to move aggressively and forthrightly on three fronts: driver behavior, vehicle design, and roadway design. I will just cite a few examples in that regard.

We are increasing authorizations for our drunk driving prevention grant program and proposing new programs to encourage seat belt usage and to reduce drug-impaired driving. We also are proposing research to explore the demographic factors that affect the safety of young drivers and senior citizens. As the President announced recently, we are proposing a new research and education program to reduce air bag risk for children and small adults. Sen-

ator Kempthorne, I know that is of great importance to you. And to address highway design, we propose a \$500 million infrastructure safety program that replaces and improves upon the current STP safety set-aside program.

NEXTEA also builds on the environmental sensitivity of ISTEA. Under ISTEA, the congestion mitigation and air quality improvement program, CMAQ, has helped States and communities across this country address the air quality problems that stem in part from the mobility of our citizens. Our proposed changes to the CMAQ Program will enhance the flexibility of this program in addressing evolving air quality concerns.

Transportation enhancement activities founded under the surface transportation program allow officials to target funds to projects that blend transportation with a sense of community. Local officials and private groups have responded enthusiastically to this opportunity. We want to work with you to ensure that this opportunity continues.

Senator REID. Mr. Chairman, could I ask a question?

Senator WARNER. I would hope you would defer.

Senator REID. I don't mean of him. I mean of you.

Senator WARNER. Yes.

Senator REID. I have been in Congress going on 15 years. I have never heard a statement this long before. I like Mr. Slater. He is one of my favorites. But he is about to wear me out. Could we have some time to ask some questions?

Senator WARNER. I think that feeling might be shared with others, but this is his first appearance as a cabinet officer and we thought that we would indulge.

But I think you feel now that perhaps there is some sentiment that perhaps we do know a little of the history?

Secretary SLATER. Yes.

Senator REID. And we can read his statement.

Senator WARNER. So if you could kind of wrap it up, we would appreciate it.

Secretary SLATER. I will. And let me also offer this: in the room back stage I apologized to the committee because we had not submitted our statement as early as we had planned. Because I knew that the committee had not had time to read the details of the draft proposal, and also because we have failed to present the proposal, I wanted to take the amount of time I have taken to offer some details about the program.

Senator WARNER. I would note that we have every member of the subcommittee, save one, here quite anxious and we have a scheduled vote in the Senate at 11 o'clock. I want each member to have a full 5 minutes of their questions in the first round.

Secretary SLATER. I will close with this point.

President Jefferson once said that if truth were self-evident there would be no need for eloquence. This committee gave us a piece of legislation that clearly was eloquent in its language and in its hope and in its promise. I sit before you representing a Department that over the last 4 years has worked every day in every way to ensure that the prose and the poetry captured in the vision of this piece of legislation is made a reality in the lives of the American people.

I think that we are a stronger Nation because of it. And I do believe that the best is to come.

Thank you.

Senator WARNER. Mr. Secretary, how soon do you anticipate the Administration will authorize you to submit that bill to Congress?

Secretary SLATER. Very soon.

Senator WARNER. You have said that three times. Can you define it?

Secretary SLATER. I would say that I would hope we would have the legislation before the committee in the next 7 to 10 days. I do believe that we will probably learn some things by virtue of this hearing and the hearing before the House committee tomorrow. That amount of time will allow us to take into consideration those points that will be raised.

Senator WARNER. Mr. Secretary, let's turn directly to the question of the level of funding.

Your own analysis—and that's the 1995 conditions and performance report—specifically indicates that the United States is spending some \$20 billion less per year than necessary to maintain our Federal Aid system. The distinguished ranking member, myself, and many others—59 Members of the U.S. Senate have indicated to the President and to you that we need a higher level.

I would like to have your personal opinion. I understand that you have an allegiance to your President and to a lesser extent to OMB. What is your personal opinion as to what level of funding is necessary?

[Laughter.]

Secretary SLATER. Let me just say first of all that you have cast the question of allegiance in the proper order.

Senator WARNER. I have been here 18 years doing it, so I have an idea.

Secretary SLATER. Let me just say that I am firmly committed to the broader objectives of the Administration. I think investing in the human capacity of our people has to be our No. 1 priority as we move into the new century. The transportation we have seen throughout the course of history—and I tried to lay out some of those examples in my statement—has been recognized as a very powerful tool in tying the Nation together, in giving us the ability to attract business, to compete and win in the global economy, and the like.

This Administration understands the importance of infrastructure investment. Over the last 4 years, we have seen a 20 percent increase. We have worked hard to fully fund ISTEA. And in the proposal we will offer, we will have as our goal an expenditure of approximately \$175 billion over 6 years. That is roughly a 12 percent increase over the amount that was in ISTEA, as offered forth in 1991.

So there is that commitment on the part of the Administration. We will also come forth with a number of innovative financing techniques and we will challenge our State and local partners and the private sector to be participants in this initiative as well.

Senator WARNER. Your rhetoric is interesting, but how does that reconcile with your own statement that you are \$20 billion short? We have to be honest with each other. If you're saying your hands

are tied, then the fight is going to shift to the Congress, and we will have to accept that, and we will take that leadership role. We will try to force that issue among our colleagues, resolve it hopefully with a higher funding level, and get on with the business.

Is that about how this ball game has to be played?

Secretary SLATER. Clearly the Congress will be a partner in this process.

Senator WARNER. You bet. Thank you.

[Laughter.]

Secretary SLATER. And the Senate has already, in a powerful way, expressed its opinion about this. But I do think in the final analysis we will find common cause and common ground and will come up with a figure we can all agree on.

Senator WARNER. If we're going to come up with a figure we can all agree on, it looks like we are going to come up.

I read you as saying yes. Thank you.

[Laughter.]

Senator WARNER. Proceeding now to the funding formulas, when you were up for confirmation, the record reflects that I asked the following question. "I think we're going to have to say we're moving around here with too many softball questions, so let's skip to hardball questions." That was my statement.

Secretary SLATER. Yes, sir.

Senator WARNER. Let's get down to the formula.

Do you think the formula should be revised in such a way as to reflect current data as opposed to so much of the old archaic data now being used?

Secretary SLATER. Yes.

Senator WARNER. Where is that in your current presentation?

Secretary SLATER. In the longer statement, we make a comment about the whole issue of apportionments and the difficulty of finding common ground in that regard. But we do look forward to working with the Congress.

Senator WARNER. So again the initiative is going to come from the Congress?

Secretary SLATER. No. We will offer—

Senator WARNER. My light is on so just 1 second.

Secretary SLATER. Yes, sir.

Senator WARNER. But it seems to me the old saying, "The Lord giveth with one hand and taketh with the other," you sort of give us a few new criteria, but then you turn around and you say you propose equity adjustments to ensure that the States receive essentially the same amount as they received under ISTEA. Where is progress?

Secretary SLATER. I think progress is using up-to-date information. Progress will—

Senator WARNER. But then if you have this little fudge factor at the end it all comes out the same.

Secretary SLATER. Not necessarily. The fudge factor at the end recognizes the fact that, notwithstanding what everyone is putting into the trust fund, there are still national interests that have to be taken into account, issues pertaining to safety, connectivity, and the like.

Senator WARNER. I thank you. My time is up.

Mr. Chairman.

Senator CHAFEE. Thank you, Mr. Chairman.

Mr. Secretary, it seems to me that any formula should have some reflection of needs.

Secretary SLATER. Yes, sir.

Senator CHAFEE. Every formula, every distribution we make from the Federal Government—nearly every one—is based upon need. And yet the Federal Highway Administration and the Department of Transportation don't seem to have been able to develop what are needs and a way of assessing it. So we are left debating a set of formulas that are only peripherally associated with needs.

Secretary SLATER. Yes, sir.

Senator CHAFEE. Has your Department—particularly in your prior job—been able to develop any formula factors that would focus on needs or give us some suggestion of what are needs?

Secretary SLATER. Senator, I think when the proposal comes forth and we can talk about it in more specific terms, you will see that we have in fact done that. But I will say that it is not an easy task because for the last 40 years—and really longer than that—we have evolved in our thinking, which resulted in the development of a transportation system to support a national economy.

But then over the last decade in particular, we have realized that the national economy is significantly impacted by the global economy. During the last term alone of the Clinton administration, we had some 200 trade agreements, we had NAFTA, GATT—about 12 of those alone with Japan—we are now putting in place the dynamics of an economy that respect our role on the international stage. We have to have a transportation system to support that, to undergird that.

In many ways Jefferson understood that with the doubling of the size of the United States with the Louisiana Purchase that we needed to build the national road system, or President Lincoln understood the same need with the Transcontinental Railroad.

Senator CHAFEE. Let me get into this formula business again.

The apportionment formula is primarily based upon gasoline taxes, in other words, gasoline consumption.

Secretary SLATER. Right.

Senator CHAFEE. But it seems to me that we are kind of working against ourselves there because on the one hand we are encouraging vehicles that get more mileage, thus reduce the gasoline consumption. On the other hand, we are saying that if you are a State with a lot of gas guzzlers, you are going to get a lot of money back.

Aren't those policies in conflict?

Secretary SLATER. In some ways they are, but let me just use a personal example to make the point that we have to be very sensitive in weighing the competing interests here.

I am from a rural State, a very small State, and people have to travel sometimes great distances to enjoy economic opportunities. For many of these individuals a new car for them is a second-hand car. It is just that simple. Their areas are not served by public transit, so they have to drive.

I think that our formula should reflect that reality, but I also think that you make a good point, which is that in order to deal with environmental concerns, we have to ensure that as we take

into account that kind of factor, we don't overly and unnecessarily reward that kind of consumption where there is little sensitivity to environmental concerns. When we come forth with the specific components of the formula, I do believe that will be reflected.

Senator CHAFEE. Let me briefly say that I heard Senator Boxer say that she was for a formula based on population.

Secretary SLATER. Right.

Senator CHAFEE. That made me a little bit nervous.

[Laughter.]

Senator CHAFEE. So I am not sure I am entirely for a population-based formula.

Secretary SLATER. Sure. I think Senator Thomas joins you in that point.

Senator CHAFEE. He would have one perhaps based on size. I am not sure I am for that, either.

[Laughter.]

Senator CHAFEE. I believe you have a provision in your proposal that would permit the reinstatement of tolls on interstates. Could you briefly describe your suggestion? I am for the tolls, but how would that work?

Secretary SLATER. Under current law, we actually have the right to install tolls around bridges and tunnels, even on the interstate, when improvements are being made to those facilities. Our proposal is consistent with that.

Senator CHAFEE. My time is up.

Thank you, Mr. Chairman.

Senator WARNER. Our distinguished ranking member, Senator Baucus?

Senator BAUCUS. Thank you, Mr. Chairman.

Isn't it true, Mr. Secretary, that the Department's needs assessment is that we need nationwide about \$50 billion a year in highway spending?

Secretary SLATER. That's correct, Senator.

Senator BAUCUS. Isn't it also true that the amount the Administration is going to be recommending is somewhat in the neighborhood of \$21 billion or \$22 billion? Is that correct?

Secretary SLATER. It is approximately \$25 billion or \$26 billion.

Senator BAUCUS. How much of that will be strictly highway?

Secretary SLATER. About \$21 billion.

Senator BAUCUS. And the \$50 billion need is primarily highway and bridges?

Secretary SLATER. Primarily, yes, sir.

Senator BAUCUS. Which means we have an annual shortfall of about \$28 billion a year, each year?

Secretary SLATER. Yes, sir, roughly.

Senator BAUCUS. Is it also true that other nations—Japan and Europe—spent a greater percentage of their GDP on transportation?

Secretary SLATER. That is true.

Senator BAUCUS. Is it true that Japan spends about four times its GDP compared to the United States on transportation?

Secretary SLATER. I would say approximately four times.

Senator BAUCUS. Do you know what the Europeans spend?

Secretary SLATER. Not as much as the Japanese, but still they are very aggressive in dealing with this issue.

Senator BAUCUS. So could one logically reach the conclusion that we are not meeting our needs in America with the Administration's budget proposal?

Secretary SLATER. I would state it differently. I would say that these countries are, in effect, trying to catch up with the United States. But clearly, if we fail over a long period of time to meet our obligations first to preserve the system we have and second to enhance it in a strategic and thoughtful fashion, we could find ourselves in the 21st century at a disadvantage.

Senator BAUCUS. Why are they catching up if the Department still says we are deficient in needs about \$28 billion a year? That doesn't sound like catching up. That sounds like the Department says we are deficient. It doesn't sound like they are catching up. It sounds like the United States is deficient.

Secretary SLATER. But they don't have an Interstate System. They don't have the kind of national road system we have. They don't have an aviation system that is any way comparable to ours. There are places where we lag. I think there are a number of countries around the world where their rail system—

Senator BAUCUS. Some countries' rail systems far surpasses ours, some countries' surface transportation in some areas surpasses ours. So it is a mixed bag.

I just want to underline the importance. We Americans are being irresponsible if we don't, in a more direct way, meet our transportation needs. We are being irresponsible. I think it is incumbent upon the Administration to go back and look again to figure out some way to meet our responsibilities as it is upon this Congress to do the same. I strongly urge the Administration to meet the needs of the American people.

I would like to say a word or two about formulas, which is always a bit difficult around here.

It is important to realize that some States already have very high State gasoline taxes and are doing their best to meet their surface transportation needs. I see Senator Reid here from Nevada. I think they are first or second in the Nation in State gasoline taxes. We in Montana I think are third in the Nation in State gasoline taxes. We make a huge contribution to our State highway program.

In addition, we have many, many more miles per capita than do some other States. So if we have a national highway system, we have to remember that some States have many, many more miles per capita. And don't forget those folks are spending more on State gasoline taxes than do folks in high population States. I hope that the formula you have recognizes that some of our States just can't pay anymore.

Let me just point out that we have in Montana 12 residents per mile of public roads, whereas California has 177, New York has 161. Those are folks paying gasoline taxes that could help support those States' programs and we have so few people paying to make up for the low number of people. We pay much higher State gasoline taxes.

I would strongly urge the Administration to take it into mind when you submit your proposal.

Secretary SLATER. Senator, your point is well taken in that regard.

I would also add that you represent a State, as is the case with many States in the west, with a large Federal land presence. That, too, impacts—

Senator BAUCUS. That's right. It's huge. Nevada is even more huge. Nevada is about 87 percent, Montana about 33 percent.

Secretary SLATER. Senator Reid and I have talked about this issue—and I have also been to the West.

Senator BAUCUS. You have been to the more populous part of the West. I have to get you to the unpopulated part of the West.

Secretary SLATER. Yes, sir.

Senator WARNER. And you have an invitation to hopefully come to an ISTEAs hearing of this subcommittee being hosted by our distinguished colleague from Idaho, Mr. Kempthorne.

I would like to put in the record that Virginia is eighth in paying taxes and gives 78 cents back for every one of its dollars in highway taxes.

Senator KEMPTHORNE. Mr. Secretary, let me followup on this discussion of the Federal Lands Program.

I note that you do have an increase in that funding category. Again, we are talking about the large land masses, relatively little population—67 percent of Idaho, for example, is federally owned so it is tax exempt. Why is it, though, Mr. Secretary, you have increased the categories that are eligible? So while you have given the money, you have added more categories so that it diminishes? What is the rationale there?

Secretary SLATER. Anytime we offer flexibility it is really to empower decisionmakers at the State and local level. I think that is a philosophy that drives some of the discussion regarding devolution. But we do so in our proposal with an understanding that there are yet national concerns that have to be taken into account.

In this particular instance, our objective is merely to give those at the State and local level more opportunity to make decisions based on their own judgment about their own needs. But we would welcome a discussion with you about this particular matter because I know when it comes to the Rails to Trails Program you have clearly been a strong voice in that regard. We want to be sensitive to that.

Senator KEMPTHORNE. Mr. Secretary, as I look at this proposal, I would like you to address your Department's proposed funding levels for three similar recreational environmental programs. You have the transportation enhancements, scenic byways, and recreational trails. You increase enhancements by more than \$180 million up to \$587 million, an increase of 43 percent. You increase scenic byways by a 7 percent increase. But you decrease recreational trails from the past 2-year funding level of \$15 million to \$7 million, a reduction of 53 percent, and 76 percent less than what was authorized in the original ISTEAs.

I would like you to help me understand why in this proposal you decimate recreational trails, which is the only user pay program in this entire category?

Secretary SLATER. I have shared with you what our overall objective has been. Recreational trails and the like are eligible for other resources. So clearly the amount could ultimately be more than \$7 million. But I think frankly your point is well taken. We have had \$15 million in years past and we also worked very hard with you to reestablish the program. Your point is also well taken that the resources come from a user fee that is charged to those who use over-the-road sporting types of vehicles on the trails. I think the point is well taken. Why don't we visit about it and maybe before we present the final proposal we can come up with a better recognition of that point.

Senator KEMPTHORNE. Thank you. I appreciate that.

Senator KEMPTHORNE. Mr. Secretary, I was not going to get into this this morning, but because of your emphasis on safety, because of your use of the term that this is your north star and your moral imperative—you went on to say that to lose one life is one too many—I could not agree more. You have a standard that this Government has predicted will kill children. It is still on the books. Now there are over 32 dead children.

We do want to get seat belt usage up. When this standard first came about, it was a usage of about 11 percent. Now we are at 68 percent. No change in the standard. So we are still protecting an adult male, who chooses not to wear his seat belt, when 49 States have it as the law of their State that you are supposed to wear that seat belt. We know seat belts save lives. To save Dad, we are killing the child.

That is an unacceptable public policy. January 9 we had a hearing dealing with this where the NHTSA Administrator pointed out that he didn't have the legal authority to make the change. We provided two different legal opinions. One was from the CRS American Law Division stating that absolutely. And I have provided this to your office. February 5 I sent a letter asking for your legal opinion that is contrary. I still don't have that legal opinion.

I do not understand this. I am going to say that this was not occurring on your watch. You are new. But I am asking you to personally get involved in this because this standard is flawed and it must be corrected.

Secretary SLATER. Senator, on the occasions you have brought that issue to my attention, either I was the nominee of the President seeking confirmation or the confirmed Secretary seeking an opportunity to be sworn in. Both of those have now occurred and you can rest assured that I will make this a priority and we will address this issue in an effective and efficient and timely manner.

Senator KEMPTHORNE. Mr. Secretary, please. Children's lives are on the line and it has been predicted by this Government that they will die and they are dying. You used the term "moral imperative". Nothing is more moral than to correct this standard and to stop killing these kids.

Secretary SLATER. I did use the language and I will echo the quote that you just made.

Senator KEMPTHORNE. Thank you very much.

Senator WARNER. It is the intention of the chair to recognize Senators for questions in order of their arrival. However, I think in

fairness we will go from one side to the other. We will now go to Senator Boxer.

Senator BOXER. Thank you very much.

I just want to compliment my colleague from Idaho on his deep concern.

I want to say that the biggest cause of death of children in California and the second leading cause of death in America—thousands of children—are gun shots. I hope we can work together for child safety locks. I think we work together on the car seats, the air bags—all these things.

I understand what is happening here. I feel for you in a way because you will be presenting your budget within the context of deficit reduction. What you're getting here is frustration because we are all on this subcommittee because we think this is a priority. So you have to think about the bigger picture as well.

But I think there are ways that we can find more resources. I was just reading the Los Angeles Times clips today. The GAO Report says that the Government overpaid HMOs by \$1 billion just in California alone. I think we are going to have to do our best to find more savings where there is waste, fraud, and abuse, and pump it into something that is important to our future and to our economy. This is certainly one area. I just found out that 6,000 children a year are killed by gun shots.

Let me say—and you and I have worked closely on this—that we have to look at our areas in the country that have been impacted by trade. Many of us represent States that are so impacted. I mentioned in my opening statement briefly about what it looks like at the border between Mexico and California.

Have you been down there?

Secretary SLATER. I have, Senator.

Senator BOXER. It is extraordinary. They have a highway that goes like this—one lane, and one lane back. And we have billions of dollars of goods going each way, and we can't handle it. We don't even have a lane, Mr. Chairman, so that police emergency vehicles can go alongside. So when we passed NAFTA, at that time I was very concerned that we weren't looking at this. I think my concerns have been borne out.

You have taken some steps to address this, but I want to put some hard dollars on the table with you, Secretary Slater. California had identified \$1 billion of improvements needed at the Mexican border to serve commercial vehicle traffic, which is expected to double by the year 2000. Texas has identified \$2 billion of needed improvements, and Arizona \$270 million.

You are putting forward the first proposal to help our areas that are overwhelmed with the trade with Mexico and Canada because of NAFTA. But you are providing \$45 million a year for 14 States which share a land border with Mexico or Canada.

I know that better efficiencies and traffic management are important, and I know that you are pushing those. But I would hope you would work with this committee on establishing a broader program. Maybe in your answer you can give me some reassurance on that point.

Also, you have come out with a loan guarantee program through the State Infrastructure Banks. Could you explain that to us?

Secretary SLATER. Sure.

First of all, Senator, I want to thank you for your longstanding interest in this issue and issues connected and related to international trade.

Your point is well taken. Frankly, in your State you have to be concerned about that because in many respects California represents not only a gateway to Asia but also to other international trade points around the world for the United States. I am reminded how important it was for us to move expeditiously to reconstruct the Santa Monica Freeway, I-10, and I-5 which were downed after the Northridge earthquake, and how it was costing about \$1 million a day as long as I-10 was down and about \$500,000 for every day I-5 was down.

Clearly, I think some of your concerns have been borne out about the increase in traffic and trade resulting from NAFTA. We have been fortunate over the last 4 years to be led by a Secretary of Transportation who knew very well the pressures of the border, having been raised in south Texas and having been born there.

I commit to you the same degree of sensitivity and a willingness to learn even more about the dynamics of this new emerging development that is increasing as a result of the passage of NAFTA. Also, as we come forth with more details about our funding and financing proposals, you will see reflected therein a commitment to make more resources available through primarily innovative financing techniques for border crossing activities and initiatives. We will work with you and others who represent States along the border to build on that, to improve on it, and the like.

We do believe that our credit program, which is primarily for large multi-State type initiatives, will also be a good resource for funding. The private sector has also shown a great interest in this area and we believe we will be able to engage them to a greater degree as well.

Senator BOXER. Mr. Chairman, I know my time has been used. I would just say that if you look all up and down our coastal areas and major ports, we are in desperate need. If we are going to continue this economic leadership, we need to be bold. I think we need to be bold here. I think I hear that from both sides.

I will submit some other questions which deal with my Governor, who likes the turn-back proposal, which would really do away with the national program. I would certainly want to hear your comments on that. I am very happy that you are going to continue the air quality program.

Thank you.

Senator WARNER. Thank you very much.

Senator Smith.

Senator SMITH. Thank you very much, Mr. Chairman.

Mr. Secretary, there has been a lot of concern expressed within the transportation community about the 10 percent set-aside in the enhancement section of STP. We may hear some testimony on this later, but your testimony indicated that you support the requirement that these activities have a "direct link" to surface transportation.

I received a letter from a State legislator in New Hampshire, Gene Chandler, who had a very interesting comment on this sub-

ject. In his letter he says, "You and many others may not realize that in the State of Maine highway funds were used to purchase oyster shell heaps left in piles by Indians many years ago. The rationale was that the Indians were traveling by canoe, and since it was an historic method of travel, these shell heaps were eligible for ISTEA funds."

I have no idea how prevalent that kind of thing is or what in the world the justification would be—and I know that didn't happen on your watch. But are you going to be recommending any changes in the enhancement portion of the formula?

Secretary SLATER. First of all, let me just say that that may have in fact occurred on my watch. I was Federal Highway Administrator for 4 years.

Senator SMITH. Don't take responsibility for it if you didn't.

Secretary SLATER. But the point I want to make is that I am willing to accept responsibility. We have, I believe, been a lot more direct with States in making the point to them that there has to be a direct link between an enhancement expenditure and transportation. Otherwise the programs loses credibility. We did in mid-stream send out more detailed and specific directives as it relates to the use of enhancement resources.

But we also recognize that with these dollars as well as with others, when you provide flexibility and you drive the decisionmaking to those at the State and local level—those closest to the problem—there has to be some give-and-take. But as they receive that opportunity and responsibility there is also the commensurate obligation for accountability. We have tried to stress that point as we have gone forward.

I think the program is better, and it is getting better all the time.

Senator SMITH. But you will look at that?

Secretary SLATER. Yes. We thank you for bringing that to our attention.

Senator SMITH. Let me move to another subject we talked about when you visited my office regarding some controversy in the sense that you are now bringing Amtrak under the trust fund umbrella. We are looking at roughly \$750 million plus if you use current numbers of operating and capital expenses.

What impact is that going to have on the trust fund? And do you believe it is fair to put Amtrak under the trust fund which contributes nothing to the trust fund as compared to gasoline taxes, which of course deal with highways?

I believe that it is proper to say that railroads certainly fall within the category of intermodal surface transportation, but I also think that we need to look at this very carefully because of the impact it will have on the fund.

What impact would it have on the fund? And do you think it is fair to do that without any taxes or revenues collected?

Secretary SLATER. Senator Smith, actually that question is somewhat akin to a question or a challenge put to us by the Chairman earlier in his comments. We need to be bold as an Administration and at least be willing to put issues forward, whether it is a question about formulas or other controversial issues—even though we may put it forth in the form of a concept that we then work with

you to find common ground and common cause in moving forward. This relates to the issue of Amtrak.

Your point is well taken in that it is a part of the surface transportation system, especially when you view it in an intermodal context. There are legitimate arguments on both sides regarding whether it is a justifiable expenditure from the trust fund. But I do think as an Administration we should be forthright and open enough to come forth with a proposal. We are wrestling internally with just that challenge. Hopefully in the near term we will have something to say about that.

I will offer the following as some explanation for the use of trust fund dollars to fund this kind of initiative.

No. 1, I don't think we can have a transportation system for the 21st century that does not include a national passenger rail component. That doesn't speak to the issue of how we fund it. That is an open question. But on the point of how we fund it, a lot of people who use Amtrak—or who may use it on occasion—also drive and fly. The point I want to make is that they also drive.

That means that in those instances they are contributing to the trust fund. Arguably, when they are making choices about what mode is the most appropriate, they would not think about the categories of funding that go toward making possible an improved portion of the system. They just see themselves as citizens wanting to enjoy life, liberty, and the pursuit of happiness. And we have to take that into account as we seek to reconcile all of these arguments, wants, and desires.

I am just saying that I am open. The Administration is open to working with this committee and others who are very interested in this issue.

Senator WARNER. Senator Reid, would you yield for an observation by the chair?

I intend to vote now in the hopes that we can continue this hearing uninterrupted through the period of the vote. So Senators awaiting their turn, if one or two could come—

Senator REID. Mr. Chairman, I would be the next Democrat. I yield my turn to Senator Moynihan. He came right after I did. Let him go first and I will go next.

Senator WARNER. Senator Moynihan.

Senator MOYNIHAN. You are very generous, sir.

Mr. Secretary, I have just one territorial point and then one general one.

Just for the record, the border crossings in Niagara and Buffalo are real issues right now. The value of the trade that crosses the Canadian/New York border is larger than that of California, Arizona, New Mexico, and Texas combined.

Point made?

Secretary SLATER. Yes, sir. Point well made, sir.

Senator MOYNIHAN. The other thing I would like to say is thank you for keeping to the spirit of the legislation we enacted 5 years ago. But in that spirit, Chairman Chafee mentioned using tolls on the interstate. That is in the spirit of pricing. There is no such thing as a free way. Pricing will get you efficiency in markets. Don't be afraid of it.

But I would hope we would look to innovation. The Interstate Highway System, was thought up in 1938 and modeled in the World's Fair. It was a way of selling automobiles. The chairman of the subcommittee having departed, I can say that the first internal combustion automobile was exhibited in Vienna the day Grant took Richmond. It is not a new idea. Nor is our railway. It's been about a century since we began airplanes, not quite.

And not to be specific about this one thing, but the one truly new idea in transportation in the half-century since we began the interstate system is maglev. You may not like it, but it is new. It is a sister of surface transportation that does not work on the principle of friction.

It is an idea. Nothing like that has happened, ever. We invented it by a nuclear engineer. They are building it all across Germany and they're building it all across Japan. A formula for failure is to stick with a success past its prime. We are sticking with that four-lane highway and that four-wheeled car past its prime as a mode of transportation. Our Chairman here was traveling at 248 miles an hour on the surface level.

The Department has been wonderfully responsive to ISTEA and it has changed our thinking, but we still haven't decided to do something nobody else has done.

Secretary SLATER. Senator, let me say first of all that I personally—and I believe I speak on behalf of all the members of the Department of Transportation—consider it an honor to have you say that we have tried to be true to the spirit of ISTEA. We have worked hard in trying to make it real.

To get to the heart of your point, I read an article in the Post shortly after the President had nominated me and some of the other individuals who came in the second round of nominees for cabinet posts. It was suggested that because many of us had been a part of the first term that this would not be a period of ingenuity, innovation, excitement. I personally took—not offense—but I was charged by that because I can assure you that to not be a part of the President's effort to unleash the limitless potential of the American people and to work to create a more perfect union would be a disservice to the honor he has entrusted in me and to the interests of the American people.

We will be innovative and we welcome the opportunity to work with you and Senator Chafee, who just returned from Germany, and others who are interested in this proposal.

Senator MOYNIHAN. Very well stated, sir. Good luck to you.

Senator CHAFEE. Senator, I look on you as a prophet.

Senator MOYNIHAN. I am beginning to look like a prophet.

[Laughter.]

Senator CHAFEE. You sounded the theme that I so agree with, that the solution of these transportation problems isn't just more concrete.

I would like to have somebody prove to me—there is a lot of talk around here about some compact between the gas tax payers and that every nickel that goes into the trust fund must come back and be spent on highways. I have never heard of that compact. I look on the gasoline tax as a convenient way of raising money. It goes into the trust fund, which then can be used for improvements in

transportation, perhaps better highways, perhaps maglev. It doesn't all have to be used for concrete.

That is a theme you and I have been preaching for a long while. Senator REID?

Senator REID. Thank you, Mr. Chairman.

I would say to our new Secretary, I think the record of Secretary Pena is an outstanding record. I think those holding his nomination up for some nuclear waste issue should be ashamed of themselves.

Now for my question.

One of the things I hope the new bill will bring to us is giving States incentives for spending their own money. I think there has been too little of that. I think if a State is willing to spend money—or a subdivision of the State—on transportation, the Department of Transportation should give them some credit for that.

To use an example, we in southern Nevada with our rapid growth have really done some innovative things to raise money. We have room taxes, gasoline taxes, sales tax—all that kind of stuff. I would hope that you would take that into consideration with your new bill.

Secretary SLATER. Senator, we will. I would just state for the record that Nevada has actually been a leader in that regard. You have done an excellent job there. And we should make it more of an incentive program.

The other point I wish to make is that State and local governments already spend the great majority of resources on our transportation infrastructure system. We are not the majority player there, but our resources can be used to stimulate activity.

Senator REID. Do you think your legislation will give some incentives?

Secretary SLATER. Yes.

Senator REID. I also have introduced legislation to say that all the money in the highway trust fund should be spent and not saved and used for other purposes. Do you have a feeling about that?

Secretary SLATER. I can say that, as an Administration, we have considered that as well as other options. We have been, as a Department—

Senator REID. Let me interrupt you for a minute.

I know that you can't push forward on that. But I do say, Senator Baucus, that is where there is some more money. There is \$20 billion more money. Not enough to handle all the problems, but certainly a step in the right direction.

I would ask everyone here to give some consideration to my legislation. I think we should spend that money.

We are also very concerned about Federal lands. It has been brought up on a couple of other occasions here, but we in Nevada are 87 percent federally owned. Last year, we didn't get anything. We didn't get anything. Last year, neither Alaska, which has more Federal land than we do, nor Nevada received anything under this provision. I don't think that is right. I think you should take a look at that.

Secretary SLATER. Is that our discretionary program?

Senator REID. Yes.

Secretary SLATER. That should not have been the case. I can tell you that over the past 4 years I believe we have done a good job working together, but if that was the case last year, hopefully in the coming years we will have occasion to make up for that.

Senator REID. The other thing I would like to bring to the attention of the Secretary of Transportation and the members of this committee is that we have a real serious problem in Nevada. We have heard about border crossings with NAFTA and Niagara and all that stuff. Boulder Dam was completed in the early 1930's. The same little road that was in existence then is still being used to haul the hundreds of thousands of people a week from Arizona to Nevada. There are lines there 3 and 4 miles long waiting to get over that dam.

It is dangerous. Talk about terrorism—somebody drives and you could look right down in the spillways of the dam and the generators. We need to do something to get another way to travel over that river. This is not working. It is dangerous. It has been authorized before, but there has just been no money appropriated. I would ask that there be some concern given to that. This is not a Nevada problem. This is a problem I think we have for our country.

Secretary SLATER. Senator, that is an issue I am not as fully up to date on, but I appreciate your comments here today and I look forward to the opportunity to work with you on this issue.

Senator REID. Thank you, Mr. Secretary.

Thank you, Mr. Chairman.

Senator CHAFEE. Thank you.

Senator Graham.

Senator GRAHAM. Thank you, Mr. Chairman.

I would like to make two brief comments and then ask a question or two.

I agree with the observations about the deficiency in funding for surface transportation. Unfortunately, surface transportation isn't the only area of our Nation's capital needs that are severely underfunded. We have enormous deficits in areas such as school construction, for rehabilitation of existing schools, and to build new schools to meet population growth. We have deficiencies, as this committee well knows, in various environmental areas in terms of meeting the needs for adequate water and sewer systems.

I would suggest that while the focus of today is certainly appropriate, we ought to step back and look at how we are going to meet our broader needs for investing in the capital stock that is critical to the economic future and to the quality of life of our citizens.

Second, I also agree with the comments of Senator Moynihan about the importance of not just reinventing the technology of the 19th century, but to look aggressively as to how we get to the 21st century. I think the challenge as it relates to magnetic levitation is whether that is a one giant step from where we are to magnetic levitation, or if it should not have an intermediate step analogous to that which Japan and Europe have done, which is efficient high-speed rail systems using known commercially applied technology which will then create a public acceptance of going to high-speed rail with a technology that is still not broadly in commercial application.

I agree with the observation. I think we need to think about the strategy to get to that goal.

I have been looking at a report developed by the General Accounting Office in November 1995 evaluating the current highway distribution system. In the executive summary of that report on page four there is a sentence which I will slightly paraphrase which states that each State's total share of funding for these four programs—the interstate maintenance, bridge replacement and rehabilitation, national highway system, and the surface transportation program, which collectively represent 70 percent of total funds allocated—must equal the adjusted share of funding the State received for those same programs in fiscal years 1987 through 1991.

Do you agree with the General Accounting Office's conclusion that the results of the 1991 ISTEA bill, which would require that for 70 percent of the highway funds allocation, that they be the same as they were in 1987?

Secretary SLATER. Senator, I am not familiar with the specific language of the report that you cite, but I would say in general that I think the report captures what the objective was by those who were involved in putting together the formula at that time.

Senator CHAFEE. I would just like to break in quickly.

We are now in the last part of our vote. If you would be good enough to stay, Mr. Secretary, Senator Inhofe has voted, so he can ask his questions at the completion of Senator Graham's questions.

Senator GRAHAM. Please be so kind to tell the people at the desk that I am on the way.

[Laughter.]

Senator CHAFEE. That depends on how close the vote is.

[Laughter.]

Senator GRAHAM. I am certain that with his wisdom Senator Chafee's vote and my vote will complement each other.

[Laughter.]

Senator GRAHAM. If that GAO report is accurate—and I would request that you might specifically evaluate it—then I am concerned about what has been suggested as what might be some provisions in the NEXTEA that have been suggested at the briefing that was held on Monday were first a 90 percent of apportionment provision, which would guarantee that all States would receive 90 percent of the apportionment they received from the previous year. Second—and I don't know if this was in the alternative or supplemental—was that the States would receive no less than 95 percent of the average apportionment which they received over the years of ISTEA since 1991.

If either of those two is in fact what is being recommended, it seems to me essentially we are saying that we have a formula that was adopted in 1991, which essentially locked in the apportionments to 1987. Now in 1997 we are about to pass a bill which will lock in those same numbers through the year 2003.

That seems to be inconsistent with the statement that we are going to be using new and updated factors as the basis of allocation, if in fact the year 2003 we will essentially be allocating on the same basis we did in 1987.

Secretary SLATER. Let me just say, Senator, that I think you really make a good point here. You have actually set the question up very well.

I think in 1991 the objective was to bring about some change, but to also be sensitive to the conditions as they had existed prior to that point. I think in the briefing that was held earlier we tried to express an interest in the same kinds of dynamics.

Let me assure you that as we come forward with a specific proposal that we will seek to be a player at the table, prepared to engage in the discussion and debate about this important issue. We will also seek to be guided by a sense of fairness. Clearly the Step 21 initiative that goes to the heart of this issue has been one that we paid very, very close attention to. We would hope that what we come forth with would reflect our sensitivity to that fact. But this is a very, very difficult issue.

Let me close my comments on it with this point. There was a great attorney who once said that really the challenge of the law is to reconcile the wants and desires of each individual, each equally entitled to life, liberty, and the pursuit of happiness. It is a very difficult balance. Clearly, we have that same kind of challenge and need present here as seek to establish a formula that will allow everyone representing the divergent, dynamic interests of all the States of the United States to feel that we have been fair and that all of their needs and concerns have been adequately addressed.

I think we can get there, but it will be very difficult.

Senator GRAHAM. I would just conclude with this statement. The reality is that we are dealing with an inadequate total amount of funding. Just as happens in nature, when animals are starved, it tends to bring out their most combative instincts. All 50 States are starved and they are in combat.

No. 2, if that is the reality in which we are going to be operating—that is, inadequate resources and this starvation reaction—then it becomes particularly incumbent upon you, who are able to look at the entire Nation, as opposed to each of us who are responsible for the Nation but particularly accountable to our specific constituents, to be able to give us a recommendation that begins this debate with the maximum amount of rationality to carry out the allocation of the Nation's needs.

I know that you are doing so, but I just underscore the central importance of the recommendation that you are going to be making, which has the potential of shaping a rational allocation that will justify public and congressional support.

Secretary SLATER. Senator, your point there is well taken. We will try to accomplish that end. But we know that ultimately we all have to work together to find common cause and common ground on this issue.

I would also add that your point at the outset about the resource question—the size of the pot part from which we are to select—is also well taken. That is frankly why we have tried to increase the authorized amount to approximately \$175 billion. That is about a 12 percent increase over ISTEPA. Hopefully, that will give us some room to balance these interests about which you speak.

Senator GRAHAM. Thank you, Mr. Secretary.

Secretary SLATER. Thank you.

Senator INHOFE [assuming the chair]. I get you all to myself now.
Secretary SLATER. Yes, sir.

Senator INHOFE. First of all, let me tell you, Mr. Secretary, how pleased I am you are doing what you are doing. As you well know, I have singled you out as being one of the persons I really have a lot of faith in and have enjoyed working with over many, many years. I look forward to doing it in this new capacity. I think from my neighboring State, we have many fellow Razorback fans who are wondering what next he is going to do with the pig trail, and other major arteries going to Fayetteville and Little Rock for those Razorback games.

I chair the Clean Air, Property Rights, Wetlands, and Nuclear Safety subcommittee of this committee, Mr. Secretary, as I am sure you are aware.

Secretary SLATER. Yes, I am.

Senator INHOFE. We have been having extensive hearings on the proposed changes in the national ambient air quality standards, as proposed by the Administration and articulated very effectively by Ms. Browner.

When you have put together the CMAQ funding, are you doing that on current standards or proposed standards?

Secretary SLATER. We are doing it on current standards, but we do have a provision in the law that would allow us to respond to changed standards if that were to come about.

Senator INHOFE. I haven't seen that, but I am very, very interested. That is a major thing. In fact, I want to bring that up when we have a field hearing with a lot of participation by both Arkansas and Oklahoma this coming Monday. We are very much concerned about that since the proposed standards would kick into effect around 1999 or the year 2000, and we are looking at funding here up to 2002.

I would be interested in your telling this committee what preparations you have made for that, should those standards be adopted. You say that there is a provision, some type of escalation?

Secretary SLATER. Right. We call it a trigger provision, which would result in more moneys being made available. Also, we would make a commitment to provide technical assistance to the cities and communities that would be impacted thereby.

Senator INHOFE. Would be the source of this additional help that would go to the various cities and counties?

Secretary SLATER. Those resources would come from the same general pot of resources. We would just have a larger category for CMAQ activities.

Senator INHOFE. So there would be some type of allowance for transferring funds from other programs?

Secretary SLATER. Yes.

Senator INHOFE. Where would the States figure into this in terms of using their judgment as to where this transfer should take place?

Secretary SLATER. We would make the program as flexible as possible. Again, our objective is always to put more responsibility and more decisionmaking power in the hands of State and local officials as they make their transportation decisions. Clearly, it

would be reflected in the planning process and the involvement of MPOs and the State DOTs and the community in that regard.

Senator INHOFE. I know with your background and your philosophy that you would want to have as much of that go to the States and local entities. I just hope you will be able to sell that idea to the rest of the Administration.

Secretary SLATER. In that regard, Senator, we have worked very closely with the EPA on this issue. I think we will be able to accomplish that end.

Senator INHOFE. The EPA—I have the figures that they have used and what they are anticipating should the particulate matter and the ozone standards changes be adopted. In the area of ozone, currently there are 106 counties throughout America out of attainment. That would increase to 335. On particulate matter, it goes from 41 to 162. So the total would go from 147 to 502.

We have had extensive research done on this and our calculations are that those are very, very conservative figures. I think it is going to be three times that many. I really believe this is the time to be looking at that. And I would be glad to share with any of your staff how we arrived at that, because I am absolutely convinced that we are right. Of course, I have a selfish concern about Oklahoma because we seem to have an inordinate number of counties that would be affected by the changes in those standards.

Secretary SLATER. We would welcome the opportunity to work with you. I can tell you that we have not really reviewed the estimates of EPA as conservative. But clearly if you have evidence in that direction, we would welcome an opportunity to review that and to work with you and your staff and other members of the committee to be prepared.

Senator INHOFE. I believe it would be better now to be prepared than to wait and find out that I am right and they are wrong later on.

Secretary SLATER. Your point is well taken. We should do this in a proactive fashion.

Senator INHOFE. Senator Smith brought up the issue about Amtrak. Of course you know that Oklahoma is one of two States that has no presence of Amtrak at all. I noticed that always before we have had part of the—I am not sure whether it is operating or capital funding coming from the general budget, I think it is operating—we have done away with that and it will be totally supported through the revenues we have from the trust fund.

Of course, I would ask the same question that has already been asked about the justification for that since there is no contribution made. I heard your answer, but I wanted you to know that Senator Smith is not the only one who is concerned about that.

Senator Boxer from California commented that there is a concern on the States that join the Mexican border—I suggest that it goes beyond just the States that border. Oklahoma, for example, in I-35—since it has been designated as a NAFTA corridor—there is a great expectation in Oklahoma. I have a hard time explaining to them that there is not funding there now. Could you give me a message to carry back concerning those non-border NAFTA corridor States?

Secretary SLATER. First of all, I appreciate the message you have brought forth to this discussion, and that is that there are a lot of interior States in the Heartland that will be impacted by the full implementation of NAFTA. I-35 is going to be a major workhorse route when it comes to making real the promise of NAFTA.

We have a provision in our proposal that will allow us to begin to focus on major NAFTA corridors. We are going to work with States as they align themselves in a very natural way to try to address those needs. We do think our credit program, which allows us to deal with multi-State, large project initiatives, may be a source of resources for this kind of activity.

Senator INHOFE. I would like to visit with your office to get as many specifics as possible so that I can carry those back.

Secretary SLATER. Thank you, sir.

Senator INHOFE. The only Senator yet to ask questions is Senator Wyden.

Senator WYDEN. Thank you very much.

I just want to thank my colleagues, particularly on the other side, Chairmen Chafee and Warner, for giving me the opportunity to come because this is an issue of special importance, as Mr. Slater knows, to our State.

As you know, Mr. Slater, we have done some of the most innovative work in the country in the transportation area. I will tell you that there is certainly an appreciation of the budgetary predicament you are in, still great concern about the reduction in the New Starts Program. It seems to me that if we are really going to be creative and innovative—as our colleagues have said—as we go into the 21st century, that new starts program is one of the best ways to make a concrete and tangible difference.

What is your sense about how we can shore that up? I gather the Administration made something of a tradeoff in terms of trying to protect CMAQ and some other programs and new starts took a hit. But I can tell you in terms of our most congested areas in Oregon—areas that have made a huge political judgment to try to deal with congestion and the like when it wasn't very easy—they are concerned about the reduction in new starts.

Secretary SLATER. First of all, Senator, I would like to offer words to join the chorus of those who speak very favorably of Oregon and the new initiatives that you have taken as it relates to transportation infrastructure investment. You have been a leader in innovative types of approaches.

You are correct in noting that we have engaged in a number of tradeoffs. That will become more obvious as the proposal is made public. But I can say that new starts represent one of the areas of great achievement of the Administration during the first term. I will say that Gordon Linton with his team—first with Grace Crunican, who is now your Secretary of Transportation, and then later with a team that included Gordon and Janette Sadik-khan who has served as his deputy—we have moved forth aggressively on new starts. The number escapes me now. I think it is 12. But the point I want to make is that we have invested about \$7 billion, but States and locales have come back to invest in the neighborhood of \$5 billion.

So it shows that there is that willingness on the part of States and locales to be players in this regard as well.

In our proposal, we will ensure that that partnership opportunity remains. But again, your point is well taken that we have tried to balance some of these priorities with an understanding that we can't do all that we want to do. But we will try to do the best we can.

Senator WYDEN. It is not exactly in your purview, but I heard this week at home that people picked up in the budget that there were going to be five new fighter aircraft that go over \$300 billion, and then there is going to be a cut in the new starts program, which they think is central to the 21st century. It is not exclusively within your purview to make those decisions, but know that that is the concern.

I also wanted to ask about your thinking at this point about how States that have been willing to make tough decisions in terms of promoting good growth management and sensible land use could be rewarded in the ISTEA process. I have been troubled that not only does the Federal Government not reward a local jurisdiction for doing sensible growth management, the Federal Government will actually penalize these jurisdictions. It is sort of stupefying in that a local jurisdiction can pass a set of criteria for dealing with growth management, and then along comes the Federal Government and says that we must repeat it for ISTEA purposes, for NEPA purposes, et cetera.

Do you all have any proposals at this time that you can discuss that would reward a community for doing the heavy lifting in terms of growth management?

Secretary SLATER. Senator, there again, I think your point is well taken.

We believe that through our regulatory reform effort that at least we have been able to remove and address a number of those initiatives that have penalized States and locales in the past. We will continue in that regard.

We are looking at some proposals that might allow us to more incentivize the process. Again, that will become more apparent as we talk about the specifics of our proposal. We hope to do that in the very near term.

Senator WARNER [resuming the chair]. Senator, we are about over here. We thank you for joining the subcommittee today.

Senator WYDEN. When you were gone, I was expressing my thanks to you and Senator Chafee for inviting me and giving such graciousness. I will break it off right now.

Senator WARNER. It was the express desire of the Chairman and myself to include all members, and the ranking member likewise.

There is a consensus here, gentlemen, that we will have one more question each.

Mr. Baucus.

Senator BAUCUS. I will be creative and put my question in two parts.

[Laughter.]

Senator BAUCUS. Our country is not homogenous. Some parts of the country are obviously much more densely populated than some others. There should be disproportionate additional aid in terms of

highway dollars to those parts of the country which are more thinly populated than densely populated. The main reason we have donor and donee States is because some parts of the country have very dense populations. The densely populated States are going to be the donor States, by definition, because there are so many more people there as a function of fewer miles of highways. It is clear.

Other States—the so-called donee States—should be donee States because they are States that are very thinly populated, as part of the National Highway System, and are just unable to pay as much as the densely populated States.

I have a table here which shows per capita contributions to highways and highway infrastructure. The first column is Federal highway trust fund contributions. That is ranking of contributions per person. The State that leads the list is Wyoming with \$198.15 per person. That is, Wyoming residents pay in the Federal portion of the highway tax that goes to infrastructure.

Another table is State motor fuel tax contributions to infrastructure. Montana is first with \$175. Wyoming is down the list.

Some States have higher gasoline taxes than others, but mostly it is because they have to in order to pay for their needs. Some States have high gasoline taxes, a portion of which is not paid for highways. But if you discount that out and take only the portion of State highway gas taxes that goes to the trust fund, I think that would be a pretty good standard to decide what the Federal allocation should be.

As to Amtrak, I am very much surprised that the Administration wants to finance Amtrak out of highway user fees. The statement was made here that sometimes folks can ride Amtrak. That is not true for most people. Amtrak is not an alternative. It is not an alternative for 99 percent of the population, at least in the west. I would urge the Administration to look for some other way to finance Amtrak needs—whether out of the mass transit account with a \$4 billion or \$5 billion surplus—or to take some portion of the 4.3 cents of gasoline tax that now goes to deficit reduction.

Senator Roth has a proposal, which I may agree with, which would take that 4.3 cents and split some of it up to pay for Amtrak and the other portion to increase the highway trust fund so that we are in fact spending more dollars on infrastructure. With that proposal, we still may not use all the funds that are in the balance, but we still pay a few more dollars than we are now paying for infrastructure. That goes not only to concrete, but to enhancement, CMAQ portions, safety enhancements—all the different parts of the highway program we are trying to participate in.

I would urge you very strongly to go back to the drawing board and find some other way to finance Amtrak. Again, look at Senator Roth's proposal and see if there is some way we can skin this cat.

Secretary SLATER. Senator, let me just say that population will be a key factor in the formula proposal that will come forth.

Senator BAUCUS. Population or lack of population?

Secretary SLATER. That is what I am saying. The whole issue of population reflecting that in some instances it may be helpful to a State because they have either a larger or smaller number of people. The point I am making is that it will be a factor in the for-

mula. Hopefully, it will be dealt with in a way that you will appreciate and respect.

Senator BAUCUS. Also, you have to remember that there is no other alternative in these States. There is no barge traffic. Often there is no air service. There are no busses. There is no inter-city bus service. It is minute. There is no Amtrak except in very rare cases. There is no other alternative.

Secretary SLATER. Right. No other alternative, and as you say, in many instances—

Senator BAUCUS. And we pay much more than do other States per capita.

Secretary SLATER. But what I want you to know is that we understand. In some areas there is limited opportunity to use other modes of transport and the like, but still there are people who live there who want to enjoy what is promised: life, liberty, and the pursuit of happiness. And we do have to be sensitive to that as we come forth with our proposal—and we will be. I want to assure you of that.

The last point I want to make is that your points about Amtrak are well taken. We are trying to come forth with something that will be acceptable. All the suggestions you have raised—the transit account—all of those things have been considered and are being weighed. I just wanted to make that point.

Senator BAUCUS. That sort of adds insult to injury. A lot of the folks in the west pay 2 cents out of the Federal gasoline tax to mass transit and don't get a penny back.

Secretary SLATER. I understand.

Senator WARNER. Thank you very much, Senator.

Senator Chafee?

Senator CHAFEE. I would like to start off with a statement here.

We need to give serious consideration to what we are trying to do in this country. Are we trying to move people from point A to point B in the most efficient fashion? The idea that this lucrative fund—namely, the taxes on gasoline that are coming into the highway trust fund—may only be used to pour concrete it seems to me to be missing the point. The fact is that a gasoline tax is a very lucrative and simple way of raising money. Should some of it go into reducing the deficit? Yes, I support that. I have been for that 4.3 cents.

If maglev is a very efficient way of moving people from San Francisco to Los Angeles to San Diego, some of the great growing cities of our Nation, instead of pouring more concrete to widen the highways evermore so that more vehicles can get down those roads, I think it is a perfectly accepted way of using this fund.

I know we have a basic difference of philosophy here, but I don't look on that fund as something sacred. In my State, we traditionally have taken our gasoline taxes and put them into the general fund. Then they are available for highways, if highway has top priority. They are available for health care, if health care has top priority.

But in this situation, at least we are restricting the fund to transportation. I think as a country, as we look back to this time at some future date and say, "No, they wouldn't spend any money on a better railroad system, a better passenger system. All they

could do was pour more concrete and widen these highways." I think we will look back and say that we failed.

I can understand in some of the rural States that they don't have Amtrak come through there. That doesn't mean that it couldn't come through there at a better rate than it does now. But in some of the growing metropolitan areas, I feel it perfectly proper for us to subsidize rail or maglev.

Mr. Secretary, I don't have a question for you, but I would strongly encourage you to put the substantial resources of the Department to help identify needs. We do this in every other program. You just don't distribute funds under our welfare system, for example, based on population. We do it based on needs. Whether it is HeadStart or whatever the program is.

I would hope that you could come up with needs. I know to a considerable degree it is subjective, but there ought to be some criteria you could use.

Thank you, Mr. Chairman.

Senator WARNER. Thank you.

Secretary SLATER. Mr. Chairman, although Senator Chafee's comment was not a question, I would like to provide a short response to it, if I may.

Senator WARNER. Surely.

Secretary SLATER. Senator, I think your point is well taken about the need to focus on need. In the beginning of my statement, when I dealt with Washington and Jefferson and Lincoln and Roosevelt and the like, and all the people that they had to work with in the various congresses, that is the point I was trying to make. Whether trying to open a door or trying to find some union of sentiment or the like, connecting us as a house united—all of that was a representation of the fact that these individuals in their time were focused on the needs of the American people.

I have one idea that I think provides part of the answer for us, and I will just state this quickly.

One of the speakers during the inaugural activities, the poet, talked about how it is sometimes easier to look into the future and to deal with the future when you do it by looking through the eyes of a child because then it is not as threatening. We recognize the fact that they have more tomorrows than yesterdays. So if we can position ourselves to look through their eyes, sometimes it becomes easier.

I submit that these are the young people who clearly will have more of their days in the 21st century. They will want to be assured that we in our day, in the closing period of the 20th century, have made provisions so as to lead to a system that can support their pursuit of happiness.

One thing that I am going to propose—and I would like to have the support of this committee, the Congress, and the Administration—is the establishment of what I like to call a Garrett A. Morgan Technology and Transportation Futures Program where we will actually go into the communities—the schools in particular—of America to try to stimulate the minds of young people to consider transportation as a life option, as a professional. This industry not only represents some of the best-paying jobs, it is critical to our well-being as a democracy, to our security as a Nation, and

we want to reach them. By doing that—and you couple that with the Eisenhower scholarship program that we have for college students who have made that choice—and you have a very powerful force at play. Also, going to them will allow us to learn a bit more from their perspective about what this future of tomorrow will consist of.

I just wanted to make that point. I will say that our goal will be to attract 1 million students to this effort. I think it will prove very worthwhile to what we have discussed today.

Senator WARNER. Senator Wyden, do you have one question?

Senator WYDEN. I do, Mr. Chairman. I will be real brief.

Mr. Secretary, could you elaborate a bit on this idea of high priority corridors? We are counting on having one on I-5 in the Pacific Northwest. How many of them do you envision? Are there certain criteria which will be determinative? Elaborate a little bit on how these high priority corridors would be chosen.

Secretary SLATER. First of all, let me give the Congress and this committee credit for broaching that issue in ISTEA where you identified a number of national priority highways. We clearly will continue to focus on those. I can think of one in particular, I-69, which actually begins at the Blue Water Bridge in Port Huron, Michigan. It goes to Indianapolis, IN, as a constructed roadway. We have provided some resources over the past 4 years to do a study as to the cost benefit of continuing that roadway into the Lower Rio Grande Valley of the United States.

But more importantly, let me say that as we move toward the identification of those roadways that would become a part of the National Highway System, a charge we were given under the ISTEA legislation, we took certain factors into account. For example, where were the natural connections with Canada to the north and Mexico to the south?

We identified a number of crossings—and there aren't that many, about 32 on the north end and 21 or so on the southern end. That is where we will begin because the National Highway System, you will recall, represents that system of 160,000 miles of roadway, consisting of about 4 percent of the roadways in the country, but carrying 45 percent of the highway traffic, 75 percent of the truck traffic, and 80 percent of the tourist traffic.

I think that is a place to begin. Also, this system, through its intermodal connectors that were identified and submitted to the Congress, deal with the connections to all the other modes of transportation. But clearly as we go forward and interface with the Congress, I think we will gain a better insight of where those corridors are likely to manifest themselves.

Let me close my comment in this regard by saying that I understand clearly what Senator Moynihan was talking about a few minutes ago when he mentioned Buffalo and the Niagara region. In 1994, my second year as Administrator, I actually engaged in my first road tour across America. I started in Buffalo. In over 14 days I traveled through 14 States, 3,500 miles, moving through much of the heart of the country and ending in Laredo, TX.

The objective was to deal with those very concerns that are the basis of your question: Where is the natural flow of traffic? What will the communities in the interior and along the border have to

deal with and grapple with as we open the wide door, if you will, in creating the largest trade zone in the world through the full implementation of NAFTA. We have a lot more work to do in that regard, but I think these corridors will manifest themselves over time.

Senator WYDEN. Thank you.

Thank you, Mr. Chairman.

Senator WARNER. Thank you.

Senator Smith.

Senator SMITH. Mr. Secretary, there are two comments that kind of caught my eye in your testimony because of the fact that I wear the hat of the chairman of the Superfund and Hazardous Waste Subcommittee. One of those statements is, "Efforts to revitalize brownfields must be continued and strengthened in ISTEA," and "Transportation planning decisions should also take into account efforts to redevelop brownfields."

You're not proposing funding brownfield cleanup in the ISTEA legislation, are you?

Secretary SLATER. Not really. What we are saying there, Senator, is that clearly in a transportation decisionmaking process, those factors should be taken into account. I can tell you that—

Senator SMITH. How? In what way are they taken into account?

Secretary SLATER. Many of these brownfields are sites where at one time we had thriving industries. Most of them are in the heart of core central cities of the United States. Generally they are very close to critical water ports and waterways. Rather than just turning our backs on those sites, if we take them into account when we are making these very important transportation decisions, there may be a way for us to positively impact the redevelopment of those particular sites.

Senator SMITH. I don't have a problem with that. I am concerned about whether you are proposing funding the cleanup of brownfields out of the trust fund. Is that yes or no?

Secretary SLATER. No. We are talking about only to the degree where transportation becomes a factor as it relates to these areas.

Senator SMITH. Thank you.

Senator WARNER. I would simply use my minute to say that listening to Senator Baucus talk about the pristine, big sky country of Montana all the way to the smog-layered I-95 in northern Virginia. We have our task cut out for us. The one word that must prevail throughout is fairness. That is a challenge to the Congress and to the Administration to strike a note so the American people—who begrudgingly pay these taxes—think we are treating them fairly in solving their various problems that our distinguished colleagues pointed out.

I would simply say that one other thing we have to do is more simplification in this legislation. I am going to look at your bill very carefully, but there is far too much complexity and regulation and so forth still lingering around, in my judgment.

Thank you, Mr. Secretary. It has been extraordinary and a very good presentation by you as well as excellent questions by this subcommittee.

Thank you very much. We now proceed to the next panel.

Secretary SLATER. Thank you.

Senator WARNER. We invite to the witness table Mr. William D. Fay, president and CEO, American Highway Users Alliance; and Mr. Hank Dittmar, executive director, Surface Transportation Policy Project.

The statements by both witnesses, which are in the possession of the subcommittee—well-prepared statements, I might say—will be placed into the record in their entirety. We ask the witnesses to proceed with the lead-off by Mr. Fay. And we thank those exiting the hearing room to be as quiet as possible.

Mr. Fay.

**STATEMENT OF WILLIAM D. FAY, PRESIDENT AND CEO,
AMERICAN HIGHWAY USERS ALLIANCE**

Mr. FAY. Mr. Chairman and members of the subcommittee—and Senator Inhofe if he were here—I want to note that all of this year's reauthorization efforts may be for naught if the national ambient air quality standards are changed. You may provide the funds for ISTEA and you may provide the authorization to invest them, but 800 counties in this Nation won't be able to build or improve their roads if those standards are changed.

I appreciate the opportunity to present our views.

Senator WARNER. That is an excellent point you make and a question I was going to have for the Secretary, but time did not permit.

Mr. FAY. It is an important issue.

Senator WARNER. It is a collision course between what we're driving to achieve not only in ISTEA or whatever we want to call this piece of legislation and the conflict with other laws and regulations.

Mr. FAY. Mr. Chairman, I led the business community's efforts on the Clean Air Act. I worked with Senator Chafee on that. We didn't always agree on everything, but the foundation of the Clean Air Act was scientifically based national ambient air quality standards. I have to tell you, at that point in time meeting the standards is absolutely critical. That is what we have to do, as long as they are scientifically based. But we will lose confidence in the Clean Air Act as a Nation if the national ambient air quality standards fail to be based on science.

I appreciate the opportunity to testify here today and to present our views on the transportation policy that will meet the growing needs of the 21st century.

Highway Users is like a consumers group. Our members are motorists and truckers who rather willingly pay taxes in proportion to their driving, but who expect those taxes to be reinvested in safe and efficient roads and bridges. If the FHWA's needs report is an effective gauge, and if the chart at the back of my written testimony is accurate, then these highway consumers are being ripped off.

The Interstate Highway System may be complete, but let us not forget that it was designed to meet the needs of a 1950's economy. Nonetheless, this Federal creation constitutes our Nation's safest and best roads. The NHS, which you overwhelmingly enacted in 1995, is the interstate highway system of the 21st century. Its statistics bespeak nationalism with 4 percent of the total miles bear-

ing 40 percent of all traffic, 75 percent of commercial truck traffic, and 80 percent of tourist traffic. These are our most vital roads and they draw our Nation together, they boost our economic productivity and competitiveness, they create jobs, and they enhance our quality of life. The NHS has more than doubled the trade crossings, as Senator Boxer mentioned.

So we, as the highway users, would strongly oppose those who would say that the Federal role should be ended, that somehow we should go back to before 1956 when our vision didn't extend beyond State boundaries.

With that said, we also believe that the Federal program must readdress itself to meet national issues. We urge you to center this reauthorization debate around defining and then adequately funding those national priorities.

Senator Warner, you mentioned that America's highways are in the midst of a funding crisis. The needs report documented roads and bridges nationwide that are crumbling from under-investment. But our funding problems are not for a lack of revenue. As the chart at the back of my written statement shows, only 58 percent of total highway tax receipts are actually returned to the States for roads and bridges. The State-by-State breakdown shows that if all highway use taxes were counted, 43 States are truly donor States, and of the remaining 7 donee States two of them—Montana and Rhode Island—receive less than 1 percent more than they actually pay.

It is clear that the Senate is painfully aware of this funding problem. Specifically, we applaud and commend three recent Senate-based proposals. The first is the letter that Senators Warner and Baucus originated and which was signed by nearly three-fifths of the Senate urging the Senate Budget Committee to increase investments from the highway account to \$26 billion. That is the level CBO says that we can sustain using current highway use taxes.

Second, Senator Byrd proposed to dedicate the regressive 4.3 cent fuel tax to the highway account and to increase funding accordingly.

Third, the "Dear Colleague" letter was originated by Senators Chafee and Bond asking that annual highway account investments equal annual highway tax receipts. While this proposal would leave the highway account with its current \$12 billion, it would guarantee that future taxes would be invested. That is a guarantee that we don't have today and is a real step in the right direction. All three proposals would make substantial deposits toward eliminating the dangerous backlog in needed road and bridge investments.

The needs that concern us the most as the highway users are the human needs. Mr. Chairman, 30 percent of highway fatalities are caused, in part, by poor road design and conditions. In fact, since ISTEA was implemented, America's annual death toll has grown, rising in 1993, 1994, and 1995 to nearly 42,000 highway deaths. Right after this hearing, the Roadway Safety Foundation, of which I am a trustee, will release a report that documents how road investments save lives. If I had my 'druthers, I would want every dollar collected from highway users dedicated toward saving lives on our roads. You can help to stop this carnage by focusing both the

Federal highway program and Federal highway use taxes toward clearly defined national priorities.

We recommend a simplified program that invests 58 percent of highway funds into five program accounts: the National Highway System, bridges, safety, research and development, and roads on Federal lands. Like the Step 21 Program, we would streamline the surface transportation program, continuing the eligibility of CMAQ and enhancement projects, but eliminating ISTEA's current inflexibility of mandating them. In this way, State and local officials can truly establish their own priorities for local transportation projects without Washington, DC, dictating that some projects receive priority over others.

As soon as the Administration's ISTEA proposal is released, I will submit an addendum to my testimony with our reaction. But if the President's fiscal year 1998 budget is any indication, I seriously doubt it will be favorable. Ignoring its own report on the investment needs of our Nation's roads and bridges, the President would actually cut highway investments amassing a whopping \$48 billion surplus in the highway trust fund by the year 2002.

And while cutting back on highway investments, the President would ask highway users to pay all of Amtrak subsidies. We strongly oppose this proposal and will fight it vigorously.

Mr. Chairman and members of the subcommittee, I thank you for hearing our call to focus the program on national basics.

Senator WARNER. Thank you very much.

Mr. Dittmar, we will hear you and then we will ask questions to the panel.

**STATEMENT OF HANK DITTMAR, EXECUTIVE DIRECTOR,
SURFACE TRANSPORTATION POLICY PROJECT**

Mr. DITTMAR. Thank you, Mr. Chairman.

I am here today on behalf of the Surface Transportation Policy Project, which like the Highway Users Federation is a consumers group. But our consumers are drivers as well as environmentalists, drivers as well as senior citizens, drivers as well as bicyclists. We do represent those communities.

I would like to make three points today. First, we believe there is a need for a continued national role in surface transportation investment. Second, we believe that ISTEA, as crafted by this committee in 1991, appropriately addresses this national role and balances it with the need for State and local officials to have greater choices in making their decisions. Third, we believe that some minor improvements to ISTEA can be made to respond to 21st century needs.

Taking the first point, STPP believes that there is a need for a continuing and strong national investment in transportation. This national role is based on meeting five objectives. First, to support our national economy and the competitiveness of our national economy in the global economy. Increasingly, this has to do with ensuring that our metropolitan areas can compete by dealing with problems like metropolitan congestion and connecting our ports and airports with our Nation's highways at bridges and transit systems. But it also involves ensuring that our rural areas have access to the national economy.

I would note that recent economic studies have shown that the rehabilitation and preservation of our highway infrastructure and our transit infrastructure is one of the best economic investments we can make. And we certainly agree with Mr. Fay on that point.

The second national role really is the public safety, which everyone has talked about today. Making progress in reducing the 45,000 annual deaths through investment in surface transportation remains a critical reason for staying the course.

The third role is environmental, scenic, and aesthetic quality. Transportation is environmental legislation. Transportation and environmental issues cross State boundaries and the environmental community will view ISTEA reauthorization as an environmental issue.

Fourth would be access and mobility for all, opportunities for all of us to reach jobs and services. This is a critical reason for national investment.

Finally, as a matter of practicality, we need to protect our enormous built investment in transportation infrastructure, highways, bridges, transit systems, and Amtrak.

Second, we believe that 1991 ISTEA legislation, largely crafted in the Environment and Public Works Committee, appropriately expresses this national role. And I am not talking here about the formulas in ISTEA, necessarily, but about the program structure and the decisionmaking structure. My members come from all the 50 States, so we focus on the national aspects of the legislation. ISTEA did this in three ways. First, it targeted funds to areas of national interest. The interstate maintenance and bridge programs appropriately target funds to preserving our highway infrastructure.

The safety set-aside within the surface transportation program clearly addresses the needs for safer highways. The CMAQ Program dedicated funding to ensure that the 1990 Clean Air Act mandate was a funded mandate and not an unfunded mandate. This precedent should be continued.

The enhancement program responded to environmental issues and community issues by providing for funding for alternative modes and for making sure that the interface between transportation and communities was not a troubled one. And finally, ISTEA dedicated money to metropolitan areas and rural areas, ensuring that equity goes below the State line to the areas within the States and their need for funding.

The second way that ISTEA really made a difference was by moving the Federal way from being one of overseeing the construction of the interstate and overseeing the engineering competence of our State agencies toward an oversight of a planning, programming, and decisionmaking process, saying to States and localities that the appropriate Federal role was to ensure the accountability of the investment of the Federal tax dollars through fiscal constraint and public involvement and ensuring local as well as State officials taking part in the decisions. ISTEA's planning process was an appropriate move for the Federal Government into the 21st century.

Third, we think that ISTEA really balanced the national role in funding specific areas with the recognition that the ways to achieve

national goals may differ from State to State and locality to locality. ISTEA provided broad eligibility within the funding categories to allow local and State officials to choose the projects that make the most sense. And it allowed broad transferability between the categories. So if a State received more bridge funds than it needed, it could transfer those funds into the National Highway System category.

ISTEA should be retained. That is why STPP has joined with the U.S. Conference of Mayors, the National Association of Counties, the National League of Cities, the American Public Works Association, the American Public Transit Association, and the National Association of Regional Councils in the alliance for ISTEA renewal, arguing that we need to continue to have adequate funding for surface transportation, continue ISTEA's program structure, and keep the partnership and decisionmaking together.

We believe that some improvements are possible, and they have been outlined in a book that we have provided separately to the committee, our blueprint for ISTEA reauthorization. We are proposing an emphasis on rehabilitation—a fix it first policy in the reauthorization—further progress on the environment, and the simplification of the transportation program, reducing the program categories from 14 to 6, and simplifying the planning process from the current 20 planning factors down to 6 or 7 planning factors.

It is shifting from a one-size-fits-all philosophy. ISTEA unleashed a torrent of creativity at the State and local level. For emergency service patrols in California and New Jersey to remove motorists from the freeway, to clean fuel busses in Idaho, from scenic and historic roads serving battlefields to Virginia, to trails in Rhode Island and Connecticut, ISTEA is working. We believe this committee should keep ISTEA as it considers the reauthorization of the transportation program.

Senator CHAFEE [assuming the chair]. Thank you very much, Mr. Dittmar.

Mr. Fay, I have had the privilege of working with you, as you mentioned, going way back to 1991 on the Clean Air Act and over the years. You are a thoughtful individual as far as these matters go.

You, yourself, said we are seeking a transportation policy. Let me present you the following problem.

In certain corridors in the United States—and obviously I am not going to name them all, but in Florida, Miami to Orlando, or wherever it might be, Los Angeles to San Francisco or Los Angeles to San Diego, or New York to Boston—in certain of those corridors the highways are very, very clogged.

What is the answer? You say that none of the money from the highway trust fund should be used for Amtrak. Yet if Amtrak in each of those places could contribute to substantially lessening the traffic on the highway so that you or Mr. Dittmar or whoever it might be could drive with relative ease instead of being caught in a clogged highway—isn't that a fair use of these moneys? Or is the only use for them to widen the road, build another lane, take some farmer's property, take some households, and take some businesses? Is that the only solution?

Mr. FAY. Senator, the highways are the mode of transportation most Americans choose. In fact, if you were to take a look at how we commute over the past 10 years, the only means of commuting that has increased from 1980 to 1990 was driving alone. We put a lot of Federal money into carpooling lanes and public transportation. Both of those means of commuting decreased over the last 10 years.

I am trying to say that highway users do expect that their highway use taxes will go to safer and more efficient roads and bridges.

Senator CHAFEE. I don't agree with you on that. I don't think that when my wife goes to the gasoline station and pumps in the gasoline that she is saying to herself, "I am paying a tax here and I want that tax to be used to improve our highways." Maybe you do, but I don't think most people do.

Mr. FAY. The basic point is that 98 percent of the surface miles that we travel is over highways. The question becomes, if you are taking money from highway users right now and you are not effectively maintaining the roads and bridges—we are falling \$20 billion short of what is needed to maintain the roads and bridges in the United States according to the Federal Highway Administration report.

I am saying right now that we are failing the American driver right now. And the American driver is choosing to drive to work, and there are different reasons for that which are very legitimate. We found the major reason people decided to drive alone to work over the last decade was the incredible increase in working mothers and working women on the road. They aren't able to use it.

Senator CHAFEE. I would really like it if you could stick to my illustration. Let's just take Los Angeles to San Diego. What is the answer?

Mr. FAY. Senator, if you were to shut the Amtrak route between Los Angeles and San Diego, you would not notice the impact on the road whatsoever. In fact, if you were to shut down the most used route—the route with the highest rideage is the Philadelphia to New York route—you would add about one car per lane every minute and 20 seconds. And the roads can handle that.

I guess I am saying—

Senator CHAFEE. I hope that when we complete this bill we can say to ourselves, as the Secretary said, with a child's eyes. What kind of a transportation system are we leaving this country? Not just for today and tomorrow, but in the outyears, have we made it better for people to go from point A to point B in the most efficient manner? Have we contributed? No one is saying that we shouldn't put money into highways. Of course we should. But should we do anything out of this massive fund that accumulates with money pouring into it.

I am for spending what is coming into it. But to say that it can only be spent to widen roads it seems to me is missing the point.

Mr. FAY. Senator, there are some other things I would spend money on. Clearly, widening roads is not the answer in all communities, but it can help. One of the things we have in CMAQ is that we are not allowed to spend any CMAQ moneys in order to improve single occupancy lanes. We can't use that money to invest in free-

way interchanges in many cases. Yet those are our most congested parts of our country.

Right now, I would say that what we need to do is clearly to invest in where the public is going. The public is going into their cars increasingly. I guess the question is, Is public policy designed to drive the public in a certain direction, or is public policy designed to meet what the public is doing? The public is driving, Senator. Whether you like it or I like it, it is going to happen that way. The question is now, Are we going to meet those needs?

What kind of future are we handing them? We are handing them a very congested future if we are not making the kinds of investments we need.

Senator CHAFEE. That is where I think you are just leading to more and more congestion.

I will get back to you.

Senator Smith.

Senator SMITH. I hate to interrupt that.

[Laughter.]

Senator SMITH. Mr. Dittmar, let me ask you a question regarding some of the things that we do with the trust fund, such as bicycle paths, for example. I support them. I think it is admirable. But when you look at the issue of priority and we know that people are dying on the roads as a result of roads that are not repaired properly, or even constructed properly in the first place, is that justified to take dollars that are costing lives and use them to enhance the ability of people to perhaps recreationally use the surface routes in some way?

And I say that not to be confrontational, because I support those. I think they are justified. But are they justified in terms of competition for these dollars?

Mr. DITTMAR. Let me make a couple of points with respect to that question.

The first one is that about 8 percent of all trips that are taken are walking and bicycling trips. So to spend, as ISTEA did, something less than 2 percent of the funds on bicycle and walking facilities does not seem to me to be out of line.

Second, about 15 percent of our fatalities are bicycle and pedestrian fatalities each year. Spending funds to improve safety for walkers and bicyclists, both by improving roads and providing access for them, is an important thing. We have done some analysis of the safety set-aside funds and we found that less than 1 percent of those funds were actually spent on bicycle and pedestrian safety.

Senator SMITH. Just a clarification, is that 15 percent of the 40,000 plus deaths?

Mr. DITTMAR. That's correct.

Senator SMITH. So they would be considered part of the totals?

Mr. DITTMAR. They are part of the traffic fatalities. That's right, sir.

And we wondered about public support for this because we have seen the polls that say the public supports spending the gas tax money on the roads. So we went to the Tarrance Group and Lake Research and asked them to do a national poll, which we released today. It showed that 64 percent of the American people supported dedicating 1 percent of the gas tax funds for bicycle and pedestrian

trails and a full 70 percent for the other kinds of enhancements, historic train facilities, and landscaping.

I think bicycle and pedestrian travel can be a substitute for motor vehicle travel for short trips. A lot of our trips are very short trips within neighborhoods. If we provide safe facilities for people to get around, especially our kids and people who don't have automobiles, I think we are providing an option that can relieve some congestion on the roads.

Senator SMITH. I don't recall the network that put it on, I think it was NBC, within the last 10 days or so.

Mr. DITTMAR. Was it Dateline?

Senator SMITH. I believe it was where they showed the two-lane roads throughout the country being the source of so many accidents.

Mr. Fay, is it fair in the allocation system in these various categories where a lot of dollars go for the interstates and the National Highway System, and there is very little focus on improving or changing roads? Never mind whether they are a part of the National Highway System or not, if it is a two-lane road that has a propensity to cause a lot of accidents directly linked to that road, is it fair to continue to divert dollars into other accounts for the sake of some formula or for the sake of some allocation and neglect those roads?

Mr. FAY. Senator, first of all, we are asking the Government to meet national objectives. Those would include the NHS. I think you will find—going back to the NBC show—is that a lot of the non-interstate NHS roads are many of those two-lane roads that are causing a lot of those fatalities out there. What concerns us a great deal is that we are not investing in non-interstate NHS roads what we need. Those non-interstate NHS roads are bearing interstate traffic loads but they don't have the benefit of interstate safety designs.

We would like the Federal Government to focus its attention on the NHS, especially on the non-interstate NHS and on bridges. And in doing that, by dedicating 85 percent of the highway program to those five priorities, including safety, we would then try to meet those safety needs on our busiest roads.

Senator SMITH. Let me try to focus on the difference between highway or road design and condition. To me a condition is potholes, the bridges in disrepair, et cetera. But are we focused enough on the design of highways that are defective—Indian trails, cow paths, or whatever—other than those such as the Georgetown Pike here in this area that are historic routes, leaving those out—do you believe we are focused enough in terms of design, as compared to condition, to make the changes?

The report on NBC seemed to conclude—and I don't know whether it is justified or not—that if the road had a bunch of potholes, we would send the money in there to fix it. But if it is defective in its layout—too many curves, too many hills, you can't see the car when you come over the hill, et cetera—it doesn't get the money. Is that your experience?

Mr. FAY. I think that is right, Senator.

Senator SMITH. Is anybody looking at that?

Mr. FAY. If you take a look at your State's NHS roads, non-interstate NHS roads, and you drive those roads, you will find that 40 percent of those NHS roads are two-lane roads. In fact, later on today we will be introducing a report that specifically discusses the improvement you are talking about. It is called "Improving Roadway Safety".

Senator, I always ask people to just think about driving on the interstate when they want to think about safety improvements. The interstates are our safest roads. Even though they have the fastest speeds, they are our safest roads. When you look at the design of those roads, they really do save lives. Wider lanes, wider shoulders, shoulders that are flat rather than steep to prevent roll-overs, the distance in between the lanes, hopefully barriers to prevent you from hitting trees, barriers that help you from running into poles, long entry and exit ramps—those types of things are the kinds of investments we can make that will dramatically save lives in this country.

That is the kind of design—if you drive down Route 7, Route 50—you can just look at those roads and see that in some cases they don't have the safety designs that the interstates do. But if you drive down those roads, you know they are bearing interstate traffic.

Senator SMITH. I would like just a yes or no answer.

Mr. FAY. I am sorry.

Senator SMITH. I was not criticizing your response, I would just like a yes or no answer on this question.

Do you believe Amtrak could survive without Federal assistance?

Mr. FAY. No. I think the GAO indicated that in their study on that.

Senator SMITH. Do you agree?

Mr. DITTMAR. Yes.

Senator SMITH. That is not the answer I wanted.

[Laughter.]

Mr. FAY. If I could add something, Senator, the GAO did say that Amtrak could survive in certain corridors if those corridors were defined by use. I think one of our greater problems with Amtrak is the ridership.

Mr. DITTMAR. If I could add, I think that Amtrak could survive with a dedicated capital fund, but without continued operating subsidies as a national rail system.

Senator SMITH. If the interest is that high, and we are going to alleviate all these problems by having Amtrak running, then there ought to be enough interest in passengers to ride it and they ought to be willing to pay the price of the ticket, just like an airplane.

Mr. FAY. Senator, 73 percent of the ridership of Amtrak earn over \$40,000 a year, so they are capable of paying more for the Amtrak routes.

Senator SMITH. Thank you.

Senator WARNER. Thank you, Mr. Smith.

To work with this committee is absolutely fascinating. I guess it is a sign that I have been here a considerable period of time, but I am learning things that I find surprising. When I first came to this committee many years ago and to the Senate, the idea was to finish the interstate system, do this, and do that. The other day we

had a witness here who was just fascinating. He said, "You are doing all these things, but you're not taking into consideration the changing lifestyle of America."

In this region for which I have primary responsibility in northern Virginia, 30 miles of HOV lanes on I-95, 20 miles on I-66, new HOVs on I-270, funded Metro, working on commuter rail, working on bus service even though economically it is not good and we are trying to expand it—all these options, yet the good old independent American is deciding that that car enables him to not only get to and from work, but also to do the necessary stops, in many instances, when both parents are working to care for the needs of the family.

I find this fascinating. I am not sure we are getting the solution as to which way we go.

Mr. FAY. Mr. Chairman, that is kind of the basis of the discussion I was having Senator Chafee a little earlier. The public is driving more. I think it comes down to the fact that the most difficult challenge facing us individually as Americans—we hear about crime and other things—is time management. We don't have enough time in the day to do all the things we need to do. We find that when we interview people who drive, they say that they drive simply because they can't do it otherwise. They can't find another way to do all the things they need to do during the day.

Mr. Pazariski is quite an expert. He is the one who did the study that showed that over the last 10 years, despite all the investments we made, that the only means of commuting that increased over the last decade is driving alone to work.

Senator WARNER. Can we have that chart?

Mr. FAY. Yes, I will submit this.

Senator WARNER. But you haven't given me an answer. You have recognized the problem in a more eloquent way than I stated it.

Mr. FAY. I think the congestion mitigation is going to be the critical phase we are going to have to enter into. Mr. Chairman, I am not trying to profess that expanding roads are the only solution, but I will say that one of the things that disturbs me is that CMAQ funds cannot be used for interstate exchanges. We cannot really use CMAQ funds for single occupancy lane enhancements or expansions. That is disturbing to me.

If Americans are driving more, we do need to meet those needs. I think the congestion needs do have to be met.

Senator WARNER. This region, which I described, ranks second in lost productivity sitting behind the wheel.

Mr. DITTMAR. Last year, we commissioned some poll work that asked Americans about their travel choices. Mr. Chairman, 78 percent of them called their automobile their first choice today. I think that bears out what you heard from Mr. Pizariski. But only half of them say that is what they want. Half of Americans say that if other options were available to them, they would use them.

Senator WARNER. They are available.

Mr. DITTMAR. In some ways. Our communities are not designed to allow non-auto travel. They are not designed for walking and bicycling. Transit is only available to a minority of Americans for all their trips these days. So we have continued to invest in those things.

And we are faced with another dilemma. I will add a problem to your problem, which is that we have learned, as Tony Downs said in his book "Unsticking Traffic", that building roads to relieve traffic congestion doesn't work. We find that the roads fill up with additional travel. So we are on the horns of a dilemma. I would submit that the way out of that dilemma is to begin to think about providing other options to allow people not to travel through telecommuting and other activities like that (which probably are not things we need to invest highway trust fund dollars in except in terms of aiding community planning); providing communities that are designed to allow walking and bicycling to take some of those trips away from working women, and by continuing to invest in public transit.

The Metro system is a success in Washington, DC. You just have to go to some of the communities in Virginia like Ballston and Courthouse Square and see the success the Metro has had in attracting economic development and walkable transit-oriented communities. I would submit that we need to continue to make progress in that area.

Americans are not going to say no to the car, and we don't think they should. But I think Americans can say yes to choices, if they are provided.

Senator WARNER. Thank you very much.

Any further questions, Mr. Chairman?

Senator CHAFEE. Thank you, Mr. Chairman. I have a couple more questions.

First, I think we ought to get it on the record that every passenger railroad system in the world is subsidized. As I mentioned, I just came back from Germany. Whether it is there or Japan or wherever it is, they are subsidized.

And Mr. Fay, I think you would agree that highways are subsidized?

Mr. FAY. No, I would not agree with that.

Senator CHAFEE. You wouldn't agree with that? You think that the highway trust fund pays for all our highways in our country?

Mr. FAY. There was a study done—and I guess it is coming out again, updated, in the next month or so—that amassed all the taxes that are paid specifically by highway users, which includes all levels of government—fuel tax, license fees, all the taxes imposed directly on highway users and paid only by highway users. Then it amassed the number of expenditures that were made on roads and bridges. Those expenditures not only included the construction and the maintenance, but it also included all the administration and all the policing—adding up the cost of State policing on the roads.

It concluded that in 1992 highway user receipts exceeded expenditures on roads by \$38 billion. The study that is about to come out in another month is going to increase that amount in using 1994 figures to about \$58 billion.

So I don't accept that premise, Mr. Chairman.

Senator CHAFEE. Let me just say that it is always dangerous to have an aid thrust a piece of paper in your hand.

[Laughter.]

Senator CHAFEE. The Federal Highway Administration was asked how much highway users are paying taxes compared to spending. In 1994, the Department stated that highway user taxes paid only for about \$40 billion or 54 percent of total highway spending. The remaining \$34 billion, or 46 percent of highway spending, comes from non-highway taxes such as property taxes and sales taxes.

We can go back and forth on that. I don't really want to spend too much time on it, just 30 seconds.

Mr. DITTMAR. I think I can add a little light on that.

The study Mr. Fay referred to counted sales tax from the sales of cars and property tax from the sales of cars as a highway user fee. We would say that is general government revenues. There is another study from the World Resources Institute that pegged the number considerably higher.

In our book, we show that the amount of general revenues diverted to highway projects far exceeds the amount of highway taxes diverted to non-highway projects by about \$11 billion.

Senator CHAFEE. I guess Mr. Fay was concerned about the increased accidents on our highways. I don't know whether you were around when we were debating the National Transportation System bill. As you know, we put into the ISTEA back in 1991 the 55-mile-per-hour speed limit, motorcyclists helmets—you had a provision that you lost some of your highway funds if States didn't pass a helmet law—and both of those were repealed. Indeed, we were lucky to keep the seat belt. I think the only reason we kept that and the drinking age of 21 survived mostly because of Mothers Against Drunk Driving. But the others were blown away.

I felt like Horatio at the bridge, except I lost. Horatio won, I didn't. I don't know whether those have contributed—the elimination of the 55-mile-per-hour speed limit—to the increase of deaths. I believe strongly the helmet provision has contributed.

Do you have any views on that?

Mr. FAY. Yes. It is disturbing. The highway fatalities increased from 1992 to 1993, 1993 to 1994, and 1994 to 1995. During those years, the speed limit and the helmet laws were intact. They had not yet been repealed by Congress. They weren't a factor in those increases. And what is even more disturbing—

Senator CHAFEE. As I recall, the hammer on the motorcyclist's helmet law hadn't come into effect yet.

Mr. FAY. That's correct.

Senator CHAFEE. So the full effect of the law hadn't occurred.

Mr. FAY. But as we looked at it, we saw increasing seat belt use, a dramatic increase in seat belt use. We saw safer cars on the road. The cars are now being built with a cage that protects us and so the car crumbles around the cage. We saw a truck safety program that dramatically reduced truck fatalities and truck accidents. And we saw fewer drunk drivers on the road as a result of MADD's work and others.

We had all the factors that should have been driving fatality numbers down over those years, yet, in fact, it didn't happen.

During those 3 years, we know from the FHWA that the roads were worsening in condition. I am not suggesting that all deaths on the highways result from that, but I will say that FHWA con-

cluded that 30 percent of all fatalities involve the design or the condition of the roads. Most engineers tend to agree with that or accept that 30 percent figure. That is about 14,000 deaths a year. They certainly could be helped if we would design our roads a little better.

Mr. DITTMAR. During those years, we also an increase in driving. Some experts believe that the increase in fatalities is related to that increase.

Senator CHAFEE. But these statistics are based on 100,000 miles—they are not just comparing numbers.

Mr. FAY. I have a chart that indicates where that death toll went.

Mr. DITTMAR. If you are looking for support in attempting to be Horatio at the bridge or to take action on the motorcycle helmets and the speed limit, I would like to pledge that support.

Senator CHAFEE. It would be awfully hard to resurrect those again.

Mr. FAY. Speed is a factor in a lot of fatalities. One thing that is interesting, though, is that our safest roads in the Nation are our interstates, which bear the fastest speeds. That is because they are designed to accommodate those speeds.

I have even noticed very carefully that in 1996 the fatalities, when the speed limits did increase nationwide, stayed about where they were in 1995. Speed does kill, Senator, but I think there are things we can do that will accommodate roads that will save lives instead of causing fatalities.

Senator CHAFEE. Mr. Fay, I am not going to persuade you now, but I would hope that you would look at a transportation system for the country. That involves how we are going to move more people. Then it follows that we should not only have a rail system with a rail system that runs frequently so people will take it and ride it. That is the way we are going to be able to accommodate this ever-increasing number of people in our Nation—first, we have a growing population—without resorting always to widening and widening more and more roads.

I thank you both very much. I appreciate your coming.

That completes the hearing.

[Whereupon, at 12:35 p.m., the subcommittee was adjourned, to reconvene at the call of the chair.]

[Additional statements submitted for the record follows:]

PREPARED STATEMENT OF HON. RODNEY E. SLATER, SECRETARY OF TRANSPORTATION

Mr. Chairman, Senator Baucus, and members. It is an honor for me to appear before the Senate Environment and Public Works Committee—the committee that confirmed me as the Federal Highway Administrator, my first Federal position. I am especially pleased that my first appearance before a congressional committee as the Secretary of Transportation is before this committee. I am deeply honored that the President and you, the Senate, have seen fit to entrust me with the significant responsibilities that come with being the United States Secretary of Transportation—not the least of which is one of the major transportation bills to be considered this year by the Congress.

The President has challenged all of us to help build a bridge to the 21st Century. While speaking metaphorically, I believe that this committee will agree with me when I say that transportation will have much to do in a real and concrete sense with the shape of the next Century.

When the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) was enacted, it was hailed as the most significant restructuring of surface transportation

programs since the Federal-Aid Highway Act of 1956. Those of you on the committee who developed this extraordinary legislation are to be commended, because in concept it was truly a landmark law.

In the years since, we at the Department of Transportation (DOT) have worked tirelessly every day in every way to ensure that the noble objectives of ISTEA were realized in practice and implementation. The Administration, with the support of the Congress, has provided record level investment in transportation infrastructure. We have engaged in the most extensive outreach effort in the history of the DOT to aid our State and local transportation partners in implementing the new planning and the new shared decisionmaking process outlined in ISTEA. And we have engaged the private sector in ways never before realized. In short, we have worked to make the dream of ISTEA a reality.

During my testimony, I will be talking about the specifics of ISTEA and about the specifics of reauthorization. I want to emphasize, however, that in preparing to meet the transportation challenges of the 21st Century, ISTEA and its successor must be judged not simply by transportation measures—mileage improved, bridges rehabilitated, transit lines operated. Rather, ISTEA and its successor must be judged by how they affect the lives of our people, the health of our economy, and the welfare of our Nation as we enter a new century.

I believe that transportation plays a central role in our society—central not just to everything we do or will do, but central to the history that has made us what we are today. I look to history as my guide in showing us how transportation has pulled us together as a Nation, how transportation has sustained our dreams, and how transportation has given us the freedom to enjoy the right, as promised by the Declaration of Independence, to “Life, Liberty, and the pursuit of Happiness.”

The echoes of history tell us the story.

In 1784, George Washington saw that the mountain barrier separating the seaboard cities of the new United States from the settlements along the Ohio River must be overcome or the settlements would be pulled into economic alliances with the British in Canada and the Spanish along the Mississippi River. The solution, he thought, was in the young Nation’s clearest interests, namely: “open a wide door, and make a smooth way for the produce of that Country to pass to our Markets before the trade may get into another channel.”

Some years later, in 1806, President Thomas Jefferson would open that wide door by approving legislation to build the National Road linking east and west and eventually stretching almost to the Mississippi River. In an 1806 message to the 9th Congress, he said that roads and canals would knit what was even then a diverse Nation together in what he called a “union of sentiment.”

This view was reflected in the mission President Jefferson assigned to Captains Meriwether Lewis and William Clark. When they set out to explore the unknown reaches of the Louisiana Purchase, one of their goals was to find a navigable water route to the Pacific Ocean that would allow the United States to bind those uncharted territories to the Nation that now owned them.

President Abraham Lincoln understood. Even while trying to hold the Nation together in war, he took an important step to keep it together in peace. In July 1862, while the Union and Confederate forces were locked in combat, President Lincoln signed the Pacific Railroad Act that made a transcontinental railroad possible. He understood its military value, but he also recognized the importance of transportation in holding a Nation together and in enhancing the lives of the people on both ends of the line.

When the Federal Aid Road Act of 1916, which created the Federal-aid highway program, reached the desk of President Woodrow Wilson, he said he was happy to sign it because the new law “tends to thread the various parts of the country together. . . .”

President Franklin Roosevelt, facing the worst economic catastrophe this Nation has ever experienced, saw transportation as an integral part of our recovery. He saw road building and other public works as a way of providing jobs to the unemployed and creating a revenue stream to help businesses. But he also had a vision of a national network of superhighways that he nurtured throughout his presidency. The earliest report on what became the Interstate System was prepared by the Bureau of Public Roads at his request.

But in the 20th Century, perhaps no President had a clearer vision than President Dwight D. Eisenhower. His vision had been forged by practical experience. In 1919, as a Lt. Colonel, he had traveled across the country as an observer on the U.S. Army’s first transcontinental convoy of military vehicles. The convoy took 62 days to get from Washington to San Francisco. During World War II, he had seen the benefits of Germany’s autobahn freeway network. As President, therefore, he was committed to creation of a similar network for the United States. His 1955 mes-

sage to Congress outlining his proposal provided an eloquent explanation of why the Interstate System was so important. He said:

Our unity as a nation is sustained by free communication of thought and by easy transportation of people and goods. The ceaseless flow of information throughout the Republic is matched by individual and commercial movement over a vast system of interconnected highways crisscrossing the country and joining at our national borders with friendly neighbors to the north and south.

Together, the united forces of our communication and transportation systems are dynamic elements in the very name we bear—United States. Without them, we would be a mere alliance of many separate parts.

I take my cue from these great leaders, who recognized that the tools of transportation—the concrete, asphalt, and steel of today—are but a means to an end. And that end is the unity of our Nation—and the mobility and prosperity of our people.

It is neither a coincidence nor an accident of history that in the 19th Century, the United States became stronger and our Nation more united as our transportation network spread across the continent, connecting farmers to markets, cities to cities, and coast to coast.

Nor is it an accident that in the 20th Century, the United States built the strongest economy and became the greatest power in the world at the same time our evolving transportation network was making our citizens the most mobile in the history of the world.

Because our country's prosperity and its quality of life are linked inextricably to the strength and efficiency of its transportation system, reauthorization of ISTEA gives us an opportunity to begin to build that bridge to the 21st Century. The coming debate will be complex, frustrating, and intense, but as we build that bridge to the 21st Century, we must never forget that our future, and that of our children and grandchildren, will depend on how far our transportation system will take us—or not take us.

OUR CHALLENGE

As we entered the post Interstate era of the 1990's, ISTEA gave us the tools and flexibility to respond not only to the Nation's transportation needs but to many of the economic, social, safety and environmental challenges we faced. It recognized that Federal investment must do more than build roads and mass transit; it must also help strengthen communities, improve productivity, preserve our environment, and protect the safety of all Americans. Under President Clinton, we have made good on ISTEA's promise. Working with the Congress, we have increased transportation infrastructure investment to record levels. These investments have paid off in substantial improvements to the condition and performance of our highways and mass transit systems.

To prepare for the future, Congress and the Department sought views on reauthorization over the past year, through hearings and forums all across the country. The clear message that emerged from these dialogs is that ISTEA is working and working well. The key to this success is that ISTEA is rooted in a strong partnership among all levels of government and with the private sector. These partnerships must be preserved and strengthened.

New and continuing challenges lie before us in the 21st Century—challenges to keep our economy competitive, to maintain our quality of life and to ensure a safe and efficient transportation system. As the President said in his State of the Union Address: "we must be shapers of events, not observers. . . ." ISTEA represented that kind of visionary approach. The reauthorization of ISTEA holds the promise of keeping our economy the strongest in the world by providing access to markets, reducing health care costs through safer transport, reviving and empowering poor urban and rural neighborhoods, transporting people from welfare to work, harnessing the powerful forces of science and technology, protecting our environment, and maintaining a mobile and ready military.

The extensive infrastructure investment of the past two centuries provides a solid platform for the new foundation. Now, in addition to more traditional approaches, we can look to information and communication technologies, intelligent transportation systems, magnetic levitation systems, and other new or improved technologies that promise to transform the safety, efficiency and environmental soundness of travel. As the information revolution continues to change the way we do business, we will continue defining and expanding the transportation information infrastructure to get decisionmakers the right data at the right time and in the right format. The successor to ISTEA must recognize that, once again, America is at a crossroads and that transportation will play a key role in helping choose our future path.

RESOURCES FOR TRANSPORTATION

One of our biggest challenges is to provide adequate resources and sufficient flexibility to maintain and improve our surface transportation system within the context of moving toward a balanced budget. The Administration's legislative proposal, the "National Economic Crossroads Transportation Efficiency Act" (NEXTEA), will authorize a total of \$174 billion for surface transportation programs over a 6-year period. This is an 11 percent increase over ISTEA funding levels. Our proposal will sustain core programs such as the National Highway System (NHS), maintenance of the Interstate System, and continuation of bridge replacement and rehabilitation, as well as important safety, environmental, and transit programs.

Even so, we recognize that the Federal Government alone cannot provide sufficient funds to meet our Nation's transportation needs. That is why we propose to expand the successful State Infrastructure Banks (SIBs) program to all States and to establish a Federal credit program to supplement current funds and expand opportunities for attracting new public and private capital transportation investment.

Responding to the President's 1994 Executive Order on Infrastructure Investment, the Department launched a broad innovative finance initiative to stretch the Federal dollar and attract new sources of capital. Our Partnership for Transportation Investment, initiated more than 2 years ago, cut red tape, produced new financial tools and attracted new funding. Over 70 projects, worth more than \$4 billion, moved to completion ahead of schedule, saving both interest and inflation costs. As impressive as these figures are, we are confident we can do even more by expanding these efforts nationwide.

We propose taking the next step by expanding the amount of seed money available for State Infrastructure Banks (SIBs) and by dedicating \$100 million to a new Federal credit program. Although similar to the SIBs, this program will support multi-state projects of national significance that a single State might not be able to manage on its own. This new initiative will help keep us competitive in the global economy.

Technology provides another strategy for getting more from our Federal investment dollar and maximizing system performance. In many cases, technology can provide needed additional capacity at less monetary and environmental cost than new construction. Therefore, we are proposing a new systems integration incentive program for Intelligent Transportation Systems (ITS) to assure that all technology systems can be integrated in order to deliver smoother service. In addition, we propose making ITS investments eligible under all major investment categories.

ECONOMIC IMPORTANCE OF TRANSPORTATION

Our economy is rapidly changing and so must our transportation system. By improving access to markets worldwide through fast, flexible service, we will provide the foundation for American businesses to flourish. As the President said in the State of the Union Address, "America is once again the most competitive nation and the No. 1 exporter in the world." Nations throughout the world are making massive investments in transportation infrastructure, often in an effort to catch up with the United States.

To ensure our continued competitive edge in the global marketplace, we want to retain successful core programs, such as the NHS and the Surface Transportation Program (STP). They provide mobility for people and freight that is so critical to the economic viability in our urban centers, and suburban and rural areas.

The Federal Lands Highway Program will continue to provide needed transportation infrastructure investments vital to Federal lands and in Indian country. We will continue to improve tribal involvement in programs serving Native Americans.

With the success of NAFTA and GATT, we have seen a tremendous growth in trade. To make the most of these opportunities, we are proposing new programs to help improve our border crossings and major trade corridors—programs that will facilitate our domestic and international trade. In order to ensure the viability and safety of our intermodal transportation system and trade corridors. The Department recognizes the leadership role that Senator Boxer has played in focusing attention on the importance of these border crossing concerns. We also propose to provide funding to alter and remove highway and railroad bridges that unreasonably obstruct our water highways.

To increase the efficiency of the NHS, we propose to broaden the list of eligible activities for NHS funds. Enhanced flexibility will enable States to make improvements that reduce congestion on the NHS, eliminate bottlenecks, and move people and freight more efficiently to their destinations.

SAFETY

Motor vehicle crashes alone represent a terrible toll in terms of deaths and injuries. The cost of medical treatment for these injuries is estimated to be more than \$14 billion a year. Our taxpayers pay more than one-quarter of that amount to cover Medicaid and Medicare costs. In addition, the attendant losses in productivity and travel time, place a huge burden on our economy—over \$150 billion annually. Taxpayers also have to make up for the lost taxes resulting from injuries and fatalities, estimated at nearly \$8 billion a year. But the personal costs in the tragedy to the families and survivors, with the destruction of their hopes and dreams, cannot be measured in dollars alone. We also are concerned about recreational boating safety which is the second largest cause of transportation related deaths. Boating education saves lives. We propose to extend the authority to authorize expenditures from the Boat Safety Account for boating safety grants to the States.

The challenge before us is to improve our safety record even as we face steady increases in travel. To do this, we must encourage and help underwrite improvements on three fronts: driver behavior, vehicle design, and roadway safety. It is all interrelated. And, our proposal does just that—funding is provided to advance safety on these three fronts.

Safety belt use has grown from 11 percent in 1982 to 68 percent in 1996; alcohol involvement in fatal crashes has dropped from 57 percent to 41 percent over the same period. The fatality rate per hundred million miles driven has declined steadily.

Despite this progress, a look at recent statistics shows that status quo is not good enough. Motor vehicle crashes are still the leading cause of premature death of America's youth. After years of steady decline, highway fatalities and injuries have been increasing since 1992: about 41,500 people died and over 3 million more were injured in 1996—a slight reduction from 1995. The easy gains in highway safety have already been made.

And the future will bring new and difficult challenges. The number of teenagers—an age group with high crash and fatality rates—is increasing. In 1995, the last year for which we have complete data, the number of alcohol-related fatalities increased for the first time in 9 years. New highway safety messages and programs will have to be created to target these populations and other groups that are harder to reach due to language or other barriers. New developments create new challenges—such as higher speed limits and attempts to weaken motorcycle helmet laws. We must strengthen all our safety efforts, especially our campaigns against drunk driving and for increased use of existing occupant protection systems. Toward that end, following President Clinton's initiative, the Congress last year enacted legislation to encourage zero tolerance for alcohol use by teenage drivers.

This bill meets these challenges by adopting, within the framework of the State and community highway safety program, incentives that add new momentum to the program at the same time that State and local attention is focused on high priority safety needs. Key provisions of our highway safety proposal include increased authorizations for our drunk driving prevention grant program to help States enact and enforce tough drunk driving laws, and two new incentive programs to encourage States to increase safety belt use and enact and enforce tough laws to prevent drug impaired driving. We also are proposing a new State highway safety data improvement grant program. This will help States identify the priorities for State and local highway safety programs. And we are proposing a new research and education program to reduce air bag risks for children and small adults, while still preserving the benefits of air bags for all motorists.

In all safety areas, there will be a new emphasis on performance based management—with a focus on results. We will provide more money and greater flexibility to shift that money to activities with the highest safety payoffs. I recognize that the demand for carrier safety exemptions is growing. Although it is premature to recommend any changes now, we are closely monitoring the safety performance of NHS exempt carriers and drivers. We wish to work with you on a solution.

Roadway safety may not receive as much media attention as driver-related factors such as drinking and driving, air bags and child safety seats, but it counts. Lives are saved by good, safety-conscious road design. That is one of the reasons our Interstate System has the best safety record of any roadway in the Nation. Single vehicle "run-off-the-road" crashes—which account for 1/3 of all fatal crashes—rollover crashes, loss of control on wet or icy pavement, and crossing lanes into on coming traffic are all influenced by roadway design. The recent Dateline Report and Reader's Digest article on roadway safety underscore this fact. Aggressive drivers who speed are especially vulnerable, as are new drivers who do not know how to handle their vehicles. As Baby Boomers age, nighttime visibility—especially of signs at

night and pavement markings—is growing in importance. Intersection design also is increasingly important as the numbers of aging drivers increase; left hand turns are a common accident configuration among elderly drivers. These are some of the roadway safety problems we face today. Fortunately, countermeasures exist.

We are proposing a \$500 million Infrastructure Safety Program that replaces and improves upon the current STP safety set-aside. These funds will continue to be used to eliminate highway hazards on public roads other than Interstates and to improve the safety of highway/rail grade crossings. Hazard elimination funds can be spent only on non-Interstate public roads. That is where the money is needed. Interstates have a fatality rate of only 0.73, whereas two-lane local roads can have a fatality rate nearly five-times as high (up to 3.45 in rural areas). Federal hazard elimination funds can be used for these public roads to redesign intersections, increase visibility, improve pavement markings, and add guardrails. These countermeasures would help prevent some of the crashes, such as those described in last Friday's Dateline show. Grade crossings have received particular public attention since the tragic school bus crash at a crossing in Fox River Grove, Illinois. We have proposed increased flexibility in the use of these funds. For the first time, we will allow States, under certain circumstances, to use some of their highway infrastructure safety funds for behavioral programs.

We also are proposing a new incentive fund—called the Integrated Safety Fund. It will reward a State that has an integrated safety planning process in place; by providing additional funds it can use for motor carrier safety, infrastructure improvement or driver behavior modification programs.

The programs I have just described are the first part of a three-pronged attack on our roadway safety problems. The other two parts are programs to close the information gap and to facilitate proactive partnering. It is vital to close the information gap between what we know are the best safety practices and what is actually being done by State and local communities. We are also proposing a National Deployment Initiative to speed up installation of signs and pavement markings with improved visibility and to expand technology transfer and training activities.

Proactive partnering is the third piece. We intend to work closely with the industry, State and local governments and established safety groups as partners. Together we will identify the best practices and make the highway community aware of highway safety needs and opportunities.

We have a big job facing us. Not just a big job for the Federal Government, but a big job for State and local governments as well. The size of the task facing us—to reduce the growing number of traffic fatalities—demands that we join in new partnerships to address this problem. Our safety proposal will give us the tools we need to increase highway safety.

I also would like to mention two recent Presidential initiatives. President Clinton directed DOT to work with the Congress, the States and other concerned Americans and report back to him with a plan to increase seat belt use. This report will be delivered to the President and also to the Congress within the next few weeks.

On February 15, 1997, the President announced a major new step in our efforts to protect American children—a universal system for attaching child safety seats in cars. This system will make child safety seats easier to install and more secure on the road. This system will save young lives. The DOT proposal is now out for public comment. If approved, the new safety system could be on the market by 1999.

COMMUNITY ENHANCEMENT AND WELL BEING OF THE PEOPLE

The President has said that we must do more “to revive and empower poor urban and rural neighborhoods.” Transportation empowers our neighborhoods by providing access to jobs, to markets, to education and to health care. It also enhances a community's ability to attract businesses that bring employment. Both highways and transit are vital to maintaining our metropolitan areas as viable commercial centers as well as providing essential transportation service in less populated areas. We propose to continue our strong commitment to both. We are proposing even more flexibility for State and local officials to use funds for their highest priority projects. For transit, we propose consolidating programs to make it easier for transportation officials to select options that best improve mobility in their communities. In addition we propose to authorize funds for the Appalachian Development Highway Program which has been found to be so vital to the Appalachian States.

Traffic congestion in the Nation's largest 50 cities costs travelers more than \$40 billion annually. Delays are likely to increase over the next two decades as travel nationwide increases by a projected 60 percent. These delays translate directly into growing costs to businesses, which ultimately are passed along to consumers, who sacrifice leisure time with family and friends.

Our proposal continues and improves upon the planning provisions of ISTEA. ISTEA initiated a transformation in the role of planning and the planning process by focusing on the key linkages among modes, investment decisions and community impacts, transportation options and community needs, and transportation efficiencies and economic competitiveness. We have simplified, yet strengthened, both the metropolitan and statewide planning provisions. Language has been added in the statewide planning provisions to bolster the consideration of rural concerns in the development of both transportation plans and transportation improvement programs. The proposed amplified metropolitan and statewide planning continues requested considerations of the relationships between planned transportation and the economy, the environment, and the revitalization of communities and needs of low income household, disable, and elderly persons.

One of the most important problems we face as a Nation is the decline of our inner cities. In our mass transportation proposal, we intend to reverse this trend by strengthening the influence of State and local decisionmakers. While we propose to replace operating assistance with increased capital funding for large urbanized areas over 200,000 in population, we have expanded the definition of capital projects to include maintenance, intelligent transportation systems, and intercity passenger facilities which will give these areas more control over how they spend their Federal transit money.

We propose allowing rural and small urbanized areas under 200,000 in population to spend their Federal transit money for any eligible transit purpose. The recipient can choose, for example, how much Federal assistance to use for operating assistance. This decision will be based on the recipient's own needs, rather than a programmatic formula.

This Administration remains committed to mass transportation. To ensure that State and local governments have a predictable amount of Federal transit funding from year to year, we have combined the Fixed Guideway Modernization and Bus Discretionary Programs into the Urbanized Area Formula program. We have streamlined various formula programs by adopting simpler and more flexible program-wide definitions of eligible capital costs, matching ratios, and grant requirements.

Our proposal promotes joint economic development, which would particularly benefit inner cities. We are proposing the creation of a new \$100 million program to provide access to jobs and training, administered by the Federal Transportation Administration and cooperatively supported by the Federal Highway Administration. This new initiative will help relate the transportation contribution to welfare reform. We hope this program will act as a catalyst, uniting local governments, mass transportation providers, and social service providers in working toward a common goal of helping people who do not own cars improve their lives not only by finding a job, but by being able to get regularly to that job. DOT will work with other Federal agencies to achieve the maximum from this important initiative. In addition, we are proposing to reauthorize our Disadvantaged Business Enterprise Program, which has provided billions of dollars in Federal-aid contracts to businesses owned by minorities and women.

ENVIRONMENT

Transportation, like all human activity, also affects the natural environment. Efforts to mitigate environmental impacts and improve air and water quality, to protect open space, wetlands and wildlife habitat, revitalize brownfields and urban areas and to support other options that reduce the need for travel, such as pedestrian-friendly developments, must be continued and strengthened in NEXTEA.

The United States continues to be the world's largest producer of greenhouse gases—both absolutely and on a per capita basis—and transportation accounts for 32 percent of U.S. carbon dioxide emissions, the key emission from anthropogenic sources. This is of ongoing concern because, as vehicle miles traveled and single-occupancy vehicle rates continue to increase, transportation is the fastest growing sector for greenhouse gas emissions. The threat posed by global climate change must continue to be addressed through efforts to encourage travel in higher occupancy modes such as mass transit and carpools, to help reduce the growth in vehicle miles traveled. Transportation planning decisions should also take into account efforts to redevelop "brownfields," particularly urban areas that have been abandoned or underutilized due to contamination risks.

We have made progress. In 1990, 140 million people were living in areas that violated the ozone standard. Today, that number is down to 64 million. Although that progress is commendable, we still have environmental challenges, not just to improve the air but to enhance our communities while meeting transportation needs.

We also are pleased with successes in funding wetlands mitigation, restoration and planning under both the National Highway System and the Surface Transportation Program. Preservation of natural habitat also will be eligible in connection with projects funded under NHS and STP.

ISTEA created two major and successful environmental programs, the Congestion Mitigation and Air Quality Improvement Program (CMAQ) and Transportation Enhancements Activities (TEA) funding, which increased State and local officials' ability to target funds to projects that help their communities. They responded enthusiastically to increased flexibility. CMAQ has proven to be one of ISTEA's most flexible programs. Our proposed changes to this program will make it easier for areas that do not meet particulate matter standards to receive CMAQ funds.

Under the TEA, States have carried out projects that help transportation facilities fit better into communities, by preserving historic transportation facilities, building bicycle and pedestrian paths and mitigating storm water runoff. We are recommending codifying the requirement that these activities have a direct link to surface transportation.

Under these two categories, ISTEA has stimulated hundreds of successful projects that prove that transportation can enhance the environment. For example, the Ferry Building improvement project in San Francisco establishes a significant public space for the city's residents while providing the opportunity to increase ferry ridership which will help alleviate automobile congestion and improve the region's air quality. In New York City, the CMAQ program provided the funds for establishing barge service to ship freight across the Hudson River, avoiding truck trips across the Verrazano Narrows Bridge, reducing congestion, and improving air quality.

Through CMAQ, we funded an innovative truck-rail transfer facility in Stark County, Ohio, and projects in Portland, Oregon and Seattle, Washington designed to unsnarl traffic and improve rail and truck access to the commercial waterfront. Improved freight movement between New York and New Jersey ports as a result of the Red Hook Barge increases the marketability of that area to importers and exporters. In Boise, Idaho, the city is using CMAQ funds to replace 28 of its outdated diesel buses with a fleet of small and medium-size buses powered by compressed natural gas. These projects are success stories not only in the direct, tangible results they produced, but also because they brought citizens to the table to make a positive impact in their communities.

Our reauthorization proposal includes Scenic Byways and the Recreational Trails programs, incorporating them into Title 23 and continuing to provide contract authority. Routes designated as All-American Roads or National Scenic Byways will be given highest priority for scenic byway funding.

RESEARCH AND DEVELOPMENT

We rarely think about how our transportation came into existence—as if it sprang full blown into reality for our convenience. In truth, our transportation network is the work of several centuries of innovation and creativity.

As our Nation began, we depended on natural transportation—the Atlantic Ocean and the rivers and streams that Nature provided to us in abundance. Soon, early trails allowed freight to be shipped on pack mules, but soon innovation overcame the packtrains in the form of the great Conestoga wagons and Concord stagecoaches. They, in turn, gave way to each new state-of-the-art in succession: the steamship, the canal, and then the mode that transformed the 19th century, the railroad.

By the end of the century, the humble bicycle had become so popular that it seemed ready to revolutionize personal transportation—it certainly inspired the good roads movement of that era. However, its true revolutionary aspect was that many of the early bicycle mechanics became the automobile makers of the 20th century. And two bicycle mechanics, Orville and Wilbur Wright of Dayton, Ohio, learned from their work with bicycles the key innovation that allowed them to fly and, more important, control an airplane.

This evolution of transportation innovations has made the United States the most mobile Nation in history. One thing is clear from this brief history. We cannot afford to stand still, whether from complacency or a false sense of economy.

Research and development is the key to finding effective and innovative solutions to new and emerging transportation challenges. We recognize the need to foster cooperation in research and technology planning among government, academia and industry in addressing the nation's transportation goals. In a time of resource constraints, we must strive to increase the impact of our investments rather than the size of our budgets. By institutionalizing a planning process that includes other Federal entities involved in transportation research, we can coordinate transportation planning at all government levels, encourage innovation, and ensure global competi-

tiveness. Consistent with the proposal to adopt a strategic approach to research planning, we seek to establish an Intermodal Transportation Research and Development Program to support long-term, higher-risk, inter-and multi-modal research that will ensure our ability to continue the steady advances in transportation technology necessary to meet the demands of the 21st Century. Such a program will augment programs and support the essential research that gives us the tools to improve both the quality and efficiency of our transportation system.

Our proposal includes a national Technology Deployment Initiatives program which will focus on the application of new and innovative technology that will address "customer-driven" technology goals. The Professional Capacity Building and Technology Implementation Partnerships proposal will support the delivery of new and innovative technology as well as development of knowledge and skills needed to apply that technology. The Long-Term Pavement Performance and Advanced Research element will commit a stable funding source for other long-term research efforts.

As we prepare to meet the challenges of the 21st Century, we must look ahead to prepare our existing work force and our young people for the growing number of high-paying transportation jobs that will be created as the result of our progress. Recognizing the need for a diverse cadre of transportation professionals who are prepared to design, deploy, operate and maintain the transportation systems of the 21st Century, we propose to continue the university transportation centers program and encourage States to continue their transportation training programs.

STREAMLINING

States, MPOs, and local governments have stressed the importance of finding ways to streamline project delivery—to reduce the paperwork, speed up project delivery, and eliminate "one-size-fits-all" requirements. The STEP-21 coalition has been particularly effective in articulating that message, and one of the most appealing aspects of their legislation is its streamlining effect. They have spurred us on to take steps administratively, under existing law, as well as to include statutory changes in our proposed legislation. We propose to remove a limitation on project charges for construction engineering, so that actual costs can be reimbursed. And we propose to allow States to get credit toward their matching share when property owned by the State or local government is donated to a Federal-aid project. We recognize, however, that while we cut red tape and streamline transportation programs and projects, we must be careful not to erode workers' labor standards, civil rights, or employee protective arrangements.

APPORTIONMENT FACTORS

In recognizing the need to replace outdated apportionment factors, we have proposed apportionment formulas that we believe are fair to all States, yet relate well to our Nation's transportation objectives—the safe, efficient, and environmentally sound movement of people and freight. The basic program formulas we propose are simple, easily understood, and relevant to the Federal programs they affect. They rely on information that is current and recognized as valid and reliable. It is easy to gather and can be readily updated. We recognize that sudden changes in formulas could be disruptive to many State programs, so we have proposed certain equity adjustments to ease the transition to the new apportionment formulas.

In presenting these factors for your consideration, we understand that there will be considerable debate over formulas. We will be pleased to work closely with you in the development of new distribution formulas.

Our legislative proposal builds on the philosophy, principles and strengths of ISTEA. And it proposes changes and refinements to meet the new challenges we face—challenges to improve safety, enhance the environment and foster new technologies and approaches for the demands of the 21st Century.

We look to the 21st Century, and we see State and local transportation agencies advancing toward state-of-the-art and state-of-the-practice in all areas, including planning, design, finance, use of new materials, systems management, and construction practices.

We see the Federal Government as a coordinator, working with State and local transportation agencies and with the public to enhance transportation.

We see increasing privatization of transportation systems and more private investment in public transportation facilities.

We see growing acceptance of the need to manage existing transportation systems in an efficient manner by providing flexibility and choice to the States.

We see the Modal Administrations within the Department of Transportation cooperating to help each mode of transportation do the work it does best—and ensuring that these modes link up into a whole that is greater than the sum of its parts.

We see increased intermodal shipments pulling modes more closely together out of mutual interest, not government intervention.

We see the National Highway System tying the Nation's transportation system into a seamless web of efficiency and safety that supports productivity increases and enhances competitiveness in international marketplaces.

We see safety consciousness continuing to reduce the number of fatalities and injuries from transportation incidents. We see the importance of an efficient and effective intermodal transportation system that includes all transportation elements.

We see transportation in the 21st Century serving the same role as the Civil Rights Movement of the 1950's—empowering minorities, women, and immigrants to achieve the freedom that is only possible with full mobility.

We see roads without potholes, bridges that can bear the traffic crossing them, highways without congestion.

And we see an America poised to make the 21st Century another American Century.

Can we achieve this vision? In response I remind you of something Dr. Martin Luther King, Jr., said on March 25, 1965, when he addressed the throngs on the Alabama Capitol steps who had just concluded the 4-day, 52-mile march for voting rights from Selma to Montgomery. He said:

The road ahead is not altogether a smooth one. There are no broad highways to lead us easily and inevitably to quick solutions.

For the Department of Transportation, there are no broad highways to easy, quick solutions. But I hope that I can help us reach not just for the easy and the quick, but for the solutions that will make a difference in the long run, for the solutions that appear, but are not really, just beyond our reach.

There are significant challenges ahead. I look forward to working with this committee on reauthorization of these important surface transportation programs. Clearly, I believe, we can all agree that investment in our Nation's transportation infrastructure is vital to preserving our competitive advantage throughout the world and maintaining the well being of our people.

PREPARED STATEMENT OF WILLIAM D. FAY, PRESIDENT AND CEO, AMERICAN
HIGHWAY USERS ALLIANCE

Mr. Chairman and members of the subcommittee, thank you for the invitation to appear before you today and the opportunity to present our views on the transportation programs that will best serve our nation's needs in the 21st Century.

I am Bill Fay, President and CEO of the American Highway Users Alliance. The Highway Users represents a broad cross-section of businesses and individuals who depend on safe and efficient highways to transport their families, customers, employees, and products. We support a strong Federal role in transportation policy and the prudent investment of scarce highway use taxes in those programs that enhance our economic productivity, decrease safety risks, and contribute to the enviable quality of life Americans enjoy.

Today, I will comply with the request of committee staff and limit my remarks to the big picture issues. In that context, I will discuss the appropriate Federal role in transportation, the proper level of funding for the Federal highway program, how those funds ought to be targeted to meet national transportation interests, and the degree of flexibility granted to State and local officials to set their own transportation priorities. I will also comment on what we know of the Administration's reauthorization proposal.

FEDERAL TRANSPORTATION POLICY AT THE CROSSROADS

Federal Role

Since 1956, the Federal highway program has been largely focused on constructing the Dwight D. Eisenhower National System of Interstate and Defense Highways. Now that the Interstate System is virtually completed, some have questioned whether the Federal Government should continue to play a significant role in highway transportation policy. These same objections were raised 2 years ago by opponents of the National Highway System (NHS) legislation, and Congress answered them decisively with its overwhelming vote for final passage of the National Highway System Designation Act. With NHS designation, Congress recognized the Federal Government's continuing responsibility to foster interstate commerce and eco-

conomic growth by ensuring that our most basic transportation infrastructure is maintained and improved.

Without the NHS, many U.S. businesses could not compete in national and international marketplaces, military readiness would be put at grave risk because of the inability to mobilize quickly, and the ability of individual Americans to travel where they want, when they want would be severely hampered. To put it another way, a strong Federal role in the development and maintenance of highways and bridges is essential to support economic growth, to enhance individual freedom, and to sustain our quality of life. Few other Federal programs can claim such a sweeping national impact.

But there is a lot of work ahead to make the promise of the NHS a reality. The nation will not only have to invest substantial financial resources, but invest them wisely, in order to ensure that this small but important network of highways becomes the engine for economic growth, greater personal freedom, and safer travel that we all hope it will be.

Funding

Funding, then, has to be the top priority issue. Members of this committee understand the critical importance of increasing our nationwide investment in highways. This year, the issue takes on even greater significance as Congress works to reauthorize the Federal highway program. First, returning to the States more of the money motorists pay in highway taxes will certainly help resolve many of the difficult issues involved in the formula debate. Second, and of equal importance, without additional funding our nation cannot meet its documented need for increased road and bridge investments.

We are all familiar with the U.S. Department of Transportation's most recent assessment of road and bridge conditions, so I will not rehearse the statistics again here. I will just reiterate that we are presently investing \$20 billion per year less than is needed just to maintain current conditions, and a staggering \$40 billion per year less than is needed to leave a better network of highways for the next generation.

This remarkable gap between actual highway investments and the amount we should be spending has important implications for our economy, our travel safety, and our overall quality of life:

- *Economy*—A recent study commissioned by the Federal Highway Administration (FHWA) indicates that between 1950 and 1989, investments in non-local roads yielded production cost savings of 24 cents for each dollar spent. Amazingly, those road investments paid for themselves in just over 4 years because of the economic gains they made possible. If we fail to maintain those roads, however, the previously realized gains could soon disappear.

- *Safety*—Highway fatalities have been of the rise over the past 4 years, reversing the steady improvements of the prior 4 years. When ISTEA took effect in 1992, 39,250 Americans died on our highways. Since then, fatalities have climbed to 40,150 in 1993, 40,676 in 1994, and 41,798 in 1995. 1996 fatalities are projected to be about the same as 1995. According to FHWA, substandard road designs and poor road conditions are a factor in nearly 30 percent of fatal crashes. Our failure to invest in better highways will only make travel more dangerous in coming years.

- *Quality of Life*—Under investing in highways will make it more difficult for working parents to get from the office, to the day care, to the grocery store, to home; will make vacations more time consuming and expensive; and will make medical care less accessible for many rural Americans.

For the sake of our continued economic growth, the driving public's safety, and maintaining our standard of living, Congress must increase overall highway funding this year. That's why we applaud the recent efforts of members on this committee to increase the funding allowed for highways in this year's budget resolution.

We particularly congratulate you, Chairman Warner, and Senator Baucus for taking the initiative to raise this issue among your colleagues. We thank you and the other members of this committee who signed a letter to the Budget Committee requesting that the highway program be funded at \$26 billion in fiscal year 1998, a nearly \$6 billion increase over this year's spending level. Combined with a similar letter sent by Senator Moynihan and Senator D'Amato, 59 senators have indicated clearly their support for a badly needed boost in highway funding. As both letters indicate, the highway account of the Highway Trust Fund could sustain a program funded at \$26 billion through at least fiscal year 2002 with no additional revenues.

I also want to take this opportunity to congratulate Senators Chafee and Bond on an initiative they recently announced in a Dear Colleague letter. They propose to create a new budget account and scoring procedures to ensure that annual spending from the highway account equals annual tax receipts deposited into the account.

Although their proposal would not allow us to invest the \$12 billion cash balance already existing in the account, it would guarantee that new tax revenue collected from highway users and deposited in the highway account would actually be spent on road and bridge improvements.

Obviously, we would like to go further by spending down the cash balance over time. The Chafee/Bond proposal, however, is a laudatory step in the right direction, and we applaud their important work on this legislation.

America's motorists should be able to count on their highway taxes being used for road improvements. Highway users today are paying substantially more in taxes than the Federal Government is spending on highway and bridge investments. In 1995, motorists paid \$30.9 billion in Federal highway use excise taxes. 1995 is the most recent year for which State-by-State data is available, but total highway use taxes increased in 1996 and will hold steady in 1997. Although highway users pay around \$31 billion per year, the Federal Government returns only \$18 billion to the States for highway and bridge improvements. The chart I have attached to my statement provides a State-by-State breakdown of the difference between what motorists in each State pay in Federal highway taxes and the amount each State has received this year in total highway spending authority.

Of course, the major reason for this disparity between what highway users pay and what they receive from the Federal Government is that not all of the taxes collected from highway users are deposited in the Highway Trust Fund, much less in the highway account of the trust fund. Taking the 4.3 cents per gallon tax that currently goes to "deficit reduction"—which simply means the use of a regressive excise tax to fund general government programs—and depositing it in the Highway Trust Fund would go a long way toward keeping faith with the American driving public.

Focus the Federal Program

Just as we should increase overall highway funding this year, we must ensure that those limited resources are wisely invested in programs of vital national interest. Guided by two overriding national goals "improved interstate mobility and safer travel", the Highway Users recommends a simplified highway program that targets Federal funds toward five program accounts. They are:

- *The National Highway System*—While the NHS constitutes only 4 percent of the nation's road mileage, it carries over 40 percent of all traffic, 75 percent of commercial truck traffic, and 80 percent of tourist traffic. The NHS is the 21st Century successor to the Interstate System and has the potential to build dramatically on the national contributions made by the Interstates over the past 40 years. To maintain these vital interstate connectors, the FHWA estimates we should be investing \$18 billion annually and \$24 billion annually if we want to improve their condition. Yet the current Federal highway program provides only \$6.5 billion per year for NHS improvements.

- *Bridges*—Both on and off the NHS, bridges are high-cost, crucial links in our nationwide highway network. The FHWA reports the country would need to spend \$5.1 billion annually to maintain current bridge conditions and \$8.9 billion to improve them. The current Federal highway program budgets only \$2.8 billion per year for bridge work. If the Administration and Congress seriously wish to build a bridge to the 21st Century, they will have to provide more adequate funding.

- *Safety*—For reasons I have already discussed, we must make a renewed commitment to safety if we hope to curb the tide of rising highway deaths. The Federal Government currently invests \$700 million annually in highway safety programs. As Americans continue to travel more miles than ever by highway, we must focus more attention and resources on safety improvements. It's a nationwide challenge requiring a greater financial commitment from the Federal Government.

- *Research and Development (R&D)*—The Federal Government currently invests approximately \$400 million annually in R&D activities to develop new technologies, construction materials, and construction techniques that will ease congestion, make travel safer, and prolong the usable life of roads and bridges. By providing up-front financing, coordinating research activities at sites around the country, and transferring information and technologies among interested parties in the public and private sectors, FHWA programs reduce the cost and enhance the benefits of the nation's highway-related R&D activities.

- *Roads on Federal Lands*—The Federal highway program provides approximately \$500 million per year to improve roads on Federal lands, such as national parks. This program is essential to provide public access to these areas and should be retained.

By targeting at least 85 percent of Federal highway funds to the above five program accounts, The Highway Users believes Congress would significantly improve

both safety and interstate mobility. Such a Federal highway program would ensure we made investments in projects of truly national significance.

Flexibility

While The Highway Users seeks to target Federal highway funds on programs of national interest, we also advocate giving State and local officials the latitude to plan for their regional transportation needs and the flexibility to direct Federal highway dollars toward the programs they identify as priorities. The Surface Transportation Program (STP) was established in ISTEA to provide State and local governments that flexibility. While ISTEA is more flexible in terms of expanding the opportunities to use Federal highway funds on non-highway projects, two of the new funding accounts established in ISTEA—transportation enhancements and the Congestion Mitigation & Air Quality improvement program (CMAQ)—are quite inflexible in terms of the discretion granted to State and local officials to set their own transportation priorities.

Specifically, 10 percent of STP funds must be set-aside and used only for transportation enhancement activities, such as pedestrian or bicycle facilities, landscaping and beautification, rehabilitation and operation of historic buildings, or other non-highway projects. The CMAQ program directs highway money, \$6 billion over 6 years, toward urban areas that do not meet Clean Air Act requirements. These funds generally cannot be used for highway construction, except High-Occupancy Vehicle (HOV) lanes.

The Highway Users recommends that Congress continue the eligibility of CMAQ and transportation enhancement projects under a streamlined Surface Transportation Program account. The streamlined STP would allow State and local officials to weigh all transportation needs—air quality, highway capacity, historic preservation, mass transit capital, safety, etc.—and establish priorities without the current funding constraints of ISTEA. By continuing the eligibility of CMAQ and transportation enhancement projects but eliminating the specific funding categories, Congress would allow those local projects to be funded in areas where they are truly a priority.

In addition, we have two specific recommendations about CMAQ and transportation enhancement eligibility requirements. First, the CMAQ program to date is focused almost exclusively on air quality projects with very little emphasis laid on congestion mitigation. Federal highway funds certainly ought to be available to improve freeway interchanges and other traffic bottlenecks and for simple projects such as lane widening or shoulder improvements that can substantially improve traffic flow and reduce congestion. We urge you to consider allowing the States to more fully utilize their Federal highway funds for congestion mitigation projects.

Second, the transportation enhancement eligibility requirements have been written and interpreted so broadly that many projects funded to date have no transportation elements or connection. We think these eligibility standards should be tightened considerably. We hope to have completed a report in April that will highlight the extent to which transportation enhancement funds have been spent on non-transportation projects. We will deliver the report to members of this subcommittee as soon as it is available.

Safety

I want to return for a moment to a topic that should be of overriding concern to everyone involved in highway transportation: safety. As I indicated previously, highway fatalities have increased in recent years, and highway accidents result in millions of injuries annually. Those traffic crashes also drain over \$150 billion per year from our economy, primarily by increasing medical costs and lowering productivity.

The Roadway Safety Foundation (RSF), chartered by the American Highway Users Alliance to reduce the frequency and severity of crashes by improving the safety of roadways, will release a report later today that we hope will focus attention on roadway safety problems and potential solutions. The report cites four major roadway safety problems, including poor quality pavements and surface conditions, narrow lanes and shoulders, narrow bridges, and numerous roadside hazards.

Those problems can be mitigated in a variety of ways—widening lanes and adding or widening shoulders; ensuring that bridge widths are commensurate with the width of approach lanes; better pavement marking, traffic signs, and reflective devices; creating open space adjacent to the roadway (clear zones) that will allow motorists to regain control of their vehicles. Some of these safety improvements are relatively simple; others are more complex. All of them cost money.

We will provide copies of the RSF report to members of the subcommittee. We hope you will agree that it makes a strong case for a substantial increase in funds

devoted to roadway safety improvements and programs designed to improve our knowledge of safety problems and effective solutions.

Administration Proposal

Since the Administration's reauthorization proposal has not yet been released, I can comment only on the elements of it that are foretold by the President's FY-98 budget request. That makes it possible to be very succinct.

The Administration proposes to cut Federal highway funds at a time when its own report indicates that the Nation is already investing \$20 billion less than the amount needed just to maintain current road and bridge conditions and performance over the next 20 years. Under the Administration's plan, the cash balance in the Highway Trust Fund would rise to \$44-48 billion in just 5 years. We believe that will be unacceptable to most Members of Congress, to State and local elected officials, and particularly, to highway users who are asked to foot the bill for a smoke and mirrors form of deficit reduction.

In addition, Amtrak should not be subsidized out of the Highway Trust Fund. We strongly oppose this proposal and believe highway users across the country will fight it vigorously to the extent that it is seriously considered on Capitol Hill.

Summary

Again, Mr. Chairman, The Highway Users commends you and the other members of this subcommittee who are seeking to boost highway funding. Our primary recommendations for reauthorization legislation are:

- Fund the highway program at the highest level the Highway Trust Fund will support (currently \$26 billion per year);
- Deposit the 4.3 cents per gallon fuel tax in the Highway Trust Fund and increase highway funding to invest the additional revenues in road and bridge improvements;
- Target most Federal highway funds toward the National Highway System, bridges, safety, research and development, and roads on Federal lands;
- Streamline the STP program to give State and local officials greater authority to set their own transportation priorities without the funding constraints of the current CMAQ and transportation enhancements programs.

Thank you for the opportunity to present this testimony.

Highway Taxes Paid vs. Funds Received

State	Federal Highway Use Taxes Paid * (1995)	Federal Highway Funds Received ** (1997)	The Difference	Percentage Return
Alabama	\$672,065,000	\$363,630,000	\$308,435,000	54.11
Alaska	\$67,533,000	\$187,620,000	\$(120,087,000)	277.82
Arizona	\$538,386,000	\$264,525,000	\$273,861,000	49.13
Arkansas	\$406,393,000	\$284,521,000	\$121,872,000	70.01
California	\$3,151,839,000	\$1,618,984,000	\$1,532,855,000	51.37
Colorado	\$411,451,000	\$187,226,000	\$224,225,000	45.50
Connecticut	\$300,667,000	\$345,243,000	\$(44,576,000)	114.83
Delaware	\$88,056,000	\$72,464,000	\$15,592,000	82.29
Dist. of Col	\$34,798,000	\$79,776,000	\$(44,978,000)	229.25
Florida	\$1,556,936,000	\$831,661,000	\$725,275,000	53.42
Georgia	\$1,152,783,000	\$600,140,000	\$552,643,000	52.06
Hawaii	\$82,316,000	\$115,119,000	\$(32,803,000)	139.85
Idaho	\$163,900,000	\$129,520,000	\$34,380,000	79.02
Illinois	\$1,236,879,000	\$662,750,000	\$574,129,000	53.58
Indiana	\$873,575,000	\$447,415,000	\$426,160,000	51.22
Iowa	\$401,839,000	\$205,735,000	\$196,104,000	51.20
Kansas	\$342,014,000	\$205,214,000	\$136,800,000	60.00
Kentucky	\$579,624,000	\$300,431,000	\$279,193,000	51.83
Louisiana	\$536,645,000	\$267,672,000	\$268,973,000	49.88
Maine	\$157,542,000	\$119,769,000	\$37,773,000	76.02
Maryland	\$511,622,000	\$260,881,000	\$250,741,000	50.99
Massachusetts	\$564,693,000	\$636,712,000	\$(72,019,000)	112.75
Michigan	\$1,098,213,000	\$551,377,000	\$546,836,000	50.21
Minnesota	\$562,630,000	\$265,496,000	\$297,134,000	47.19
Mississippi	\$391,533,000	\$202,448,000	\$189,085,000	51.71
Missouri	\$798,763,000	\$409,066,000	\$389,697,000	51.21
Montana	\$139,815,000	\$140,824,000	\$(1,009,000)	100.72
Nebraska	\$260,124,000	\$134,673,000	\$125,451,000	51.77

Highway Taxes Paid vs. Funds Received—Continued

State	Federal Highway Use Taxes Paid * (1995)	Federal Highway Funds Received ** (1997)	The Difference	Percentage Return
Nevada	\$201,871,000	\$113,063,000	\$88,808,000	56.01
New Hampshire	\$125,241,000	\$85,866,000	\$39,375,000	68.56
New Jersey	\$823,705,000	\$484,311,000	\$339,394,000	58.80
New Mexico	\$275,703,000	\$156,912,000	\$118,791,000	56.91
New York	\$1,333,990,000	\$1,032,139,000	\$301,851,000	77.37
North Carolina	\$934,122,000	\$498,319,000	\$435,803,000	53.35
North Dakota	\$110,420,000	\$108,360,000	\$2,060,000	98.13
Ohio	\$1,296,482,000	\$623,666,000	\$672,816,000	48.10
Oklahoma	\$498,818,000	\$270,888,000	\$227,930,000	54.31
Oregon	\$320,006,000	\$205,381,000	\$114,625,000	64.18
Pennsylvania	\$1,280,724,000	\$824,980,000	\$455,744,000	64.42
Rhode Island	\$84,742,000	\$85,452,000	\$(710,000)	100.84
South Carolina	\$538,713,000	\$290,784,000	\$247,929,000	53.98
South Dakota	\$123,165,000	\$107,459,000	\$15,706,000	87.25
Tennessee	\$749,318,000	\$378,425,000	\$370,893,000	50.50
Texas	\$2,349,527,000	\$1,250,657,000	\$1,098,870,000	53.23
Utah	\$246,720,000	\$119,544,000	\$127,176,000	48.45
Vermont	\$85,930,000	\$77,069,000	\$8,861,000	89.69
Virginia	\$849,026,000	\$451,151,000	\$397,875,000	53.14
Washington	\$619,144,000	\$318,123,000	\$301,021,000	51.38
West Virginia	\$240,895,000	\$205,442,000	\$35,453,000	85.28
Wisconsin	\$629,491,000	\$365,096,000	\$264,395,000	58.00
Wyoming	\$136,525,000	\$107,662,000	\$28,863,000	78.86
Total	\$30,936,912,000	\$18,051,641,000	\$12,885,271,000	58.35

* Estimated from State-by-State fuel consumption data (The Road Information Program) and an FHWA report on non-fuel highway excise taxes collected in 1995. Includes motor fuel taxes currently deposited in the General Fund, as well as all highway taxes deposited in the Highway Trust Fund.

** Estimated from FHWA reports on fiscal year 97 obligation limitations, minimum allocation funds, and congressionally designated projects.

**PREPARED STATEMENT OF HANK DITTMAR, EXECUTIVE DIRECTOR,
SURFACE TRANSPORTATION POLICY PROJECT**

Mr. Chairman and members of the subcommittee, thank you for the invitation to appear before you today to discuss the need for continued Federal investment in surface transportation through the reauthorization of the Intermodal Surface Transportation Efficiency Act.

I am Hank Dittmar, Executive Director of the Surface Transportation Policy Project, a non-profit coalition of over two hundred organizations whose mission is to ensure that transportation policy and investments serve people and communities. Our members are national and local public interest groups concerned with the environment, energy conservation, the economy and social issues. They represent constituencies as diverse as the elderly, historic preservationists, transportation workers, taxpayer and citizen groups, communities of color and downtown business interests. We are united in the belief that balanced investment in surface transportation can strengthen the economy, protect the environment, help conserve energy and meet important social goals. I am joined today by Roy Kienitz, STPP's Assistant Director for Federal Affairs.

As you know, bipartisan majorities of the House and the Senate came together in 1991 to produce the landmark Intermodal Surface Transportation Efficiency Act. To sum up our position concisely, we feel that the legislation enacted in 1991 was a major advance in national transportation policy, and that it should serve as the basis for the 1997 surface transportation bill. ISTEA made major changes to Federal transportation policy: unprecedented funding flexibility, a strong local role in decisionmaking, an emphasis on multi-modal planning and attention to environmental impacts, among others.

We believe that ISTEA did an admirable job of balancing competing interests: on one hand, the obvious benefits of having more decisions made at the State and local level on the other, the need to articulate and protect a set of basic national interests. The subcommittee has heard and will continue to hear from interest groups wanting a bigger slice of the pie. The trucking industry wants Federal funds focused on truck routes; State transportation officials want State autonomy; donor States

want their fair share; and on and on. If the Federal role is reduced to redistributing money among States, industries and interest groups without any reference to broad, national goals, we fear that a national transportation system that contributes to national competitiveness is endangered.

So what is the Federal interest? Although it is tempting to define it in terms of specific facilities, this approach at best approximates what we all agree are the ultimate goals—a set of outcomes. The reason to have a road is not the road itself, but what it does for us. The time has come to acknowledge this explicitly, and base our policies on the outcomes we wish to achieve.

STPP believes that there is a compelling Federal interest in transportation, and that it can be described by five basic goals: a healthy economy; access to jobs, services and opportunities for all; a healthy environment; public safety; and productive investment of public funds. The Federal transportation program should be judged based on its ability to make progress toward these goals. We believe that ISTEA has measured up well in this regard, and proposed changes to it will have to perform equally well to gain our support.

As I said, we see five main areas of Federal (and public) interest in transportation.

1. ECONOMIC EFFICIENCY

First of all, investment of Federal taxes in surface transportation should enhance the efficiency of the Nation's economy by moving people and goods reliably and cost-effectively. Now that we have built an unparalleled Interstate system, our economic challenge is to plug gaps in the system, make intermodal connections and ensure that the metropolitan economies that drive our competitiveness do not bog down due to deteriorated facilities and congestion. Almost 80 percent of our people now live in center cities and their surrounding counties, and increasingly the health of these large metropolitan regions—both cities and suburbs—defines the economic health of the Nation.

The economic health of small towns and rural communities also depends on continued investment in improving the safety and ensuring the rehabilitation of roads and bridges in rural areas. Indeed, from an economic standpoint, the paramount Federal interest may be in the preservation and rehabilitation of the infrastructure we spent so much to build. Federal investment programs like those for maintenance of the Interstate system, rail modernization, bus replacement and bridge rehabilitation have proven their worth by improving the condition of these facilities.

According to the U.S. Department of Transportation, there is a gap of almost \$15 billion per year in spending for maintenance and rehabilitation activities, yet, as the 1995 Conditions and Performance report states “. . . system preservation improvements in 1993 accounted for 42.2 percent of [capital] spending on non-local roads.” In other words, more than half of the money going into capital expenditures on road projects in 1993 went for new additions to the system—this at a time when less than 70 percent of the Interstate and arterial systems are in at least fair condition. Clearly there is a problem here, and this committee should look into making system preservation a higher priority.

2. ACCESS AND CHOICE

As Dr. Thomas Larson, Federal Highway Administrator during the Bush Administration, has pointed out, the first Federal investment in transportation was undertaken on the basis of the general welfare clause of the Constitution. Clearly the investment of Federal tax dollars in canals, then roads and bridges, then transit systems and now in intelligent transportation technologies has provided Americans with access to jobs, housing and opportunities on an unprecedented scale. This promotion of the general welfare is one of the key reasons for Federal investment in surface transportation.

When you ask people what kinds of transportation investments they see as best serving their welfare, you get some interesting results. Public opinion research we have commissioned shows that although over 70 percent of people use the car as their primary means of transportation, half would chose other options if they were available and convenient. Furthermore, people identify investments in widening existing roads or building new ones as relatively low priorities—below encouraging ridesharing and investing in transit, and far below fixing existing roads and bridges.

Ensuring that the benefits of our investments are available to all Americans, whether young or old, rich or poor, living in urban areas, suburbs or rural areas, able or unable to drive, has also been a reason for Federal investment and Federal oversight. In addition, the Federal Transit Act, the Civil Rights Act and the Americans with Disabilities Act are all meant to ensure that access, mobility and choice

are delivered to all. Basic access and mobility means facilitating travel by car, transit, bicycle and foot, as well as non-travel options allowed by telecommuting and mixed use development.

3. ENVIRONMENTAL STEWARDSHIP AND ENERGY CONSERVATION

Transportation investments can and should contribute to meeting our environmental energy and public health goals. Furthermore, the Federal Government must take a significant share of the responsibility for assuring that the environmental effects of Federal transportation investments are being understood and minimized.

This is no more true than with the consequences of high levels of oil consumption by the U.S. transportation system. Our policies should also contribute to the conservation of natural, scenic and historic resources, a posterity we received from our parents that we are responsible for passing on to our children. The powerful linkage between transportation and air quality cannot be ignored. Half of the ozone pollution that hovers in the air of many of our cities—pollution that reduces the lung function of healthy adults, makes children, the elderly and sensitive populations like asthmatics short of breath, and costs the national economy billions of dollars in health care costs every year—is the result of cars and trucks.

Make no mistake: transportation is an environmental issue, and transportation legislation is environmental legislation. Like it or not, the bill produced by this committee this year will be judged against environmental goals.

4. ENHANCING THE SAFETY OF THE TRANSPORTATION SYSTEM

Public safety must continue to be a key reason for Federal involvement in transportation. Although the long term decline in the rate of traffic fatalities per vehicle mile traveled is well documented, because of the robust and continuing increase in driving over the last 30 years, the overall number of traffic fatalities does not show a similar long term decline. Good progress has clearly been made on traffic safety, but this is in large part due to the commitment of the Federal Government to the issue. The Federal commitment to safety should consider both users and non-users of the transportation system—pedestrians as well as drivers, for example—and should continue to examine topics like the role that road design standards play in encouraging greater speed. Setting goals and objectives for safety is important, but these objectives need to be accompanied by targeted funding.

5. ENSURING THAT OUR INVESTMENTS PERFORM

In spite of the rhetoric to the contrary, it is reasonable for the taxpayer to expect the Federal Government to monitor the expenditure of Federal funds and ensure that they are leading to better performance. Congress has both the right and the responsibility to attach performance standards to the expenditure of funds collected with Federal taxing authority.

ISTEA balanced the need for Federal oversight with the need to provide State and local partners with increased authority to make sensible decisions at the local level. We need to continue this evolution by focusing Federal oversight on improved outcomes and better performance, not on micro-management of process, engineering or accounting.

INVESTING IN THE NATIONAL INTEREST—ACHIEVING OUR GOALS

ISTEA took us in the right direction by incorporating a series of basic methods of meeting overall goals into the Federal transportation program. We believe your committee should build on ISTEA's link to these key principles. We identify five core methods of relating the Federal interest to local needs.

First, it is appropriate for the Federal Government to target funding to key areas where investment should occur. The Interstate Maintenance program for example, has demonstrably improved the condition of the interstate system. Similarly, Congestion Mitigation and Air Quality funding provides Federal funds to comply with the Federal Clean Air Act mandate. It is inconceivable from either the standpoint of honest intergovernmental relations or sensible environmental policy that this program would be singled out for cuts. Indeed, the proposed changes to air quality standards should lead to increased funding for this program.

Second, the targeting of funds should be balanced by robust flexibility, with a wide variety of uses for Federal funds. Such flexibility should be accompanied by broadened eligibility, so that States and localities can respond to both local and national goals in ways appropriate to their particular situation. This flexibility should be tied to a sensible planning process—one that links the selection of projects to a

realistic idea of the amount of money available, an agreed-upon set of goals, and a rational evaluation of the different ways of pursuing the needs identified.

Third, providing and paying for transportation requires a strong partnership between local, State and Federal Governments, all of which own or have financial responsibility for key parts of the system. The Federal Government must provide the basic framework for this partnership, at least when it comes to spending Federal funds, through its oversight of the process for making long-range plans and selecting projects. And where Federal tax funds are involved, the Federal Government has a responsibility to assure that the taxpaying public continues to have a role in the decisionmaking partnership.

Fourth, Federal legislation should provide for balance, fairness and equity. ISTEA's renewal will have to balance investment in the national interest with the desire of individual States to maximize transportation funding. As States argue for specific formulas, however, Congress has the duty to assure another kind of balance—balance among modes, balance between State and local governments and balance among urban, suburban and rural areas. For example, USDOT studies reveal that while State road spending is largely paid by gas taxes, only 7 percent of local road spending comes from user fees.

Finally, accountability to taxpayers should be a hallmark of ISTEA's renewal. Taxpayers and system users should have access to timely and accurate information about the condition, performance and management of the transportation system and should have direct and open access to the decisionmaking process. The best way to assure that transportation investments are responding to people's priorities is to involve them in the decisionmaking process.

Preserving and Improving ISTEA—STPP's Recommendations

The STPP coalition has formulated 25 specific recommendations for ISTEA reauthorization, which fall under the five headings listed below. We believe that the surface transportation program should be reauthorized at funding levels of \$28–30 billion a year over a 5 or 6 year reauthorization period, and believe that current revenues accruing to the trust fund can support such a program level. Mr. Chairman, with your permission, I'd like to provide the committee with copies of our entire reauthorization proposal, entitled "Blueprint for ISTEA Reauthorization."

I. Maintaining A National Commitment to Transportation

Our economic health depends on a robust and efficient transportation system. The Federal Government should continue to fund transportation improvements at a high level, set the outlines of a national policy, and follow the principles that underlie ISTEA: funding flexibility, a strong local role, attention to environmental and community needs, a long-term focus and greater accountability.

ISTEA's structure is sound, and should be retained.

II. Fix It First: Maintaining What We Have

The first priority for Federal highway money should be the maintenance of existing roads and bridges. To accomplish this, the two programs that dedicate funds directly to system preservation—the Bridge and Interstate Maintenance programs—should be retained. In addition, a national standard should be established for the condition of the Interstate system. No State should allow more than one-half of its Interstate miles to fall below "fair" condition. Those that do should be required to dedicate flexible funds to improving Interstate conditions. Those that do a good job maintaining Interstate highways should be rewarded.

Current law requires new transit projects to include a commitment of funds for maintenance for the project's useful life. New Highways should be held to the same standard. Federal standards that prohibit States from asking highway contractors to guarantee the performance of the roads they build should be repealed.

III. Providing Transportation Choices

Current law's guarantees of funding for alternatives to highways—the public transit and transportation enhancements programs—should be retained. In addition, intercity rail service—an area left out of ISTEA in 1991—should be eligible for ISTEA funding at State and local option and should receive dedicated funding just as highways and transit do. Biking and walking are real transportation options for many people, and Federal policy should treat them fairly.

ISTEA II should inaugurate a new initiative to use transportation funding to help connect those making the transition from welfare to work with jobs. Poor transportation to suburban job sites is a barrier for urban welfare recipients, and transportation should start being part of the solution.

IV. Protecting Public Safety and the Environment

ISTEA's Congestion Mitigation and Air Quality Improvement program should be maintained, both for its environmental benefits and as funding for a Federal mandate. The Federal commitment to transportation safety should also be retained, with greater attention to the safety of non-drivers threatened by transportation-related accidents. To protect America's aesthetic resources, ISTEA's Scenic Byways program should be continued, and the Federal Highway Beautification Act should be strengthened.

New initiatives should be undertaken to address the environmental effects of transportation in a comprehensive way, and to help communities integrate their land use and transportation planning efforts. These initiatives should include funding to cover the incremental cost of replacing old diesel buses with new, clean fuel buses, and should begin to reverse the loss of wetlands that has resulted from 40 years of road building and sprawl development.

V. Assuring Accountability

ISTEA's basic guarantees of accountability—requirements for fiscally constrained planning, public participation, and guaranteed funding for metropolitan areas—should be preserved. ISTEA's list of planning factors for States and metropolitan areas should be simplified and focused on measuring performance toward agreed upon goals. Metropolitan Planning Organizations (MPOs) should continue to be involved in decisionmaking in partnership with States, and the rules that govern them should be adjusted to assure that they fairly represent the population of metropolitan areas. Small metropolitan areas and rural communities should be allowed a greater voice in decisionmaking.

BUILDING ON ISTEA'S SUCCESSES

As a broad based and diverse coalition—ranging from State and local officials like myself to environmentalists and civil rights activists and from corporations to labor and consumer groups, STPP's members can't agree upon everything. When we began to sit down together last year to discuss the need to develop policy recommendations for transportation into the next century, it wasn't at all clear that we could agree on whether the ISTEA innovation had been a success. For the first time, environmentalists and others in the STPP community had approached Federal transportation legislation with the idea that transportation spending could contribute to a better environment and a more equitable society as it improved mobility. Always before, the approach had been one of finding legislative tools to mitigate the adverse consequences of transportation projects. ISTEA's premise was that with proper planning and public involvement, transportation could contribute to sustainability.

By and large, the consensus that emerged was that the ISTEA premise was a sound one and that ISTEA was beginning to work. As we turned our attention to the future, then, our starting point was 1991's emphasis on transportation choice, fiscal restraint and State and local control. Our recommendations seek to build on ISTEA and to recognize new realities for the 21st Century—new environmental challenges, the challenge of moving from welfare to work, and the need to protect our massive Interstate investment. Our coalition's endorsement of these principles represents the broad support of an extremely diverse set of groups and we want to offer our continuing support to you throughout the process of developing the ISTEA reauthorization.

Mr. Chairman, thank you again for your attention and courtesy. I am happy to answer any questions you or other members of the subcommittee may have.

THE COMMONWEALTH OF MASSACHUSETTS,
JOINT COMMITTEE ON TRANSPORTATION,
State House, Boston, February 28, 1997.

Chairman JOHN H. CHAFEE,
Environment and Public Works Committee,
Washington, DC.

Dear Chairman Chafee: It is with great pleasure that we submit this testimony to your committee for consideration as you deliberate the reauthorization of ISTEA. We regret that we were unable to present this testimony in person; however, as Co-Chairmen of Massachusetts' Joint Committee on Transportation, we are involved in a number of matters which require our continued presence in the State.

The transportation community has been united in its praise of the innovative provisions of ISTEA. It will most certainly be a challenge to live up to those standards

in the sequel to ISTEA. Reauthorization will set the tone for the future of Federal involvement in infrastructure funding and we would like to underscore the fact that we believe that a continued Federal role is imperative. It is only through a continued Federal presence that the country can be assured of maintaining its highway and rail systems that are critical to supporting the nation's economy and moving people and goods from state to state, region to region, and coast to coast.

In New England, we understand this link between the condition of our infrastructure and our regional economy. This is particularly challenging for us as we have to contend with concentrated populations utilizing aging infrastructure. Consequently, we must focus our effort on the reconstruction, maintenance and preservation of our current infrastructure. Massachusetts has been particularly aggressive in providing funding to maintain our facilities. We have provided state funds to expand and modernize our mass transit system and to expand our commuter rail service. State and Federal funds have supported an annual \$400 million statewide road and bridge program and the massive Central Artery/Tunnel Project. We realize that we don't have to elaborate on either of these latter project areas as you have actively followed the progress of both the statewide program and Artery project.

Massachusetts is eager to be a partner with the Federal Government, both through Congress and the Federal Highway Administration. A bill to create a Metropolitan Highway System (MHS), and provide third party funding for the Central Artery/Tunnel Project through toll revenue bonds, is on track to be passed by April 1. Not only will the bill provide third party funding to meet operating costs and the completion needs of the Project, but it will also stabilize funding sources for the statewide program. Concurrently, we are working on a \$4.5 billion Transportation Bond Bill which will be passed shortly after the MHS legislation. The bill will provide bond authorizations for the state to continue awarding advance construction contracts for the Artery, provide backing for Grant Anticipation Notes to meet the cash-flow needs of the Project, and fund the statewide program through Federal fiscal year 1999. Both of these measures have been identified by FHWA as crucial to maintaining the Project's schedule and budget.

These are significant undertakings which the state has committed to despite the uncertainty surrounding the outcome of the ISTEA reauthorization. Massachusetts certainly recognizes the importance of finishing the Artery project on schedule and meeting our other infrastructure responsibilities. We hope the committee also recognizes Massachusetts' commitments and responsibilities and seriously considers our needs as you continue to deliberate the reauthorization of ISTEA.

Thank you for considering our testimony, and please do not hesitate to contact us if we can be of any assistance to you or the committee. If you and your committee decide to organize regional hearings on the reauthorized ISTEA we would be honored to assist with planning for a New England hearing.

Sincerely yours,

JOSEPH C. SULLIVAN, *Chairman*,
COMMITTEE ON TRANSPORTATION,
State Representative.

ROBERT A. HAVERN, III, *Chairman*,
COMMITTEE ON TRANSPORTATION,
State Senator.

REAUTHORIZATION OF THE INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT

THURSDAY, MARCH 6, 1997

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.
TRANSPORTATION INFRASTRUCTURE FINANCING

The subcommittee met, pursuant to notice, at 9:40 a.m. in room 406, Senate Dirksen Building, Hon. John W. Warner (chairman of the subcommittee) presiding.

Present: Senators Warner, Smith, Baucus, Graham, and Chafee [ex officio].

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator CHAFEE [assuming the chair]. The committee will come to order, please.

This is a hearing of the Subcommittee on Transportation and Infrastructure, of which Senator Warner is the Chairman, and he will be along very promptly. I will start.

We want to welcome the Honorable Rosa DeLauro. You're the first witness, so go to it.

STATEMENT OF HON. ROSA L. DeLAURO, REPRESENTATIVE IN CONGRESS FROM THE STATE OF CONNECTICUT

Ms. DeLAURO. Thank you very, very much, Senator Chafee, Senator Baucus. I want to say thank you to you and to all the members of the subcommittee for inviting me to testify on the subject of innovative financing.

Honestly, I'm truly very excited about the prospect of being able to testify on innovative financing for national transportation projects in the reauthorization of ISTEA. I want to commend the subcommittee for recognizing the importance of creating these kinds of public-private partnerships to be able to attract investments by State, local and private interests in our Nation's infrastructure.

I think we all recognize that our economic future depends on our ability to find the creative approaches to paying for our Nation's infrastructure. We know that in no local, State, the Federal Government or even a combination of those three pieces can afford to provide the funding that's needed to meet our current and our future

infrastructure needs. In fact, after you utilize the traditional sources of funds, and those funds are released, as a Nation, we face about a \$30 billion to \$80 billion shortfall, enabling us to meet what our infrastructure needs are all about.

At the same time, we need to increase our investments in our roads, mass transit, airports, ports, water and waste water systems, schools, other kinds of infrastructure facilities, so that businesses can perform at full capacity and that we can compete globally. This innovative financing can make it possible for our Nation to afford the modern infrastructure that it needs.

At the same time, it had the opportunity to create hundreds of thousands of new jobs. Innovative financing means more projects will be built with less of American taxpayers' dollars. And in many cases, \$1 of Federal investment has the potential to provide a return of \$10 or more from other public or private investment sources.

The fact is that other countries have already begun to use these innovative financing mechanisms in terms of solving their own infrastructure funding shortfalls. Already, 10 percent of infrastructure in Asia is privately owned. And by the year 2000, as much as 30 percent may be financed in this way.

In our own country, in the United States, public-private partnerships are still in a very early stage of development. We all have much work to do in trying to educate our colleagues, the American public, about how these kinds of partnerships can make better use of the limited resources that we have.

I'd like to explain in the next couple of minutes two of my bills which I believe would create these kinds of lucrative public-private partnerships, and could be included in the ISTEA reauthorization. The bills are called first, the National Infrastructure Development Act, and second, the State Infrastructure Bank Expansion Act. The National Infrastructure Development Act, NIDA, creates a quasi-governmental corporation to invest in and to ensure infrastructure projects in order to reduce public and private investment risks. It's this issue of risk reduction that is the key to attracting investments in infrastructure from non-traditional sources.

As projects begin to produce revenues from tolls, user fees, taxes and other means, the corporation would be repaid with interest. Eventually, it would become a self-sustaining, privately controlled corporate financing mechanism, much like the recently privatized U.S. Enrichment Corporation.

Over time, the taxpayers' initial \$3 billion investment into the corporation would be repaid. And with a relatively small Federal investment, the tools created by the NIDA would not only significantly improve our Nation's infrastructure, but in addition, create 250,000 to 500,000 new jobs.

In the United States, there are few opportunities for pension funds and other private entities to invest in infrastructure projects. And these important funds are currently being invested overseas in markets such as Asia. We need to recapture those funds for our own infrastructure needs.

The bill that I propose would enable public and private investors to invest in the building of schools, roads and airports here in the United States. The bill would enable public and private infrastruc-

ture developers to offer bonds to pension funds for infrastructure development in the United States.

The bonds are called public benefits bonds, would be attractive investments for pension funds, because the bonds enable them to pass on the tax benefits to their pensioners. These bonds would be revenue neutral, and studies show that they are actually likely to be revenue positive. Thus, the legislation would enable the pension community and other institutional investors to invest a portion of their \$4.5 trillion in assets in infrastructure projects at home.

The bill is a good government bill. It benefits every American through good jobs, creating a climate for business, through good infrastructure. American taxpayers benefit from better modes of transportation for fewer tax dollars, and pension investors benefit because they can look for investment opportunities in the United States.

I'm pleased that the Clinton administration, through the Department of Transportation, has seen merit in innovative financing mechanisms, and I'll look forward to learning more about their proposals as we move on and how they propose to advance these new tools.

Let me briefly mention a second piece of legislation which would strengthen and expand the State infrastructure banks that were created through the 1991 ISTEA legislation. I'm an ardent supporter of the State banks. They carry out much of the same kinds of function of the National Infrastructure Corporation. They do it on a much smaller scale.

However, unlike the National Corporation, which reduces the risk of investing in infrastructure, the primary function of the SIBs is to reduce the cost of these investments. I think that the SIBs can be strengthened in two ways. They need to be able to finance projects other than highway and mass transit projects, such as schools and water and wastewater projects, airports. And they need additional capital in order to reduce the risks of infrastructure investments.

I believe the SIBs have the potential to achieve many of the same results as a national financing corporation. For this reason, I introduce the State Infrastructure Bank Expansion Act to improve their effectiveness.

The legislation is simply an interdepartmental study to determine if the SIBs can be used to finance projects outside the realm of transportation and to investigate sources of capital to make the SIBs a more efficient financing tool. The study would be done in consultation with an industry advisory panel.

Let me conclude by saying that I urge the subcommittee to consider the financing tools that are created by a National Infrastructure Development Act, and the State Infrastructure Bank Expansion Act. I think the American people are ready and willing to take on a big challenge, and the challenges that are facing our country. I think they're also ready for bold ideas, ideas that really tackle that \$30 billion to \$80 billion shortfall, which not only makes this a stronger country, but also helps to provide jobs which we so desperately need.

In particular, I want to mention my part of the country, which has suffered from job loss, but I think it's true everywhere. I think these bills are an important part of making that possible.

I thank you for your time for letting me come to testify on this issue this morning, and would be happy to answer any questions that you have.

[The prepared statement of Ms. DeLauro follows:]

PREPARED STATEMENT OF HON. ROSA L. DELAURO, REPRESENTATIVE IN CONGRESS
FROM THE STATE OF CONNECTICUT

AN APPROACH TO CREATING JOBS AND BUILDING INFRASTRUCTURE

Thank you Chairman Warner, Ranking Senator Baucus, and members of the Subcommittee on Transportation and Infrastructure for inviting me to testify on the subject of innovative financing for national transportation projects in the reauthorization of the Intermodal Surface Transportation Efficiency Act. I commend this subcommittee for recognizing the importance of creating public-private partnerships to attract investments by State, local and private interests in our Nation's infrastructure.

America's economic future depends on our ability to find creative approaches to paying for our Nation's infrastructure. We know that no local, State or Federal Government—or even a combination of the three—can afford to provide the funding needed to meet all of our current and future infrastructure needs. In fact, after these traditional sources of funds are released, our Nation still faces an annual \$30 billion to \$80 billion funding shortfall to meet our infrastructure needs.

At the same time, we all recognize that we must increase our investment in our Nation's schools, roads, mass transit, airports, ports, water and wastewater systems and other infrastructure facilities. Only then can businesses perform at full capacity and successfully compete in the global market.

Innovative financing can make it possible for our Nation to afford the modern infrastructure it needs to be globally competitive. At the same time, it can create hundreds of thousands of new jobs. Innovative financing means more projects will be built with less of the American taxpayers' money. In many cases, one dollar of Federal investment has the potential to provide a return of \$10 or more from other public or private investment sources.

Other countries have already begun to use innovative financing mechanisms to solve their own infrastructure funding shortfalls. Already, 10 percent of infrastructure in Asia is privately owned. By the year 2000, as much as 30 percent may be financed in this way.

In the United States, public-private partnerships are still in the earliest stages of development. We all have much work to do in educating our colleagues and the American public about how these partnerships can make better use of our Nation's limited resources. We can not afford to fall behind in building the best, most economically productive infrastructure possible.

I would like to take the next few minutes to explain two of my bills which would create these lucrative public-private partnerships and could be included in the ISTEA reauthorization. These bills are called the "National Infrastructure Development Act" and the "State Infrastructure Bank Expansion Act."

The National Infrastructure Development Act creates a quasi-governmental corporation to invest in and insure infrastructure projects in order to reduce public and private investment risk. Risk reduction is the key to attracting investments in infrastructure from non-traditional sources.

As projects begin to produce revenue through tolls, user fees, taxes, or other means, the corporation would be repaid with interest. Eventually, it would become a self-sustaining, privately controlled corporate financing mechanism much like the recently privatized U.S. Enrichment Corporation. Over time, the taxpayers' initial \$3 billion investment into the Corporation would be repaid. With this relatively small Federal investment, the tools created by the National Infrastructure Development Act would not only significantly improve our Nation's infrastructure, but also create 250,000 to 500,000 new jobs.

In the U.S., there are few opportunities for pension funds and other private entities to invest in infrastructure projects, and these important U.S. funds are currently being invested overseas in markets such as Asia. My bill would enable public and private investors to invest in the building of schools, roads and airports here at home. The bill would authorize public and private infrastructure developers to offer bonds to pension funds for infrastructure development in the U.S. These bonds,

called Public Benefit Bonds, would be attractive investments for pension funds because the bonds enable them to pass on tax benefits to their pensioners. These bonds would be revenue neutral, and studies show that they are actually likely to be revenue positive. Thus, the legislation would enable the pension community and other institutional investors to invest a portion of their \$4.5 trillion assets in infrastructure projects at home.

The National Infrastructure Development Act is a "good government" bill that benefits every American.

- *American workers benefit through good jobs.* Under my bill, every dollar in Federal investment will result in \$10 of construction. If we invest a billion Federal dollars it will create 250,000 to 500,000 new jobs.

- *American businesses benefit from improved infrastructure.* Businesses depend on airports, roads, wastewater treatment facilities, and clean-water projects. Stronger infrastructure will aid economic expansion.

- *American taxpayers benefit from better modes of transportation for fewer tax dollars, and better environmental quality.*

- *Pension investors benefit because they can look for investment opportunities in the United States instead of overseas.*

I am pleased that the Clinton Administration, through the U.S. Department of Transportation, has seen merit in innovative financing mechanisms, and I look forward to learning more about their proposals to advance these new tools.

My second piece of legislation would strengthen and expand the State Infrastructure Banks that were created through the 1991 ISTEA legislation. I am an ardent supporter of these State banks, which carry out functions similar to the National Infrastructure Corporation, but on a much smaller scale. However, unlike the national corporation which reduces the risk of investing in infrastructure, the primary function of the SIBs is to reduce the cost of these investments. I believe the SIBs can be strengthened in two ways: they need to be able to finance projects other than highway and mass transit projects such as schools, water and wastewater projects and airports; and, they need additional capital in order to reduce the risk of infrastructure investments.

I believe the SIBs have the potential to achieve many of the same results as a national financing corporation. For this reason, I introduced the State Infrastructure Bank Expansion Act to improve the effectiveness of the SIBs. This legislation is simply an inter-departmental study to determine if the SIBs can be used to finance projects outside the realm of transportation, and to investigate sources of capital to make the SIBs a more efficient financing tool. The study would be done in consultation with an industry advisory panel.

I urge this subcommittee to consider the financing tools created by the National Infrastructure Development Act and the State Infrastructure Bank Expansion Act. The American people are ready, willing and able to tackle the big challenges facing our country. I believe these bills are an important part of making that possible.

Thank you again for inviting me here to testify before you this morning.

Senator CHAFEE. Well, thank you very much, Representative DeLauro. You're from New Haven, aren't you?

Ms. DELAURO. Yes. Born and raised in New Haven, CT.

Senator CHAFEE. And that's your district now?

Ms. DELAURO. Yes, it's the Third Congressional District of Connecticut, 18 towns, Senator.

Senator CHAFEE. When you talk about the country faces a \$30 billion to \$80 billion funding shortfall to meet our infrastructure needs, that's not solely, that would include things like airports, and would it include schools?

Ms. DELAURO. Yes, I think in terms of traditional, what we're able to do in terms of the public dollars is, we just don't have the public dollars to do everything we need, like the deep water ports, airports, other kinds of projects like that.

Senator CHAFEE. OK, well, I think you've found a very receptive ear in this committee. I'm sorry Senator Moynihan isn't here, but he's been very active in this area. And he and I and Senator Warner introduced, and Senator Bond, and we weren't able to approach

everyone, but we've introduced some financing legislation likewise. And we look forward to look at your legislation.

Have you testified in the House on this?

Ms. DELAURO. Yes, I have. I did in the last session of the Congress. The State Infrastructure Bank Expansion is a new piece. But the National Infrastructure Development Act I think was the 103d Congress I introduced the legislation.

First, I applaud your legislation. And Senator Moynihan has introduced the National Infrastructure Development Act, this piece of legislation, on the Senate side.

Senator CHAFEE. Oh, he has.

Ms. DELAURO. It's been here for a while.

Senator CHAFEE. Is it the same?

Ms. DELAURO. That's why I think this is a good moment to try to move with some of these things.

Senator CHAFEE. Well, I think you have struck on a good moment.

Now, to have this function, you've got to have a source of revenue. I presume that you support tolls.

Ms. DELAURO. Well, I think if we're going to look at how we can repay, I talk about the National Infrastructure Corporation as the way we could do this is with tolls, user fees, whether it is taxes, in order to be able to repay the loans and to recapitalize the account so we can keep it moving and ultimately try to pay back the \$3 billion in an initial capital outlay.

Senator CHAFEE. Senator Baucus.

**OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR
FROM THE STATE OF MONTANA**

Senator BAUCUS. Thank you, Chairman.

Congresswoman, I really appreciate what you're doing. This is very helpful.

Ms. DELAURO. Thank you.

Senator BAUCUS. We have to be more innovative. I want to followup a little bit on the financing. What do you think the financing sources should be?

Ms. DELAURO. Let me just say this. I think that this always gets down to that, which is the critical thing, and we need to look very hard at how this was done, and it's not easy. I think we have to try to take a look at whether or not you've got the gas tax, which is a potential source. I know that there is, that that deals truly with just transportation projects at the moment. And whether or not there's any possibilities there to do any expansion of types of work with that.

There's also potentially the possibility of looking at environmental infrastructure, telecommunications infrastructure, other areas where a portion of those kinds of funds could be utilized and moved into a direction which ultimately increases the opportunity to build, to do what we need to try to do, and to create those new jobs. It's not easy, but I think we have to put our minds to figuring out how this gets done, because unless we do that—this is bold. This is not something that is without a challenge for us to come and figure out. I think we've got good minds, both here and in the

industry to try to figure out how we can put the financing mechanism together to do this.

Senator BAUCUS. Yes, it would have to be thought through very carefully.

Ms. DELAURO. I agree.

Senator BAUCUS. For example, there are States who can't raise revenue with tolls, Western States, there just is not enough traffic. It's an impossibility. In addition, I know Connecticut has a high State gasoline tax. But part of Connecticut uses its State gasoline tax for non-transportation purposes. And it's very dangerous, I think, to break the link between gasoline taxes and transportation, and the gasoline tax is paid for non-highway or very directly highway-related purposes.

Ms. DELAURO. I understand the sensitivity of that, Senator, I truly do. Again, I think that we need to be careful, we also need to think about how we do that. And you know, it could be said, I talk about \$1 billion a year over a 3-year period, we also have to take a look at what we want to try to do as a country in order to be able to have our dollars being invested here rather than overseas in someone else's infrastructure.

Senator BAUCUS. Don't get me wrong, you've got a great idea here. You've got a kernel of something that I think has great potential. We just have to think it through so we follow through on the potential. Thank you very much.

Ms. DELAURO. Thank you.

Senator CHAFEE. Just a quick question. Connecticut had tolls on its turnpike and then took those off. I never quite understood why they did that. Now, I remember that horrible accident that took place just outside of New Haven, I guess it was in West Haven, was it?

Ms. DELAURO. Yes.

Senator CHAFEE. Was that the reason they took them off, safety?

Ms. DELAURO. I'm trying to think of the number that there were at the time in terms of toll stations. I think that accident——

Senator CHAFEE. I remember it well.

Ms. DELAURO. Yes, I know. Me too.

Senator CHAFEE. I think there were four.

Ms. DELAURO. Exactly, I went through them many times myself, Senator. I think the accident was one of the major causes and reasons for taking them down.

Senator CHAFEE. It always seemed to me such a splendid source of revenue for a State. In any event, thank you very much, and we will clearly look at your legislation. Is yours, is Senator Moynihan's the same as yours?

Ms. DELAURO. Yes, I believe so, Senator.

Senator CHAFEE. OK, fine.

Ms. DELAURO. Yes, he introduced the same legislation on the Senate side.

Senator CHAFEE. Good, fine. Well, thank you very much for coming here. We appreciate it. And you have given us impetus. I have a statement for the record from Senator Reid.

[The prepared statement of Senator Reid follows:]

PREPARED STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Mr. Chairman, As I have said at each of our first two hearings, transportation represents a truly national concern. All of us have a stake in ensuring that America's transportation policies are coherent and efficient.

This session of Congress will likely include extensive consideration of not only how we finance our national infrastructure but also what our transportation policies should aim for as we head into the 21st century.

With the completion of the interstate highway system, it is vital that we turn our attention to designing multi-modal transportation policies that will allow us to not only maintain the excellent infrastructure we have, but also to move forward to meet the demands of the new century.

In many ways, the transportation issues of the future will be vastly more difficult than the ones of yesterday. We live in an increasingly diverse Nation, one that is no longer able to be solely dependent upon the automobile. Even in a State as vast as Nevada, a bridge State where we desperately need more roads, we are also seriously looking at the role monorails and MagLev can play in our future transportation infrastructure. These solutions will require all of the innovative and creative thinking we can muster at the Federal, State, regional, and local levels.

That is why today's hearing is so important. Today's witnesses are all coming forward with ideas and progress reports on innovative programs and concepts for the next generation of transportation projects.

I am intrigued by the innovative financing proposals that will help us to maximize the value of our investment in transportation and encourage increased private sector investment in infrastructure. While it is perhaps too early to get an accurate picture of how the State Infrastructure Bank pilot program is working, I am looking forward to an update on this innovation.

I am delighted to see that the Federal experiment in Intelligent Transportation Systems seems to be having a positive impact on urban congestion and commuting times. Other programs to reduce drunken driving fatalities and to encourage the use of longer-lasting highway surfaces also seem to be working and providing tangible benefits to the American public and the economy.

All of this is good news. We no longer live in an era of limitless budgets, even for something as vital to our future competitiveness as transportation. We must be smart and strategic in how we move forward.

Don't get me wrong: more money is certainly part of the solution. While I fully support maximizing the impact of all the dollars we invest in our Nation's infrastructure and transportation systems—in fact I view it as an obligation of the public trust we are sent here to uphold—I also support maximizing the dollars we have available to maximize.

Although the Administration has not yet provided their NEXTEA proposal to the Congress, I join with my colleagues on both sides of the aisle in saying that the dollar amounts being put forth by the Administration are simply not adequate. The fuels taxes paid into the highway trust fund each year will support significantly higher spending on transportation and that is what we should be doing with the money.

As you know, I introduced legislation last month to take the Highway Trust Fund off-budget to ensure that the American taxpayers are getting what they pay for when the gas tax is collected. This is another aspect of the public trust that I take very seriously. The tax was paid into the trust fund for transportation projects and that is what it should be used for every year and that is all it should be used for.

Our Nation's infrastructure represents the lifeline that fuels our economy. When we neglect to adequately provide for the health of this lifeline all of us suffer. Whether its unsafe and degraded roads or pollution caused from over congestion, all of us are affected. The price is not only the inconvenience of traversing a dilapidated infrastructure. Indeed, the real price is the increased costs all of us pay for goods and services because of the burdens placed on a steady flow of the stream of commerce. It's similar to cholesterol buildup in the arteries—eventually there is a steep price to pay.

Thank you, Mr. Chairman.

Senator CHAFEE. The next panel is the Honorable Mortimer Downey, the Deputy Secretary of the Department of Transportation. Accompanying him will be Ms. Jane Garvey, Deputy Federal Highway Administrator; and Ms. Christine Johnson, Director

of the Joint Program Office, Intelligent Transportation System. So if you'll come to the table, we'll proceed right along.

We want to welcome you here.

STATEMENT OF HON. MORTIMER DOWNEY, DEPUTY SECRETARY, DEPARTMENT OF TRANSPORTATION; ACCOMPANIED BY JANE GARVEY, DEPUTY FEDERAL HIGHWAY ADMINISTRATOR AND CHRISTINE JOHNSON, DIRECTOR, JOINT PROGRAM OFFICE, INTELLIGENT TRANSPORTATION SYSTEMS

Mr. DOWNEY. Good morning, Mr. Chairman, Senator Baucus.

On behalf of Secretary Slater, I thank you for the opportunity to discuss how ISTEA has contributed to innovation in transportation. And with your permission, I have a longer statement that I'd like to submit for the record and just highlight it.

Senator CHAFEE. That will be fine.

Mr. DOWNEY. Before I begin, I'd like to introduce two innovators from the Department who accompany me this morning. Jane Garvey, who is currently our Acting Federal Highway Administrator, and Dr. Christine Johnson, who directs our ITS Joint Program Office.

When Congress passed ISTEA, it responded to the challenges facing our transportation system: rapid increases in travel, aging infrastructure, and a need for greater efficiency and better connections between the modes. Under ISTEA, we've worked with the Congress to increase our investment to record levels to help meet these challenges. And we see the results in systems that are performing better and in new projects underway.

But we recognize, just as Congresswoman DeLauro mentioned, that Federal funding alone cannot meet all our needs, nor will construction always be the right solution. That's why ISTEA also promoted innovation, new technologies, new ways of financing projects, and new ways of doing business. ISTEA initiated or furthered strategies to enhance transportation performance in an era of limited resources. Innovative contracting that helps to cut construction costs and enhance quality, new materials such as high performance concrete or Superpave asphalt, and energy-efficient, low pollution transit buses. My written statement outlines a number of these strategies, and I'd be happy to answer questions about them.

This kind of innovation in materials and methods can improve operating efficiency, cut costs and increase the useful life of transportation facilities and equipment. And we'll see the benefit of such approaches well into the next century. They are a means of closing the gap between our needs and our available resources by making those resources stretch further.

However, ISTEA's biggest impact may come from two other initiatives it's helped to launch: innovative financing and intelligent transportation systems. Together, they are crucial to meeting travel demands by expanding the existing system's capacity and making it more efficient.

Innovative financing expands capacity by cutting red tape to move projects along faster and leveraging Federal funding with private and non-traditional public sector resources. Experimental pro-

visions within ISTEA enabled concepts like making loans to projects with potential revenue streams and encouraging transit agencies to experiment with turnkey developments and other means of generating capital.

Two years ago, at the Department, we announced the Partnership for Transportation Investment, which used ISTEA's provisions for such strategies as toll credits for State matching funds and Federal reimbursement of bond financing costs. During its test period, the partnership advanced 74 projects in 31 States that had a construction value of more than \$4.5 billion, and that included more than \$1 billion that added new capital directly attributable to the partnership program.

Many of these projects are advancing to construction an average of 2 years ahead of schedule. And the Congress, through the NHS bill that advanced through this committee, made many of these experimental strategies permanent, and they are now a regular part of how we do business.

Congress also created State Infrastructure Banks to leverage private and other non-Federal investment with Federal seed capital, and has now provided \$150 million of new money to launch them. My written statement identifies a number of projects now underway with State Infrastructure Bank support.

With other authority provided in ISTEA and elsewhere, we worked to provide standby lines of credit for toll roads in southern California, and a direct loan to the Alameda Corridor project. And in the future, we want to expand the State Infrastructure Bank program and create a Federal credit program to support projects of national significance. We also want to explore with you the opportunities included in such proposed legislation as your Highway Infrastructure Privatization Act, Senator Chafee, and the National Infrastructure Development Corporation Act, as sponsored by Congresswoman DeLauro.

Our second major innovation, intelligent transportation systems, or ITS, uses advanced information and communications technologies to cut congestion, to improve safety, and to enhance the efficiency of transit and commercial vehicle operations. These systems can be as simple as synchronized traffic signals or ramp metering, or potentially as complex as an automated highway. Such ITS applications can reduce by at least 35 percent the cost of providing the new capacity that we'll need over the next decade.

And under ISTEA's authority, we're working with State and local governments and the private sector on a program of research, architecture, and standards creation and technology transfer to accelerate the development and deployment of ITS. We already see successes such as on the Oklahoma Turnpike, where electronic toll collection has cut costs by 90 percent. In Los Angeles, where automated—

Senator CHAFEE. Wait, wait. I lost you on that. Could you repeat that one, please?

Mr. DOWNEY. Yes. The Oklahoma Turnpike, where they have put in automated toll collection, they not only speed travel by having non-stop collection of tolls, but have cut their toll collection costs by 90 percent.

Senator CHAFEE. Thank you.

Mr. DOWNEY. In Los Angeles, automated traffic controls have already improved travel times by 13 percent. And in Minneapolis, reduced congestion brought about by their freeway management system has improved freeway speeds by 35 percent.

We're building on such early successes through Operation Time-saver, which is aiding State and local governments in creating a national ITS infrastructure with the goal of cutting urban travel times by 15 percent over the next decade. In the longer term, we're exploring a truly automated highway system, which would have shorter range benefits in terms of safer operations on existing roads if we can deploy some of its technology to the existing fleet. We will meet Congress' mandate to demonstrate the feasibility of such a system through a test on San Diego's I-15 this August.

In all of our programs, we must build on the accomplishments of the last 6 years. And the way to do that is to reauthorize the many programs which work, refine those programs which have not yet fully realized their promise, and create new initiatives which apply what we have learned from ISTEA. We will submit our reauthorization proposal very shortly. And we look forward to working with the Congress to make it a reality.

Senator Chafee and Senator Baucus, this concludes my statement, and I'd be happy to answer your questions.

Senator CHAFEE. Ms. Garvey, do you have a statement?

Ms. GARVEY. No, I don't, Senator.

Senator CHAFEE. How about you, Ms. Johnson?

Ms. JOHNSON. No.

Senator CHAFEE. Mr. Downey, what is the position of the Administration on tolls? As I understand it, on interstates, and I'm referring solely to the interstates now, maybe I'm in your territory, Ms. Garvey, on interstates, those highways that had tolls, the Pennsylvania Turnpike, maybe the Maine Turnpike, before they were incorporated into the interstate, can keep the tolls. But is there a provision in the law, you cannot institute tolls? And if so, are you here to change that?

Mr. DOWNEY. There are provisions in current law that restrict the enactment of tolls. But we would propose in our legislation that that be relaxed, if that's a means of financing new transportation improvements.

Senator CHAFEE. Now, if that occurred, would the State be in any way required to refund the 90 percent it received, or is that not touched?

Mr. DOWNEY. We would not propose that that be a requirement.

Senator CHAFEE. You would not propose that. I've been around the country a great deal, and I must say, I haven't seen any of this intelligent toll collection. I saw it in Germany, where we flashed through a toll booth at 75-miles an hour. I was not driving.

How do yours work that you have? Who can touch on it? Ms. Johnson, is this your bailiwick?

Ms. JOHNSON. Actually, I think if you go a little further west and south, you could go to the Tappansee Bridge, where ordinarily a lane could handle 350 to 400 vehicles per hour, they're now handling 1,000 vehicles an hour with the easy pass.

Senator CHAFEE. I'm not sure if we go South to get to the Tappansee Bridge.

Mr. DOWNEY. If you're in Rhode Island, you go South.

[Laughter.]

Senator CHAFEE. Thank you for straightening me out.

[Laughter.]

Senator CHAFEE. Does that apply to all future directions we get here, pretending we're in Rhode Island?

Ms. JOHNSON. To remember just what the lateral—

Senator CHAFEE. All right, just go to it. And the Tappansee Bridge, which indeed I do go over fairly often, there is one of these. How is it based? Is it based on your credit card?

Ms. JOHNSON. No. Basically there is a tag that is mounted in a particular position on the windshield. It reads an identifying number and deducts from an amount that you have stored.

Senator CHAFEE. Previously paid.

Ms. JOHNSON. That's correct.

Senator CHAFEE. So you pay \$20 or something and then you work that off as you go across it, a \$1 or \$2 a trip or whatever it is?

Ms. JOHNSON. That's right. Now, there are other means of doing it. And that's being experimented with across the country. But in general, the debit approach is favored by the authorities, because frankly, they are earning some revenue off of the money, the stored value.

Senator CHAFEE. The company that developed it?

Ms. JOHNSON. Yes.

Senator CHAFEE. Are there other systems that involved credit cards? For example, that obviously can only be used by some regular commuter who's made the investment.

Ms. JOHNSON. That is correct.

Senator CHAFEE. Is there any system possible whereby on your MasterCard, you'd get something to put in your windshield and then you could go across them all? I don't know, I'm just asking.

Ms. JOHNSON. In Europe, they are experimenting with what we call the third generation automatic toll collection system, which in essence would put a, it would look like a holder, but it's more than that. It's a transmitter, on your windshield, and you then can insert your credit card and in essence, incur a charge on your credit card for the toll.

I am not aware that it is being used in the United States for toll collection yet, but we certainly are aware of it, and are planning for that in our standards.

Mr. DOWNEY. We're also seeing the toll agencies in particular regions settling on a single method of collection, so if you had an account, it would be good at a number of different locations.

Senator GRAHAM. Mr. Chairman, if I could just comment.

Senator CHAFEE. I was going to suggest that, I had Senator Graham's credit card, and that would let me go all over the country, would it?

[Laughter.]

Senator GRAHAM. I was recently in Dallas, and I was told that there, there is a proposal which is either in place or soon will be, using the same debit system for parking lots as well as for tolls, so that a person would be able to have multiple payments made through that same debit system.

Ms. JOHNSON. Yes, we're experimenting with that in a couple of places in the United States, also up in Minnesota. But that is the intent. And you can carry that further to both concepts, debit or credit, to mass transit. The idea is to develop a single payment form for anything that you want to do in transportation, and we assume this will ultimately go into just the outright credit industry.

Senator CHAFEE. Ms. Johnson, as I understand it, when we did ISTEA in 1991, we set up this program, intelligent transportation systems program, and since then, I understand \$1.3 billion has been spent. What have we gotten out of that?

Ms. JOHNSON. Quite a bit. First of all, I would note the fact that about half of that has been in earmarked projects, and about half has been spent at the discretion of the department. In that—

Senator CHAFEE. Give me an example of an earmarked project.

Ms. JOHNSON. One that immediately comes to mind is on Long Island for a university; Another is one that we have learned quite a bit from in the Twin Cities with their Guidestar program. We also have had competitive bid operational tests where we had a clear research set of priorities that we were trying to understand.

But to get to your question of what have we learned, we started out with a series of good ideas for technology application. They ranged from toll taking to route selection in your car. We have conducted some 83 operational tests across the country, and have gained from that a knowledge of what works technologically, and of the issues that we face institutionally.

We went from that to developing a national architecture, which is a breakthrough on a worldwide basis, that is now being copied. And we have launched from that architecture a series of standards. We will ultimately be dealing with more than 100 standards which both the industry and the public sector will use.

Also from the architecture, we were able to connect these feasible technologies into three systems. First, essentially a metropolitan system which you might think of as an air traffic control system, only for the surface, to perform the same functions in squeezing far more out of our existing transit and road and street system than we currently are.

The second, for the regulatory aspects of commercial vehicles, again to streamline the oversight operation using fewer people in State government so it reduces costs, and make travel faster for the commercial vehicle. And the third, a series of seven applications or groups of applications in rural areas. This includes weather sensing technology tied to automatic vehicle location, using the global positioning system, to for example, deploy snow plows.

Or in your State, it also includes being able to set up information kiosks or outlets at hotels outside of Yellowstone to tell people the park is full. These are alternatives for you.

So we have brought it from kind of neat ideas to a point where we believe this is now ready for deployment across the United States. And that was the nature of the Secretary's national goal.

Senator CHAFEE. My time is up, thank you. I've got another question, one of the questions I am going to ask you is dealing with—well, I won't get into it. Go ahead, Senator Baucus.

Senator BAUCUS. Thank you, Mr. Chairman.

Mr. Downey, I am pleased to hear you so supportive of this program, particularly the State Infrastructure Banks, the SIBs and so forth. I say that because this was my proposal. I proposed this in 1993, just exactly what you're doing. And I must say, it met strong resistance back then from OMB, from the Department of Transportation, from other agencies, saying it couldn't be done, wouldn't work, States couldn't do it. Well, I'm very happy to hear that you're enthusiastically in support of the program.

Having said that, though, I do note that some States are not rushing in as quickly as some might expect. And I would like to ask you, why then we should earmark so many more dollars for this, which as we know, comes off the top of the highway funding formula. It's off the top. So every State gets less automatically, proportionately. Why are States a little bit slow in using this? And more importantly, why should we wait for greater demand before we earmark the dollars?

Mr. DOWNEY. We believe the progress to date on the infrastructure banks has really been faster than expected from the original enactment in 1995. We took a few months to select the States and then a couple of months to reach agreement. The States really began early in 1997 putting their loan programs together. And we expect by the end of the current fiscal year just in the 10 pilot States, to have \$900 million of projects underway, and as much as \$1.3 billion by the end of 1998, just in those 10 pilot States.

Senator BAUCUS. Isn't it true that only one State, Ohio—

Mr. DOWNEY. Only one State has made a loan, yes.

Senator BAUCUS. Why only one State?

Mr. DOWNEY. It's like buying a house. You don't close on a mortgage, really, until the project is fully ready to go. But you need to have the assurance the financing is in place to get construction and planning started. So there is a lot of planning going on, and there's a lot of project development. We really expect in the next several months many of these loans to actually go forward. But the projects themselves are moving through the design and development stage.

Senator BAUCUS. But why not wait until there's more demand?

Mr. DOWNEY. We take some lesson from the GAO report, for example. GAO went out and asked States why they weren't participating in the program. And one of the findings GAO made was that many States are unable to reprogram dollars within their existing Federal aid. The 10 pilot States have, in fact, identified \$350 million of Federal aid for the SIBs. Other States felt without new money they could not make use of this authority. We see the leverage potential of the SIBs as really a way to close the overall infrastructure funding gap.

Senator BAUCUS. But you say the States are unable. Why are they unable? Do they have constitutional restrictions?

Mr. DOWNEY. We have now 28 applications beyond the 10 pilot States, so most States have found a legal or constitutional way to do it. It's more an issue of programming the Federal aid funds they have available, and the choices they may be locked into with projects that are underway.

Senator BAUCUS. Just curious, do you know how many States do have State constitutional restrictions?

Mr. DOWNEY. I don't know.

Senator BAUCUS. Rough guess?

Mr. DOWNEY. I do not know. But we could provide that for the record.

[The information referred to follows:]

Two States have indicated that their constitutions restrict the establishment of a State Infrastructure Bank (SIB): Louisiana and West Virginia. However, Louisiana has submitted an application to DOT to participate in the SIB program, with the expectation that its State Legislature will vote later this year to amend its constitution to permit SIBs.

Senator BAUCUS. And other than the potential constitutional restrictions, do you know of any other sort of endemic impediments?

Mr. DOWNEY. No. Again, with 38 States now ready to go forward with SIBs, it's clear that there are no broad-based reasons that cause them not to develop the concept.

Senator BAUCUS. What about the need for more intermodal flexibility. As I understand it, the State must have either a highway account or a transit account, and can't use this innovative financing for—there's not a lot of flexibility, they can't use it for intermodal purposes. Shouldn't there be as much flexibility with the SIBs as there is under ISTEA?

Mr. DOWNEY. We believe there basically is as much flexibility for the SIBs. Within the highway account, and correct me if I'm wrong, any project that is eligible as a highway project could be financed. And many intermodal projects are indeed being considered as SIB projects.

Ms. GARVEY. Yes, and our legislation, Senator, will call for a slight expansion to make it even easier. We have found under the innovative financing initiative that the Deputy referred to earlier that we've really been able to advance very important intermodal projects. In fact, I think some of the most exciting projects that we've seen in the last 3 years have been intermodal in nature.

So we'll look for a slight expansion with our legislation, which I hope will make it a little bit easier for those projects.

Senator BAUCUS. If I might, just one more question, Mr. Chairman. It seems to be disproportionate emphasis on urban as opposed to rural transportation. And I'm talking about innovative financing now, the ITS technology.

Sixty percent of highway fatalities are in rural areas, 60 percent of highway fatalities are in rural areas. And one of the main reasons is, it takes longer to get from the accident to the hospital. That's one of the main reasons. We all saw on television the woman in South Dakota, she was saved, she had a cellular phone in her car. And they were able with directional finding and all that kind of thing, whatever it was, to find her.

Why aren't we dedicating more, a higher percentage of funds here to rural needs? Two percent go to rural innovative, intelligent technology system needs. Why only 2 percent?

Mr. DOWNEY. We see some real opportunities here. And in fact, we want to deploy more funds in this area. The application that you mentioned is one that is just a natural for both urban and rural areas. This is, to automatically identify when a car has had an accident; send out that signal that says come and help, and give the precise location. It could be a substantial lifesaver.

Senator BAUCUS. What are you giving us here today to push for—and not only to push for—to result with a fair allocation of these technology dollars?

Ms. JOHNSON. You're dealing with two issues here. No. 1, as we begin the program, the metropolitan technologies were somewhat more ripe. We have gone through a period of testing some of the rural applications and feel far more confident in them now. And No. 2, last year in our budget, we asked for a major increase in the rural, both operational tests and deployment support. We were not fully successful in that. We have asked again in this budget for a major increase in both rural operational testing and deployment support. Because they are now ripe, we feel very confident in going forward with them.

Senator BAUCUS. I just want you to keep an eye on this. I'm very serious about this.

Ms. JOHNSON. Oh, absolutely.

Senator BAUCUS. Because in lots of ways, we just get short shrift, frankly. And again, 60 percent of highway fatalities are in rural areas. All you have to do is remember that. Just remember that one statistic alone when you dedicate your resources.

Thank you.

Senator CHAFEE. Thank you. Senator Graham.

Senator GRAHAM. Thank you, Mr. Chairman.

I'd like to ask some questions to Mr. Downey about the proposal for the transportation infrastructure credit program. Could you, and if you already went into some detail in this in your opening statement, I apologize. And I'll defer until later. But if not, I'd like to get—

Mr. DOWNEY. I did not go into a lot of detail.

Senator GRAHAM. Could you cover these questions: what is the objective of the program, what are the standards by which you will evaluate the success of the program, and what's the basic architecture of the program?

Mr. DOWNEY. The basic architecture, as we see it, is twofold—

Senator GRAHAM. Could you answer those in that sequence, objective, standards, architecture?

Mr. DOWNEY. The objectives of both the State Infrastructure Bank program and the National Credit Program are to enhance our ability to finance projects that might otherwise be manageable under existing Federal or State financing programs.

Senator GRAHAM. What's the principal inhibition that you are attempting to deal with?

Mr. DOWNEY. The principal inhibition is inability to generate sufficient sums of capital at the early stages of investment project to construct it on a timely basis.

Senator GRAHAM. So this is essentially a construction financing idea?

Mr. DOWNEY. Essentially project development, major construction opportunities.

Senator GRAHAM. So it's not intended to be a permanent financing?

Mr. DOWNEY. No. It's really to get a project constructed, help it through its early years, work with the sponsors where toll reve-

nues, fare revenues or tax revenues can be deployed to it as means of paying off that financing.

But the nature of most of the Federal and many of the State programs is such, their revenue streams, while solid, are insufficient in any given year to undertake major construction projects. Our criteria and goals in the State Infrastructure Bank Program, are primarily, that there is a good organization and capitalization at a State level. We leave the selection of projects largely to the States.

In the national program, we would look at the projects themselves.

Senator GRAHAM. Would you see one of the standards that the relative proportion of lanes of highway which were financed through a user pay system as opposed to the traditional financing through a motor fuels tax system would increase?

Mr. DOWNEY. If we're looking at the national program and making selection of projects among States and competitors, certainly level of effort and means to assure that what we do will augment other effort, would be a key criterion. Obviously, the success prediction of a project would be an important one, too. We would ask: is this a project that indeed shows promise of being able to meet its costs, if the investment is made?

Senator GRAHAM. At the recommended funding level, which I understand is \$100 million, how much of a percentage shift do you think you could make between traditional financed and this form of encouraging user financed systems?

Mr. DOWNEY. At the national level, with \$100 million, this will show the possibility. It certainly will not finance every good project we think that's out there. But we believe if we use the \$100 million carefully and in some creative ways, we can get very substantial leverage. Our experience, for example, with the Alameda Corridor Rail and Highway Project in Los Angeles showed we only had to come in for one layer of financing that assured the project. A lot of the basic financing was doable.

But the project itself couldn't be done until all the pieces were in place. So that one piece secured a lot more financing that we ourselves were providing.

Senator GRAHAM. Now, I understood the Alameda Corridor Project was a permanent financing.

Mr. DOWNEY. It is permanent financing. Our loan is a permanent loan, but the intent was to get the project through its construction stage, to see that it was constructed.

Senator GRAHAM. But isn't the Federal commitment on the Alameda Corridor—it is a permanent period of financing?

Mr. DOWNEY. It is a permanent loan, yes, it is.

Senator GRAHAM. But are you, you're not suggesting that this \$100 million be used for Alameda Corridor type projects?

Mr. DOWNEY. We are open to a variety of different projects, again, just to see that we get the most potential infrastructure benefit out of \$100 million a year.

Senator GRAHAM. I think it's a very fundamental question as to whether you're talking about a financing plan to cover the initial development and construction period, or whether you're talking about a permanent financing, for instance, as in the case of Alameda Corridor, a credit enhancement system for the life of the

project, or at least the life of the initial permanent financing of the project. Are you suggesting—

Mr. DOWNEY. Both.

Senator GRAHAM. Both of this.

Mr. DOWNEY. Right.

Senator GRAHAM. Now, could you talk about the architecture of the program?

Mr. DOWNEY. We're still working on the details of the program.

Senator GRAHAM. When do you think we'll have the architecture?

Mr. DOWNEY. We hope that when we submit our legislation, which should be very soon, we'll have that. But we're still in a lot of discussions about the specifics.

Senator CHAFEE. Thank you, Senator.

Senator Smith.

Senator SMITH. Thank you very much, Mr. Chairman.

Good morning, Mr. Downey. I want to ask you about some of the unconventional materials. The State transportation officials are somewhat reluctant to use what we call unconventional materials, recycled products, etc., because they don't believe there's an adequate framework there to evaluate and demonstrate the application of these materials.

Do you find that generally to be the case?

Mr. DOWNEY. We find that there are concerns, both with unconventional materials or with conventional materials such as standard asphalt or standard concrete being formulated in a new way. There are always concerns about being the pioneer.

What we would propose in our legislation is some support for the risk taker who wants to involve themselves in such a project but wants to reduce their risk if in fact the results are not what's called for. So we would provide additional dollars to take out some of those risks in the use of new materials.

Senator SMITH. Elaborate a little bit more, or you can, Ms. Garvey, on the risk takers. For example, what about university based consortiums?

Ms. GARVEY. You'll see in our bill a commitment to continuing those kinds of funding activities. I think one of the roles that the Federal Highway Administration and the Federal Government can perform effectively in the area of new materials is to provide technical assistance. So in the area of new kinds of high performance concrete, or in the area of Superpave, we have five, for example, in the area of Superpave, we have five regional centers where we provide real technical assistance to the States, working very, very closely with them so that they are encouraged to use the new materials.

We're doing the same kind of thing with high performance concrete. We've got some experiments going in Texas that we're watching very closely. And the lessons that we're learning we're getting out to other States as well.

In the area of advanced composites where we're using fiber composites for bridges, that's being tested in San Diego. And again, we're able to look at those experiments, see where it works and get that information out.

So I think we can provide the kind of technical assistance to States that gives a level of comfort so that people are more encouraged to use those kinds of materials.

Senator SMITH. On the subject of State infrastructure banks, the Federal money that is being granted to the States is seed money set up in these banks. I assume that that's going to continue to be subject to the Davis-Bacon requirements, is that correct?

Mr. DOWNEY. We believe that the initial contribution will be subject to Davis-Bacon, and we're looking at how additional projects would also be covered.

Senator SMITH. If we want to look at something called innovative financing, wouldn't it be appropriate to look at the repaid or recycled funds that go back into the States as being not subject to Davis-Bacon?

Mr. DOWNEY. I think one of the issues there is, where did the initiative come from, isn't there still a degree of Federal support and a degree of Federal interest and Federal activity in each of the projects.

Senator SMITH. Do you agree or disagree that Davis-Bacon costs more money?

Mr. DOWNEY. I don't think a case had been made fully one way or the other. Some projects arguably have cost more. Others with the efficiency of the construction techniques of unionized contractors I think have done a better job. It's also true that in many States, such as the one I come from, State law would prevail if there was not a Federal law.

Senator SMITH. Mr. Chairman, I yield at that point.

Senator CHAFEE. Thank you. You'll get another shot here in a few minutes.

What I'd like to do now is limit the questions to 3 minutes apiece, because we have two other panels that are coming up.

I must say, Mr. Downey and Ms. Johnson, this may not be an entirely fair viewpoint on my part, because clearly I haven't been all over the country. But I frankly don't see that much has come of this innovative effort that we launched way back in 1991. And again, I want to give credit to Senator Moynihan, who was very deeply involved with that. If maybe all these things have taken place, I know there's a reference to San Diego, and I was out there last summer, and if I had known it, I would have gone to take a look at it.

But I just, I'm a bit disappointed, put it that way. Now, we're going to have a representative from GAO who's going to comment on all of this. And from what I see, and I'm open to being corrected on this, that nothing much has changed in the way highways are constructed, because there's a safe way to construct highways, that's the way they've always done in the past, so don't innovate, because something might go wrong. If I'm a Governor or Secretary of Transportation in some State, I'll go with the tried and true way.

So I think the efforts at experimentation have been minimal. When we passed ISTEA, we had a crumb rubber provision in there. That was repealed, I think we repealed it when we did the National Highway System bill a couple of years ago. That was all under the pressure from the contractors, don't try anything dif-

ferent, this is going to have to have separate batches of asphalt to do this.

Let me just ask you, for example, do we have any, is there any system set up anywhere where there are higher tolls for the more heavily traveled hours that's been talked about? Has that been done anywhere, Ms. Johnson?

Mr. JOHNSON. I think you're referring to congestion pricing. As far as I know, we have not. I think you first have got to get the infrastructure in, which is the electronic tolling, before we're ever going to be able to make a lot of headway in that area.

Mr. DOWNEY. We have seen the I think quite successful project in southern California on State route 91, which, in fact, is pricing the roadway, with the speed lanes that are in the center—

Senator CHAFEE. Is this in San Diego?

Mr. DOWNEY. Yes.

Senator CHAFEE. Well, I'll go take a look. I'm going out there during the recess.

Mr. DOWNEY. They are variably pricing the roadway throughout the course of the day at a level of price that always assures those who pay the toll that they will have a free-flowing trip, and they'll watch the people who are in congestion in the other lanes.

Senator CHAFEE. Does it work?

Mr. DOWNEY. It is working, yes.

Senator CHAFEE. Well, there's an idea. What we tried to do, after all, it wasn't yesterday that we passed ISTEA, it was 1991. And what we tried to do is to encourage use of, better use of all our transportation systems instead of just building bigger and wider roads all the time.

My time's up. Senator Baucus.

Senator BAUCUS. Thank you, Mr. Chairman.

I just have a question about this Federal line of credit that you're proposing here. Essentially what's the reason for it? Why can't SIBs be designed to take up the proposed need with a Federal line of credit? I mean, after all, we're talking about, I've forgotten the total amounts here, \$600 million over 6 years, is that right, for the Federal proposed line of credit and \$900 million for the SIBs? That's 9.5 right off the top. Again, it's off the tope of the highway program.

So what's the big deal here? Why do we need a Federal line of credit?

Ms. GARVEY. Senator, we've actually talked about that a lot in the Department, distinguishing between the State infrastructure banks and the Federal credit program. Essentially, and I think some of the work at GAO supports this. Some of the work GAO has done has shown that the State infrastructure banks are wonderful tools for those projects that are State-based or in some cases even multi-State based. But it's still relatively small; they have a more limited portfolio. Their financing capabilities are somewhat limited, although still effective for those type of projects.

But there still remains a cluster of projects that really have a national—

Senator BAUCUS. What are they, what are projects of national significance?

Ms. GARVEY. I think something like the Alameda Corridor that was referred to earlier. There's also a rail project that I've heard a great deal about in Florida. NAFTA corridors might fall into that category.

Senator BAUCUS. What are the criteria for eligible projects?

Ms. GARVEY. We're developing some of the criteria now, but—

Senator BAUCUS. Just off the top of your head, what are you thinking about it?

Ms. GARVEY. Just off the top of my head, it would be size, projects that are very large in size, projects that often have benefits outside of a State boundary. Some of the economic benefits derived from Alameda, for example, they were more beneficial to Michigan and Illinois and other States than they were—

Senator BAUCUS. Just take the Alameda, there are other sources of revenue for that. In California the county or whatever can issue bonds. There are all kinds of sources of revenue. Why do we need an additional Federal line of credit?

Ms. GARVEY. Well, I think, again, Senator, I don't think it's an overwhelming number, but I think there are still those projects that have national significance that can be financed better through a Federal program.

Senator BAUCUS. I hear words, don't hear a lot of reasons, frankly. I don't think this gets down to the persuasive—

Ms. GARVEY. It may help, and I'd be happy to supply this, a list of projects that we think might be good candidates.

Senator BAUCUS. But again, you haven't persuaded me why this source is needed, or stating the question differently, why there are not sufficient other resources to deal with these projects. If it's so risky, why should the Federal Government be financing them?

Ms. GARVEY. I think many of them are not as risky, there's some risk involved, but not as risky as some might think. For example, you do have to go to the market for the Federal credit program. You would have to have a market test. So in addition to the environmental tests that people go through, and in addition to the planning requirements, there's also the market test as well.

Senator BAUCUS. Why not redesign the SIBs? Why not allow them to do a lot of this?

Ms. GARVEY. I think, Senator, at some point in time—

Senator BAUCUS. Combined with other traditional financing sources?

Ms. GARVEY. I think, Senator, at some point in time, SIBs may be able to handle some of these large projects. But right now, and in the foreseeable future, they are really not mature enough to be able to handle projects of this magnitude.

Senator BAUCUS. You may persuade me later, but I just urge you to keep working on it.

Ms. GARVEY. We'll keep working on it, Senator.

Senator BAUCUS. Thank you.

Senator CHAFEE. Senator Graham.

Senator GRAHAM. Mr. Chairman, to do back to your question about innovation, I think one of the key issues that we need to be probing as we go through this reauthorization is, what will be the standards by which the various policies within this legislation, whatever final form it takes, will be evaluated? Because I think if

you had asked the question in 1991, by what standard will we judge whether we have in fact accomplished a sufficient amount of innovation through the initiatives of ISTEA, we would then today be in a position to compare results against previously agreed upon criteria. But in the absence of those criteria, we're just sort of left to this nebulous discussion.

In that light, let me ask a question of Mr. Downey. I'm quoting from an article of January 12 this year by Neil Pierce on transportation policy, in which he quotes you, Mr. Downey, as stating that "True conservatives are those who believe ISTEA was a historic step and should be perfected, not junked." And then he precedes that a statement of concern, he, Mr. Pierce, that some of the alternatives to ISTEA, such as step 21, would undo many of the ISTEA features that promote transportation innovation.

Without attributing that last sentence to you, but what are the innovative provisions of ISTEA that you think most deserve protection from being junked, and why?

Mr. DOWNEY. I think some of the things that can be done well at the national level, especially research and technology, introduction of new ideas, new methods, and new materials. We have always found in the Federal Highway program and the other Federal transportation programs that States seek out the partnership of the Federal Government to undertake those.

We also find that to be true in some of the investment programs and activities like the transportation enhancements that were permitted under ISTEA. We also believe they need some continued Federal role is needed to assure that the broad range of transportation choices is being made available in the planning process, and that the planning process and the project development process is an open one that really allows participation by lots of levels of government and private individuals.

So we think there's been a means of carrying out projects and an attention to new concepts like Intelligent Transportation Systems, and the use of new methods and materials, that benefit from a national program.

Senator GRAHAM. You talked about innovations in materials, innovations in transportation choices. I would assume that means issues like promoting intermodalism.

Mr. DOWNEY. Intermodalism, flexibility and other features that we believe have been positive outcomes of ISTEA.

Senator GRAHAM. Could you give us some further detail as to what you think are the most important innovative ideas in ISTEA that should be protected or enhanced in this reauthorization? And maybe some innovative ideas in ISTEA that have not fulfilled their promise that might be either terminated or substantially altered?

Mr. DOWNEY. Senator, when we submit our legislation, which again should be shortly, it will—

Senator GRAHAM. But I wonder if you could give us sort of a sidebar, that within this legislation there is inherent the recommendation that the following six innovations from ISTEA succeeded, should be maintained and enhanced, the following three did not accomplish their objectives, and therefore are not worthy of the resources allocation, or the degree of constraint on State and local governments which are inherent in them, and therefore should be

either terminated or modified, so that we can get the benefit of your analysis of 6 years of experience under ISTEA in the area of innovation as we look for the next 6 years.

Mr. DOWNEY. We'd be glad to provide that when we submit our legislation.

Senator GRAHAM. OK.

Senator CHAFEE. Just one quick question. Mr. Downey, on page 8 of your testimony, you say the intelligent transportation system program has "been used to reduce the environmental impact of growing travel demands." Could you give me a little illustration of what you're talking about there?

Mr. DOWNEY. Yes. It's our view that a good, well functioning ITS system in a metropolitan area will assure smooth traffic flow, eliminate backups, or eliminate problems like lanes being taken out of service by an accident which creates a backup. And any time you get serious backups and congestion, you get much greater degree of air pollution than is necessary.

Senator CHAFEE. Plus, I suppose if you can move them through the tolls faster and have them staggered due to congestion mitigation in some fashion, you then don't have to build a new road and take more land.

Mr. DOWNEY. That's correct. We certainly see the opportunity with the ITS technology to provide for increased travel without having to add anywhere near as many lanes of roadway as we've had to do in the past.

Senator CHAFEE. Do you have any questions, Senator Baucus?

Senator BAUCUS. Just very briefly. I noticed in GAO's report, these GAO reports, that Michigan does not have constitutional authority to lend money to the private sector, and that GAO does say that there are many States, I won't say many, some States, have expressed the difficulty they have because of constitutional impediments or other legal impediments in the States. My question is, the degree to which, in your working with those States that have, think they have impediments, to try to find some way to skin this cat.

Mr. DOWNEY. I think it should be possible to find that. The SIB program is in some ways modeled on comparable institutions that were set up in the Clean Water program. It's my understanding that every State has found a way to do it in that context.

Ms. GARVEY. One of the ways that I think we have been helpful is to provide to States model legislation that's worked in other areas. So we've got five examples of model legislation. So those States that are trying to deal with that have something to look to.

I think there are other institutional issues. You raised a question earlier about whether there are other problems that States are having. Sometimes it's just the new relationships that they need to establish with their financing on.

Senator BAUCUS. That's my next question, the age old question, top down or bottom up, probably some combination is what works, that is, States may not quite know what's available. On the other hand, we don't want to tell them what to do. We want to help them do what they need. So what are you doing to try to address that, how much are you really listening to States and how much are you

telling them what's available, just so that we can do a better job here?

Mr. DOWNEY. The Federal transportation program has typically been a State-based program. We have very good relationships with the State transportation departments through the Federal Highway Administration and our other activities. One of the things we have had to do in recent years is build new relationships with other levels of government that didn't exist before and with the private sector—

Senator BAUCUS. Give me an example of how you're doing that, not just words, specifics, examples.

Mr. DOWNEY. In the ITS case, for example, we identified and funded what we're calling four model deployments in metropolitan areas, Seattle, Phoenix, San Antonio, and the New York-New Jersey-Connecticut area. In each case, what's being put in place are new institutions in those metropolitan areas and relationships with the private sector to see that the information on how a transportation system is working is being collected and disseminated by the motorists.

Senator BAUCUS. What are you doing in Montana?

Mr. DOWNEY. We have three projects underway on ITS in Montana.

Senator BAUCUS. Good, thank you.

Senator CHAFEE. Just happened to have them handy.

[Laughter.]

Senator BAUCUS. That's good, thank you.

Senator CHAFEE. Senator Graham.

Senator GRAHAM. No further questions, thanks.

**OPENING STATEMENT OF HON. JOHN W. WARNER,
U.S. SENATOR FROM THE COMMONWEALTH OF VIRGINIA**

Senator WARNER [assuming the chair]. Thank you very much, Mr. Chairman. I apologize to my colleagues for my absence earlier. But I've got another hearing this afternoon which is of some significance and I'm preparing for it, the Woodrow Wilson Bridge. I'm determined to get this project moving as quickly as we possibly can. And I'm not committed to any particular design or concept. I'm trying to remain as objective as I possibly can, with a series of steps which I intend to take.

But No. 1 is in the ISTEA, we asked you for a report. And it's not here yet. Can you tell us a little bit about where it is, and how are you coming along?

Mr. DOWNEY. I will ask Jane Garvey to speak to that.

Ms. GARVEY. Thank you very much. Good morning, Mr. Chairman.

We have a draft report completed.

Senator WARNER. You have a what? You have a draft?

Ms. GARVEY. We have a draft, except for one very critical element, and that is a negotiated agreement among the three States and the Federal Government. And we know that as part of the report, you had asked us, or Congress had asked us, for a negotiated agreement. I must say, we've had some difficulty, although we're still obviously discussing this with the States. But they are taking

a very strong position that they see the Federal share, that it should be 100 percent.

So we have the other parts of the report, that is, the preferred alternative and some of the very fine work that's been done by the committee in place. But we're still working on the negotiated agreement.

I do want to stress, though, that no time is being lost, that is, the design is still moving forward, and the environmental work is still moving forward. And I know that's very critical to you, Sir.

Senator WARNER. What's the timeframe in getting that missing part? In other words, I was thinking we could at least begin to take into consideration certain decisions or recommendations that you've made, recognizing that there is still a very essential part missing. I just want to get this work going.

Ms. GARVEY. Sure, I understand.

Senator WARNER. I mean, not hammer and saws. But still, to finalize this.

Ms. GARVEY. Sure. And we have talked to the States about submitting to Congress a report that really reflects just the State of play, that is, here's where we've got agreement, here's where we've got some common ground and here are still some outstanding issues.

Senator WARNER. And where are you on that?

Ms. GARVEY. We could certainly—

Mr. DOWNEY. Mr. Chairman, if you believe that would be a good way to move forward, we'd be prepared to do that quite soon. If we have to follow the literal requirements of the statute that we have agreement before we submit a report, that might not be—

Senator WARNER. Let's not make a decision now, we'll go ahead and get what you can give us.

Mr. DOWNEY. Right. We'd be happy to do that.

Senator WARNER. Because I want to begin to focus some attention on, for example, the HOV concept. It's most unlikely that you'll see HOV integrated into the Beltway as such. And I'm not committed yet to think that we ought to go through—it's quite a bit of expense with HOV, isn't it?

Mr. DOWNEY. It would be a significant portion of the project's cost, yes.

Senator WARNER. And I'm hearing some rumors to the effect that there are a lot of interchanges out here in the two States, the State that I probably represent, and the State of Maryland. Do you think that the costs of those interchanges should be a part of the bridge, overall cost?

Mr. DOWNEY. My understanding is, certainly the estimates that are being used today include the costs of those interchanges. They are essential in some form and fashion to make the bridge work. But how they would be paid for as an overall project should be part of the negotiation for how we move forward. And we're, as I said, anxious to move forward.

Senator WARNER. That's the question I was anxious to get out. So let's not delay this. Let's go to the next panel.

Thank you very much.

Mr. DOWNEY. Thank you, Mr. Chairman.

Senator WARNER. Ms. Scheinberg, we welcome you. Would you kindly introduce your colleagues. Also, I will place my statement in the record at this point.

[The prepared statement of Senator Warner follows:]

PREPARED STATEMENT OF HON. JOHN WARNER, U.S. SENATOR FROM THE
COMMONWEALTH OF VIRGINIA

Today the subcommittee welcomes Deputy Secretary Downey and our other witnesses to receive testimony on Intelligent Transportation System technologies, innovative financing methods, including State Infrastructure Banks and the Department's research activities.

Each of these programs is important to fostering a national transportation system. Each has received significant financial support from the Highway Trust Fund, combining for over \$3.5 billion under ISTEA.

And, each will be important as we work to continue a national program that responds to growing needs with limited resources.

Intelligent Transportation Systems have received in excess of \$1.3 billion under ISTEA. These investments have been critical to improving the safety of our highways and to relieving congestion on our most heavily traveled roads.

We must be sure, however, that our investment in new transportation technologies can be readily integrated by our State partners into the existing transportation infrastructure. I welcome the comments of our witnesses today as we seek solutions to improving the deployment of these technologies.

Innovative financing methods also hold great promise for maximizing the use of limited transportation dollars and for stimulating investments from the private sector.

I was pleased that the National Highway System took further steps to promote innovative financing through the establishment of a pilot State Infrastructure Bank program, credit enhancements and incentives for advanced construction.

I view these financing mechanisms as additional tools for use by our State partners. We should proceed with caution, however, on providing direct funding for SIBs or a new Federal Credit program until we have adequate information that all States will effectively use these tools.

The Administration's early description of their reauthorization proposal indicates that there may be specific funding to expand State Infrastructure Banks and to establish a new Federal Credit program.

Over the new reauthorization period, these funds could total \$2 billion—a significant amount of Trust Fund dollars that are not distributed to States and local governments under a formula program.

Before we take this step, we must be sure that all States can benefit from these programs.

Certainly, more urban States with severe congestion problems can identify projects that will produce revenues to make these projects attractive to the private sector, SIBs, or for the new Federal Credit program.

I have some reservations, however, that our rural States with important transportation needs, do not have similar projects that can generate the revenues necessary for these types of projects.

At this time, however, I welcome the views of our witnesses today and hope that ITS technologies, our research efforts and new financing approaches will have applications for all regions of our Nation.

STATEMENT OF PHYLLIS F. SCHEINBERG, ASSOCIATE DIRECTOR, TRANSPORTATION AND TELECOMMUNICATIONS ISSUES, GENERAL ACCOUNTING OFFICE; ACCOMPANIED BY JOSEPH CHRISTOFF, ASSISTANT DIRECTOR, AND YVONNE PUF AHL, SENIOR EVALUATOR

Ms. SCHEINBERG. Thank you, Mr. Chairman and members of the subcommittee. I'd like to introduce my colleagues, Joseph Christoff and Yvonne Pufahl. We appreciate the opportunity to testify this morning on how innovation in Federal surface transportation research, intelligent transportation systems, State infrastructure banks and design-build contracting have the potential for improving the performance of the Nation's surface transportation system.

This is vital, because transportation figures prominently in the Nation's economy. Breakthroughs in research and stretching funds through innovative financing can complement the traditional reliance on motor fuel taxes and potentially help to fill the infrastructure needs gap.

In September 1996, we reported on DOT's role in surface transportation research, and the benefit to users and the economy flowing from this research. These benefits include crash protection devices, programs to reduce alcohol related deaths, and longer lasting highway surfaces that reduce maintenance costs. We confirmed what ISTEA stressed, that DOT has a critical leadership role to play by funding research, establishing priorities for allocating funds, and acting as a focal point for technology transfer.

However, within the Department, research agenda are focused on improving individual modes of transportation. This modal focus makes it difficult for DOT to accommodate the need for research that cuts across modes. Also, DOT does not have a strong department level focal point to oversee its research, nor does it have a strategic plan that presents an integrated framework for research across the surface modes.

Last week, we issued a report on DOT's intelligent transportation system program. During ISTEA, ITS has received about \$1.3 billion in Federal funds to enhance the safety and efficiency of surface transportation through the advanced use of computer and telecommunications technology.

However, DOT's vision of widespread deployment of ITS systems has not been realized for several reasons. First, it has taken time to develop the national architecture and technical standards that are necessary to define the components of an ITS system and how they work together. The architecture was completed last July and the standards will not be completed until the year 2001.

Second, States and urban areas have insufficient knowledge of ITS. And finally, limited data on the cost effectiveness of ITS and competing priorities for limited transportation dollars will constrain ITS deployment.

Before DOT can aggressively pursue widespread deployment of integrated ITS, it needs to first assess the current obstacles facing the program and help State and local officials overcome these obstacles.

Turning to innovation in finance, we reported in October that State Infrastructure Banks, or SIBs, offer the promise of helping to close the gap between transportation needs and available resources by potentially expanding a fixed amount of Federal capital, often by attracting private investment. A SIB would operate much like a bank and could use Federal funds to get its financing started. The financing offered could range from loans to various credit options, such as loan guarantees and lines of credit.

Since financing could be tailored to fit individual project needs, projects could be completed more quickly, some projects could be built that would otherwise be delayed or infeasible, and private investment in transportation could be increased. Furthermore, repaid SIB loans can be recycled, and as a source of funds for future transportation projects.

DOT approved 10 States to participate in a pilot program, and 28 additional States have applied for SIB participation. Despite this heightened interest, barriers remain to establishing and effectively using SIBs. For example, one barrier is the small number of projects that can generate revenue and thus repay loans that are made by the SIBs. The SIB program is new, and thus too early to assess how effectively SIBs will help to meet transportation needs.

The last point I want to discuss concerns the use of design-build contracting. This approach differs from the traditional design-bid-build method, since it combines rather than separates responsibility for the design and construction phases of a highway project. Proponents of design-build note that this approach can speed up project completion, provide for better accountability for cost and quality, and reduce administrative and planning expenses, because fewer contracts would be needed.

FHWA is currently evaluating design-build contracting. But its authority to implement design-build is limited. Also, while 17 States have laws that prevent its use, State interest in the design-build approach is rising. According to FHWA, as of January 1997, 13 States have initiated about 50 design-build projects under the Agency's special program. FHWA still consider this approach experimental and an overall assessment remains limited by the small number of design-build projects that have been completed.

Mr. Chairman, this concludes my statement. We'd be happy to answer any questions.

Senator WARNER. Thank you very much.

You've identified in your testimony that ISTEA provided \$3.5 billion for surface transportation research, of which \$1.3 billion has been dedicated to ITS technology. Did your analysis examine any issues relating to competition for these funds?

Ms. SCHEINBERG. For the \$3.5 billion?

Senator WARNER. Yes.

Ms. SCHEINBERG. About three quarters of that money, 75 percent of the Surface transportation research, was conducted by the Federal Highway Administration. And the second—

Senator WARNER. Competition? The question is, let me go over it again, you identified in your testimony, ISTEA provided \$3.5 billion for surface transportation research, of which \$1.3 billion was dedicated to ITS. Did your analysis examine any issues relating to competition for these funds?

Mr. CHRISTOFF. One of the questions—we did not look specifically at the question—for example, \$1.3 billion for ITS, was that too much, was that too little? One thing I think we found when we looked at just the overall research program for the Department, is that the questions of is there too much in highways or too little in transit or too little in the Federal Railroad Administration, it's a difficult decision for us to make. Certainly is difficult for the Department, because No. 1, they don't have a focal point to try to bring everything together, and they don't have this strategic plan that would answer that kind of question.

Senator WARNER. Let me try again. Of the allocation of the \$1.3 billion, did you look at competing, in other words, if the contracts were competed for the ITS?

Mr. CHRISTOFF. No.

Senator WARNER. All right. Could you go back and do that?

Mr. CHRISTOFF. Certainly.

Senator WARNER. I think that would be helpful for us to determine the overall sum and if that's adequate or inadequate, that given, factoring in competition.

Ms. SCHEINBERG. OK.

Senator WARNER. Later we'll hear from ITS America proposing that States be required to use 5 percent of their Federal aid apportionments on ITS technologies. In your view, with the lack of acceptance by the States for ITS, would this be a productive way to see more deployment of ITS technologies?

Mr. CHRISTOFF. I think some of the challenges that we cited in our report address the question of how far do you push deployment and if you impose anything on the States for deployment. The biggest challenge right now is that many States don't even know what is an integrated ITS system. They certainly don't understand the 8,000-page architecture that was issued last July. And they have to wait for many of these technical standards to be completed before they can make some wise investment decisions, do we invest in ITS, do we fill potholes.

Senator WARNER. Thank you very much.

Senator BAUCUS.

Senator BAUCUS. Thank you very much, Mr. Chairman.

Why don't States understand?

Ms. SCHEINBERG. This is a brand new program to the States. As we mentioned, the architecture was just completed last July. The standards have not yet been developed and will not be completed for 5 years. This is, most of what's gone on so far has been research and some operational testing.

There's a lack of data on cost effectiveness. It's not known what are the cost-benefit analysis of integrated ITS systems. And so States have been reluctant to spend money on ITS.

Senator BAUCUS. But why is there a lack of data? Why is there a lack of cost-benefit analysis? Is the Department just perhaps not focusing enough on that part of it, or what?

Mr. CHRISTOFF. Senator, that's in fact step two, according to our understanding of what the Department wants to accomplish. They recognize some of these impediments, and next year are requesting more focus on first training their own field staff within FHWA and FTA to better understand ITS technologies, since they're in the forefront, working with States, and also to try to train States to change a mind set to go from a civil engineering type approach to dealing with transportation problems to this telecommunications information management system approach, which is different.

Senator BAUCUS. And you think the Department recognizes that?

Mr. CHRISTOFF. There have been programs to address this issue of education and explaining what integration means in ITS systems.

Senator BAUCUS. Because we all have a certain mind set, somewhat, depending upon our background and education, lawyers have their mind set, engineers have their mind set, psychologists theirs, public relations people theirs. No one is right. Just obviously, we need to develop these new technologies. It's equally obvious to me that more emphasis has to be spent on the communication side of

it, so that States and other localities and the private sector is more involved in the development.

What's your view of this new Federal line of credit? Is that needed?

Ms. SCHEINBERG. Because the Department's proposal has not been announced, we have not been privy to any of the details. But in our work on looking at State infrastructure banks, we did not identify a need for a Federal line of credit.

Ms. PUFAHL. I think it's an interesting idea, though. When you asked earlier, you said you were not convinced that one was really needed. Potentially, it could be used for regional projects, and States that were not benefiting from State infrastructure banks could potentially benefit from the Federal credit programs.

Senator BAUCUS. Is the problem with ITS, first you say the ITS program has not been as focused as perhaps it should be. Is part of the problem too many congressional earmarks? You said 50 percent of ITS projects are congressional earmarks. And that seems to be, it undermines confidence in the program.

Mr. CHRISTOFF. We heard that not just from the ITS joint program office, but I think from many researchers within the other modes, within FHWA, within FRA, that in some respects, the congressional earmarks do limit their discretion to try to come up with what's the best strategic approach.

Senator BAUCUS. Because they're probably not always the best.

Mr. CHRISTOFF. You know, it's interesting, oftentimes they've labeled congressional earmarks friendly and unfriendly. And many of those are ones that fit well into their own approach, and others are ones that they feel compelled to do.

Senator BAUCUS. What percent do they feel compelled to do?

Mr. CHRISTOFF. Dr. Johnson once said to us it was about a 60-40 split, with 60 percent friendly, 40 percent unfriendly.

Senator BAUCUS. Thank you.

Senator CHAFEE [assuming the chair]. Ms. Scheinberg, you indicated, first of all, you indicated that several States don't permit the design-build. I guess that's on page 8 of your testimony. Oh, no, on page 9. Survey identified 17 States that did not permit the use of combined design construction contracts. How is it, I suppose that's the small road designers that don't have a construction firm or the small contractors that will do a bridge or do a certain portion of it, but can't do the whole job, and don't have a design capability. They're afraid the Bechtels will get in there and squeeze them out.

Is that why it comes about?

Ms. SCHEINBERG. The traditional approach to constructing projects is that they are awarded according to sealed bid, and the lowest bidder gets the award. And that is incorporated into many of the States' laws, thus this is the way construction contracts are often awarded, to the lowest bidder.

Because of that, it is not compatible with the design-build concept, where you negotiate the total project contract and that you talk about the design and it does not just go to the lowest bidder. The cost is only one component of the design-build contract.

Senator CHAFEE. In your testimony, you identified some of the impediments that prevent the benefits of these innovative programs being achieved. Should we make any changes in Federal law

that you can suggest during the course of this reauthorization to remove some of the barriers? For example, for the best use of the ITS? Or the innovative financing, the State infrastructure banks?

Ms. SCHEINBERG. Senator, the barriers that we identified in ITS, we believe very strongly need to be addressed before widespread deployment of ITS takes place. What needs to be done at the Federal level is providing training, as we mentioned earlier. Most State and local officials don't really understand how to integrate their separate ITS technologies.

Senator CHAFEE. They all go off to these AASHTO meetings or whatever it is, this just can't be a secret. You know, and by the way, what I can't seem to get people to realize is we passed this law in 1991. It wasn't yesterday, it wasn't last year. And I, as I've mentioned previously to Ms. Johnson, I'm disappointed that more hasn't taken place. And I mean, are there State laws that in some way inhibit the use of toll booths that permit the cars to flash through or to have staggered hours to reduce traffic congestion?

Ms. SCHEINBERG. We're not aware of State laws that prohibit the use of ITS components. But again, the standards for ITS have not been developed and are not planning to be completed until the year 2001. So there's a lot of work that's still going on on the basic ITS structure.

Senator CHAFEE. I don't understand. What do you mean, standards have to be developed? Some standards, it's going to take until 2001?

Ms. SCHEINBERG. These are the technical standards, the technical specifications that describe how the components talk to each other, communicate with each other and share data among the components. In order for the ITS to be truly effective you need to have an integrated system where the different components share the information and you can use information from one——

Senator CHAFEE. So you do it nationally?

Ms. SCHEINBERG. No, this would be metropolitan area, usually.

Senator BAUCUS. Mr. Chairman, I just want to interject, the private sector does this so much more quickly. And I'm thinking of computer systems, network systems, with new technological advances which date one as opposed to some other, but they find a way very quickly. As the Chairman said, it just seems like it's an awfully long period of time that, in this project, to develop systems and share data.

Senator CHAFEE. I think we put a man on the moon in a shorter period of time than that.

[Laughter.]

Mr. CHRISTOFF. Mr. Chairman, these standards are important, and it's a good reason why we need to get them out quickly. A State and locality doesn't want to buy something and then later on, find it's not going to fit with the architecture, it's not going to be compatible.

Senator CHAFEE. Explain it in simple language, whereas, let's say in my State, we're trying to locate I-195. And let's say to pay for it, we're going to have some toll booths. And under the legislation that's coming up, that would be permissible.

Now, what should they worry about and not do anything until 2001 about intelligent transportation? Do you mean the type of credit card that's permitted to go through that booth?

Mr. CHRISTOFF. Sure, if you want to travel the coast, and you're encountering electronic toll collections, you want that smart card that you have in your windshield to be able to work regardless of what State that you're in. And hopefully, your State will have developed and purchased electronic toll collection that meets the standard and fits into the architecture.

Senator CHAFEE. So therefore, nothing can be done until 2001?

Mr. CHRISTOFF. No. No, States are developing electronic toll collections. It's interesting, electronic toll collection predates the ITS program. It's not a new innovation. It has been used and States have been using it. And for some States, they might have to face the question possibly of just retrofitting what they have put in place to meet the architecture and the standards.

Senator CHAFEE. Senator Graham.

Senator GRAHAM. Thank you, Mr. Chairman.

I'd like to ask questions in two areas. The first is sparked by the front page of Monday, March 3 U.S. Today, the lead story is Bridges of the 21st Century. And if you could excuse a little pride in parochialism, I'd like to read the paragraph. It says, Florida's Sunshine Skyway Bridge combining technology and beauty, is an example of the bridges of the future. I happen to have had something to do with that bridge. And the reality is that the Federal Government was more an inhibitor rather than a facilitator of building that bridge, including the requirement that there be a design of a bridge in steel over Tampa Bay before we could build a bridge in concrete, which everybody knew was the material of choice. But the Federal requirement was that we had to do it both ways.

I think there's a basic assumption in articles like the one I quoted earlier from Neil Pierce that all innovation comes from Washington, and that unless Washington is a motivator, that we'll be stuck in the 19th century. The fact is, that is contrary to what this bridge illustrates, and I think thousands of other examples.

So I guess my question is not what the Federal Government is doing to promote innovation, but what is the Federal Government doing to get out of the way of other peoples' desire to be innovative. Could you cover those issues, and do you have some recommendations of what we should do to clean out Federal inhibitions to State and local inhibitions?

Ms. SCHEINBERG. Senator, I want to just commend Florida for being innovators, and you're absolutely correct in taking pride in those innovations. One of the things that the Federal Government can do is disseminate information and share the information across States. Because rather than having each State recreate and having to go through the learning curve on its own, one of the roles that the Federal Government can play is to share those success stories and to share that information.

Senator GRAHAM. Some would share the shock and surprise of Senator Chafee, that is not being done now?

Ms. SCHEINBERG. Not to the extent we think it should be done.

Senator GRAHAM. I thought one of the reasons we had this big Federal Highway Department was to do that, disseminate the best practice. I thought it was supposed to be the land grant college of transportation, researching, developing and disseminating the best practices. That's not happening?

Ms. SCHEINBERG. It happens to some extent, but not as much as it could be. And we think it could happen much more.

Senator GRAHAM. Do you have some recommendations of what we could do to get the Department into that land grant college mentality?

Ms. SCHEINBERG. In our various reports, we have made recommendations that have encouraged DOT and its modes to go out and disseminate information. Almost every time we look at an individual program, it seems that the States do not know what's going on elsewhere.

Senator GRAHAM. Well, I'd be interested, and I have not had an opportunity to see your report, maybe it's already captured, in two lists, first, those things that the Federal Government currently is doing which are inhibiting State and local innovation, and second, those things the Federal Government is not doing which could encourage and promote innovation.

Ms. SCHEINBERG. Absolutely.

Senator GRAHAM. The second area that I wanted to ask, if I have the time, Mr. Chairman, is, we talked about this at an earlier hearing. And again, it's in this same Neil Pierce column, how far behind we're getting in meeting our transportation needs. In the Pierce column of January 12, the former Secretary of Transportation, Federico Pena, is quoted as saying that the annual investment shortfall of the United States is at least \$17 billion to maintain highways and \$7 billion in mass transit.

There is not a number given for the areas of congestion avoidance. But I would assume that's a substantial number as well. So in those two categories of maintenance and mass transit, we are \$24 billion a year of disinvestment, that is failing to spend the amount necessary to keep pace.

How much of that \$24 billion, and let's specifically focus on the \$17 billion in highway maintenance do you think could be met by these innovative techniques? Is there a way to shrink the disinvestment pace through innovation as well as the old-fashioned way, which is to put more resources behind solving the problem?

Ms. SCHEINBERG. Right. We definitely think that innovative financing techniques hold promise to shrink needs.

Senator GRAHAM. I would think that innovative financing would lead to congestion problems. Do you think they can also be used to meet the maintenance problem?

Ms. SCHEINBERG. Probably not.

Ms. PUF AHL. Well, actually, I think that the figures that you refer to, which comes from the needs report, is based on, when they talk about maintaining, it's maintaining the condition and the performance of the roads. Sometimes a project, such as an overlay and adding another lane, could potentially accommodate both needs, and it could be an innovative project supported through a SIB.

Senator GRAHAM. I'd like to see an analysis, and I think that you are probably in the best position to do this, of what would be re-

quired to maintain a steady state in terms of maintenance of our existing system and the level of congestion as it currently exists. It's not going to get any better, but it's not going to get worse. And then how much of that need can be met through the traditional methods of finance that we have? And then what is the potential contribution in maintenance and in congestion avoidance that could be met by innovations, either spending our current money better, smarter, or in some new ways of financing, which primarily are going to mean that we're going to be adding an additional source of revenue by people paying tolls?

That's not a cost avoidance, it's a shift of cost from paying it at the pump in gasoline taxes and paying it at the toll booth when you drive your car through. But has anybody done that sort of macro analysis of what it would take to keep the system from degrading further through innovation, alternative financing mechanisms, or other ideas?

Ms. SCHEINBERG. No.

Senator GRAHAM. If not, would you be willing to assume that challenge?

Ms. SCHEINBERG. The problem is that there's not much information now on the potential impact of innovative financing techniques because they have not been used in transportation to the extent that you can really make good predictions.

Senator GRAHAM. Well, I don't understand that. My State, which is the fourth largest State in the country, one-third of all the lane miles that we have built in recent years have been toll-financed. That's not an insignificant amount of construction in a very big State. You mean that we don't have enough laboratory from big States like Florida and California, which have used tolls extensively to extrapolate as to what their potential might be on a national basis?

Ms. PUF AHL. I think it would probably vary on a State and regional basis. And you know, as far as assessing what is needed to maintain our transportation infrastructure, it would be a very difficult task. One of the things that we noted in one of our reports is, if \$1 in maintenance is not made when it's needed, then 2 years from now, it's going to cost \$4.

Senator GRAHAM. Frankly, I was one of the handful of people who voted against IST EA in 1991. The principal reason I voted against it was because, we were making the clear, unvarnished statement to America that we were going to have a worse transportation system at the end of IST EA than at the beginning of IST EA. And by God, we delivered on that commitment.

And I don't want to pass another extension of IST EA with the same understanding that we're going to have a worse transportation system in the year 2003 than we have today. It seems to me that in order to avoid that, we need to have a clear understanding of what it's going to take to at least keep the system from continuing on its decline, and then what combination of traditional revenue sources, our chairman has recommended an expansion of those traditional sources by legislation that he and Senator Bond have introduced. The chairman of the subcommittee has recommended even a greater amount of traditional resources.

But even those two enhancements are still going to fall many billions of dollars short of what it will take to keep the system from degrading. So then we need to look, how do we add some new revenues through tolls and other forms of user fees, and how can we reduced the cost of maintaining the current system by being more innovative and smarter.

I think we need to have that kind of strategic plan as a beginning point, looking at reauthorization of ISTEA or we're going to have to stand up before the American people in the next few months and say, again, we're absolutely certain you're going to have a worse transportation system 6 years from now than you've got today. I don't want to have to deliver that message.

So again, could GAO help us in doing that sort of strategic analysis?

Ms. SCHEINBERG. Yes, Sir.

Senator GRAHAM. Thank you.

Senator CHAFEE. Thank you.

Ms. Scheinberg, I think it's very interesting in your statement here where you talk about design-build and some of the reasons that it hasn't caught on. And construction service is being awarded to the lowest bidder after dosing is complete. It's very interesting what you have to say there. You say design-build contracting, while becoming increasingly common in the private sector for facilities such as industrial plants and refineries, does not yet have an established track record in transportation in the United States. However, the experience is now being gained through the 50 projects under the Highway Administration's special project, along with the Federal Transit, and so forth.

So there is a record being build. It seems to me that dosing-build has a lot of potential, and I would hope that we'd see more of it in the future.

Any other questions?

Senator BAUCUS. Just briefly, Mr. Chairman. We heard the Department testify somewhat in response to your report. What have you heard that gives you more comfort, and what did you hear that still gives you concern?

Ms. SCHEINBERG. From the Department?

Senator BAUCUS. From the Department's answers that somewhat touched on points you made in your report.

Ms. SCHEINBERG. Right. One of the points the Department did make is that SIBs need seed money. When we went out and talked to people about setting up SIBs, the people who were applying originally for the pilot program that was set up by the NHS bill, and the States not applying, one of the messages we got from the States is that there was no new money attached to the pilot program, and that's why more States weren't coming forward.

When the Congress appropriated \$150 million in the 1997 Appropriations Act, 28 additional States applied for SIBS. So that is something that we heard a year or so ago, and now there is a fruition that the States are coming forward.

Senator BAUCUS. Again, what did you hear that gave you comfort, what did you hear that gave you concern? Or is everything just hunky-dory now?

Mr. CHRISTOFF. Well, it's not hunky-dory. But let's talk about ITS. I think you're going to be making a critical decision about ITS in the next ISTEA as to whether we're going to begin paying for deployment. And clearly, if you look at the Department's fiscal year 1998 budget, it has \$100 million in it for deployment activities, and we're sort of at a critical edge. We're moving away from the research and testing phases of the ITS program, and DOT wants to move into deployment.

I think what we've found is that there still are a lot of important questions to address about the ITS program before we start paying for deployment. States and localities need to have more information about whether ITS is going to be a good investment when they have so many other priorities that they confront on a daily basis. Maybe we have to address those kinds of concerns and get the technical standards out quickly before we start paying for widespread deployment.

Senator BAUCUS. Mr. Chairman, I just want to thank the GAO. You all are referenced, as you know, a lot by the press. And it's always been positive, it's always been sort of a standard, of a watchdog of what's going on, which puts an even greater burden on you. I want to first thank you for all that you've done, and second, encourage you to keep your high integrity, because it's so important.

Ms. SCHEINBERG. Thank you very much, Senator Baucus.

Senator BAUCUS. Thank you.

Senator CHAFEE. On that high note, thank you all very much for coming.

And we'll move to the last panel, Mr. Gerald Pfeffer, Mr. Dan Flanagan, Mr. James Costantino, and Mr. Robert Skinner.

And we'll start with you, Mr. Pfeffer, if you'll lead right off as soon as people have taken their seats. Mr. Pfeffer is a senior vice president of National Infrastructure Company, and I think you do a lot of this intelligent highway system stuff, don't you? Go ahead.

**STATEMENT OF GERALD S. PFEFFER, SENIOR VICE
PRESIDENT, UNITED INFRASTRUCTURE COMPANY**

Mr. PFEFFER. Thank you, Senator Chafee, and good morning, members of the Senate Subcommittee on Transportation and Infrastructure.

My name is Gerald Pfeffer. I'm head of surface transportation at United Infrastructure Company, a partnership of Bechtel and Kiewit. We develop and finance toll roads, airports and water facilities. With your permission, I have submitted written testimony and I would like to keep my remarks brief.

I'd like to make three key points. First, private investors stand ready to rapidly deliver innovative, popular solutions to our Nation's surface transportation problems. Second, our experience shows that American motorists will pay market prices to avoid congestion. And third, Federal leadership is needed to achieve the maximum benefits.

Since 1990, our parent companies have arranged over \$11 billion worth of financing. Billions more are available for the right opportunities. In ISTEA, Congress took the first steps to encourage private highway financing, but only a handful of projects have been

realized. Additional policy changes are needed to maximize the opportunity.

To illustrate this approach, I'd like to describe a project that really shows what can be done given the right backing. Information on this and other projects is included in my testimony. You may see this particular brochure.

Senator CHAFEE. I have several brochures. What's that one labeled?

Mr. PFEFFER. It's part of a package with a black cover, Senator. We hold a franchise to finance, build and operate the 91 Express Lanes in Orange County, CA. We opened this project to service a year ago. We've added four lanes in the median of State Route 91, the Riverside freeway, for a 10-mile stretch from Anaheim to the Riverside County Line. That's one of the most congested in the country.

The \$126 million project is the world's first fully automated toll road and America's first test of congestion pricing. There's not a dollar of Federal or State money in this project. In fact, we'll spend about \$120 million for maintenance and police services that would otherwise have been paid by the taxpayers.

We depend on technologies that literally did not exist a few years ago. Here are a few of our innovations. The 91 Express Lanes is a toll road without toll booths. Using electronic transponders like this, we deduct tolls from our customers' accounts, non-stop, at 65 miles an hour. That eliminates some of the safety concerns that were expressed earlier. In response to your earlier question, Senator Chafee, the 91 is the first toll road in the United States to vary tolls with demand. Off peak, we charge as little as 50 cents. During peak hours, our toll rates go up to \$2.75 for the 10-mile stretch.

And Senator Graham, you referred to a recent cover story in U.S.A. Today. Just above the bridge story is an article labeled, "Commuters Pay to Hit Fast Lanes." And they're talking about this project.

We're the only toll road in the world that offers a guarantee. We even have a frequent drivers program. Later this year, we're planning to start using our transponders on a test basis in a drive-through restaurant.

To provide quality service, we monitor operations from our own privately funded state-of-the-art traffic management center. And we respond to incidents with our own private fleet of tow trucks.

We use the design-build method you're asking about. That absolutely saved us time and money and it improved the quality of our project. As an example of how we saved time and money, we built a \$2 million temporary bridge in order to reconstruct a busy interchange while continuing to carry 250,000 cars a day. That shaved 13 months of the State's construction schedule.

What do our customers, your constituents, think? Before we opened our new lanes, the freeway was stop and go 6 hours a day. Our customers now report time savings of 20 minutes each way. Even those who stay on the outer free lanes benefit, since traffic is flowing better than it has in years.

We've distributed more than 80,000 of these transponders, and are adding over 100 customers a day. When asked what we could

do to improve the 91 Express Lanes, our customers' most frequent response is, "Make it longer!"

We've shown that private funds and innovative technologies can help reduce gridlock. Americans will accept new methods of financing and operating our highway system. But to make more of these projects a reality, we need additional enabling legislation. We urge you to include the following provisions in the reauthorization bill. We applaud your bill, Senator Chafee, S. 275, a pilot program to test the use of tax-exempt debt on privately financed transportation projects. That would have saved us \$3 million a year in financing the 91 project, savings that we could have passed through in lower tolls to our customers.

The Transportation Credit Program could help to improve the attractiveness of projects to Wall Street and further lower the debt cost by getting better rates. We strongly support the concept of tolling new and reconstructed segments of the interstate system. They're not going to get fixed any other way.

We need to standardize the laws and procedures under which we develop these projects and under which they are approved.

My written testimony includes several other additional recommendations.

As head of a company that invested millions to reduce gridlock in one of America's busiest freeways, I can say without hesitation that public-private partnerships offer a win-win-win opportunity. They're good for the public sector, they're good for private investors, and most of all, they're good for our Nation's motorists. By encouraging the States to pursue these partnerships, Congress can trigger billions of private investment.

Mr. Chairman, thank you for allowing us to share our views with you. I'd be happy to answer any questions.

Senator CHAFEE. Thank you very much. And we'll have the questions when each has testified.

Mr. Dan Flanagan and I had the privilege of going together to see the magnetic levitation train outside of Bremen. It was a very unusual trip, and I enjoyed being with you. Go to it, Mr. Flanagan.

STATEMENT OF DANIEL V. FLANAGAN, JR., CHAIRMAN, COMMISSION TO PROMOTE INVESTMENT IN AMERICA'S INFRASTRUCTURE

Mr. FLANAGAN. Thank you, Senator.

Indeed, for those in the audience, that is being financed, the Hamburg-Berlin line for mag-lev, on a public-private partnership basis. And I think that reflects the general interest in that concept as we go forward.

I'm here today as chairman of the Infrastructure Investment Commission, which was a provision of the 1991 ISTEA legislation. Listening to the comments earlier, I feel like our report is part of that linkage and we report to you today on how to make ISTEA work better. I'm also mindful of when our report was issued in 1993 that the Construction Writers Association awarded us their annual award for the innovative finance thinking that we had brought forward at that time. Essentially, it's the credit enhancement issues that we're talking about today.

I'm also pleased to see legislation introduced in the House and the Senate that mirrors our recommendations, and I'm very excited about what I understand will be in the Department of Transportation's ISTEA proposals, having to do with Federal infrastructure credit programs to promote public-private partnerships.

There's a lot of good ideas out there in the private sector, including research/technology, etc. But the essential issue, as we looked at the situation, was this. Private capital is very anxious to invest in American infrastructure, as it is doing today abroad in other countries. Unfortunately, it is difficult here in the USA in terms of market entry. The risks, inherent in what has traditionally been a public monopoly, are indeed something that has to be recognized. And a risk mitigation strategy has to be brought forward. And that requires the sponsorship from the Federal Government. I believe that the private sector will eventually enter these markets. But at the beginning, there has to be Federal leadership.

I would like to read, from our report, as to what we would recommend.

No. 1, and of course, this is what is entailed in Rosa DeLauro's legislation that she commented on earlier. A National Infrastructure Corporation would be authorized to promote infrastructure investment by evaluating and offering several forms of financial assistance and technical advice to infrastructure projects with self-supporting revenue potential through State revolving funds.

The SIBs, as it were, have evolved as those revolving funds. And they would be the clients of the NIC. This would be a wholesale, sophisticated strategy. And the Infrastructure Insurance Corp., as a NIC sub, would provide a mix of direct insurance and reinsurance to issuers of senior debt on infrastructure projects that existing bond insurers and other credit enhancers cannot or will not ensure.

This is new territory, preconstruction finance. There is construction finance available readily, and I've had Lloyds of London and others come up to me and say, we do what you're talking about, and when you get into it, you find that what they're talking about is construction risk, i.e., weather delay, etc., not preconstruction where you're into forecasting ridership, revenue streams, etc.

Insured debt of projects eligible for tax-exempt financing would as well, become similarly attractive to the municipal market. Insured debt of taxable rate projects would become similarly attractive to pension funds and other fixed income investors. We have over \$4 trillion in pension fund assets today. They do not invest in American infrastructure, but they can if we start giving them products. And that's what they told us in our hearings.

The Corporation would charge premiums and operate on a self-supporting basis. As Congresswoman DeLauro mentioned this morning, eventually there's a payback mechanism. And this entity is self-sustaining. Within the insurance corporation would exist a finance division to lend directly to priority projects that have credit-worthy revenue projections but lack historical operating results, or to those that may not be able to demonstrate sufficient credit strength immediately. Such financial assistance would be available on a basis subordinate to other lenders in a manner similar to that

authorized by Congress in the Intermodal Surface Transportation Act of 1991, but not yet utilized by the States.

Subordinate debt would be recycled within a few years as projects are constructed to achieve operating stability and can be refinanced. Loan repayments would allow the corporation to function as a revolving loan fund.

I should mention, there's a lot of confusion about leverage. Revolving funds traditionally recycle public dollars. And you get a leverage factor of about two to three times. And that's good. But what we're talking about here is using public dollars, Federal funds, for credit enhancement so that private capital will come into these projects. That's new.

And there you're talking about real leverage, because it's the private capital coming in of 10 times and up to 18 times as we grow the system. And this is what's done all over the world, frankly.

A development insurance service would provide insurance subject to appropriate retention of risk by the project sponsor to cover the initial development phase of projects where permitting, financing feasibility and regulatory approvals prove to be specific risks. The corporation would work to provide services to public and private project sponsors as domestic versions of the Overseas Private Investment Corporation.

We're ensuring American investment overseas. We need to start ensuring it in our own country.

The National Infrastructure Corporation will seek to become self-sustaining by charging fees for its services and by receiving project loan repayments. Among the other mechanisms the Corporation would consider are loan guarantees and assistance to infrastructure revolving funds, the SIBs. The Corporation's funding activities could be leveraged further as it issues its own debt obligations to investors. In other words, securitization.

At some point, you can start bundling projects and issuing new securities based on a taxable yield equivalent. Pension funds testified they will buy those securities, and in these tranches of investments would be these kinds of projects. This is being done every day in REITs, etc. It has not been done, though, in our traditional norms of infrastructure.

The Infrastructure Insurance Corporation recommended by the commission would offer institutional investors the opportunity to participate as equity investors. They would invest in this insurance company along with the Government. You don't want the Government to be the total owner of this, because you cannot credit enhance as a Government entity in its entirety. But the Government would be a 49 percent, whatever the right figure is, and I am confident that other pension fund investors would invest in that same entity to provide insurance services, because they are looking for alternative investment opportunities in the United States.

And this is something they're interested in, to see more product out there that they can look at. As the insurance company enhance senior debt up to the highest investment grade, institutional investors would find it easier to participate directly in projects financed by purchasing long-term taxable rate debt instruments.

The commission's attempt to identify a new infrastructure security would be attractive to both project borrowers and pension in-

vestors, as new options for both taxable and tax-exempt rate securities. Pension funds clearly indicated the desire to have an option to invest in a new infrastructure security paying competitive rates of return, as I mentioned.

The commission recognized that project sponsors who are eligible for tax-exempt financing generally will seek funding in the municipal market rather than the taxable bond market, precluding any meaningful participation by pension funds and other institutional investors. However, there are many projects which for legal or market reasons will seek taxable debt financing.

Aside from investing in individual project loans, guaranteed through the corporation's bond insurance program, institutional investors will have an opportunity at a later stage to invest in taxable debt securities; and those could be issued through the SIBs.

It would be to me a good way to do it, with the NIC playing the role of the credit enhancer that says to the market, we have looked at the SIBs portfolio of infrastructure investments, that tranche. We know it's there, we know it's paying on its obligations, and we are prepared to put our credit rating, which we have earned in the marketplace, forward as an imprimatur on that particular tranche of investments.

Senator CHAFEE. Mr. Flanagan, could you wind up?

Mr. FLANAGAN. I'm sorry, Senator.

So conceivably, you would have State of Florida infrastructure bonds paying 8 percent that would be bought by institutional investors around the country.

Senator this will provide a number of advantages: leverage, quality of investment, new technology in terms of R&D, risk transfer, which I think is very important, and will address the issues of the rural and urban concerns. In other words, the grant programs, the grant moneys, can focus on those areas where these projects can pay their own way.

I would also like to say, just as a personal note, I have been involved in five different major deregulations in this country, ranging from electricity to telecommunications. And it strikes me that what we're talking about here in infrastructure is very similar. We need to have market entry. We need to deregulate infrastructure in many ways.

Thank you, Mr. Chairman.

Senator CHAFEE. Thank you, Mr. Flanagan.

And now, Mr. Costantino.

**STATEMENT OF JAMES COSTANTINO, PRESIDENT AND CEO,
ITS AMERICA**

Mr. COSTANTINO. Thank you, Mr. Chairman, for the opportunity to speak before you today.

ITS technologies are poised for national deployment. But this effort requires the continued leadership of this Congress and the Federal Administration to ensure that deployment occurs in a truly integrated, inter-operable and intermodal manner across the United States. According to a recent study by the Texas Transportation Institute, Americans lose 2 billion hours a year in traffic congestion, at a cost to the economy of \$51 billion annually in lost produc-

tivity. In 10 years, traffic will increase by 30 to 50 percent, while highway mileage will increase only slightly.

ITS technologies offer the ability to meet this growing traffic demand while improving safety, efficiency and cost. In this morning's testimony, there was some question about where these benefits are and what they are, and DOT will provide this committee with a handout of selected ITS projects and ITS benefits.

We don't suggest that ITS is a replacement for continued investment in new or reconstruction in highways, bridges and transit systems. But ITS will certainly make them work better, more efficiently and more economically. Many ITS technologies are coming into use today, although we may not always think of them as ITS. In fact, in 1995 alone, over \$1 billion was spent by States with regular Federal aid highway funds for several components of ITS infrastructure. And I have a map here also provided by the Federal Government, which shows these States and where these projects are located.

Senator CHAFEE. Could you give us an example of a typical investment might be?

Mr. COSTANTINO. It might be a toll road, it might be a traffic management system, like we have in Maryland and like we have in Virginia, like we have in Minneapolis. It might be any kind of an information system where travelers are provided information through signage on highways in real time. It might be any number of the ITS technologies.

In its role as a utilized Federal advisory committee to DOT, ITS America has promulgated a national goal for deployment of ITS technologies. The goal states: "To complete deployment of basic ITS services for consumers of passengers and freight, transportation, across the Nation by 2005." To date, over 30 national organizations, many with differing perspectives and policies on transportation, along with over 200 other public and private organizations, have endorsed this national goal. It's an ambitious goal, but it is achievable if there is a national deployment effort as part of ISTEA's successor bill.

In conjunction with the Department of Transportation, ITS America recently conducted a study on the future market and economic impact of achieving the national goal. In the next 20 years, it is expected that the overall national market for ITS products and services will total more than \$430 billion. Approximately \$90 billion of that is for public infrastructure. The remainder would be coming from the private sector. Early public investment, however, from the public sector, is essential.

The study also concluded that overall benefit to cost ratios are on the order of eight to one, for every public dollar invested, \$8 would be returned. Achieving the national goal will also generate almost 600,000 jobs.

The experience of the Federal Aviation Administration and the aviation industry in years back points out that training in new technologies and systems early on will enhance and speed up the deployment of new technologies. We are just beginning to do for surface transportation what we did so well for air travel.

ITS America has developed a set of nine ISTEA reauthorization principles, included in my submitted statement. We believe

ISTEA's successor bill should support the national goal for ITS deployment by creating a soft set-aside of 5 percent of each State's Federal Trust Fund apportionment for deployment of ITS. To opt out or modify this requirement would require only a formal or public action by a State or local official.

The only condition for the funding, if used for ITS deployment, would be compliance with national standards for inter-operability. We have no interest in imposing additional onerous mandates on State and local governments. But we do believe that a strong Federal role is essential if we are to achieve the standardized, integrated and orderly deployment of ITS that we seek.

The national ITS initiative is now ready to move to the deployment stage, and we ask that the ISTEA follow-on act include ITS in it. I would be pleased to answer any questions you may have.

Senator CHAFEE. Well, thank you very much, Doctor.

Now, Mr. Robert Skinner.

STATEMENT OF ROBERT E. SKINNER, JR., EXECUTIVE DIRECTOR, TRANSPORTATION RESEARCH BOARD, NATIONAL ACADEMY OF SCIENCES

Mr. SKINNER. Good morning, Mr. Chairman, members of the subcommittee.

My name is Robert Skinner, and I am the executive director of the Transportation Research Board. TRB is an independent, non-profit organization that is part of the National Research Council, which in turn is the operating arm of the National Academies of Sciences Engineering.

Senator CHAFEE. Where does your funding come from, Mr. Skinner, for your organization?

Mr. SKINNER. It comes from a variety of sources, but about half of the total funding of the Transportation Research Board is State funds, about 40 percent Federal, and the remainder is from other sources, including private.

Senator CHAFEE. So the States would contribute and belong to your organization, have dues or whatever?

Mr. SKINNER. That's correct. States have voluntarily supported our core support activities for 50 years.

Senator CHAFEE. Thank you.

Mr. SKINNER. Our mission, in brief, is to promote innovation and progress in transportation through research. Innovation requires much more than just good research. But good research is often a prerequisite for innovation in transportation, as it is in other fields.

My comments today will focus on highway research initiatives. I will also make some brief remarks about barriers to innovation and innovative finance. The written testimony that I have provided includes comments on transit and rail research in which we are also engaged.

In 1992, TRB convened a special expert committee to provide an independent, ongoing assessment of the research and technology program of the Federal Highway Administration, as well as other highway research initiatives. In 1994, the committee published an overall appraisal of highway industry research. By industry, they meant the Government agencies that construct and maintain and administer America's public highways as well as the private com-

panies that provide services, materials, and equipment used by these agencies.

I'd like to highlight several committee findings and recommendations, beginning with how highway research is organized. The U.S. highway industry is highly decentralized. Nearly 40,000 public agencies administer portions of the highway system with the assistance of tens of thousands of private companies. Our highway research and technology programs are also fairly decentralized. FHWA sponsors in-house and contract research. Most States have research programs and pool research funds for a national cooperative research program. Many universities carry out highway research programs. And private sector trade groups and large companies sponsor and conduct research. Although complex, these decentralized research programs have served us well because they allow potential users of research results to participate at many different levels and encourage close links between users and researchers.

Now, let me turn to the research topic areas and priorities. Our committee closely examined research-related spending in fiscal year 1993. Based on its analysis, the committee urged that the research program be less conservative and more comprehensive. It recommended more support for high risk, but potentially high payoff, research that seeks breakthroughs in highway technology. It recommended more research that takes a long-term view of the highway transportation system and its interaction with other modes, land use, the environment, and the national economy.

Altogether, the committee estimated that less than 6 percent of the research and technology expenditures for 1993 in the major public-sector research programs were directed toward these areas. This figure has probably increased since then, as ITS-related research has increased. Nevertheless, the 1993 figures are indicative of a problem, or missed opportunity, that goes beyond any one topic area of highway research.

The committee also looked at the overall level of investment in highway research and technology. Budgets for the major public sector research programs have increased significantly since the early 1980's. But when expressed as a fraction of all industry expenditures, total research in technology spending was on the order of 0.3 percent in 1993, well below the investment levels of even so-called low-tech private sector industries.

Recently, the committee turned its attention to highway research related to air quality. Specifically, research aimed at helping State and local agencies evaluate the impact of transportation actions on urban air quality goals. In a report released in January, the committee concluded that the prediction models and data bases mandated for determining compliance with air quality goals are inadequate and lack credibility among State and local transportation officials. To address these inadequacies, it called for a research program that would be cooperatively undertaken by the Department of Transportation and the Environmental Protection Agency.

The transportation field faces special challenges in moving good ideas from the lab to practice—challenges that stem from decentralization, but also the lack of market incentives, which drive innovation in other sectors.

Recently, another TRB committee looked specifically at barriers, such as procurement practices that slow the pace of innovation in the highway industry. The traditional low-bid approach to procuring highway goods and services with highly prescriptive specifications, gives the private sector few incentives to innovate. Last fall, this committee released a report calling for a concerted public-private effort to accelerate innovation and explore new approaches, such as design-build, warranties, life cycle costing, and constructability reviews. Some efforts are already under way, but more experimentation with these approaches is needed.

In the area of innovative finance, TRB has organized a wide array of activities addressing various aspects of this topic. To conclude my remarks, I will mention just one. In 1994, a special TRB committee completed a detailed study of one form of innovative finance, peak period or congestion pricing on highways. In brief, the committee concluded that congestion pricing is technically feasible and would produce a net benefit to society. It acknowledged, however, that the lack of public and political support is a significant barrier to implementation and recommended an incremental approach with small-scale experiments that might build public support over time. The committee specifically recommended that the Congress extend the congestion pricing pilot program of ISTEA when the legislation is reauthorized.

I thank you very much for this opportunity to appear and look forward to your questions.

Senator CHAFEE. Thank you very much, Mr. Skinner.

I want to say that, from what I've gotten out of this testimony today is, overall discouragement. I think that for a variety of reasons, I suppose Mr. Skinner summed it up best when he said because of lack of market incentives, there's not much effort to do anything creative or experimental. I think what the Federal Government's done is minuscule. And indeed, when you see the total—what's the total interstate mileage in the United States? Who knows? It's 43,000 miles. And I suspect that on that 43,000 miles, there are precious few miles that have anything like you've got on the cover of your program here, your brochure, Mr. Pfeffer.

So I don't know what it is. Now, let me ask you this, Mr. Pfeffer. The folks here from the Federal Government were testifying that they need until 2001 to set the standards. Where does that leave you with your, you've got your 91 Express Lanes. You went ahead. What were you meant to do, wait until 2001?

Mr. PFEFFER. We made the business decision to go ahead and deploy technology which complies with the California statewide standards. That State decided not to wait for Federal standards, but went ahead and developed its own. Because there are a lot of toll facilities in California, even though the State is often thought of as the land of the freeway. Many California bridges, for example, are toll-financed.

And because there was some legislative foresight in that State, they said, let's go ahead, take advantage of the technology that's becoming available. When the Federal standards become available, we can retrofit. And we consider that to be a reasonable business expense.

In fact, this technology becomes obsolete every 3 or 4 years, with the passage of time, with new techniques. And so it's a business cost to us.

Senator CHAFEE. With your transponder, can you go someplace else?

Mr. PFEFFER. Yes, Sir. Our tags are already accepted on other publicly funded toll roads in California. They'll soon be accepted on the toll bridges in California. And other States have adopted the California standard.

Senator CHAFEE. I'm sure that out there in my State or whatever State it might be that once you talk design-build, all kinds of hacks go up, because I presume that the local company that's been doing the designing of our highways would not qualify, because they don't have a build capacity.

Second, you're running against the low bidder concept, which you know is pretty well established in every highway, in all State purchases. Because at least, you give some assurance that somebody isn't giving a bribe to somebody to get somebody in the State to get the deal to the State purchasing agent.

How do you overcome that resistance?

Mr. PFEFFER. Well, I think the market is working very well, Senator, in that regard. What we're finding is that in fact design-build creates lots of opportunities for small and medium size firms as well as the giants you mentioned. A lot of States are adopting design-build. For example, right now the State of Utah has got a design-build procurement underway for the reconstruction of Interstate 15 through Salt Lake City. They're trying to do that before the Winter Olympics in 2002. And they recognize that the traditional methods just would not get the project done in time.

But they've made very clear, they expect to see local content, they expect to see local firms get a part of that work. And the large firms that are leading those consortia have pledged substantial amounts of the work will go to local firms. There is a bid involved in that, a price has been put on the table, and the State of Utah is evaluating the various prices and comparing them to their procurement requirements.

Senator CHAFEE. Explain how that works. Take in the State of Utah for this highway they're going to build. First, they've got to get specs out that people can bid on. Then your consortium of Bechtel and Kiewit, you know, you're not small potatoes. It's two of the biggest construction companies in the United States.

So you will submit a bid, will you, on that Utah proposal? Will somebody else submit a bid?

Mr. PFEFFER. Yes, Sir.

Senator CHAFEE. And then what? So it's a low bidder proposition or is it negotiations with the State?

Mr. PFEFFER. The process that Utah has adopted involves submitting a bid in response to a set of very detailed specifications for the project. But they recognize, they brought the project along to about 25 or 30 percent of the level of design that you would want to have in order to complete construction.

That last 70 percent is mostly filling out the details, what we can do more effectively by having the design firm and the construction firm work together, instead of in the adversarial roles that histori-

cally they've been in. What that results in is higher quality, and it also ensures that what gets built is built in a timely manner. Because we don't have to wait for the final set of plans in order to start the rough grading, movement of dirt, and other coarse activities.

Now, the process can be tailored to a specific State's procurement requirements, so that they do have assurance of competitive pricing and full transparency, that this isn't something that's going on behind closed doors.

Senator CHAFEE. Well, it seems to me, my time's up but I'll just ask one more question, it seems to me that—how do you come out with your innovativeness? Say you're going to use concrete instead of steel. And this is the best way to do it, but would the specs say you have to use steel?

Mr. PFEFFER. Some States have recognized—

Senator CHAFEE. And if that's all done, how is that any different from just coming out with a regular highway bid which is, in my State and I'm sure Senator Graham, when he was Governor, it's the same, you come up with the specs and you go out to bid, and you come back with the low bidder and he gets the job.

Mr. PFEFFER. What that misses is the opportunity for true collaboration between the design and the construction people. It misses the opportunity for the contractor to say, "Well, yes, we could build it that way, but did you think about changing this method?"

The Sunshine Skyway is a good example of a bridge that had a traditional procurement process been adopted, we probably wouldn't have that beautiful structure that's there today in Tampa Bay. What that State said was, give us some alternates, in addition to what we think is the right way to design it, we're open to an alternative from the contractor. And the contractor went out and hired a designer who helped him come up with what ultimately turned out to be a lower cost and better looking structure that they were able to complete sooner.

Senator CHAFEE. My time's up.

Senator Graham.

Senator GRAHAM. Mr. Chairman, I want to commend you for this hearing today. This has been one of the most interesting couple of hours on a very important subject that I have spent recently. And I particularly think that the four gentlemen who are before us have given us many good ideas.

Mr. Skinner, I'd like to ask a question that goes back to some comments that were made by the previous panel to the effect that there was an inadequate dissemination of new ideas among the State, and therefore, States were slow to pick up on the best practices. I found that to be a rather stunning commentary. What's your assessment of the degree to which the States are in a position to understand, have tested information and then apply that to current highway projects?

Mr. SKINNER. Let me first acknowledge, this is a bit of a self-appraisal. When my organization was established in 1920, it was specifically to provide means for States to exchange information, technical information, about highway design practices for the new motorized traffic era.

So I think that in fact the commitment of the States is there to participate in research and technology and share information. There is a substantial barrier. You almost can never do enough to disseminate information among States, and between the Federal Government and the States.

The problem is, not only is our transportation system disaggregated and we have 50 States, but the State transportation agencies themselves are disaggregated with thousands of employees distributed to districts and localities throughout their States. So there is an enormous training, technology transfer problem. I think that the States recognize this. They do indeed have committees concerned with technology issues through their own association, AASHTO. They sponsor a cooperative research program in which they pool their money, and they select the projects. The research program is actually administered by my organization. We put together panels that take their topics, and then turn them into requests for proposals so that there's a competitive selection. Our panels select the contractor and then oversee the work.

So I don't disagree that there's a substantial dissemination problem. But I do think that the States are aware of that problem.

Senator GRAHAM. One of the things that we've seen in other aspects of the economy which have or are undergoing deregulation, such as the trucking industry, the airline industry, and now the utility industry, is the cultural change. If your management has been oriented toward submitting your costs and having then a price structure developed by regulatory agency which is cost plus some profit, that's a different mentality than having to go out to the marketplace and having to figure out what the customers want, how you and produce the product at a price they're willing to pay and be successful.

What is the state of culture in transportation, and what from the experience of these other industries could folks in our position as we look at this new Federal legislation, do to help in the transition from a traditional regulated culture to a more competitive deregulated innovative culture?

Mr. FLANAGAN. Senator, if I could take a shot at that. During the course of our hearings on the Infrastructure Commission, I personally was also engaged in the electricity deregulation issue. What was interesting to me is, when we looked for testimony in terms of the Infrastructure Commission, we were seeking project finance expertise. We wanted American firms to come in and talk to us about project finance, how do you put a deal together.

We could not find American firms in 1992 that were engaged in the project finance sector. We had to bring in European banks to explain it to us.

Today, it's fascinating to me that with the passage of the Energy Policy Act and the creation of the independent power industry we now have a burgeoning project finance industry in the United States supporting the IPP's activities overseas and here in the United States, and entrepreneurial activity is spurring research, development, etc., in the private sector, and bringing on new energy plants, which I think is analogous to what we're talking about here.

We do have a project finance industry now. What we need, as with cogeneration, are incentives on the Federal side. It's this risk mitigation issue, credit enhancement, development risk insurance, so that these developers stay in there, can insure their risk, to come into this market and to start exploring what their opportunities are, and to bring their own entrepreneurial instincts to it. It's to grow the pie. The credit toll card activities were spurred by private sector involvement. And now the DOTs around the country are taking that on and using that.

So competition is a good thing between the traditional and the newcomers. So I think we really should face up to it, we are talking about a deregulation strategy for infrastructure. We need to provide credit enhancements for private capital to come in, market entry. Just as you have the ITTs or the MCIs and the Sprints, we now want the U.S. infrastructure corporations.

Senator CHAFEE. Mr. Pfeffer, I've listened to Mr. Flanagan, and I'm not sure I could repeat exactly what he said through it all, but I get the drift, I get the pitch, I think, which is basically to have a public-private corporation that would have risk insurance. Is that about it, it's an insurance company?

Mr. PFEFFER. Yes, Sir.

Senator CHAFEE. Yet you've gone ahead, your company has gone ahead without that. What do you think of what Mr. Flanagan is saying?

Mr. PFEFFER. Well, we support the concepts that were included in Mr. Flanagan's commission's original report, and the concepts that we believe the Administration will include in their draft legislation, to recognize that the process of developing a project is one of the riskiest of all. It is ironic that, in fact, I can buy development risk insurance from an arm of the U.S. Government to develop a toll road in Borneo, but not in California.

We face the same risks, we're required to go through exactly the same procurement processes regulatory processes such as environmental approval, that a public agency is. And all too often what happens is a decision is made not to proceed with a project.

What the insurance program that's been proposed would acknowledge is that not every project that starts down the road to development gets to a financial closing, and it acknowledges that some share of the responsibility for that "no build" decision rests on the public side, because it's a public policy decision. And the program would compensate people who put their money at risk at some fraction of their investment, say 25 or 50 cents on the dollar. And we would buy insurance, in turn, that would be paid by the successful projects, to recognize that there is still a high mortality rate in this fledgling industry.

Senator CHAFEE. Take, when you built this 91 out there, here's my concern. In my State, let's say they went to your company to build this new section of I-195 that they want to relocate. And yet I have in my State small contractors who normally would be bidding on a bridge, for example, one bridge of the project. And yet in you come with Bechtel and Kiewit. What would happen to my small—and they're not tiny, they're not two-bit operators, but they're not Bechtels either. What would happen to them?

Mr. PFEFFER. There are some fine contractors in your State, Senator. And what we see happening across the country is that we try to associate with the best in each State. Because we don't bring in hordes of equipment or employees from other locations. A large part of our work is subcontracted out to local contractors. And we get a good price from them, because they like working with us. They know that we pay well, that we pay on time, and that we manage our projects as efficiently as we can.

But ultimately we wind up with them as partners or as subcontractors. And there's plenty of potential work there, plenty of capability there in the industry. What's missing is the money to make these projects work. Today it takes the large contractors like us to advance the costs of developing these projects.

Senator CHAFEE. Well, I want to thank everybody on the panel very much, Mr. Skinner and Dr. Costantino, Mr. Flanagan and Mr. Pfeffer. Although we didn't ask questions of everybody, we've got your statements here, and it was extremely interesting. I just hope we do, your ideas are adopted across the country and that things happen. As I say, I've been discouraged that more hasn't happened.

But I don't think it's, the thing I don't understand is the suggestion that we need Federal money to get these things going. It would seem to me that on their face, they're worthwhile doing. Because if you can get everybody to move through the tolls faster, if you can have congestion mitigation setups, then everybody wins. The county or the State doesn't have to build a big new highway, they don't have all the motorists complaining all the time.

What about that, Doctor?

Mr. COSTANTINO. If you recall, I said that in practically every projection that's been made of what this program would be worth over the next 20 years, the number \$400 billion, \$450 billion keeps coming up. Eighty percent of that is from the private sector. We are promoting for this program, unlike the Interstate Highway Program, public-private partnerships to do that work.

The Federal Government doesn't have enough money to provide all of the funding for the program, but does through innovative financing techniques that these gentlemen have referred to. And through the opportunity to pull the public and private sectors together, that is the person who has the need for infrastructure or whatever it might be, and the private sector people who have money and the investment community is one of the roles that I feel ITS America has taken on for itself.

We have to remember, however, that we're dealing with a large, very large technology program, and the United States has only been in that program for the last 6 years. I believe, in looking at what's been done, that enormous progress has been made in that kind of a program. The Europeans and the Japanese are 20 years ahead of us, and we're playing catchup in many areas.

Senator CHAFEE. It seems to me that it isn't all built around tolls, either. If you have, I had submitted with Senator Warner and others legislation that would permit the private outfits to issue tax-free bonds. Then if you get that, plus this design-build concept, which, you know, you don't have to be a Phi Beta Kappa to understand that. It seems to me you could build your roads, get the job done for less money. Am I missing something here?

Mr. PFEFFER. You are absolutely right, Sir. But there are some other legal impediments that we need help with. For example, I literally could not apply the 91 Express Lanes concept today to an interstate highway. It's illegal. We cannot use toll financing, even if we're trying to reconstruct a segment of interstate highway or build a new portion of the interstate system, because today that's prohibited under Federal law.

Senator CHAFEE. Except you heard they're going to come up with legislation to permit that.

Mr. PFEFFER. And we strongly support that.

Senator CHAFEE. What else?

Mr. PFEFFER. At the State level, the States need to adopt their own enabling legislation to make this work. Because we've built up, over the past 100 years, since the reform movement, all sorts of checks and balances to keep the public sector and the private sector from working together as partners. And as we get closer and closer to realizing that we don't have all the money that we used to have to pay for these things, we're going to have to break those barriers down.

And ISTEА reauthorization gives us a unique opportunity to send a signal to the 50 State houses that Congress recognizes that the interstate highway era is behind us, that the era that this ISTEА will cover is an era of partnerships, and that laws need to be adopted at the State level to mirror the ones at the Federal level to encourage partnership structures.

Senator CHAFEE. OK. Thank you all very much for coming. It was a very good panel.

That concludes the hearing.

[Whereupon, at 12:20 p.m., the committee was adjourned, to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

PREPARED STATEMENT OF HON. MORTIMER L. DOWNEY, DEPUTY SECRETARY
OF TRANSPORTATION

INTRODUCTION

Good morning, Mr. Chairman, Senator Baucus, and members of the committee. On behalf of Secretary Slater, I thank you for the opportunity to discuss innovation in transportation. When Congress passed the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, it recognized that our transportation system faced daunting challenges: rapidly increasing travel, an aging and deteriorating infrastructure, environmental and air quality problems caused by the transportation system, and the need for greater efficiency and better connections between transportation modes.

ISTEA increased infrastructure investment to record levels to help meet these challenges, and the results are visible in new and expanded highways, transit systems, and intermodal facilities. However, Congress recognized that Federal funding alone could not meet all of our needs, nor would construction always be the right solution. Consequently, ISTEА also promoted innovation: new technologies, new ways of financing projects, and new ways of doing business.

ISTEA is now in its sixth and final year, and as we prepare to reauthorize its programs we are reviewing how its initiatives have fared. The consensus opinion, as discerned from more than one hundred outreach sessions, focus group discussions, and other meetings with our constituents, is clear: ISTEА is working well, and needs only modest refinements, not major reforms.

No aspect of ISTEА received greater approval from our constituents than its promotion of innovative approaches to transportation. Consequently, our reauthorization proposal will build on the foundation laid by ISTEА to sustain our existing commitment to innovation by establishing new infrastructure funding initiatives and technology deployment programs.

My testimony on how ISTEA's programs have worked reviews several areas where innovation has flourished: transportation project finance; new approaches to contracting; advanced materials and project methods; intelligent transportation systems; and other research and development activities.

I understand that safety will be the subject of an upcoming hearing to be held by this committee and that the Department will have the opportunity at that time to present testimony on how ISTEA has fostered innovation in transportation safety.

We will also be addressing environmental issues at a future hearing, but I would like to briefly note our progress in addressing environmental concerns. ISTEA created two innovative and successful environmental programs, the Congestion Mitigation and Air Quality Improvement Program (CMAQ) and Transportation Enhancements Activities (TEA) funding, which increased State and local officials' ability to target funds to projects that help their communities. CMAQ has proven to be one of ISTEA's most flexible programs, and our proposed changes to this program would make it easier for areas that do not meet particulate matter standards to receive CMAQ funds. Under the TEA, States have carried out projects that help transportation facilities fit better into communities, by preserving historic transportation facilities, building bicycle and pedestrian paths, and mitigating storm water runoff. In our reauthorization proposal, we are recommending codifying the requirement that these activities have a direct link to surface transportation. Under these two programs, ISTEA has stimulated hundreds of successful projects that prove that transportation can enhance the environment.

INNOVATIVE FINANCE

Transportation providers face a difficult challenge today: the gap between needed infrastructure investment and available resources is significant and growing. In response, we have been actively encouraging the development of innovative ways to attract new sources of capital to infrastructure investment and to eliminate inefficiencies in program delivery that add to costs. Innovative financing is an umbrella term used to describe these objectives, and it encompasses a wide range of strategies targeted at cutting red tape to move projects ahead faster and at leveraging Federal funding with private and nontraditional public sector resources.

These strategies grew out of both ISTEA and President Clinton's Executive Order 12893, "Principles for Federal Infrastructure Investments," which instructed Federal agencies to promote innovation, encourage private sector participation in infrastructure investment and management, and use Federal funds more efficiently.

The Partnership for Transportation Investment

Experimental provisions within ISTEA led to the development of innovative solutions for project finance shortcomings including the extension of loans to fund projects with potential revenue streams and the development of the turnkey approach to transit project delivery which focuses on advancing new technology and lowering the cost of constructing new transit systems.

Two years ago, we announced the Partnership for Transportation Investment, a pilot program which built upon ISTEA's provisions regarding these strategies and others, such as toll credits for State matching funds and the Federal reimbursement of bond financing costs.

To date, the Partnership has included over 70 projects in more than 30 States with a total construction value of over \$4.5 billion, including more than a billion dollars in new capital directly attributable to this program. Many of these projects are advancing to construction on an average of 2 years ahead of schedule.

For example, the State Highway 190 Turnpike project in Texas, delayed for three decades by inadequate funding, is underway because Federal funds have reduced the State's borrowing costs and strengthened its access to the capital markets. This \$700 million project, which will help to link four freeways and the Dallas North Tollway, used \$135 million in State-loaned Federal funds to support highly rated, revenue-backed bonds. This support will reduce loan and bond repayment costs (resulting in lower tolls for drivers) and will allow this project to be completed 11 years earlier than through conventional financing.

The Massachusetts Bay Transportation Authority was granted advance construction authority to issue bonds to rebuild its heavy rail maintenance facility. This \$236 million project was undertaken 30 months earlier as a result, with immediate construction savings of over \$50 million. In addition, each repair and overhaul undertaken after 1996 will take up to one-third less time to complete.

The Turnkey procurement process is being successfully implemented. For example, in New Jersey, on the Hudson-Bergen project, bids had to include a grant anticipation note to cover the shortfall between the construction cash-flows and grant receipts. The Turnkey manager for the project will provide a letter of credit for up

to \$200 million over a 3-year period which will be backed by the U.S. Department of Transportation and the New Jersey Transportation Trust Fund.

With an innovative financing grant, the Mississippi department of transportation leveraged an additional \$1.5 million in economic development funds and local debt with which it is building two regional transportation centers to serve eight rural counties. These transportation centers will provide 20 percent more transit service with no increase in operating costs.

In Missouri, as a result of the Partnership for Transportation Investment, the department of transportation and an entrepreneur joined forces to install fiber-optic cable within the highway right-of-way. This cable will be used for private telecommunications services, but also will serve, at no cost to the State, as the backbone of a statewide intelligent transportation system.

Also through the Partnership for Transportation Investment program, the State of Ohio, the City of Cincinnati, and Norfolk Southern formed a partnership to carry out the construction of 3.5 miles of new track and the improvement of four rail bridges. The project, two-thirds of which was funded by Norfolk Southern, has alleviated congestion on rail lines and at grade crossings within a 60-mile radius of Cincinnati. As a result, this project has helped the region to reduce pollution and meet its air quality goals.

In Stark County, Ohio, the State-supported construction of a \$35.2 million intermodal facility enables the transfer of freight between trucks and rail cars. A State loan of Federal-aid funds to the private developer who built the interchange made its construction feasible, and fees paid by facility users will repay the loan. The project has already attracted \$24 million in private funds, and over the next decade could produce \$500 million in new investment and 5,000 new jobs.

A rail project, involving the City of Fort Collins, the State of Colorado, Burlington Northern Santa Fe, and Union Pacific, is consolidating and relocating track to eliminate 16 grade crossings throughout the city. In addition, new signals are being installed at several other crossings. These actions will enhance air quality, highway traffic flow, and rail-highway safety.

In addition, the Chicago and Soo Line Railroad are jointly funding a \$35.1 million project to improve access into and out of a major rail facility in Chicago with the railroad funding all but \$2.1 million of the cost. The benefits of this project are estimated as a \$2.6 million savings in reduced waiting time at rail-highway grade crossings in addition to the benefit of reduced pollution. Public safety will also be enhanced by the reduced exposure to trains at crossings, and additional capacity for Chicago commuter rail service will result from this project as well.

In the National Highway System Designation Act of 1995 (NHS Act), Congress made permanent many of the experimental strategies used in these and other projects, and they are now a regular part of how we do business.

State Infrastructure Banks

We are continuing to develop initiatives aimed at enabling States to leverage Federal dollars. Notable among these are State infrastructure banks (SIBs), which evolved from ISTEA's provision allowing States to loan part of their Federal grant funds to transportation projects. SIBs use Federal seed capital to leverage private and other non-Federal public investment through loans and credit enhancement assistance.

Congress authorized a pilot program when it passed the NHS Act and provided \$150 million in the fiscal year 1997 Department of Transportation appropriations act to fund SIBs in States participating in the program. Currently, SIBs have been approved for 10 States: Arizona, California, Florida, Missouri, Ohio, Oklahoma, Oregon, South Carolina, Texas, and Virginia.

Ohio's bank is the most advanced, having already loaned Butler County \$20 million to support a \$100 million bond issue. Florida, Missouri, Oklahoma, and Oregon are expected to make loans by October 1997. The following list of other projects to be supported by SIBs in the coming year illustrate the flexibility they afford to States seeking to tailor aid to the needs of specific projects.

In Oregon, a SIB loan combined with commercial bank financing will reduce interest debt on vanpool leases in the Portland area and thereby save users 26 percent. This project will encourage ridesharing, with consequent decreases in congestion and air pollution.

Missouri's Springfield Transportation Corporation will use a sequenced, two-loan strategy to speed up significantly a \$33 million road construction project and to reduce interest costs. The first loan will enable pre-construction work to begin without waiting for the full Federal share of funds to be accumulated. The second loan, with below-market interest rates, will finance the project's construction bonds, saving area residents several million dollars in interest costs.

In addition, Missouri's SIB will use a Missouri department of transportation grant to capitalize its transit SIB account. The initial capitalization of \$1 million will support a loan for the purchase of light rail vehicles for St. Louis' transit system.

The SR 80 Interchange in Palm Beach County, Florida, will use an interest-free SIB loan to finance interest costs during construction and the first 5 years of operation, a period in which anticipated revenues from this toll project would otherwise be insufficient to pay its costs. After this time, revenues should be adequate to pay the construction debt, and the project will be able to sustain itself.

These are examples of projects now in development. Our reauthorization proposal expands the number of participants in the State infrastructure bank program and provides additional Federal seed funding to help them get started.

Credit-Based Strategies

SIBs are not the only financial strategies we have been exploring. We have worked to provide contingent loans for toll roads in Orange County, California and a direct loan to California's Alameda Corridor.

These types of projects are of national significance because of this region's role as a global gateway, but might not have been feasible without the credit assistance provided by the Federal Government.

In our reauthorization proposal, we would create a \$100 million per year Federal credit program to target assistance to critical projects of national significance, including trade corridors, intermodal facilities, bi-State connectors, and international border crossings.

This program would offer a cost-effective mechanism for financing important national infrastructure projects and would encourage more private and other non-Federal investment.

INNOVATIVE CONTRACTING

In examining ways to improve project delivery, we have actively encouraged the development of innovative contracting practices by working with State transportation departments to test practices that promise to reduce project life-cycle costs while maintaining quality and contractor profitability. Among the techniques which have been evaluated are design-build procurements, cost-plus-time bidding, and lane rentals.

Design-Build Procurements

The design-build process gives the contractor maximum flexibility in the selection of design and construction methods. Under the design-build approach, the contracting agency merely identifies a project's desired results and establishes minimum criteria for its design. Prospective bidders then develop proposals that optimize their work force, equipment, and scheduling to cut costs and enable innovation.

Another significant benefit is the potential time savings resulting from design and construction being awarded under a single procurement which allows construction to begin before the design details are final. These contracts also reduce the State transportation staff required for projects, an important factor in an era of downsizing.

Fourteen States are carrying out experimental design-build projects: Alaska, Arizona, California, Colorado, Florida, Maine, Michigan, Minnesota, New Jersey, North Carolina, Ohio, Pennsylvania, South Carolina, and Utah.

These projects range from pavement rehabilitation to bridge replacement to the construction of ferry boat facilities. For example, Utah is currently preparing to launch a \$1.4 billion design-build project which will save 3 years in the expansion of I-15, a project undertaken to prepare for the 2002 Olympics.

The benefits of design-built have been demonstrated in Florida where, in the 1980's, the State department of transportation administered a State-funded design-build project which was comprised of 13 projects with a total contract value of \$40 million. The results of this program indicated that the total completion time for design-built projects was up to 40 percent less than the time required to complete conventional design-bid-build projects.

Cost-Plus-Time Bidding

Cost-plus-time bidding formally links the completion of construction projects with the cost of delays to system users. Cost-plus-time bids reflect not only the estimated cost of construction but also the time required to complete the project. Contract awards are based upon both factors, which requires bidders to minimize construction-related delays.

This strategy was used effectively in the reconstruction of the California freeways after the 1994 Northridge earthquake. Road user costs were reduced by approxi-

mately \$47.7 million, and the total contract time for all 10 projects was lessened by 450 days.

In addition, the New York State Department of Transportation (NYSDOT) let 24 cost-plus-time bidding projects between February 1994 and August 1995. At the time of NYSDOT's 1995 interim report, nine projects had been completed, and the State estimated that the total cost savings for these nine projects was between \$3 and \$4 million.

Twenty-seven States and the District of Columbia have tested cost-plus-time bidding, and have reported good results: contract times have been reduced, costs have been acceptable, and quality has been maintained. It is now an accepted way of improving operations for Federal projects and is no longer considered to be experimental.

Lane Rentals

Like cost-plus-time bidding, the goal of lane rentals is to encourage construction contractors to minimize impacts on system users. Under this approach, rental fees based upon the estimated cost of delays or inconvenience to users are included in construction contracts, and the contractor is assessed for the time that operations occupy the roadway and cause delays.

Six States have experimented with lane rentals with varying degrees of success. Indiana, for example, experienced great success with an I-70 pavement rehabilitation project that utilized the lane rental concept along with other innovative contracting concepts. As a result of the lane rental specifications, the contractor scheduled his work to minimize public inconvenience and completed the work 50 days ahead of schedule with a reduction in lane closures by more than one third.

Like cost-plus-time bidding, lane rental is now an accepted way of doing business.

INNOVATIONS IN METHODS AND MATERIALS

Maintaining and upgrading pavement and bridges is crucially important, and we have worked through programs authorized by ISTEA to encourage the development and use of advanced building materials.

SUPERPAVE

SUPERPAVE (Superior Performing Asphalt Pavements) consists of three related elements designed to increase the life of pavement: a performance-based asphalt binder specification, volumetric mix design and analysis using a gyratory compactor, and mix analysis tests and a performance prediction system that reflects such environmental factors as weather. Taking these factors into account can lead to a significant increase in pavement life, and we have encouraged State agencies to obtain the training and equipment needed to take advantage of this innovation.

High-Performance Concrete

We are working with State and local governments, universities, and industry to develop high-performance concrete, an innovation which offers significantly increased design life and durability. Use of high performance concrete will result in substantial first cost savings because bridges can be built with longer spans, fewer girders or beams, and longer life cycles. It already has been used to build a bridge in the Houston area, and a dozen other States have decided to begin using it in their bridge construction. Eight States also are experimenting with this concrete for pavement.

High-Performance Steel

We are also sponsoring research in high-performance steel to improve the steel used in bridge construction. High-performance steel is tougher and more easily welded than steels previously available. Its improved weldability enhances the efficiency and reliability of the fabrication process, and its increased durability reduces the need to maintain or paint the structure it is used to construct.

High-Performance Composite Materials

We have sponsored studies of the use of fiber-reinforced polymer composites to repair damaged bridges and to strengthen existing bridges against earthquakes. For instance, a broken concrete bridge beam repaired using composite material epoxied to its exterior was actually 50 percent stronger than when new. Such methods can reduce repair and strengthening costs to just one-fourth to one-third of the cost of conventional methods. Since these materials are much lighter than traditional structural materials, foundations can be smaller, transportation costs are lower, and materials handling is easier during construction.

INTELLIGENT TRANSPORTATION SYSTEMS

ISTEA established the Intelligent Transportation Systems (ITS) program to further the development of advanced information and communications technologies across all of the modes to cut congestion, improve safety, enhance intermodalism, and reduce the environmental impact of growing travel demands. During the past 5 years, our activities through this program have laid the foundation for an information and communications infrastructure designed to facilitate management of the multiple transportation systems as one system for greater customer service.

These ITS applications can reduce, by about 35 percent, the cost of the new infrastructure capacity we will need over the next decade, much as improvements in air traffic control have enabled us to handle more planes without adding new airports. For example, an ITS application enabling electronic clearance for trucks has been estimated to reduce the operating costs of weigh stations by up to \$160,000 annually per State. In addition, through ITS deployments, government transit costs may be reduced by an estimated \$3 to \$7 billion over the next decade.

ITS applications also have the potential, through radar-based collision-avoidance systems, to improve safety. Crash avoidance systems are expected to reduce accidents by 17 percent, saving thousands of lives and an estimated \$26 billion per year in direct and indirect costs to our communities. In addition, through the application of global positioning satellite systems, ITS applications can help to track freight throughout the shipping process, improving the efficiency of "just-in-time" deliveries.

Under the authority provided by ISTEA, we are working with State and local governments and the private sector on a program of research, architecture and standards creation, and technology transfer and training to accelerate the development and deployment of ITS technologies.

These efforts have produced a national ITS architecture and five cooperative relationships with technical standards developing organizations. These efforts will ensure that ITS programs will be nationally compatible and interoperable by helping to break down the modal and institutional barriers which otherwise could hinder ITS development. They will encourage integrated deployment by public agencies and foster investment by entrepreneurs otherwise unwilling to make commitments without stable markets.

We have already seen successes, such as those in Minneapolis, where reduced congestion has improved freeway speeds by 35 percent and where lives are being saved because emergency response times have been reduced by 20 minutes. In California, ITS has lessened traffic congestion significantly through the Automated Traffic Surveillance and Control (ATSAC) system which controls traffic on streets feeding into a highly congested portion of the Santa Monica freeway to balance traffic demands between the freeway and parallel arterial streets. The reported benefits of this ITS application have been impressive, including a 13 percent reduction in travel time, a 35 percent reduction in vehicle stops, a 14 percent increase in average speed, a 20 percent decrease in intersection delay, a 12.5 percent decrease in fuel consumption, and a 10 percent decrease in harmful emissions.

Other successful applications of ITS technology include the electronic payment of transit fares which has saved New Jersey, for example, an estimated \$2.7 million in labor costs. In Lexington, Kentucky, coordinated computerized traffic signals have reduced "stop and go" traffic delay by 40 percent and reduced accidents by 31 percent between 1985 and 1994. The use of ITS technology by Maryland has enabled a Montgomery County cable station to show traffic conditions of major highways in 180,000 homes and consequently reduce congestion by steering commuters and others away from the more crowded routes. In Oklahoma, electronic toll collection has resulted in savings of more than 90 percent per lane, annually, and through Kansas City's transit management system implementation, transit officials have reduced operating costs by \$400,000, have avoided \$1.5 million in new bus purchases, and have cut the response time to emergencies from 4 minutes to 1 minute. In addition, Seattle's implementation of ramp metering has kept traffic moving and cut accident rates by more than 60 percent, despite an increase in traffic levels.

We are building on such early successes through Operation Timesaver, which is aiding State and local governments in creating a national ITS infrastructure to cut urban travel times by 15 percent over the next decade. We have taken the first steps with model deployments of integrated travel management systems in four metropolitan areas, and of commercial vehicle intelligent systems in eight States.

In addition, we have actively encouraged the development and implementation of ITS applications for rural transportation systems. Research and development activities currently underway include evaluation and identification of advanced traveler information systems, development of motor vehicle safety warning systems utilizing, for example, in-vehicle emergency notification systems to alert a network of re-

sponders, and development of comprehensive traveler information systems, incorporating road, transit, weather, and value-added information for an entire geographic region.

In the longer term, we are exploring the concept of a truly automated highway system. This activity will greatly enhance transportation safety in the future, and will also, in the meantime, engender innovations increasing the safety of operations on our existing roads and vehicles. I would also like to report that we will meet Congress's mandate to demonstrate the feasibility of such a system through a test on San Diego's I-15 this August. Another innovation under development is a fully integrated, intelligent vehicle designed to deliver the right information to the driver at the right time.

To build upon these ground-breaking developments, our reauthorization bill includes incentives to assist metropolitan areas in integrating their ITS infrastructure, as well as major training, standards, and technical assistance programs to support State and local officials in the deployment of ITS for metropolitan as well as rural and commercial uses.

This proposal also would establish a program to continue research and to support deployment activities such as standards development, training, and technology transfer. This research component also would support automated highway system research and the continued development of in-vehicle collision avoidance capabilities associated with integrated intelligent vehicles.

OTHER TRANSPORTATION INNOVATIONS

We are working to improve train operations through the application of the Global Positioning Satellite System, digital data radios, and onboard supervisory computers. Not only will these technologies improve safety, they also will enhance freight productivity today and enable the implementation of safe high-speed passenger and freight operations.

Our Advanced Public Transportation Systems program uses ITS technologies to improve transit efficiency and customer service. It supports such applications as automatic vehicle locators, onboard and wayside passenger information links, electronic fare collection, and automated dispatch systems for demand-response services. For example, through this program, the first technical standard for vehicular data communications in ITS applications was developed. This standard will make it possible for many different hardware designers and data providers to develop and deploy in-vehicle information and automated vehicle tracking systems that can function together to provide driver and passenger information, as well as vehicle and fleet management data.

Advanced train controls are being developed to enhance the safety of passengers, engineers, and maintenance crew in rapid rail systems. As transit ridership increases, the transit system must install more rail sets and run these sets more closely together. To counteract the resulting risks, sophisticated signaling and control systems have been developed. Such systems can identify obstructions on the right-of-way which are imperceptible to the engineer and can signal a malfunction in a train's subsystems when the train is still in motion. In addition, they can bring a train to a safe, controlled stop in the event that the engineer becomes incapacitated.

The Advanced Technology Transit Bus (ATTB), also known as the Stealth Bus because of the space age composites and methods use to build it, is currently being tested. With an expected useful life of 25 years, the ATTB is expected to reduce maintenance costs per mile by 50 percent. It will be one-third lighter than existing buses, thus reducing wear on road surfaces, and with its hybrid electric engine, it will cut emissions by over 60 percent.

CONCLUSION

The innovations made possible by ISTEA are improving operating efficiency, cutting operating costs, and increasing the useful life of transportation facilities and equipment. We will see their benefits well into the next century.

We now must build on the accomplishments of the last 6 years by reauthorizing the many programs which work, refining those programs which have not yet fully realized their promise, and creating new initiatives which apply what we have learned from implementing ISTEA. We will submit our reauthorization proposal very shortly, and we look forward to working with Congress to make it a reality.

Mr. Chairman, that concludes my statement, but I would be happy to answer any questions.

ITS AMERICA ISTE A REAUTHORIZATION TASK FORCE

ISTEA REAUTHORIZATION PRINCIPLES

These principles regarding Intelligent Transportation Systems in national surface transportation reauthorization legislation were prepared by the ITS America ISTE A Reauthorization Task Force and were approved on January 16, 1997 by the ITS America Board of Directors and forwarded to the U.S. Department of Transportation as utilized Federal Advisory Committee formal program advice.

1. ISTE A II should support the National Surface Transportation Goal for ITS, which is to complete deployment of basic ITS services for consumers of passenger and freight transportation across the Nation by 2005. This goal should be supported by providing that an amount equivalent to at least 5 percent of total surface transportation outlays be invested in ITS applications unless the appropriate officials (non-Federal) formally waive or modify the goal for their area.

2. ISTE A II should continue to support an aggressive Research and Technology program. This program should emphasize system integration of ITS vehicle and infrastructure technologies for all modes.

3. The Intelligent Transportation Systems Program should be structured in such a manner as to maximize long term predictability and stability.

4. To create maximum flexibility, ISTE A II should clarify and expand the eligible uses of program category funds to allow for training, operations and maintenance of ITS technology, in addition to ITS capital expenditures.

5. ISTE A II should require regular reports to Congress on the status of deployment toward achieving the National Goal. The report should address specific progress as well as performance and effectiveness.

6. ISTE A II should encourage the use of innovative financing techniques, especially public/private partnerships, in the deployment of ITS, including construction, operations and maintenance.

7. Federal funding should be reserved for those ITS purposes which are not being carried out by private investment.

8. ISTE A II should eliminate barriers to ITS deployment by encouraging the use of innovative and flexible methods for procurement.

9. ISTE A II should continue a targeted Federal role, in partnership with the private sector, in the rapid development of consensus-based ITS standards, stimulation of ITS markets, and essential research and development. To ensure interoperability, Federal funding should only be eligible for ITS systems with components that are consistent with the adopted model architecture and, where they exist, conform to adopted standards.

INTELLIGENT TRANSPORTATION SOCIETY OF AMERICA,
January 31, 1997.

Hon. RODNEY SLATER, *Secretary-Designee,*
U.S. Department of Transportation,
Washington, DC.

DEAR MR. SECRETARY DESIGNEE: In ITS America's capacity as a utilized Federal Advisory Committee, I am transmitting advice or behalf of the Board of Directors regarding the Intelligent Transportation Systems Program within the reauthorization of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991.

In January 1996, the ITS America Board of Directors created an ISTE A Reauthorization Task Force, chaired by former Congressman and Board Member Norm Mineta, to develop a set of Reauthorization Principles as ITS America policy. The Task Force was comprised of both private and public sector representatives from the ITS community. From the Department of Transportation, representatives from FHWA's ITS Joint Program Office assisted greatly with our efforts.

At the end of last year, the Task Force finalized a set of ISTE A Reauthorization Principles, which were unanimously adopted by the Board on January 16, 1997 with instructions that the Principles be forwarded to the Department of Transportation as utilized Federal Advisory Committee formal policy advice. Accordingly, a copy of the ISTE A Reauthorization Principles are attached for your and the Department's consideration. In addition, ITS America assisted the ITS Joint Program Office in outreach efforts to the transportation community last year on the ITS program in ISTE A reauthorization. These Principles reflect the work of the Task Force as well as input from these cooperative outreach activities.

In particular, I would like to draw your attention to Principle #1. This principle seeks that a five (5) percent "soft" set-aside of total Federal surface transportation funding be invested in ITS applications during the reauthorization period. This is

not a mandate as the appropriate officials—State or local—would be given the authority to waive or modify the 5 percent provision. The goal of Principle #1 is not to require spending of Federal funds on ITS applications, but to create a mechanism whereby ITS is fully considered as one of several options available for addressing regional and local transportation problems. The remaining eight (8) Principles seek to continue and build upon the successes already achieved in ITS for the reauthorization period.

We would like to thank the ITS Joint Program Office for its support and assistance. We are particularly grateful to Board Member Norm Mineta for his leadership of the Task Force.

We would appreciate the opportunity very soon for a brief meeting to discuss the Principles and other reauthorization issues with you and your staff.

Sincerely,

JAMES COSTANTINO, PH.D., P.E.
President & CEO.

RESPONSES OF DEPUTY SECRETARY MORTIMER DOWNEY TO ADDITIONAL QUESTIONS
FROM SENATOR REID

Question 1. Although you did not appear before the subcommittee specifically to discuss the Administration's NEXTEA proposal, please provide the Administration's position on the use of the line-item veto on multi-year capital projects and contract authority. For the sake of this answer, please assume that the constitutionality of the line item veto will be upheld.

Response. This question should be directed to the Office of Management and Budget. We have not been advised of a position on this issue.

Question 2. The General Accounting Office provided the committee with a variety of criticisms of the Department's handling of both strategic planning and your perceived inability to adequately fulfill your role as an information clearing house. Please inform the committee what steps (if any) you are taking to improve these two vitally important functions.

Response. The Department has a major effort underway that will result in delivery of an updated strategic plan to the Congress before September 30, 1997, as required by the Government Performance and Results Act (GPRA). Our commitment to improving the way the Federal Government works will be reflected in the updated plan, which will encompass all the operating administrations within the Department and become the policy architecture for transportation decisionmaking now and for the next several years.

On April 24, Secretary Slater convened a strategic planning retreat to discuss issues related to the Department's 1997 Strategic Plan. The Secretary opened the retreat, which was attended by over 70 political appointees and senior career civil servants, with a historical perspective, first looking back at strategic plans produced under the leadership of his predecessors and then by challenging the retreat participants to think about the future, about transportation in the 21st Century.

The Secretary discussed the Department's long tradition of strategic planning referring to Secretary Coleman's National Transportation Trends and Choices to the Year 2000 and Secretary Skinner's Moving America. He discussed the present, referencing the GPRA's requirements that cabinet departments and independent agencies develop results oriented strategic plans. He emphasized his hope that the strategic plan, to be developed by retreat participants, would be a living document that all 100,000 men and women of the Department of Transportation will use every day.

The Secretary challenged participants to sharpen the focus on the goals he committed to after he took the oath of office that safety will be the No. 1 priority of the Department; that we will invest in our infrastructure to ensure that America's transportation system meets the needs and desires of the American people in the 21st Century; and, that we will use a common sense approach to running the Department so that it works better and costs less.

In addition, Secretary Slater has sent letters to the Chairmen and Ranking Members of all Congressional committees communicating his commitment to call upon the Congress to work with the Department to build the safest, most efficient transportation network possible. In his letters, Secretary Slater offered to brief Members of Congress on the progress we have made and on our timetable for this strategic planning effort that will help us ensure that the Department meets the transportation needs of Americans today and in the 21st century. We expect to have a draft strategic plan ready for Congressional consultation shortly.

According to the General Accounting Office, the agency has never issued a report focusing on the Department's handling of strategic planning under the Government

Performance and Results Act (GPRA). As a result, the Department is unable to address specifically the criticisms referenced in the question.

However, the GAO has issued reports where elements of strategic planning were incorporated into larger reviews of specific USDOT programs and/or modal administrations. Most recent is the General Accounting Office's September 1996 report on Surface Transportation Research Funding, Federal Role, and Emerging Issues. A primary finding focuses on the absence of strategic planning and attention given the Department's surface transportation research and development program.

The Administration's NEXTEA proposal directs the Secretary to establish a strategic planning process for research and technology which considers the need to (1) coordinate transportation planning at all government levels; (2) ensure compatibility of standards-setting with concept of seamless transportation; (3) encourage innovation; (4) facilitate partnerships; (5) identify core research to meet long-term needs; (6) ensure the Nation's global competitiveness; and (7) measure impact of investments on system performance. By institutionalizing the R&D strategic planning process, the Secretary will have a corporate mechanism for determining national transportation R&T priorities, coordinating Federal transportation R&T activities and measuring the impact of such R&T investments on the performance of the national transportation system. NEXTEA will provide the Secretary with greater flexibility in structuring a research and development oversight process which should also prove useful to State and local governments in developing and carrying out their own R&T initiatives.

Finally, the Department has undertaken several initiatives which develop our role as a clearing house of transportation information. Better coordination among the operating administrations and better communication with our customers are helping us improve the quality, comprehensiveness, and availability of the Department's data.

The Federal Highway Administration, the Federal Transit Administration, the Maritime Administration, the Federal Aviation Administration, and the Office of Intermodalism have developed and disseminated to transportation planners and other policymakers numerous publications containing information about the development of, and barriers to, efficient intermodal facilities. In particular compendia of freight and passenger facilities financed with Federal aid have been developed. An update of the passenger compendium is being finalized. All of this information has been shared with the Bureau of Transportation Statistics (BTS) and has been made generally available in print and electronic formats including on the Internet.

BTS has worked with other modes to publish compilations of data from throughout the Department. Electronic formats and user-friendly interfaces increase customer satisfaction and broaden our audience. In addition, BTS publishes a directory of transportation data sources and a directory of transportation contacts by subject matter.

The Bureau's award-winning National Transportation Library facilitates the exchange of information among the transportation community. An electronic repository of information, primarily from State DOTs and MPOs, the NTL helps Federal, State, and local agencies share materials more effectively.

The Department has already begun to look at other ways to meet the increasing demand for transportation information. A Transportation Research Board (TRB) conference held in March is helping USDOT to better define data needs at the State and local level, and how the Federal Government can help meet those needs. The conference was sponsored by FHWA, FTA, and BTS, along with the American Association of State Highway Transportation Officials (AASHTO) and the Association of Metropolitan Planning Organizations (AMPO).

BTS serves as the lead agency for the transportation layer under the National Spatial Data Infrastructure (NSDI), as identified by the President in E.O. 12906. In this role, BTS maintains the official clearinghouse, readily available on its Web site, for disseminating and exchanging transportation spatial data. BTS also worked with other National statistical agencies to create FEDSTATS.GOV, a one stop shop for official statistics from throughout the Federal Government.

The Office of Intermodalism and BTS, working with the OST Offices and DOT Administrations, have begun a coordinated effort to improve the information provided on the Department's websites and electronic data bases. The first step in this process debuted May 19. The improved websites are more customer oriented and better connect numerous DOT resources and data bases. Most users will be able to locate the information they are seeking with two to three clicks.

Question 3. Please provide more details on the rail project in the City of Fort Collins and the assistance provided under the Partnership for Transportation Investment program. Are there any aspects of the Fort Collins project that could be readily adapted to other cities that have increasing rail traffic?

Response. The Ft. Collins track consolidation project is a private/public partnership between the Colorado Department of Transportation, the City of Fort Collins, the Union Pacific Railroad Company, the Burlington Northern Railroad Company, the Federal Highway Administration, and the Federal Railroad Administration to consolidate/relocate track, eliminate 16 grade crossings, and put new signals at several other crossings. The project is designed to enhance air quality, traffic flow and safety. It is projected to cost about \$4 million. Local, State, Federal and private funds were contributed. The Federal share is about \$0.7 million. The two railroads will contribute a total of over \$1 million, and the State and city will contribute a total of about \$1 million. The first phase of the project has been completed. The second phase is under construction, and the funding for the third and final phase is being negotiated. To date, four at-grade-crossings have been eliminated.

The Fort Collins project is a very good example of cooperation among various levels of government and the private sector. Federal and State agencies, and the City government worked together toward a common goal. This project demonstrates that our partnerships with government at all levels and the private sector are critical in achieving transportation solutions that benefit our communities and our economy. It demonstrates that better traffic flow, more efficient freight movement and better air quality go hand in hand. The spirit of cooperation in the search for beneficial transportation solutions exhibited by participants should be emulated in other areas of the country which face multifaceted transportation problems.

Question 4. In response to a question from a member of the committee, you stated that the Administration is planning to loosen the prohibition on tolls on the Interstate Highway System. How do you respond to the argument that most Americans feel they have bought, paid for, and continue to maintain the Interstate system through fuel taxes? Do you anticipate that Interstate crossings of State lines will immediately turn into opportunities to charge tolls (most likely in both directions)?

Response. The provision that would allow tolling on Interstate highways is a response to requests by State and local government officials in many parts of the country. In our conversations on reauthorization of the surface transportation bill, we heard many requests to remove Federal restrictions that impede the ability of these governments to use toll finance to supplement their highway financing programs. Removing Federal restrictions that prevent the use of tolls for financing improvements to Interstate roadways will provide State and local authorities with a greater flexibility in meeting the demands being placed on their highway financing programs. This is the same flexibility already available under current law to the rest of the approximately one million miles of Federal-aid highways as well as on Interstate System bridges and tunnels.

To date, the Federal investment in the Interstate system has been financed with revenues generated by Federal user charges, primarily the Federal motor fuel taxes. Federal user charge revenues will continue to be devoted to the preservation of the Interstate system and the Department has proposed a substantial increase in funding for Interstate Maintenance as part of our NEXTEA proposal. In many congested urban areas with needs for road rehabilitation and capacity expansion, the costs of making needed improvements can be quite high, often higher than what can be financed by existing highway user charges. The proposal we are making will allow State and local governments to supplement existing resources by using tolls to meet part of these critical investment needs. Decisions on how to finance needed local investments will be made, not by the Federal Government, but by State and local decisionmakers in the context of State and local political and financial realities. We believe this is consistent with the user pays principle of highway finance, and is a necessary addition to the Nation's highway finance toolbox in an era of constrained budgets and growing investment needs.

We would like to make it very clear that the Federal Government is not mandating, or even advocating, the use of tolls on the Interstate system. This provision is simply providing State and local governments with an additional tool that can be used to increase the amount of investment that they can make in providing new, improved and safer transportation systems. Provisions remaining in the law limit tolls to either new facilities or facilities that undergo reconstruction or replacement. That is, a capital improvement in the facility would precede toll collection on any existing portion of the Interstate system. Toll revenues must be used to pay debt service, financing costs, operation and maintenance of the facility being improved. Any revenues above this amount must be used for projects that are eligible under Title 23.

We do not anticipate tolls for crossing State lines to be a problem. As already mentioned, tolls would only be allowed after a capital improvement to the facility, and in the context of State and local political and financial realities. We, therefore, do not expect the use of tolls on the Interstate to be widespread. Further, if needed,

we believe that the interstate commerce clause would protect against arbitrary or discriminatory tolls.

RESPONSES OF DEPUTY SECRETARY MORTIMER TO ADDITIONAL QUESTIONS FROM
SENATOR BOXER

Question 1. California was designated as a pilot State for the State Infrastructure Bank project about 9 months ago. In addition, the Appropriations Committee provided \$150 million in Federal "seed money" for the loans and other credit assistance that these banks can provide. There are 10 eligible projects identified in the State which would help relieve congestion in the Bay Area, the Los Angeles-Orange counties area and the border.

(1) Where is the hold up in concluding the cooperative agreement with California?
(2) When will we know how much California will receive from the Federal funding?

Response. (1) California is currently working with the Wall Street rating agencies on issues that will affect the final cooperative agreement. (2) An announcement on the SIB applications is imminent and distribution of the \$150 million will be made in the next few weeks. Under the terms of the Appropriations Act, these funds would not be made available before April 1.

Question 2. Another benefit of the ISTE A legislation is that it served as a launching pad for CALSTART and other consortia involved in promoting alternative transportation technologies. I know you are aware of the benefits provided by CALSTART and the other seven regional consortia nationwide in spurring progress in clean fuel vehicles and intelligent transportation systems.

Can I expect to see language pertaining to this program and its reauthorization in your proposed legislation?

Response. CALSTART is a consortium of advanced technology public and private companies and organizations that was one of four consortia awarded grants under ISTE A's research program for Advanced Transportation Systems and Electric Vehicles (sections 6071 and 6073 of ISTE A). They have been highly instrumental in advancing the current State of transportation technology, especially in the area of electric vehicles.

While we have not proposed to specifically authorize funds in our NEXTEA proposal for the CALSTART consortium, or any of the other consortia, we have proposed, in section 6003, to initiate a long-term, high-risk research program that would encompass the efforts being undertaken by the CALSTART consortium.

Also, in section 3015 of NEXTEA, we have proposed to establish a competitive joint partnership program, in which the Federal Transit Administration (FTA) could enter into grants, contracts, cooperative agreements, and other agreements with consortia to promote the early deployment of innovation in mass transportation technology, services, management, or operational practices. Under section 3015 a consortium is defined as "one or more public or private organizations located in the United States which provide mass transportation service to the public and one or more businesses, including small- and medium-sized businesses, incorporated in a State, offering goods and services or willing to offer goods and services to mass transportation operators. It may include as additional members public or private research organizations located in the United States, or State or local governmental entities."

In addition, FTA is working closely with the Defense Advanced Research Projects Agency (DARPA) to integrate current hybrid vehicle projects funded by DARPA and FTA, such as DARPA's regional Electric and Hybrid Vehicle Technology Consortia (of which CALSTART is a member), and several other hybrid vehicle projects, including the FTA Advanced Technology Transit Bus (ATTB) being developed by Northrop/Grumman under contract to the Los Angeles County Metropolitan Transportation Authority. DOT has been an active participant in many of the DARPA-funded technologies and believes that the technologies have direct application to many of the DOT initiatives to deploy advanced alternative-fueled vehicle technologies. We would expect CALSTART to be highly competitive in all of these programs based on the work they have already accomplished.

Question 3. The San Diego Association of Governments is working with a consortium representing seven major design and entertainment industry companies on an innovative, high-tech transportation information system for the San Diego-Tijuana area. The project would fit basic traveler information at electronic kiosks with video images of artists from the entertainment industry relaying this traveler information as well as important tourist and public event messages.

Do you believe that the entertainment industry is particularly well-suited to become partners with government agencies on these kinds of traveler information

services at airports, train stations and other community centers? If so, how do we foster those kind of partnerships?

Response. The ITS Joint Program office has been in contact with the San Diego Association of Governments about their proposal to demonstrate a partnership with the entertainment industry to deliver transportation and other critical information at transportation centers in the area. The proposal has a great deal of merit. We have seen a number of successful pairings of very different industries in developing kiosks. The proposed Deployment Incentive Program in NEXTEA allows for competitive selection of qualified projects that meet specified criteria. Recognizing the need to encourage partnerships such as this, one of the criteria includes demonstration of a good faith effort to involve the private sector. Given that this partnership is already in place for this project, we expect that several elements of this project could be eligible for funding under this program.

PREPARED STATEMENT OF PHYLLIS F. SCHIENBERG, ASSOCIATE DIRECTOR, TRANSPORTATION ISSUES, RESOURCES, COMMUNITY, AND ECONOMIC DEVELOPMENT DIVISION

Mr. Chairman and members of the subcommittee: We appreciate the opportunity to testify on how innovation in Federal research, financing and contracting methods has the potential for improving the performance of the Nation's surface transportation system. Our testimony is based on three reports that we have recently completed for this committee's deliberations on the reauthorization of the Intermodal Surface Transportation Efficiency Act (ISTEA), as well as ongoing work for the committee.¹ In summary, we reported the following:

- Investments in surface transportation research have provided benefits to users and the economy. These benefits include crash protection devices, such as seat belts and car seats for infants and children; programs to reduce alcohol-related deaths; and longer-lasting highway surfaces that reduce maintenance costs. The Department of Transportation (DOT) has a critical role to play by funding research, establishing an overall research mission with objectives for accomplishment and priorities for allocating funds, and acting as a focal point for technology transfer. However, DOT's organizational structure and lack of both a strategic plan and a departmental focal point may limit its impact on research. Until these issues are addressed, the Department may not be able to respond to ISTEA's call for an integrated framework for surface transportation research.

- Established by ISTEA, DOT's Intelligent Transportation System (ITS) Program has received \$1.3 billion to advance the use of computer and telecommunications technology that will enhance the safety and efficiency of surface transportation. Although the program envisioned widespread deployment of integrated multimodal ITS systems, this vision has not been realized for several reasons. First, the ITS national architecture was not completed until July 1996 and ITS technical standards will not be completed until 2001. The ITS architecture and technical standards, which define ITS elements and how they will work together, are prerequisites to a large scale, integrated deployment of ITS systems. In addition, the lack of knowledge of ITS technologies and systems integration among State and local officials, insufficient data documenting the cost effectiveness of ITS in solving transportation problems and competing priorities for limited transportation dollars will further constrain widespread ITS deployment. Before DOT can aggressively pursue widespread deployment of integrated ITS, it must help State and local officials overcome these obstacles.

- State Infrastructure Banks (SIBs) offer the promise of helping to close the gap between transportation needs and available resources by sustaining and potentially expanding a fixed sum of Federal capital, often by attracting private investment. Specifically, these banks provide States increased flexibility to offer many types of financial assistance, such as loans or letters of credit, tailored to fit a project's specific needs. Benefits include expediting project completion, recycling loan repayments to future projects, and obtaining financial support from the private sector and local communities. However, some State officials and industry experts that we talked with remain skeptical that SIBs will produce the expected benefits. Reasons for their skepticism include concern that there are (1) an insufficient number of projects with a potential revenue stream needed to repay the loans and (2) impediments under State law. Only time will tell. This program is new; only one State has

Surface Transportation: Research Funding, Federal Role, and Emerging Issues (GAO/RCED-96-233, Sept. 6, 1996). *Urban Transportation: Challenges to Widespread Deployment of ITS Technologies* (GAO/RCED-97-74, Feb. 27, 1997). *State Infrastructure Banks: A Mechanism to Expand Federal Transportation Financing* (GAO/RCED-97-9, Oct. 31, 1996).

begun a project under its SIB since the initial pilot States were selected for SIB participation in April 1996. Therefore, it is too early to assess how effectively SIBs will help to meet transportation needs.

Our ongoing work has found that:

- the Federal Highway Administration (FHWA) is testing and evaluating the use of an innovative design-build contracting method for highway construction. This method differs from traditional contracting practice in that it combines, rather than separates responsibility for the design and construction phases of a highway project. Proponents of design-build see several advantages to the approach, including better accountability for costs and quality, less time spent coordinating designer and builder activities, firmer knowledge of project costs, and reduced burden in administering contracts. However, FHWA's authority to implement design-build is limited and 17 States have laws which, in effect, prevent the use of design-build. Finally, while design-build may result in the faster completion of projects, it may also require an accelerated revenue stream to pay for construction.

DOT'S LEADERSHIP ROLE IN SURFACE TRANSPORTATION RESEARCH

ISTEA expressed the need for a new direction in surface transportation research, finding that despite an annual Federal expenditure of more than \$10 billion on surface transportation and its infrastructure, the Federal Government lacked a clear vision of the role of federally funded surface transportation research and an integrated framework for the fragmented surface transportation research programs dispersed throughout the Government. The act recognized the Federal Government as a critical sponsor and coordinator of new technologies that would provide safer, more convenient, and more affordable future transportation systems.

Our September 1996 report on surface transportation research confirmed what ISTEA stressed—DOT must play a critical role in surface transportation research. DOT's role as the leader in surface transportation research stems from the Department's national perspective, which transcends the interests and limitations of non-Federal stakeholders. For example, the States generally focus on applied research to solve specific problems; industry funds research to develop new or expanded markets; and universities train future transportation specialists and conduct research that reflects the interests of their funders.

While the Department has established councils and committees to coordinate its research, the lack of a departmental focal point and an inadequate strategic plan may limit its leadership role. First, surface transportation research within the Department is focused on improving individual modes of transportation rather than on creating an integrated framework for surface transportation research. This modal structure makes it difficult for DOT to develop a surface transportation system mission; accommodate the need for types of research—such as intermodal and systems assessment research—that do not have a modal focus; and identify and coordinate research that cuts across modes.

Second, DOT does not have a Department-level focal point to oversee its research, such as an Assistant Secretary for Research and Development. Instead an Associate Administrator of the Research and Special Projects Administration (RSPA) coordinates the Department's surface research programs. Although RSPA was established to foster cross-cutting research, it does not have the funding resources or the internal clout to function effectively as a strategic planner for surface transportation research. RSPA acts in an advisory capacity and has no control over the modal agencies' budgets or policies.

Finally, the Department does not have an integrated framework for surface transportation research. The three research plans that the Department has submitted to the Congress since 1993 are useful inventories of the five modal agencies' research activities. However, the plans cannot be used, as ISTEA directed, to make surface transportation research more strategic, integrated, and focused. Until all these issues are addressed, the Department may not be able to respond to ISTEA's call for an integrated framework for surface transportation research and assume a leadership role in surface research.

ITS PROGRAM HOLDS POTENTIAL FOR INNOVATION IF DEPLOYMENT OBSTACLES CAN BE RESOLVED

ISTEA also reflected congressional concerns about the adequacy of the funding for advanced transportation systems, suggesting that too little funding would increase the Nation's dependence on foreign technologies and equipment. The act therefore increased the funding for many existing and new research programs, especially for the ITS program. Since 1992, the ITS program has received through contract authority and the annual appropriations process about \$1.3 billion. This amount rep-

resents about 36 percent of the \$3.5 billion the Federal Government provided for surface research programs from 1992 to 1997.

Our February 1997 report examined the progress made in deploying ITS technologies and ways in which the Federal Government could facilitate further deployment. On the first issue, a 1995 DOT-funded study found that 7 of 10 larger urban areas were using some ITS technologies to help solve their transportation problems. An example of an area that has widely deployed ITS technologies is Minneapolis. The Minneapolis ITS program, part of the State's "Guidestar" program, first began operational tests in 1991. Since that time, about \$64 million in public and private funds have been invested in Guidestar projects. With these funds, Minneapolis upgraded its traffic management center so that it could better monitor traffic flow and roadway conditions and installed ramp meters to control the flow of traffic entering the expressways. These improvements have helped increase average highway speeds during rush hour by 35 percent.

Although urban areas are deploying individual ITS components, we found that States and localities are not integrating the various ITS components so that they work together and thereby maximize the overall efficiency of the entire transportation system. For example, transportation officials in the Washington, DC., area said that local jurisdictions have installed electronic toll collection, traveler information, and highway surveillance systems without integrating the components into a multimodal system. This lack of systems integration is due in part to the fact that ITS is a relatively new program that is still evolving and has yet to fully implement some fundamental program components such as the national architecture and technical standards. The national architecture, which identifies the components and functions of an ITS system, was completed in July 1996. In addition, a 5 year effort to develop technical standards—which specify how system components will communicate—is planned for completion in 2001.

We also found that the lack of widespread deployment of integrated ITS systems results from insufficient knowledge of ITS systems among State and local transportation agencies; limited data on the costs and benefits of ITS; and inadequate funding in light of other transportation investment priorities. The funding issue is particularly important since DOT has changed the program's short-term focus to include a greater emphasis on deploying ITS technologies rather than simply conducting research and operational tests. The Federal Government's future commitment to a deployment program would have to balance the need to continue progress made under the program with Federal budgetary constraints. Urban transportation officials in the Nation's 10 largest cities we interviewed had mixed views on an appropriate Federal role for funding ITS deployment. Officials in 6 of 10 urban areas supported a large Federal commitment of \$1 billion each year. Typically, these officials contended that future ITS deployments would be limited without specific funding for this approach. For example, a New York transportation planner said that without large-scale funding, ITS investment would have to compete for scarce dollars with higher-priority road and bridge rehabilitation projects. Under such a scenario, plans for deploying ITS would be delayed. These officials also favored new Federal funding rather than a set-aside of existing Federal-aid highway dollars.

In contrast, officials from four other urban areas opposed a large-scale Federal aid program because they do not want additional Federal funding categories. Some of these officials also said that such a program could drive unnecessary ITS investments, as decisionmakers chased ITS capital money, even though another solution might have been more cost-effective. One official noted that a large Federal program would be very premature since the benefits of many ITS applications have yet to be proven despite the claims of ITS proponents. In the absence of a large Federal program, officials from 5 of the 10 urban areas supported a smaller-scale Federal seed program. They said that such a program could be used to fund experimental ITS applications, promote better working relationships among key agencies, or support information systems for travellers.

Deliberations on the future funding for the ITS program should include an assessment of the current obstacles facing the program. First, the system architecture is relatively new, and State and local officials have limited knowledge of its importance. Second, it will take time for State and local transportation officials to understand the architecture and supplement their traditional approach to solving transportation problems through civil engineering strategies with the information management and telecommunications focus envisioned by an integrated ITS approach. In addition, widespread integrated deployment cannot occur without the technical standards that DOT proposes to complete over the next 5 years.

INNOVATIVE FINANCING THROUGH STATE INFRASTRUCTURE BANKS

Until recently, States have generally not been able to tailor Federal highway funding to a form other than a grant. The National Highway System Designation Act of 1995 established a number of innovative financing mechanisms, including the authorization of a SIB Pilot Program for up to 10 States or multistate applicants—8 States were selected in April 1996 and 2 were selected in June 1996. Under this program, States can use up to 10 percent of most of their fiscal years 1996 and 1997 Federal highway funds to establish their SIBs. This program was expanded by DOT's fiscal year 1997 appropriations act that removed the 10-State limit and provided \$150 million in new funds.

A SIB serves essentially as an umbrella under which a variety of innovative finance techniques can be implemented. Much like a bank, a SIB would need equity capital to get started, and equity capital could be provided at least in part through Federal highway funds. Once capitalized, the SIB could offer a range of loans and credit options, such as loan guarantees and lines of credit. For example, through a revolving fund, States could lend money to public or private sponsors of transportation projects. Project-based revenues, such as tolls, or general revenues, such as dedicated taxes, could be used to repay loans with interest, and the repayments would replenish the fund so that new loans could be supported. Thus projects with potential revenue streams will be needed to make a SIB viable.

Expected assistance for some of the projects in the initial 10 States selected for the pilot program include loans ranging from \$60,000 to \$30 million, credit enhancement to support bonds and a line of credit. In some cases, large projects that are already underway may be helped through SIB financial assistance. Examples of projects States are considering for financial assistance include:

- A \$713 million project in Orange County, California, that includes construction of a 24-mile tollway. SIB assistance in the form of a \$25 million line of credit may be used for this project to replace an existing contingency fund. If accessed, the plan is that the line of credit would be repaid through excess toll revenues.
- A \$240 million project in Orlando, Florida, will involve construction of a 6 mile-segment to complete a 56-mile beltway. A SIB project loan in the amount of \$20 million is being considered, and loan repayment would come from a mix of project and systemwide toll receipts and State transportation funds.
- In Myrtle Beach, South Carolina, a SIB loan is being considered to help with the construction of a \$15 million new bridge to Fantasy Harbor. The source for repayment of the loan would be proceeds from an admission tax at the Fantasy Harbor entertainment complex.

These examples represent but a few of the projects being considered for SIB assistance by the initial 10 SIB pilot States.

SIB financial assistance is intended to complement, not replace, traditional transportation grant programs and provide States increased flexibility to offer many types of financial assistance. As a result, projects could be completed more quickly, some projects could be built that would otherwise be delayed or infeasible if conventional Federal grants were used, and private investment in transportation could be increased. Furthermore, a longer-term anticipated benefit is that repaid SIB loans can be "recycled" as a source of funds for future transportation projects. If States choose to leverage SIB funds, DOT has estimated that \$2 billion in Federal capital provided through SIBs could be expected to attract an additional \$4 billion for transportation investments.

For some States, barriers to establishing and effectively using a SIB still remain. One example is the low number of projects that could generate revenue and thus repay loans made by SIBs. Six of the States that we surveyed told us that an insufficient number of projects with a potential revenue stream would diminish the prospects that their State would participate in the SIB pilot program. Ten of 11 States that we talked with about this issue said they were considering tolls as a revenue source. However, State officials also told us that they expected tolls would generate considerable negative reaction from political officials and the general public.

Some States expressed uncertainty regarding their legal or constitutional authority to establish a SIB in their State or use some financing options that would involve the private sector. Michigan, for instance, said that it does not currently have the constitutional authority to lend money to the private sector.

Since \$150 million was appropriated for fiscal year 1997 and the 10 State restriction was lifted, DOT has received applications from 28 additional States. DOT has not yet selected additional States for the program. In addition, DOT has not yet developed criteria or a mechanism for determining how the funds will be distributed to selected States.

The SIB program has been slow to startup. Only one State—Ohio—has actually begun a toll road project under its SIB since April 1996 when the first States were selected for the program. The program will need time to develop and mature.

INNOVATIVE PRACTICES USING DESIGN-BUILD CONTRACTING

Innovation can also occur through different methods to design and construct transportation projects. Of particular note is FHWA's special project to test and evaluate the use of design-build contracting methods under the Agency's authority to conduct research. The project is an outgrowth of a 1987 Transportation Research Board task force report that identified innovative contracting practices such as design-build. The design-build method differs from the traditional design-bid-build method since it combines, rather than separates responsibility for the design and construction phase of a highway project.

Proponents of design-build have identified several benefits. First, the highway agency can hold one contractor, rather than two or more, accountable for the quality and costs of the project. This compares to the traditional approach where problems with the project resulted in disputes between the design and construction firms. Second, by working together from the beginning, the designer and builder would have a firmer understanding of the project costs and could thereby reduce costs by incorporating value engineering savings² into the design. Finally, design-build proponents state the approach will reduce administrative burden and expenses because fewer contracts would be needed.

State interest in the design-build contracting approach is rising. According to FHWA, as of January 1997, 13 States have initiated at least 50 design-build projects under the Agency's special program. The size of State projects varies considerably, from bridge projects costing a few million dollars to the \$1.4 billion reconstruction of I-15 in Utah. While States are becoming more receptive to design-build contracting, FHWA still considers the approach experimental, and an overall assessment of the broad benefits, costs, and applicability of design-build remains limited by the small number of completed projects.

One difficulty in implementing design-build lies in State laws limiting its use. A 1996 Design-Build Institute of America survey of State procurement laws documents this problem. The survey identified 17 States that did not permit the use of combined design and construction contracts. In addition, a 1995 Study by the Building Futures Council noted that some States indirectly preclude design-build by requiring separation of design and construction services—construction services being awarded to the lowest bidder only after the design is complete.

In addition, similar requirements applicable to State highway construction contracts under the Federal-aid highway program limit FHWA's authority to allow design-build contracts outside those that are part of its special project. However, an official within FHWA's Office of Engineering suggested that continuing the current special project may be appropriate because no consensus exists within the highway construction industry on the desirability of the design-build approach.

A final consideration that may limit the use of design-build contracting is project financing. When design-build is applied to expensive, large infrastructure projects, financing can be more complex because the projects are constructed faster than under conventional contracting practices. Faster construction means that funds will be required faster, which may pose difficulties if the project's revenue stream does not keep pace. For example, in our review of a large design-build transit project, the extension of the Bay Area Rapid Transit (BART) system to the San Francisco International Airport, we found that BART required a borrowing program to cover cash shortfalls during construction. With design-build, BART may save construction costs but will incur additional financing costs.

Design-build contracting, while becoming increasingly common in the private sector for facilities such as industrial plants and refineries, does not yet have an established track record in transportation in the United States. However, the experiences now being gained through the 50 projects under FHWA's special project, along with four Federal Transit Administration funded demonstration programs, may provide sufficient evidence of the efficacy of design-build. Early experience suggests that in instances when time is at a premium, and project revenue sources quickly cover construction costs, design-build may provide a good fit with project requirements. One area where these opportunities may exist is FHWA's Emergency Relief Program, which places emphasis on the quick reconstruction of damaged facilities.

²Value engineering is the formal technique by which contractors or independent teams identify methods for constructing projects more economically.

Mr. Chairman, this concludes our prepared statement on the potential benefits and challenges of four examples of innovation in surface transportation research, finance and contracting. We will be happy to respond to any questions you might have.

URBAN TRANSPORTATION—CHALLENGES TO WIDESPREAD DEPLOYMENT OF INTELLIGENT TRANSPORTATION SYSTEMS

Established by the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, the Department of Transportation's Intelligent Transportation Systems (ITS) program has received Federal funding of 81.3 billion to advance the use of computer and telecommunications technologies to enhance the safety and efficiency of surface transportation. The wide array of ITS technologies includes automated toll collection systems that eliminate the need for vehicles to stop at toll plazas; real-time information on traffic conditions and transit schedules for travelers; and automated traffic management systems that can adjust traffic signal systems to respond to real-time traffic conditions.

Concerned about the prospects for deploying integrated ITS in urban areas, you asked us to (1) report on how the Department has changed the focus of the ITS program since the Congress passed ISTEA; (2) examine progress in deploying integrated ITS and the key factors affecting deployment, including the status of the ITS national architecture (the framework which identifies the components of an integrated ITS) and technical standards; and (3) identify ways in which the Federal Government can facilitate the deployment of ITS. To respond to these objectives, we focused on the deployment of the metropolitan ITS infrastructure; we did not examine the development or deployment of other ITS elements, such as commercial vehicle operations and the automated highway system. We interviewed transportation officials in 10 urban areas that are among the Nation's largest and most congested—and therefore likely to have the greatest need for ITS—and reviewed the existing studies on the ITS program. (A more detailed description of our scope and methodology is in app. I.)

RESULTS IN BRIEF

The Department of Transportation's long-term goal for the Intelligent Transportation Systems program—the deployment of integrated intelligent transportation systems—has not changed since the Congress passed the Intermodal Surface Transportation Efficiency Act. However, the Department has recently changed the program's short-term focus to include a greater emphasis on deploying intelligent transportation system technologies rather than simply conducting research and operational tests. Its new focus emphasizes the deployments of integrated intelligent transportation technologies in selected urban areas, outreach and training to overcome the barriers to deployment, and a continuing research program to develop long-term intelligent transportation applications, such as the automated highway system.

Although the program envisioned the widespread deployment of integrated, multimodal intelligent transportation systems, this vision has not been realized. In part, the limited deployment of intelligent transportation systems is the result of the natural evolution of the program. For example, the program's national architecture and technical standards, which define the elements of the intelligent transportation systems and how they will work together, are prerequisite to a large-scale, integrated deployment of the systems. However, the national architecture for the systems was not completed until July 1996, and a 5-year effort to develop standards is planned for completion in 2001. In addition, the widespread deployment of the intelligent transportation systems faces several significant obstacles. These include a lack of technical knowledge and expertise among the State and local officials who will deploy the systems; a lack of quantitative data proving the systems' cost-effectiveness in solving transportation problems; and a lack of funds, in the light of other transportation priorities.

The Federal Government can take programmatic and financial actions to promote the deployment of intelligent transportation systems. The programmatic actions include providing technical assistance and training to State and local officials, disseminating information on the costs and benefits of intelligent transportation efforts, and completing the development of the technical standards in a timely manner. While officials from all 10 urban areas we contacted stated that intelligent transportation systems are a potentially useful tool in solving transportation problems, there was a wide variety of opinions on the appropriate Federal role for funding the systems' deployment. Six urban areas stated that a large-scale Federal de-

ployment program would be necessary to achieve widespread deployment. In contrast, the remaining four opposed a large-scale program because it would limit local flexibility and would encourage the deployment of intelligent transportation systems where other, possibly more cost-effective efforts could be undertaken. Officials from 5 of the 10 urban areas also stated that a smaller-scale Federal seed program could also be effective in fostering deployment. Finally, officials from 9 of the 10 areas stated that Federal financial assistance is needed to maintain deployed intelligent transportation technologies.

BACKGROUND

During fiscal years 1991 through 1997, the Congress provided the Intelligent Transportation Systems (ITS) program with about \$1.3 billion¹ for research and development, operational testing of the ITS technologies, and various activities to support deployment. The research and development efforts have explored new technologies and applications, while the operational tests have been the bridge between basic research and development and deployment. The activities to support deployment have included the development of an ITS architecture and a series of early deployment plans. All of the program's efforts are building on the important goal of developing a fully integrated ITS environment.

In an integrated ITS, all of the components of the ITS are linked, so as to produce greater benefits than would a fragmented deployment of the systems. For example, transit agencies use automatic vehicle location technology to manage bus fleets, and city departments of transportation can use advanced traffic signal control systems to optimally manage traffic. If these systems are linked, the speed and location data on transit buses can be used to monitor the traffic flow on arterial streets, which are typically not monitored, and traffic signals can be adjusted to enable transit vehicles to stay on schedule. Furthermore, if these systems are linked to a traveler information system, travelers can access both transit and traffic information from a single source and use this information to decide when and how to travel.

THE DEPARTMENT HAS REFOCUSSED THE ITS PROGRAM TO EMPHASIZE THE DEPLOYMENT OF TECHNOLOGIES AND SYSTEMS

ISTEA required the Department of Transportation (DOT) to prepare a strategic plan that would specify the goals and objectives of the ITS program. In December 1992, DOT issued its plan, which stated that the long-term goal of using ITS technologies was to develop an integrated intermodal surface transportation system that would be safer, make more efficient use of the existing infrastructure, and enhance users' choices of travel modes. The plan assumed that building more highways was not the solution to congestion in urban areas and that the implementation of ITS technologies could reduce congestion and accidents, improve transit service, conserve energy, and minimize environmental impacts.

To meet its long-term goal, DOT initially outlined the four major components of the ITS program: research and development, operational tests of promising technologies, automated highway system technologies, and deployment support. DOT anticipated that these four program components would serve as the basic foundation for developing short-term ITS technologies, identifying long-term advanced systems, and providing the basis for the future deployment of ITS technologies. Following its initial program direction, DOT funded over 300 projects and identified several promising ITS technologies. DOT initially anticipated that the Federal Government would play a major role in identifying and developing these technologies, but individual users and private-sector manufacturers would pay for a substantial portion of the ITS deployment costs; no special Federal funding program would be needed for the routine deployment of ITS. State and local implementers were expected to deploy ITS using existing Federal program funds.

However, as part of its ISTEA reauthorization proposal, DOTiS refocusing the program to place a greater emphasis on ITS deployment. According to DOT officials, the new ITS program will retain a research and development element and continue the long-term goal of an automated highway system but will refocus short-term efforts to include an emphasis on deploying ITS technologies and integrated ITS systems. In addition, the program will emphasize outreach and training to help the States and local governments overcome the obstacles to widespread deployment. DOT's earlier approach envisioned that most deployment efforts would not be funded by the Federal Government. DOT now believes that widespread deployment will not occur unless Federal funding assistance is provided. As a result, DOT proposes

¹ Appendix II contains a figure showing the level of funding for the ITS program from fiscal years 1991 to 1997.

to expand Federal financial assistance by providing funding incentives of \$100 million annually to help the State and local governments fund the cost of deploying and integrating the ITS technologies. DOT intends that these incentives will help to promote integrated urban ITS as well as systems for improving the regulation of commercial vehicles.

SIGNIFICANT OBSTACLES LIMIT THE WIDESPREAD DEPLOYMENT OF INTEGRATED ITS

While data on the status of ITS deployment is not conclusive, most deployments have occurred in larger urban areas. However, even the Limit the Widespread larger areas are not deploying the kind of integrated systems envisioned in ISTEA. This is due, in part, to the fact that ITS is a relatively new research Integrated ITS program that is still evolving and has yet to fully implement some fundamental program components, such as the national architecture and technical standards. In addition, significant obstacles are precluding the more widespread deployment of ITS. These include a lack of technical expertise and knowledge about ITS among those who will actually deploy the systems; a lack of cost-benefit data about ITS; and a lack of funding dedicated to ITS, in the light of other priorities for transportation investments.

ITS Deployment Has Been Concentrated in Large Urban Areas but Has Not Occurred in an Integrated Manner

Studies of the status of ITS deployment show that deployment has been concentrated in larger urban areas—those with populations of over 1 million. According to a 1995 study by Public Technology Incorporated (PTI),² 70 percent—7 of 10—larger urban areas were using ITS technologies to help solve their transportation problems. In contrast, the study reported that 43 percent of the urban areas with populations between 100,000 and 1 million were using ITS and that 14 percent of the urban areas with populations of less than 100,000 were using ITS. In another study, the Oak Ridge National Laboratory (Oak Ridge) conducted a survey of the Nation's 75 largest urban areas and found that most larger urban areas had deployed ITS technologies but that deployment was less common in smaller urban areas.³

Data on which specific ITS technologies have been deployed are inconclusive. For example, according to the PTI study, the only ITS technology that a large number of urban areas had deployed was traffic signal control systems—systems designed to manage traffic flow by coordinating in real-time the timing patterns of traffic signals. The study reported that 60 percent of the larger urban areas had deployed such systems. In contrast, the Oak Ridge study showed that larger urban areas have planned or implemented a wide array of ITS technologies, including traffic signal control systems, freeway operation centers, incident management technologies, electronic toll collection, and transit technologies. In addition, our interviews with transportation planning officials in 10 of the Nation's larger urban areas and a 1996 study of 7 urban areas by the Volpe National Transportation Systems Center⁴ found that freeway management systems, incident management systems, and traffic signal control were the most widely deployed. The Volpe study also found that multimodal traveler information and electronic fare payment systems were the least deployed.

An example of an area that has widely deployed ITS technologies is Minneapolis. The Minneapolis ITS program, part of the Minnesota Department of Transportation's "Guidestar" program, first began operational tests in 1991. Since that time, about \$50 million in public funding and \$13.5 million in private resources has been invested in Guidestar projects. With these funds, Minneapolis has upgraded its traffic management center to better monitor traffic flow and roadway conditions and has installed ramp meters at numerous on-ramps of the major expressways. These meters control the flow of traffic entering the expressways and, according to DOT, have helped increase highway speeds during rush hour by 35 percent. Other projects in the Guidestar program include the use of "smart tape" that will notify those motorists who stray onto the shoulders of highways, the electronic enforcement of traf-

²PTI is the nonprofit technology organization of the National League of Cities, the National Association of Counties, and the International City/County Management Association. In 1995, PTI conducted a nationwide survey of over 2,000 large and small local governments to identify ITS issues. PTI received over 400 responses from a wide cross section of small and large units of local governments.

³The summary data on the survey conducted by the Oak Ridge National Laboratory, as presented by the U.S. Department of Transportation, Joint Program Office for Intelligent Transportation Systems, appear in *A Report to Congress: The National Intelligent Transportation Systems Program* (draft, Jan. 1997).

⁴*Intelligent Transportation Systems: Assessment of ITS Deployment*, U.S. Department of Transportation, Research and Special Programs Administration-Volpe National Transportation Systems Center (July 1996)

fic laws, improved oversight of commercial vehicle (truck) regulations, and systems architecture to help integrate all ITS components.

Despite these deployment efforts, existing ITS studies and the transportation officials we interviewed indicated that urban areas have not integrated the individual ITS technologies. According to the Oak Ridge study, very few areas are designing and implementing ITS in an integrated manner. The Oak Ridge study found no examples of a fully integrated ITS. In addition, the Volpe study found that transportation agencies were implementing ITS to improve the efficiency of their agencies but were not integrating these technologies with other transportation agencies. For example, the study said that transit agencies have usually functioned independently of highway agencies and are developing stand-alone systems. Several of the transportation planners we interviewed also noted that the deployment of ITS technologies had occurred in a non-integrated manner in their areas. For example, transportation officials in the Washington, D.C., area stated that local jurisdictions had implemented electronic toll collection, traveler information, and highway surveillance systems without integrating the components into a multimodal system.

Working Knowledge of the ITS Architecture and the Issuance of Technical Standards Are Needed

According to DOT and several transportation officials we contacted, widespread and integrated ITS deployment is dependent on the existence of a national ITS architecture and technical standards. However, the ITS architecture was not completed until July 1996, and DOT has just begun an extensive outreach and training effort to ensure that transportation officials around the Nation have an adequate understanding and working knowledge of the architecture. Furthermore, a 5-year effort to develop technical standards began in January 1996. Several transportation officials stated that an effective outreach effort for the architecture and the timely completion of the standards are critical to ensure that the maximum benefits are obtained from the extensive ITS deployments that some urban areas plan for future years.

The ITS architecture identifies the basic components of an integrated ITS, the functions such components perform, and how such components "interface" or share information with each other (see App. III). A commonly used metaphor in describing the architecture is a home stereo system. The stereo industry has determined the overall architecture that is, the functions that will be performed by the speakers, amplifier, radio receiver, compact disc player, etc.—as well as how these systems will interact to produce a desired sound. Within these constraints, the manufacturers may produce a wide array of product types, and an individual may design a stereo system suiting his/her own needs and budget.

Technical standards are an outgrowth of the system architecture—they specify, in detail, how the components will communicate to one another. For example, the architecture states that electronic toll collection will include a roadside reader that can read an in-vehicle electronic toll tag. The architecture does not specifically state how this linkage will be made. Instead, the standards prescribe the form and content of messages between the reader, the toll tag, and the toll facility. DOT and ITS America⁵ have been supporting the development of standards throughout the architecture development effort and in January 1996, contracted with five organizations to begin a 5-year effort to develop standards. While the standards development effort is scheduled for completion in 2001, some high-priority sets of standards are scheduled for completion within a year.

Adhering to the technical standards is important because the purchasers of ITS equipment do not want to be locked into proprietary systems that cannot be integrated with those of other manufacturers and for which replacement equipment or service may not be available if the vendor goes out of business. For example, in the 1970's the Chicago Department of Transportation contracted for a custom-designed traffic signal control system. Subsequently, the vendor went out of business, and the city had to scrap the system and purchase a completely new system.

Effective outreach and training for the architecture and standards and the timely completion of technical standards are critical in the light of the extensive plans for future ITS deployments. Officials from most of the large urban areas we contacted consider ITS a key component of their future transportation systems and plan to devote more resources to ITS in upcoming years. The transportation planners we contacted stated that they plan to implement more ITS projects in the future. For example, the New York City area's short- and long-term ITS deployment plans in-

⁵ ITS America is a consortium of private firms, public agencies, academic institutions, and related associations that plan, promote, and coordinate the development and deployment of ITS technologies in the United States.

clude over \$450 million in ITS projects. In addition, DOT has awarded over \$26 million in early deployment planning grants to 75 urban areas to determine their short- and long-term ITS deployment needs.

Limited Technical Knowledge, Cost-Benefit Data, and Funding Constrain Deployment

Our discussions with transportation planning officials in 10 urban areas and our review of several existing studies indicate that the lack of (1) knowledge about ITS applications at the State and local level; (2) data on the costs and benefits of ITS technologies; and (3) funding for ITS, in the light of other transportation investment priorities, are the key obstacles to the widespread deployment of ITS technologies.

Transportation Officials See Need for ITS Technical Knowledge

In our discussions of the potential for ITS deployment with transportation planning officials in 10 large urban areas, the officials consistently expressed concerns about the lack of knowledge about ITS at the State and local level. According to these officials, most transportation engineers do not possess the technical skills needed to operate and maintain advanced ITS computer and telecommunication technologies. Similarly, the deputy executive director of the Institute of Transportation Engineers said that although the Institute was involved in developing the national architecture and the members of the Institute attended numerous training and outreach sessions, most members do not have the systems integration background needed to develop a clear understanding of what the architecture is, how it works, and how it benefits the ITS applications. He said that most State and local implementers of ITS will have to rely on system integration consultants to ensure that their systems are compatible with the national architecture. This view was also expressed by the executive director of the American Association of State Highway and Transportation Officials at an ITS conference. He said that the States and urban areas have a shortage of technically trained persons to deal with ITS because transportation agencies are primarily staffed with civil engineers, not electrical engineers or system integrators, and new skills are needed.

The issue of technical knowledge was also identified as an obstacle to deployment in several studies we reviewed. According to DOT's 1997 report on nontechnical barriers to ITS deployment,⁶ the staffing and educational needs of transportation agencies is one of the most pressing issues confronting the ITS program. The report concludes that the successful deployment of ITS depends on retraining the existing employees and hiring individuals who possess new skills. Similarly, PTI's survey of urban areas found that a lack of staffing and employee training was an obstacle to deployment: 56.6 percent of respondents cited staffing and training as a problem. PTI also held a series of focus groups with local officials in 1995 and found that elected officials do not talk about ITS deployment as a priority and that few see any political benefits in spending more time and money on ITS. The 1996 Volpe Center report identified both the lack of training and education among the staff required to work on ITS projects and a lack of awareness about ITS among politicians and agency managers as barriers to successful ITS deployment.

Transportation Officials See Need for Cost-Benefit Data

Our discussions with transportation planning officials also revealed that the lack of quantitative data on the costs and benefits of deploying ITS is also seen as a deterrent to deployment. According to one official, there are no adequate economic models that local transportation planners can use to determine the costs and benefits of ITS, thereby making it difficult to justify expenditures on ITS-related projects. Several officials told us that quantitative data proving that ITS could reduce traffic congestion or make transit more reliable would enable them to secure funding for ITS projects.

The lack of cost-benefit information was also seen as an obstacle in some existing studies. Over 43 percent of the respondents to the PTI survey indicated that the lack of cost-benefit data and the lack of proven applications were obstacles to deploying ITS. In addition, the 1996 study by the Volpe Center concluded that relatively few formal cost-benefit analyses of ITS had been conducted. The report further stated that transportation officials needed to conduct more analyses of the benefits of ITS deployments and that such data are needed to justify spending funds on ITS.

⁶ *A Report to Congress: Nontechnical Constraints and Barriers to the Implementation of Intelligent Transportation Systems*, U.S. Department of Transportation, Joint Program Office for Intelligent Transportation Systems (draft, Jan. 1997).

Transportation Officials See Need for ITS Funding

Our interviews with transportation planning officials and review of studies indicate that the competition for limited financial resources between ITS and traditional transportation projects will limit the deployment of ITS. For example, officials from the Philadelphia urban area stated that they have plans representing over \$100 million in ITS projects, but because of the pressing needs of their existing transportation infrastructure, it was doubtful whether they would implement many of their planned ITS projects. The officials were particularly concerned that the need to repair the deteriorating roads and bridges in their area would leave little funding for ITS projects. In addition, all of the officials we interviewed from the 10 urban areas stated that because Federal law precludes the use of Federal funds to maintain ITS technologies, it will be difficult for some areas to deploy ITS. These officials were concerned that transportation planners in some areas would not want to make large capital investments in ITS technologies that could not subsequently be maintained.

Eighty percent of the PTI survey's respondents cited insufficient funding as an obstacle to deploying ITS. PTI concluded that the majority of local jurisdictions believed that the funding levels for ITS need to increase in order to successfully deploy ITS. In addition, the Volpe Center's report concluded that, due to funding limitations, transit agencies will spend little to deploy ITS technologies unless such funds are earmarked for ITS deployment and that transit administrators feel that pursuing ITS projects will force other budget items to be dropped or reduced. The Volpe report stated that these factors would reduce the viability of ITS projects for transit. Finally, a 1997 DOT draft report⁷ concluded that the competition for limited financial resources between ITS and traditional transportation projects will limit ITS deployment.

FEDERAL ACTIONS TO FOSTER THE DEPLOYMENT OF ITS

The Federal Government can take a number of actions to address the major barriers to ITS deployment that we identified. DOT can take, and in some cases has taken, a number of measures to address the programmatic barriers. These include continuing and expanding training and outreach programs, effectively disseminating information about success stories and the costs and benefits of ITS deployments, and completing the development of the ITS technical standards. Congressional action would be required to address the financial barriers. Among urban transportation planners, we found a wide range of opinions on the desirability of expanded Federal deployment assistance and on how such assistance could best be structured. However, all officials we contacted said that the flexibility to use Federal-aid funds for maintaining ITS efforts was desirable.

Programmatic actions to Address Deployment Obstacles

Our review of the existing studies and our discussions with transportation planning officials in 10 of the nation's larger urban areas identified a number of recommendations on how DOT can assist State and local implementers to overcome the key programmatic obstacles to deployment. First, to address the issue of training and outreach needs, the 1996 Volpe Center Study proposed that DOT provide education to State and local transportation staff and develop an information transfer program whereby DOT would provide contacts to State and local officials for answering ITS questions. During our interviews, most officials stated that providing training and outreach was an important role for the Federal Government. In addition, providing training and technical assistance in deploying, operating, maintaining, and conforming ITS technologies to the national architecture and standards was frequently cited as one of the most important actions the Federal Government could take to foster deployment.

DOT has taken some actions to address the programmatic obstacles. Through a 2-year cooperative agreement with PTI, DOT has implemented an outreach and training program for local agencies. Under the agreement, PTI/DOT have created a network of local government elected officials to help share information between DOT and local officials. DOT has also developed an ITS 5-year capacity-building strategic plan for DOT staff, State highway agency staff, metropolitan planning organization staff, and other local government staff. The goal is to expand the knowledge of ITS among Federal, State, and local transportation officials and to create a cadre of highly trained ITS professionals who are able to plan, design, implement, operate, and maintain ITS technologies.

⁷ *A Report to Congress: The National Intelligent Transportation Systems Program*, U.S. Department of Transportation, Joint Program Office for Intelligent Transportation Systems (draft, Jan. 1997).

To disseminate information on the benefits of ITS DOT is developing benefits reports, in which it presents data based on the experience gained in field operational tests and other deployed systems. In a September 1996 report,⁸ DOT provided the results on the benefits of ITS technologies, including time savings, crash reductions, and customer satisfaction. For example, the report indicates that the use of advanced traffic management systems on an Interstate highway in Minneapolis has reduced vehicle crashes by 27 percent. Second, DOT has implemented the Model Deployment Initiative. The initiative is designed to “showcase” sites that will demonstrate the costs and benefits of an integrated ITS system. DOT has selected four metropolitan areas as model sites—New York City, San Antonio, Phoenix, and Seattle and—expects these projects to be operational during 1997. However, the results from these model sites will not be available until late 1998 or early 1999.

Finally, the lack of technical standards is seen as an impediment to the widespread deployment of ITS. During our interviews, several transportation planners said that DOT needs to ensure that the efforts to develop the standards are completed in a timely manner. DOT has awarded contracts to five standards development organizations to complete the 44 highest-priority sets of standards over the next 5 years.

Mixed Views on Large-Scale Federal Financial Assistance for ITS

The transportation planning officials we contacted had mixed views on the need for dedicated Federal funding for ITS deployment. Officials from 6 of the 10 urban areas supported a large dedicated program of \$1 billion or more per year, stating that, in the light of other priorities, additional ITS deployments would not otherwise occur. Officials of the four other urban areas opposed such a program because dedicated ITS funds would be too prescriptive and might result in poor investment decisions. In the absence of a large program, officials from 5 of the 10 areas we contacted supported a smaller seed program. Officials from 9 of the 10 areas supported the concept of using ITS funds to maintain ITS technologies.

As shown in table 1, the officials we contacted were divided on the need for a large-scale Federal aid program dedicated to deploying ITS. Typically, the supporters contended that future ITS deployments would be limited without specific funding for this approach. For example, a New York transportation planner stated that without large-scale funding, ITS investment would have to compete for scarce dollars with higher-priority road and bridge rehabilitation projects. The official believed that, under such a scenario, plans for deploying ITS would be delayed. Another official likened ITS to the Interstate system, noting that without dedicated funding, the Interstate system would never have been built.

Table 1.—Transportation Planners’ Views on Federal Financial Assistance

Type of program	Support	Oppose
Large Federal program	6	4
Set-aside of existing program	0	.....
New funds	6	.....
Grant program	3	.....
Formula program	1	.....
Mixed grant/formula	2	.....
Smaller seed program	5	5

Source: GAO’s analysis of interview data.

The six supporters of large-scale ITS funding all expressed a preference for newly authorized ITS money, as opposed to a set-aside of existing Surface Transportation Program or National Highway System funds. As one official noted, transportation officials would not support taking money away from existing programs and distributing it to ITS because there are too many other pressing needs.

Three of the six large-program supporters favored a grant approach, under which only applicants with a specific ITS proposal would receive funds. They stated that this approach would ensure that the funds went only to areas with a definite need and would encourage ITS innovations. The advocate of the formula approach, which would distribute ITS funds to all States on the basis of specific factors, such as total urbanized population, supported the formula approach because it would be to the advantage of his very populous urban area. The supporters of the mixed approach

⁸ *Review of ITS Benefits: Emerging Successes*, U.S. Department of Transportation, Federal Highway Administration (Sept. 1996).

said that all areas should get some ITS funds but that larger amounts should be available for areas with well-developed plans for larger ITS initiatives.

Four of the 10 officials we interviewed opposed a large-scale Federal-aid program. All of these officials generally opposed the establishment of additional Federal funding categories. One official noted that transportation planners generally identify a problem and then identify and assess potential solutions on the basis of the projected costs and benefits. Other officials noted that these resource allocation decisions are best made at the local level, not at the Federal level, and that to prescribe ITS would reduce State and local flexibility. One official noted that earmarking large funds for ITS could lead to calls for large-scale Federal assistance for intermodal projects, trucking projects, and so on. Some officials also said that such a program could drive unnecessary ITS investment, as decisionmakers chased us capital money, even though another solution might have been more cost effective. Finally, officials from one area noted that such a program was very premature, stating that despite the exaggerated claims made by ITS proponents, the benefits of many ITS applications have yet to be decisively proven.

In the absence of a large-scale program, the representatives from five urban areas supported a smaller grant program of about 8100 million annually nationwide that could be used to fund experimental ITS applications, promote better working relationships among the agencies and jurisdictions deploying ITS in a single urban area, or support information systems for travelers. The opponents of the smaller program felt that this level of funding would be too small to be of much assistance.

CONCLUSION

The reauthorization of ISTEA in 1997 represents an important milestone for reassessing the direction of DOT's ITS program. After 7 years and \$1.3 billion in Federal funds for an ITS program emphasizing research and testing ITS technologies, DOT is proposing a more aggressive Federal role that focuses on deploying ITS systems, particularly in large urban areas. However, before DOT can aggressively pursue ISTEA'S goal of the widespread deployment of integrated ITS, it must overcome the obstacles cited in this report. First, the system architecture is relatively new, and State and local transportation officials have limited knowledge of its importance. Second, it will take time for State and local transportation agencies to supplement their traditional approach to solving transportation problems through civil engineering strategies with the information management and telecommunications focus envisioned by an integrated ITS approach. In addition, time will be needed to assess the results of DOT's model deployment program—a program designed to document the benefits of an integrated ITS deployment program located in four urban areas. Programs that focus on training for State and local officials on the system architecture and on more information on the benefits and costs of ITS applications are necessary prerequisites to the acceptance of ITS as an important tool for addressing transportation problems. Finally, widespread integrated deployment cannot occur without the technical standards that DOT proposes to complete over the next 5 years. These standards are needed so that State and local governments do not purchase ITS technologies, such as electronic toll collection facilities, that are incompatible with the system architecture and other ITS applications.

AGENCY COMMENTS

We provided a draft of this report to DOT for review and comment and met with the director of the ITS Joint Program Office and her staff to obtain the Department's comments. In general, they said that the report accurately portrayed the challenges that the ITS program faces in fostering the widespread deployment of integrated ITS systems. In particular, they said that the report accurately highlighted the nature and importance of the ITS architecture and standards. They reemphasized the fact that while ITS investments are being made, the urban areas deploying ITS need to consider the integration of the various technologies even in advance of the completed standards. The officials said that urban areas should plan to integrate their systems as early as possible rather than waiting until they have deployed individual ITS technologies. The officials also noted that we should reemphasize that our report focused only on metropolitan ITS infrastructure and did not review other areas of ITS—such as commercial vehicle technologies and the development of the automated highway system. We revised the beginning of the report to note that we focused on metropolitan ITS infrastructure only. Finally, the officials provided several specific editorial comments, which we have incorporated where appropriate. The officials made no comments on our overall conclusions.

We performed our review from October 1996 through February 1997 in accordance with generally accepted government auditing standards.

We are sending copies of this report to the Secretary of Transportation; the Administrator of the Federal Highway Administration; the Administrator of the Federal Transit Administration; cognizant congressional committees; and other interested parties. Copies will be available upon request.

APPENDIX I

SCOPE AND METHODOLOGY

To determine how the Department of Transportation (DOT) has changed the focus of the Intelligent Transportation Systems (ITS) program since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA). We first determined the original focus of the program. We did this by examining DOT's ITS strategic plan and other documents. We also interviewed transportation officials at the Federal, State, and local level, as well as ITS experts in industry and academia. To determine any changes to the program's focus, we interviewed ITS program management and reviewed their draft proposal for reauthorizing the program.

To examine progress in deploying integrated ITS and the key factors affecting the deployment, we reviewed recent survey results and research work prepared for DOT, conducted by Public Transportation Technology Inc. (PTI), the Volpe National Transportation Systems Center, and the Oak Ridge National Laboratory. On the basis of our review of these documents, we used a standard series of questions to conduct in-depth interviews with transportation planning officials in 10 of the nation's largest and most congested urban areas who are, because of their areas' size and congestion, likely to be familiar with ITS technologies.⁹ We discussed whether (1) these areas had deployed ITS technologies, (2) which specific technologies they had used and why, and (3) what if any plans they had for future ITS deployment.

To identify ways in which the Federal Government can facilitate the deployment of ITS, we used a standard series of questions to guide the discussions with the officials of the selected urban areas. The discussions covered the types of financial and nonfinancial incentives that would be most effective in spurring deployment. We discussed the general pros and cons of Federal financial assistance, as well as how a financial assistance program might be structured, including whether the program should be a large program of \$1 billion or more annually or a smaller seed program of about \$100 million. We also used the results of the PTI and Volpe studies, in concert with our interviews, to identify nonfinancial incentives the Federal Government could take.

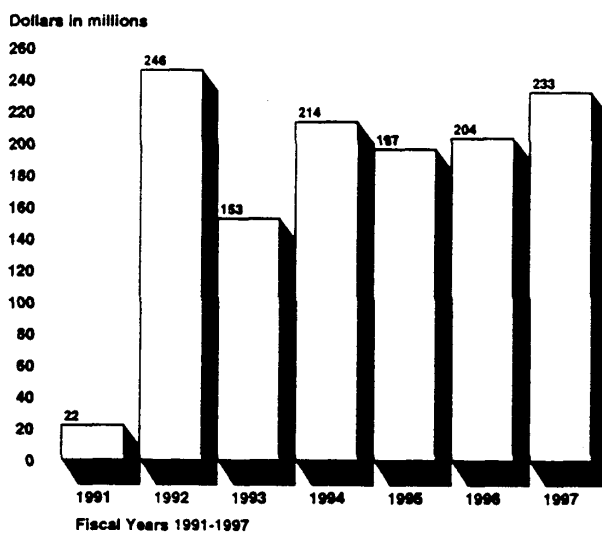
APPENDIX II

THE ITS PROGRAM'S FUNDING LEVELS, FISCAL YEARS 1991–97

Figure II.1 shows the levels of funding for the ITS program. The total funding for the program, which includes projects in three modal administrations—the Federal Highway Administration, the Federal Transit Administration, and the National Highway Traffic Safety Administration—has increased from \$22 million in 1991 to \$233 million in 1997. The total funding for the 7-year period (fiscal years 1991–97) was \$1.3 billion. This funding includes \$645 million in contract authority granted for the program under the Intermodal Surface Transportation Efficiency Act (ISTEA) and \$624 million provided through the appropriations process.

Figure II.1: Funding for the Intelligent Transportation Systems Program, Fiscal Years 1991–97

⁹These areas included Detroit, Houston, Los Angeles, Miami, Minneapolis, New York, Philadelphia, San Francisco, Seattle, and Washington, DC.

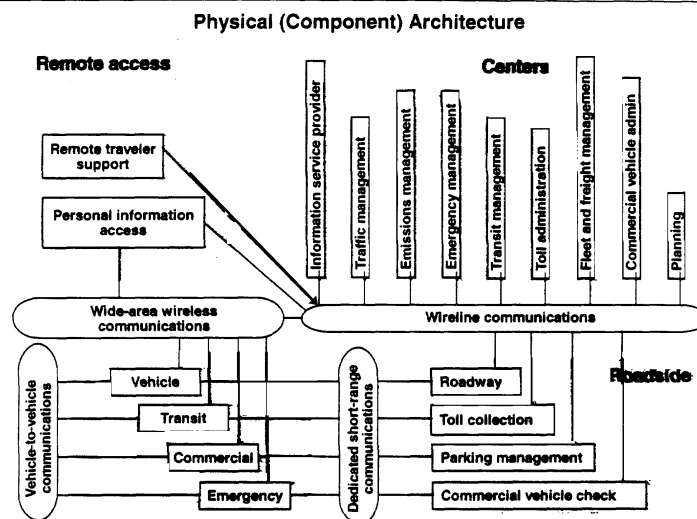


Source:DOT

Note: For fiscal years 1992-97, ITS funding includes both the contract authority granted under ISTEA and the funds provided through the appropriations process. In fiscal year 1991, funds were provided through the appropriations process. Fiscal year 1995 reflects a rescission, and fiscal year 1996 reflects the reduction associated with ISTEA section 1003.

Note: For fiscal years 1992-97, ITS funding includes both the contract authority granted under ISTEA and the funds provided through the appropriations process. In fiscal year 1991, funds were provided through the appropriations process. Fiscal year 1995 reflects a rescission, and fiscal year 1996 reflects the reduction associated with ISTEA section 1003.

Figure III.1: Integrated ITS as Defined by the Architecture



Source: DOT.

The National ITS architecture provides overall guidance to ensure system, product, and service compatibility/interoperability without limiting the design options of a stakeholder. The architecture provides a common structure for the design of intelligent transportation systems. It is not a system design nor is it a system concept. What it does define is the framework around which multiple design approaches can be developed each one specifically tailored to meet a user's individual needs. The architecture defines the functions that must be performed to implement a given user service, the physical entities or subsystems where the functions reside, the interfaces/information flows between the physical subsystems, and the communication requirements for the information flows. Figure III.1 outlines the physical architecture that defines the physical components of an integrated ITS system.

The physical architecture defines four systems that encompass 19 subsystems:

Center subsystems deal with those functions normally assigned to public/private administrative, management, or planning agencies. For example, the traffic management subsystem processes traffic data and provides basic traffic and incident management services through the roadside and other subsystems.

Roadside subsystems include functions that require convenient access to a roadside location for the deployment of sensors, signals, programmable signs, or other interfaces with travelers and vehicles of all types. For example, a toll collection subsystem interacts with vehicle toll tags to collect tolls and identify violators.

Vehicle subsystems are installed in a vehicle. For example, commercial vehicle subsystems store safety data, identification numbers, and other regulatory information to expedite commercial vehicle clearance by interacting with roadside commercial vehicle check points.

Traveler subsystems are designed to be accessible to the traveling public to help them make optimal travel choices. For example, a traveler at a shopping center can access an information kiosk to determine which bus to take and the time of the next scheduled departure. Alternatively, a commuter can access information on freeway traffic conditions via a home personal computer. These systems derive information from traffic, transit, and other management centers.

The architecture also identifies a basic communications infrastructure by which these subsystems can share information. It is this communication between subsystems that results in a truly integrated ITS system.

RESPONSE OF PHYLLIS F. SCHEINBERG TO AN ADDITIONAL QUESTION FROM
SENATOR WARNER

Question. You've testified in your testimony that ISTEA provided \$3.5 billion for surface transportation research, of which \$1.3 billion has been dedicated to ITS technology. Did your analysis examine any issues relating to competition for these funds?

Response. ITS projects are selected in various ways. The Department of Transportation's Inspector General reported in 1995 that FHWA, NHTSA, and FTA typically conducted an annual solicitation for new ITS projects, and subjected the proposed projects to their own, agency-specific selection criteria. For example, FHWA uses a three-level screening process to select research and development projects, and a four-level screening process to select operational test projects. The IG noted that NHTSA and FTA had less formal procedures for selecting projects. In general, the report found that FHWA followed its procedures for selecting projects (the report did not comment on NHTSA or FTA), but there was no central oversight of the three agencies' selection processes. As a result, the report found the potential for duplication of program efforts, and limited assurance that sufficient attention would be paid to intermodal projects.

DOT's Joint Program Office used a competitive process to develop the national ITS architecture and select cities for its model deployment program. DOT received four detailed proposals for developing the national ITS architecture, and after reviewing the proposals, selected two architecture development teams. On the model deployment initiative, DOT solicited proposals from around the country, and received 23 applications. Based on selection criteria, the JPO selected four model deployment cities—New York, San Antonio, Phoenix, and Seattle.

ITS projects are also selected by the Congress through earmarks. Over the past 6 years, congressional earmarks have comprised, on average, about 38 percent of ITS funding. The level of congressional earmarks varied from 75 percent in fiscal year 1993 to 20 percent in fiscal year 1996. DOT officials stated that congressional directives hamper their ability to direct their programs and match funds with critical needs.

RESPONSE OF PHYLLIS F. SCHEINBERG TO ADDITIONAL QUESTION FROM
SENATOR CHAFEE

Question. In your statement, you said that officials from the Federal Highway Administration's Office of Engineering suggested that there was not consensus on the desirability of the design-build approach. However, your testimony also cites the numerous benefits of design-build. It seems like we have identified a good idea. Why do we need to wait an additional 5 years, as the FHWA Office of Engineering seems to suggest? What is the basis for the apparent lack of consensus?

Response. The benefits that we cited in our statement are those that advocates of design-build expect to receive from using this form of contracting. FHWA is currently trying to determine whether highway agencies can actually realize these benefits through its special experimental project. In terms of the lack of consensus on the desirability of design-build, there are various reasons why the highway construction industry has been cautious about using it. First, professional design firms fear that as subcontractors to the builder, they will be caught between the quality demands of the owner and the competitive (cost) demands of the contractor. Design firms are also concerned about bearing the cost of developing preliminary designs and then losing the contract through competition. Second, trade associations have expressed concern that small contractors may not be able to compete with large firms because small firms cannot easily bear the burden of design costs and warranties. Finally, contractors are concerned that if longer term warranties are part of design-build projects, their bonding capacity would be tied up and the unknown environmental, geological, operational, and political risks associated with the design-build contract could be transferred to them through a warranty.

RESPONSES OF PHYLLIS F. SCHEINBERG TO ADDITIONAL QUESTIONS FROM
SENATOR REID

Question 1. Daniel V. Flanagan, Jr., the Chairman of the Commission to Promote Investment in America's Infrastructure, a Commission sponsored by the Congress under ISTEA, has recommended that the United States establish a National Infrastructure Corporation. The goal of such a corporation is to use Federal dollars as seed money to leverage vastly increased private sector investment, such as pension

funds, in transportation projects that have a likelihood of turning a profit. In your examination of the smaller-scale State Infrastructure Bank pilot program, did you come away with the impression that there are a lot of financially viable projects out there waiting this sort of seed money?

Response. In our October 1996 report, we reported that the absence of new Federal money to capitalize a State infrastructure bank was a factor that definitely diminished the prospects that about half of the States that we surveyed would participate in the pilot program. However, DOT's appropriation for fiscal year 1997 provided seed money, and 28 additional States have now applied for participation in State infrastructure banks.

Nonetheless, some States we surveyed expressed aversion to debt financing and concern about whether there are enough revenue-generating projects to sustain a State infrastructure bank.

Question 2. Mr. Constantino of ITS America testified about his organization's ideas for ITS under this year's transportation bill. He is going to suggest that ITS be treated as a "soft set-aside." Basically, a State that does not want to participate, would be given the option to opt-out, with several conditions. Do you think this would placate those States that you surveyed that are concerned about a Federal dictate diluting the overall pool of money available to them? What else can DOT do to make this program more appealing to the States?

Regarding the first question, our work suggests that a soft-set aside may not placate those State that oppose a large Federal program for ITS deployment. About half of the States we spoke to opposed a large Federal ITS deployment program, even if the funds to pay for this program were new funds. Typically, these State officials noted that such a program could drive unnecessary ITS investments, while more cost effective alternatives were available. State officials believed that States and localities need maximum flexibility to address their unique transportation problems. In fact, states currently have the flexibility to use their existing Federal aid highway funds to pay for both the capital and operating costs of ITS projects.

On the second question, we believe that DOT should emphasize training and education of transportation officials at the State and local level. Deploying and maintaining ITS technologies require skills that current transportation professionals, trained as civil engineers, often do not have. Further, DOT needs to expand its efforts to disseminate information on the costs and benefits of ITS. Our research revealed that some transportation officials are quite skeptical of ITS solutions to transportation problems, viewing ITS in part as being driven by the computer, telecommunications, and consulting industries. More objective analysis demonstrating the benefits of ITS is needed.

PREPARED STATEMENT OF GERALD PFEFFER, SENIOR VICE PRESIDENT,
UNITED INFRASTRUCTURE COMPANY

INTRODUCTION

Good morning, Mr. Chairman and members of the Senate Subcommittee on Transportation and Infrastructure. My name is Gerald Pfeffer. I'm a senior vice president with United Infrastructure Company, a partnership of the Bechtel Group and Peter Kiewit Sons', two of the most respected names in the construction industry. With me this morning is Ms. Edith Page, a transportation expert in Bechtel's Washington office.

We develop, finance and operate toll roads, airport and water facilities projects in partnership with public agencies. We appreciate the opportunity to brief you on three innovative highway projects and to suggest some ways that the Congress could help stimulate private investment in our Nation's transportation facilities. I'd like to make four key points:

- Our transportation funding problems are increasing.
- Private investors stand ready to rapidly implement innovative and popular solutions.
- American motorists will pay market prices to avoid congestion.
- Federal leadership is needed for the public to realize the maximum benefits.

THE SITUATION TODAY

First, let me characterize today's situation:

While our growing population is driving more miles than ever, they're driving the most fuel-efficient cars in history. That means more wear and tear on our highways, but lower gas tax revenues. And the tax revolt shows no sign of ebbing. The bottom

line: Many States can't afford to maintain their existing highways, much less build new ones.

There is a solution. There's a large pool of private capital available, and investors are always on the lookout for projects that offer adequate returns on investment. In the last 7 years, our parent companies have arranged over \$11 billion worth of financing. Billions more are available, for the right opportunities.

However, unless we act now, much of this capital will be directed to projects overseas. It's estimated that Asian countries alone need a billion dollars a week to upgrade their infrastructure. Many Nations rely on private financing to modernize and make their economies more productive. Ironically, much of this money comes from U.S. institutions. Every billion we invest creates an estimated 20,000 jobs. Isn't it time we look for ways to keep this capital in the United States?

In the Intermodal Surface Transportation Efficiency Act of 1991, Congress took the first steps to encourage private financing. It's a solid foundation to build upon, but only a handful of projects have been realized. To maximize the potential of public-private partnerships, some additional innovative policy changes are needed. I'll describe these changes in a few minutes.

CASE STUDIES

But first, let me share with you three projects that show what can be done, given the right backing: the 91 Express Lanes in Orange County, California, the I-15 Congestion Pricing Demonstration in San Diego, California, and the Tacoma Narrows Bridge in Pierce County, Washington. Additional information on these projects is included in your packet.

91 Express Lanes, Orange County, California

Our affiliate, California Private Transportation Company, holds a franchise awarded by the California Department of Transportation to develop, finance, construct and operate the 91 Express Lanes—the world's first fully automated toll road, the first toll road to be financed in more than 50 years, and our country's first example of congestion pricing.

This is one of four privately financed transportation projects authorized by the California Legislature in 1989, and the only one completed to date.

This \$126 million project added four lanes in the median of the existing Riverside (91) Freeway, over a 10-mile stretch from Anaheim in Orange County to the Riverside County line. We did it without a dollar of Federal or State money. In fact, we're going to pay the State an additional \$120 million over 35 years for maintenance and police services that would otherwise have been paid by California taxpayers.

We depend on technologies that literally did not exist when the 102d Congress began to draft ISTEA a few years ago. Today, the project stands as perhaps the best example in the U.S. of the kind of innovation that private investors, in partnership with Federal, State and local agencies, can accomplish. Here are a few of the new ideas we've implemented:

- The 91 Express Lanes is a toll road without toll booths. Using windshield-mounted gadgets called "transponders," we deduct user fees electronically from our customers' prepaid accounts as they cruise along at 65-miles-per-hour.

- While variable-pricing has long been used by phone companies, airlines, hotels and other capital intensive services, 91 was the first toll road in the United States to vary tolls depending on the time of day, direction of traffic and day of the week. Off peak, we charge as little as 50 cents. During peak hours, the toll steps up to \$2.75 for the 10-mile stretch. Variable tolls would not be possible without advanced technology.

- Our transponders comply with California standards. Through a reciprocal agreement, our customers can use their transponders on the Foothill and San Joaquin Hills Transportation Corridors and vice versa. They'll soon be accepted on toll facilities throughout the State.

- 91 is the only toll road in the world that offers a guarantee. If at any time you're unhappy with our service, return your transponder and we'll refund your deposit and your last five tolls.

- To provide quality service, we monitor hundreds of sensors and dozens of TV cameras from our own state-of-the-art traffic management center. If there's an incident, we respond with our own fleet of tow trucks.

- We even have our own affinity program. Frequent drivers can join the 91 Express Club. Members pay \$15 per month and save 50 cents on each trip.

- The project was constructed using the design/build method. That saved money and improved quality. It also led to some real time savings. For example, we built a \$2 million temporary bridge so a key interchange could continue to carry 250,000

cars a day while we rebuilt its primary structures. We more than paid for the bridge with the interest we saved by slicing 13 months off the State's original schedule.

Most of our customers are thrilled with the 91 Express Lanes. Some indicators of their satisfaction:

- Before we opened our new lanes, the freeway was stop and go for 6 hours each workday, and the trip often took 45 to 60 minutes. Today, our customers report time savings of 20 minutes during peak hours. Even those who choose to stay on the adjacent free lanes benefit, since Caltrans reports that traffic on those lanes is flowing better than it has in years.

- Since we opened about a year ago, we've distributed more than 80,000 transponders, and we're adding over a hundred customers a day. Several homebuilders in Riverside County have begun offering prepaid transponders to new home buyers.

- To make sure we're serving our customers' needs, we do a lot of market research. We recently asked our customers what we could do to improve the 91 Express Lanes. Their most frequent request? "Make it longer!"

I-15 Congestion Pricing Demonstration, San Diego, CA

The Interstate 15 ExpressPass program is the Nation's first federally funded test of congestion pricing. The 3-year project is located on an eight-mile stretch of reversible high occupancy vehicle lanes in San Diego. United Infrastructure Company serves as the operations subcontractor for the San Diego Association of Governments.

I-15 ExpressPass currently allows a limited number of solo drivers to use the HOV lanes for a monthly fee. We started on December 2 with 500 permits at \$50 a month, and sold out on day one. We were recently authorized to expand to 700 permits at \$70 per month, and there are about 500 names on our waiting list. We expect to issue up to 900 permits next month.

An electronic system like the one we use on the 91 Express Lanes will be installed later this year. At that point, we expect to begin testing additional concepts, including dynamic pricing.

Tacoma Narrows Bridge, Pierce County, Washington

The Tacoma Narrows Bridge, located on State Route 16 in Pierce County, Washington, is the primary link between the Seattle-Tacoma metro area and the scenic Olympic Peninsula.

The first bridge at this site was destroyed by aerodynamic problems soon after it opened in 1940. The existing four-lane, 2,800 foot, suspension bridge was completed in 1950.

Recent growth has led to increased traffic on the bridge. Congestion lasts for 3 to 4 hours each day, costing motorists over 500,000 hours of lost time every year. Over 80,000 vehicles use the bridge each day. That's expected to grow to 108,000 vehicles by 2010.

In 1993, legislation was adopted authorizing the Washington State Department of Transportation (WSDOT) to enter into partnerships for the private financing of transportation facilities. A year later, WSDOT selected our company over two competitors to negotiate a franchise for improvements in the SR 16 corridor.

During 1995, in an effort to stop two other toll roads that had become controversial, the legislature adopted a number of changes in the program. Last year, the legislature authorized WSDOT to contract with our firm for technical, financial and environmental studies for the SR 16 corridor. Like a State Infrastructure Bank, the legislature anticipated that public funds advanced for these studies would be reimbursed from the proceeds of the project's financing.

We're halfway through a Federal Major Investment Study, and our team has identified a number of innovative approaches for solving congestion. These include a new bridge, double-deckling the existing bridge, a transportation demand management approach using peak hour pricing and moveable barriers, and a transit-intensive alternative. We're very proud of our extensive public involvement program, which includes a storefront information center and an Internet home page.

We're pleased to be able to continue to work with WSDOT on this important project.

KEY LEGISLATIVE PROVISIONS

In our experience, the combination of private funds and innovative technologies can help reduce gridlock. Americans will accept new methods of financing and operating our highway system. But to make more of these projects a reality, we need additional enabling legislation. Because of the historic Federal-State partnership in transportation, the States are unlikely to embrace this concept without Federal en-

couragement. We urge Congress to include the following provisions in the ISTEA reauthorization bill:

1. S. 275, which would establish a pilot program to test the use of tax-exempt debt in conjunction with privately financed transportation projects.

2. A Transportation Infrastructure Credit Program, which could provide development risk insurance, revenue risk insurance, subordinated debt and related support measures.

3. Authority for toll financing of new and reconstructed segments of the Interstate System.

4. Standardized State and local laws and regulations governing the development and operation of projects financed through public-private partnerships. Incentives could include:

- Increased flexibility in the timing and use of Federal cash-flows,
- Expanded access to Federal credit enhancement mechanisms, and
- Additional authority and funds to expand the State Infrastructure Bank program.

5. Federal, State, regional and local project approval procedures that provide the flexibility needed for innovative funding methods.

6. Clarification of the environmental permits associated with partnership projects. For example, lenders and rating agencies are concerned that there are no time limits on challenges to Federal environmental decisions. We also recommend that provisions for toll operation be included in all applicable environmental impact studies.

In addition to these significant policy changes, we support the adoption of national standards for automatic vehicle identification systems, as well as expanded research and demonstrations of congestion pricing, automatic vehicle occupancy verification, automatic license plate recognition, and improved regional traffic modeling. To avoid charges of "double taxation," we recommend that States be allowed to rebate Federal taxes paid on fuels consumed on toll roads.

CONCLUSION

As head of a company that invested millions to reduce gridlock on one of America's busiest freeways, I can say without hesitation that public-private partnerships offer a win-win-win opportunity.

- They're good for the public sector,
- They're good for private investors, and
- Most of all, they're good for our Nation's motorists.

The creativity, technology and private capital are available for the right projects. What's needed is additional enabling legislation to clearly signal the Federal Government's commitment to innovative public-private partnerships. By encouraging the States to pursue these partnerships, Congress can trigger billions of dollars of private investment and help solve some of America's most intractable transport problems, long before public funds could become available.

Thank you for allowing us to share our views with you. We'd be happy to arrange briefings or tours for any Senators or staff members interested in learning more about our projects.

I'd be happy to answer any questions.

**THE FOLLOWING ORGANIZATIONS HAVE ENDORSED
THE ITS NATIONAL GOAL:**

NATIONAL ASSOCIATIONS

Airport Ground Transportation Association
American Association of Motor Vehicle Administrators
American Association of State Highway and Transportation Officials
American Automobile Association
American Meteorological Society
American Public Transit Association
American Traffic Safety Services Association
American Trucking Associations
Association of American Railroads
Association for Commuter Transportation
Commercial Vehicle Safety Alliance
The Eno Transportation Foundation, Inc.
Institute of Electrical and Electronics Engineers
Institute of Transportation Engineers
International Bridge, Tunnel and Turnpike Association
International City/County Management Association
International Downtown Association
International Institute for Surface Transportation Policy Studies
International Road Federation
National Association of Neighborhoods
National Conference of State Legislatures
National League of Cities
National Private Truck Council
Surface Transportation Policy Project
United States Conference of Mayors
Women's Transportation Seminar

PLUS 150 COMPANIES AND ORGANIZATIONS NATIONWIDE

RESPONSES OF GERALD S. PFEFFER TO ADDITIONAL QUESTIONS FROM
SENATOR CHAFEE

Question 1. Your testimony makes the point that American motorists are willing to pay market prices to avoid congestion. A special TRB committee cited in Mr. Skinner's testimony, on the other hand, found a lack of public and political support for congestion pricing. Can you clarify this apparent discrepancy?

Response. Mr. Skinner was referring to *Curbing Gridlock*, a 1994 report by the Transportation Research Board that cited the 91 Express Lanes as America's first demonstration of congestion pricing. The apparent discrepancy between the studies summarized in that report and our own experience may be due to the different approaches used in theoretical versus commercial market research.

Most of the fine studies on the concept of congestion pricing have focused on policy issues, such as institutional arrangements, uses of funds or social equity. Few studies have looked at where, when and how congestion pricing could really be made to work.

Most of our research has focused on the day-to-day needs of our potential and existing customers. Before investing \$126 million in the 91 Express Lanes, we conducted some of the most extensive market research in the history of the surface transportation industry. Over 3 years, several thousand people participated in focus groups, surveys and interviews.

Just as Mr. Skinner reported, when first presented with the concept of congestion pricing, most of those surveyed had negative reactions. At the time (1991–1993), few people in Southern California knew much about electronic toll collection, and most respondents envisioned the congestion and delays associated with traditional toll plazas. Others simply could not believe that traditional funding sources were insufficient.

The more people learned about the project and its non-stop toll system, the more they came to like the idea. When presented with a choice between "toll road or no road," they became even more supportive. As FHWA's own study has confirmed, motorist attitudes and approval ratings became even more positive once the new lanes went into operation and people could see how the project really worked.

Question 2. Is the public's attitude to pricing a function of how severe the congestion is in a given region or locality?

Response. Anecdotal evidence would suggest that congestion is relative. Visit almost any urban or suburban area in the country and you'll hear horror stories about congestion. That's probably because Americans tend to be pretty impatient people, and most of us place a fairly high value on our time . . . especially our recreational and family time.

Americans are also smart consumers, and they always look for value for their money. The 91 Express Lanes experience demonstrates that significant numbers of motorists will pay for time savings and improved service, as long as they feel they're getting a fair deal.

We think people may be more willing to consider alternatives like time-of-day road pricing in congested areas, but we don't have enough real-world experience to know for sure. Aside from commuters in the 91 corridor, most Americans are totally unfamiliar with the concept.

Congestion pricing is not a panacea for all of our transportation ills. It is simply one of many tools that should be made available to meet our Nation's widely varying infrastructure needs. If congestion pricing is going to become an accepted tool for solving problems in critical corridors, we've got to spread the word about the early demonstration projects. We've also got to encourage experiments in other parts of the country.

For these reasons, we strongly support an expansion of the congestion pricing pilot program. This will allow more regions to see first-hand the benefits of road pricing, and allow tests of a variety of operational and technical approaches in a wider variety of corridors and climates.

Question 3. The Highway Infrastructure Privatization Act, S. 275, which I sponsored with several members of this committee, calls for establishing a pilot program to allow public/private partnerships to have access to tax-exempt financing for 15 projects, or a total bond value of \$25 billion. How many projects do you estimate would like to participate in this type of program over the next 10 years or so?

While we have not conducted a detailed study of the entire country, we estimate that each State has at least five major surface transportation projects on hold, waiting for funding. If we use a conservative estimate of \$100 million in capital costs for each of these projects, there is an immediate need to finance some \$25 billion worth of projects. Over the next 10 years, that number could triple, as aging facilities wear out and growth continues. Because many projects in the \$100–250 million range could benefit from tax-exempt financing, we respectfully suggest that the 15 project restriction be reconsidered, so that this authority can be applied to as many worthwhile projects as possible.

RESPONSES OF GERALD S. PFEFFER TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. Are your investors currently seeing a return on their investment on the 91 Express Lanes project? If so, what sort of return are they seeing? If not, when do you project they will see one?

Response. As expected, we have not yet begun to receive a return on our investment. From the beginning, we viewed this project as a long-term investment with returns that will be paid out over many years. For this first-of-its-kind project, we assumed a substantial "ramp-up" period. We worked closely with our lenders to tailor our debt schedule to our revenue and cost forecasts. We also set aside a combination of funded reserves and contingent equity to ensure that we could meet our financial obligations in the early years.

We broke even on an operating basis in our third month of operation. This means we began to cover our operating costs much earlier than most startup businesses. Despite the lingering effects of California's recession, traffic continues to grow in the State Route 91 corridor, and hundreds of additional transponders are ordered each week. At current rates of traffic growth, our forecasts indicate that we should achieve break-even on a net basis (e.g., including debt service) 1998. We expect to be able to begin paying our investors a return on investment in 1999. While we might have preferred higher traffic volumes, we are pleased with where we are on this watershed project and confident of our ability to achieve a reasonable return on our investment over the 35 year operating period allowed by our franchise agreement.

Question 2. How many other projects of this type can you envision being able to put together?

Answer. Before we decided to propose the 91 project, we evaluated over 75 potential toll-financed projects in the State of California. The 91 project was unique. It offered a striking combination of high traffic levels, readily available right-of-way, straight-forward construction, environmental permits in progress, and limited alternate routes.

Before submitting our two winning proposals in the Washington State Department of Transportation's public-private partnerships program, we identified more than a dozen projects, despite that State's relatively low population level.

There is a spectrum of projects in the infrastructure finance market. At one end of the spectrum, a handful of projects like the 91 Express Lanes appear to lend themselves to 100 percent private financing. At the other end, many projects (especially less-traveled routes in rural areas) can only be financed by the public sector. Every project falls somewhere along that spectrum.

Nationwide, we have observed a tendency for States to allocate Federal and State funds to smaller projects, leaving the larger "lumpy" projects unfunded. While we have not conducted a detailed study of the entire country, we estimate that each State has at least five major transportation projects on hold, waiting for funding. If we use a conservative estimate of \$100 million in capital costs for each of these projects, we're talking about \$25 billion worth of needed improvements.

Many of these potential projects are located on the Interstate Highway System, and are therefore ineligible for toll financing under current law. In fact, we would not have been allowed to build the 91 Express Lanes on an Interstate Highway right-of-way.

If we are to stimulate the maximum levels of public and private investment in our Nation's transportation infrastructure, we must develop an array of financing models tailored to fit each project along the spectrum. And we must remove the regulatory and legal obstacles that discourage or prevent private investment in these needed facilities.

PREPARED STATEMENT OF DANIEL V. FLANAGAN, JR., CHAIRMAN, COMMISSION TO PROMOTE INVESTMENT IN AMERICA'S INFRASTRUCTURE

Mr. Chairman, members of the subcommittee, it is an honor to have been invited to testify before you today as the Chairman of the Infrastructure Investment Commission created by Congress in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, and also as the Construction Writers Association of America's 1993 award recipient for the "Innovative recommendations of the Commission." Our report stimulated the public-private partnership concept and I am delighted to be here recognizing your interest in innovative financing techniques for infrastructure.

I note that the House held similar hearings in 1996 and covered many of the issues that our Commission had looked at as well, particularly the matters surrounding the decline in infrastructure spending in this country. Our conclusions were as follows:

1. There is a wide gap in the level of current public infrastructure finance and projected needs. Capital-intensive, long-term projects with histories of Federal and State grant financing—particularly environmental projects—face immediate financial shortfalls.

[In the aggregate, Federal spending devoted to infrastructure investment as a percentage of gross national product has declined steadily for a quarter of a century.]

2. Current infrastructure finance programs—government grant programs, the tax-exempt bond market, government tax programs—can be strengthened and made more effective.

3. The relative complexity, tax status and other factors currently make infrastructure investment unattractive to certain institutional investors, including pension funds.

4. New financial structures and Federal leadership will be vital in any new, sustainable effort to fund the nation's infrastructure needs.

5. New communities of interest among various levels of government and the private sector are necessary to raise the priority of meeting the infrastructure challenge and to facilitate the flow of new sources of capital into infrastructure development.

* * * * *

Our Commission held seven public hearings in the Fall of 1992 with 46 witnesses from various financial institutions, development firms, pension funds, project sponsors, and public officials. Our report was submitted to the President and Congress on February 23, 1993. We have briefed the leadership of Congress and the Chairmen and Ranking Members of the appropriate committees. We are excited that our recommendations will be considered in-depth during the course of the review of the ISTEA legislation this year.

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Public sector spending on infrastructure in America amounts to more than \$140 billion annually. Projections of the shortfall range from another \$40 to \$80 billion annually to meet critical infrastructure needs. The U.S. Environmental Protection Agency alone projects the need for \$200 billion in new finance over the next decade to bring communities into compliance with existing Federal mandates for clean water and clean air.

Traditional sources of infrastructure finance—government grant programs, tax-exempt bonds and private capital—all face serious impediments in filling the gap. Grants do not leverage enough project activity and the Commission found little indication that general tax increases of a magnitude sufficient to meet forecasted infrastructure development needs are likely to be forthcoming from Federal, State and local sources.

Current provisions of the tax code discourage private capital flows into infrastructure development. State and local governments seeking to expand issuance of tax-exempt bonds for new infrastructure are hampered by Federal laws, difficulties in finding new revenue sources, obtaining satisfactory credit ratings and limited enhancement alternatives. Project developers face procedural impediments ranging from extended permitting periods to a tight construction lending market.

Current infrastructure finance programs can be strengthened and made more effective. But as Federal moneys for grant programs become increasingly inadequate, States and localities will require self-renewing sources of finance built on access to large pools of capital, such as the six trillion dollars offered by institutional investors, including pension funds. For many projects, however, particularly projects with the potential to be self sustaining, but which fall into lower credit categories in the early years, access to these large pools of capital will require application of new financing techniques.

The Commission to Promote Investment in America's Infrastructure has *three major recommendations to develop new financing options to facilitate access of these projects to large pools of capital*:

(1) Establish a new, federally chartered financing entity, a national infrastructure corporation.

(2) Create new investment options for institutional investors, including securities issued or guaranteed by the corporation.

(3) More consistent, uniform Federal policy treatment for private investment in infrastructure development.

These three recommendations are outlined more fully in Addendum A.

* * * * *

The new national infrastructure corporation would offer credit enhancement through a guarantor subsidiary, subordinate loans and other financial assistance

through a lender subsidiary and development phase assistance through insurance-type arrangements. The Commission estimates that each new one billion dollars of Federal capital in the corporation has the immediate potential to prompt \$10 billion in infrastructure project activity.

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In the second phase, when the Corporation has established an operating history and begins issuing infrastructure securities to pension fund and other investors, each one billion dollars of Federal infrastructure money would have the potential to leverage \$18 billion or more in new infrastructure project activity. If Congress devotes one billion dollars annually to this vehicle for 5 years, the Federal Government would build a self-renewing source of finance with the potential to leverage up to \$100 billion of infrastructure projects.

These estimates build on the recommendations adopted by the Commission after reviewing a decade of studies on infrastructure needs and hearing testimony in public hearings in 1992. The alternate financing mechanisms that emerge will supplement existing grant and tax-exempt bond finance programs and attract the tens of billions of new dollars annually needed to finance the future infrastructure of America. While the actual leverage ratios will vary according to assumptions on minimum capital criteria and other factors, the Commission found a clear possibility to leverage Federal dollars in a self-sustaining program.

As the 6 trillion dollars in assets held by institutional investors continue to grow, the Commission found that investors will seek additional investment options. New investment opportunities in infrastructure projects, where pension funds now do not invest, can further diversify the investments that currently make up their portfolios.

* * * * *

It was pointed out that, the United States was the only Nation in the world to provide for a municipal bond/tax exempt approach—with a Federal tax subsidy—for infrastructure. Through this historical devotion to grant programs and municipal bond finance—which moves exclusively through the political process—we have inadvertently prevented the private sector from playing a role. What is that role? It is taking risk, it is introducing new technology, and it is providing alternative innovative financing. Most importantly, there is private capital available with a willingness to invest in suitable infrastructure product if available.

Our over arching goal is to “grow the pie”. This is not an either/or but rather an additional outlet on the financing artery of infrastructure. One of the reasons that American pension funds can invest in products overseas in China and elsewhere is that there is a global tradition of project finance. What we need in this country today, is that same product deriving from that same discipline. Since we have never taken the time to design an infrastructure product for this vast resource of capital, it has looked for its investment opportunities elsewhere.

American institutional investors want to invest in their own nation’s infrastructure; but they are limited in that option because we have not, to date, responded to that interest. Colorado’s public employee retirement system testified as to their trustees desire to have 20 percent of their assets invested in Colorado—but they were only at 7 percent and had exhausted what intra-state infrastructure opportunities existed. They heartily endorsed our recommendations as a way to increase the supply of infrastructure investment opportunities in Colorado. The same story occurs in every State in America. That is my underlying message here today.

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The issue is not on the pension fund side, it is on the product side. *What is needed in terms of the Federal and State government activity is to address the availability of development risk insurance and user fee (project revenue) re-insurance as a credit enhancement through the National Infrastructure Corporation to get the product to the marketplace prior to actual construction.* The financial institutions will do their own due diligence and will make the investments accordingly stimulating over time the creation of a new, liquid market in security instruments that are also attractive to pension fund investors. These would be at non tax-exempt yields sufficient to attract such investment since pension funds are already tax-exempt and will not purchase municipal bonds. We provide risk insurance for American investment abroad through the Overseas Private Investment Corporation, and now through the Export-Import Bank, it is time to do the same in our own country.

While transportation might be the leading edge for our proposals—they do incorporate other infrastructure usages and legislation should not be generically exclu-

sive but rather focus on the marketplace and new ideas that can evolve throughout the infrastructure finance spectrum.

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During the course of our hearings, I was struck by the fact that one witness, Bill Chew from Standard and Poor—a nationally recognized expert on bond ratings made the comment that what we were doing reminded him of PURPA, which stands for the 1978 Public Utilities Regulatory Policy Act. The Act spawned the independent power/cogeneration industry at a time when virtually all power plants were “built” by utilities. The perception was that no one else could do it. Today we find that the bulk of our power plants will be built and owned by independents injecting new technology and private capital. It is an interesting analogy and one I am personally familiar with having led the 1992 Energy Policy Act reform effort.

Private capital has the attribute of encouraging entrepreneurs, now strangers to our nation’s regulated infrastructure. While the best at infrastructure systems management, the United States is falling behind in infrastructure technology according to recent studies. There has been this discussion of *public/private partnerships* which emanate from our report. Real benefits will come from a marketplace approach that will provide intrinsic competition to the existing infrastructure networks and, in the long run, elevate infrastructure finance to a higher standard of fiscal integrity, i.e., you will not be able to finance the project with private/public investment if the deal doesn’t make sense.

Our recommendations have no real opposition. We have put together suggestions that have been very well received. Additionally, there is nothing—but lack of market experience—that precludes the private sector from pooling their resources and developing similar tools to these recommended here for the Federal Government. The private sector can eventually follow suit and form private development risk insurance companies, credit enhancement facilities, etc. And they will, supplementing the Federal effort which could then be privatized. The Federal Government, as a result, should take the initiative here in the context of leveraging the Federal dollar. A modest stipend for this activity on the Federal side will multiply to a significant extent what the Federal dollar can do through the State Infrastructure Banks (SIBs). In truth, you can more readily address the needs of the inner city and rural America by bringing on this additional capacity of user fee application. You do grow the pie.

Years ago, I had the pleasure of knowing Mr. Ray Lapin, a fellow San Franciscan, who had been the head of Federal National Mortgage Association (FNMA) in the Johnson Administration and while there, established the GNMA program. At the time I had just returned from Naval service in Vietnam and was a young investment consultant working with pension funds around the country. Ray and I were talking about this activity back in our own home town; and he noted that GNMA’s would be the perfect investment opportunity for pension funds. Mind you this was in 1971. No one knew what a GNMA was in those days and of course the rest is history. I have explained many times, that what Ray lapin had in mind with GNMA for housing—we must find something similar for infrastructure.

There are numerous public-private partnership possibilities across the land, e.g., rebuilding bridges, that can stand the test of a time-certain user fee and/or enjoy a funding scheme allocated over a 30-year depreciation period based on “sale/lease” techniques. The point, as always, is that we must do more. We cannot afford, as a nation, to freeze out the vast resources contained in America’s institutionally managed accounts, particularly the pension funds. The Infrastructure Investment Commission was created with this challenge in mind.

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ADDENDUM A

RECOMMENDATION 1.—CREATE A NATIONAL INFRASTRUCTURE CORPORATION TO LEVERAGE FEDERAL DOLLARS AND BOOST INVESTMENT IN INFRASTRUCTURE PROJECTS WITH A CAPACITY TO BECOME SELF-SUSTAINING THROUGH USER FEES OR DEDICATED REVENUES

1.1—*A national infrastructure corporation, in partnership with State infrastructure revolving funds and other local private sources of capital, would be able to implement national infrastructure priorities, leverage more dollars with Federal funds and employ innovative financing techniques to get priority projects underway.*

A national infrastructure corporation will provide new leadership and supplementary approaches for the multiple departments, agencies and authorities involved in infrastructure finance. This federally chartered enterprise will provide a focal

point for infrastructure that is essential to a timely, effective national policy response to the infrastructure financing challenge.

The corporation would be authorized to promote infrastructure investment by evaluating and offering several forms of financial assistance and technical advice to infrastructure projects with self-supporting revenue potential.

An *infrastructure insurance company*, established initially as a subsidiary of the corporation, would provide a mix of direct insurance and reinsurance to issuers of senior debt on infrastructure projects that existing bond insurers and other credit enhancers cannot or will not insure. Insured debt of projects eligible for tax-exempt financing would become more attractive to the municipal market. Insured debt of taxable-rate projects would become more attractive to pension funds and other fixed-income investors. The company would charge premiums and operate on a self-supporting basis, similar to the successful College Construction Loan Insurance Association (Connie Lee).

An *infrastructure finance division* of the corporation would use funds borrowed by or appropriated to lend directly to priority projects that have credit-worthy revenue projections, but lack historical operating results or to those that may not be able to demonstrate sufficient credit strength immediately. Such financial assistance would be available on a basis subordinated to other lenders in a manner similar to that authorized by Congress in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), but not yet utilized by the States. There are a significant number of startup projects seeking financing that lack only subordinated debt to get underway.

Subordinated debt would be recycled within a few years as projects are constructed, achieve operating stability and can be refinanced. Loan repayments would allow the corporation to function as a revolving loan fund.

A *development insurance service* would provide insurance, subject to appropriate retention of risk by the project sponsor, to cover the initial development phase of projects, where permitting, financial feasibility and regulatory approvals pose specific risks. The corporation would work to provide services to public and private project sponsors as domestic version of the Overseas Private Investment Corporation (OPIC).

The national infrastructure corporation will seek to become self-sustaining by charging fees for its services and by receiving project loan repayments. Among the other mechanisms the corporation would consider are loan guarantees and assistance to infrastructure revolving funds and national projects where financing is scarce.

The corporation's funding activities could be leveraged further as it issues its own debt obligations to investors. This program would benefit from a limited line of credit to the U.S. Treasury, similar to other federally chartered enterprises, to expedite the entry of new investors in the near term.

RECOMMENDATION 2.—CREATE A NEW RANGE OF INVESTMENT OPTIONS TO ATTRACT INSTITUTIONAL INVESTORS, INCLUDING PENSION FUNDS, AS NEW SOURCES OF INFRASTRUCTURE CAPITAL.

2.1—*The national infrastructure corporation will offer institutional investors the opportunity to take equity in the infrastructure insurance company and to invest in the senior debt in taxable projects insured by the company.*

Institutional investors are valuable not only as potential sources of capital, but as potential new players in infrastructure finance that can bring the discipline of investment risk and return evaluations to infrastructure decisionmaking.

The *infrastructure insurance company* recommended by the Commission would offer institutional investors the opportunity to participate as equity investors, along with other public or private investors, in an insurance business that would be maintained at the highest standards, with prudent credit criteria, and supported by necessary management expertise and financial performance to maintain a Triple-A rating.

As the insurance company evaluated and insured project senior debt up to the highest investment grade, institutional investors would find it easier to participate directly in project finance by purchasing long-term, taxable rate debt instruments with established credit, liquidity and rates of return.

2.2—*The corporation will broaden the market in investment grade infrastructure securities to attract institutional investors, including four trillion dollars in pension fund assets, and to provide liquidity for project lenders.*

The Commission's attempt to identify a new infrastructure security which would be attractive to both project borrowers and pension investors led it to consider new options for both taxable and tax-exempt rate securities. Pension funds clearly indi-

cated the desire to have an option to invest in a new infrastructure security paying a competitive, taxable, market rate of return.

The Commission recognizes that project sponsors who are eligible for tax-exempt financing generally will seek funding in the municipal market, rather than the taxable bond market, thereby precluding any meaningful participation by pension funds and certain other institutional investors. However, there are many projects which for legal or market reasons will still seek taxable debt financing.

Aside from investing in individual project loans guaranteed through the corporation's bond insurance program, institutional investors will have an opportunity at a later stage to invest in taxable debt securities issued directly by the corporation. the corporation would use the proceeds to acquire project-specific debt, including that insured by the infrastructure insurance company.

Some securities would be general obligations when guaranteed by the corporation, while others could be pass-through securities. Such obligations of the corporation would be of Federal agency caliber if the corporation had access to a limited line of credit of the U.S. Treasury. The Commission does not foresee a need for a full faith and credit guarantee from the U.S. Government.

Purchases of these securities would be on a purely voluntary basis in accordance with the fiduciary duties set forth in the Federal ERISA statute for private plans and comparable State and local laws of State and local government plans. Experts indicate that there are no restrictions against such investments in infrastructure securities.

2.3—A security whose tax-free benefits flow through to fund beneficiaries at the time of distribution from retirement plans could attract investments from defined contribution pension programs, 401(k) plans and individual retirement accounts.

The Commission recommends that Congress consider amending Federal tax laws to allow part or all of the investment earnings attributable to infrastructure securities to be distributed tax-free to pension plan participants upon retirement. Such a tax-free pass-through from a fund to its participants would produce a competitive after-tax market rate of return for the retirement fund participants, yet allow a project to obtain funding at levels commensurate with municipal bonds.

The security could be even more attractive if it were structured as a deferred annuity, thereby satisfying both early project cash-flow requirements and the typical payout profiles on pension benefits. It is noteworthy that this sort of investment security would be particularly appropriate for defined contribution and 401(k) plans, which are the fastest growing sector of retirement assets.

RECOMMENDATION 3.—STRENGTHEN EXISTING INFRASTRUCTURE FINANCING TOOLS AND PROGRAMS BY MAKING FEDERAL INCENTIVES MORE CONSISTENT AND BY PROVIDING UNIFORM TREATMENT FOR INVESTMENT IN INFRASTRUCTURE PROJECTS.

3.1—Reviewing and modifying Federal restrictions on the use of tax-exempt bonds for infrastructure projects could stimulate additional infrastructure bond finance activity.

Tax-exempt bonds are used by more than 16,000 issuing authorities as primary tools for financing infrastructure projects, often supported by tolls, user charges and other dedicated funds. But the ability to utilize tax-exempt debt is circumscribed if the private sector is involved in developing or operating new facilities.

The Congress has reviewed many of these contradictory restrictions in recent months. Among the specific steps considered favorably by Congress in H.R. 4210 and H.R. 11 in 1992, but not signed into law, were provisions to increase the annual issuance limit for bank-qualified tax-exempt bonds and the expand use of private-activity redevelopment bonds in areas designated as enterprise zones.

The Commission encourages further Congressional review and modification of Federal restrictions on the use of tax-exempt bonds for infrastructure projects to broaden the development options for these projects and to promote efficient allocation of Federal tax expenditures.

To stimulate investment in new transportation and environmental projects, the Commission encourages consideration of a new class of tax-exempt debt, a public benefit bond, in instances where the benefits to the general public are substantial, notwithstanding private sector participation. This would have the effect of applying the definition of facilities exempt from volume cap restrictions evenly across all environmental and transportation projects.

Among the additional steps recommended to the Commission are modifying arbitrage rebate rules where proceeds return to support infrastructure projects, returning the private involvement threshold to 25 percent and changing the definition of a qualified small bond issuer for bank investment purposes to one which issues under \$25 million per year.

While a full-scale study of the fiscal impact of these recommendations is beyond the scope of the Commission, the consensus of the Commissioners is that new economic activity and the attendant potential increase in Federal tax revenues over the long-term may prove cost-effective from a Federal budgetary viewpoint, notwithstanding any temporary costs in the near-term of actual or foregone revenues. Changes of this kind also may contribute to greater policy consistency and serve to renew cooperative effort among various levels of government in infrastructure finance.

3.2—Reviewing and making incentives for taxable infrastructure investment more consistent, particularly depreciation rules, would prompt additional capital flows into infrastructure projects.

Even with some changes to the private activity restrictions on issuance of tax-exempt bonds, the Commission concluded that a significant portion of America's infrastructure is likely to be financed in the future on a taxable-rate basis. The defined depreciable life of assets, therefore, should be short enough to encourage investments in these assets and not penalize infrastructure projects which have government participation. The concept of a shorter "useful life" may attract new investment where emerging technologies hold promise for future infrastructure efficiencies.

ADDENDUM B

NATIONAL HIGHWAY SYSTEM DESIGNATION ACT OF 1995—INNOVATIVE FINANCE PROVISIONS

A number of the innovative financing provisions have become available to States as part of the regular Federal-aid program. These changes in Federal-aid financing are the result of the Innovative Finance provisions of The National Highway System Designation Act of 1995 (Public Law 104-59).

State Infrastructure Bank (SIB) Pilot Program

Through the SIB Pilot Program, up to 10 States may test the use of SIBs as a means of increasing and improving both public and private investment in transportation. Pilot SIBs will be able to provide loans, enhance credit, serve as capital reserves, subsidize interest rates, ensure letters of credit, finance purchase and lease agreements for transit projects, provide bond or other debt financing security, and provide other forms of assistance that leverage funds.

Advance Construction

The U.S. Department of Transportation can approve an application for advance construction for reimbursement after the final year of an authorization period provided the project is on the State's transportation improvement program (STIP). This change also provides greater flexibility to States to engage in advance construction using their anticipated apportionments.

Bonds and Other Debt Instruments Eligible for Reimbursement as Construction Expenses

States can be reimbursed with Federal-aid funds for bond principal, interest costs, issuance costs, and insurance on Title 23 projects. To date, Federal-aid funds have been limited to bond retirement costs on certain categories of projects, and interest costs were only eligible on some interstate projects.

Federal Share on Toll Projects

This provision sets the Federal share for toll projects on highways, tunnels, and bridges at a maximum of 80 percent of eligible costs. Up until now, the Federal share for toll projects has varied from 50 percent to 80 percent, based on activity and system designation.

ISTEA Section 1012 Loans

States can loan Federal-aid funds to toll and non-toll projects with dedicated revenue streams. A loan can be made for any phase of a project including engineering and right-of-way work. A loan is not required to be subordinated to any other debt financing. Interest rates on loans may be at or below market rates. Loan repayments can be used for various credit enhancements.

Matching Credit for Materials or Services Donated to Federally Assisted Projects

This provision allows private funds, material, or assets to be donated to a specific Federal-aid project and permits the State to apply the value to the State's matching share. To date, States could only receive credit for State and local funds or for donations of private property incorporated into a Federal project.

ADDENDUM C

NATIONAL INFRASTRUCTURE DEVELOPMENT ACT OF 1994—SUMMARY

- As expressed in Executive Order 12893 of January 26, 1994, a well functioning, expanded *infrastructure is vital to sustained growth* in the Nation's economy.
- Current and foreseeable *demands* for infrastructure expansion and replacement exceed available Federal, State and local funding *resources* by wide margins and prompt serious concerns about the Nation's long-term economic development and competitiveness.
- Sources of private capital, including the more than \$4.5 trillion in assets held by institutional investors such as pension funds, have expressed a growing interest in *public-private infrastructure investment opportunities* that provide competitive rates of return.
- A self-supporting national level entity is critical to developing new uniform financing mechanisms that promote increased public-private partnership investments and expand the resources available to address unmet infrastructure needs. These new financing mechanisms would *maximize effective leverage of Federal funds*—resulting in at least \$10 billion of new infrastructure projects for every \$1 billion invested.
- Such a national entity would also help provide significant and *sustained job growth* in critical sectors of the Nation's economy.

THE NATIONAL INFRASTRUCTURE CORPORATION

The Act establishes the National Infrastructure Corporation (NIC), and a subsidiary to be called the National Infrastructure Insurance Corporation, as government corporations. NIC would bring *national leadership* and vision to the effort to find new funding mechanisms to increase private participation in infrastructure facilities and make *maximum use of a available Federal resources*.

NIC's Mission

1. Make senior and subordinated loans and equity investments that would assist States and private entities develop revenue-based infrastructure projects. NIC could assist projects by lending funds to State revolving funds or directly to projects.
2. *Provide financial insurance*, through its Insurance Corporation subsidiary, on taxable and tax-exempt debt, particularly for smaller or startup projects which have difficulty obtaining conventional credit enhancement.
3. *Provide development risk insurance* for critical pre-construction and other development phase costs.
4. *Facilitate pension fund infrastructure investments* through the issuance of investment grade infrastructure securities. The Act also creates an opportunity, over time, through a transition plan, for these funds to purchase a controlling interest in NIC from the Federal Government.
5. *Guard the public interest* by the use of strict project selection criteria and by application of Davis-Bacon Act wage provisions to NIC assisted projects. the Act also makes clear that State and local authority to approve and regulate an infrastructure project is not superseded by NIC assistance.

NIC Funding

NIC would receive startup capitalization through the sale of common stock to the U.S. treasury, authorized at a realistic *\$1 billion per year for 3 years*. Thereafter, *NIC would be self supporting*, and the Act specifically prohibits any additional Federal investment. The Act also States that NIC's obligations do not carry a Federal guarantee.

The projected additional revenue to the U.S. Treasury generated by the Public Benefit Bond is anticipated to offset the amount of the Federal investment in NIC. The legislation also provides for a *transition plan* under which the Federal Government's investment in NIC would be repaid.

PUBLIC BENEFIT BONDS

Public and private pension plans would be permitted to purchase Public Benefit Bonds issued to finance infrastructure facilities. the interest income would be distributed tax-free to the plan member at retirement, passing the tax benefits through to plan beneficiaries. These bonds would be of particular interest to defined contribution plans which could offer their participants new competitive investment opportunities tied to infrastructure development.

Public Benefit Bonds would significantly broaden the market for infrastructure bonds, and would have a projected *revenue-positive budgetary impact*, based upon Department of Treasury budget-scoring methodology.

RESPONSES OF DANIEL V. FLANAGAN TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. Roads in much of this country have come to be treated as more of a pure public good, almost an entitlement. Additionally, many of the toll projects that come to my mind are, at best, self-sufficient, not money-makers. Do you really see a huge potential market for the sort of profit-making ventures you have described? How long do you expect it might take for this concept to catch on?

Response. Let me explain our thinking at the Infrastructure Investment Commission in making our recommendations in 1993. With the decline in government sponsored infrastructure spending across the country, it is imperative that we begin ancillary strategies as soon as possible. Our original focus emanates from the 1991 Act itself and we now have 6 years behind us emphasizing the absence of any credit enhancement strategies to encourage project finance and private institutional investment in our Nation's infrastructure. One cannot underestimate the potential of private investment once these credit enhancement facilities are in place, not just with toll roads but other modalities, as well. For example, look at the enormous infrastructure investment by U.S. pension funds overseas—particularly in independent power projects—since the passage of the 1992 Energy Policy Act which, in essence, created the independent power concept. I happen to have been very involved in that activity and am well versed with the trends that have begun since that time. I think this gives us a good benchmark as to how fast similar infrastructure type investment can be expected here in the United States in a variety of modalities including transportation. This is a very important point, incidently, in that we expect credit enhancement strategies to be available to a variety of modalities including waste water treatment facilities, educational infrastructure, *et. al.* The sooner we get on with these types of programs where we would leverage a modest amount of public moneys to encourage private capital to gain market entry, the sooner we will be able to tally up the successes in this regard.

I would also point out that the Maglev technology that would be brought forward here in the United States would be very suitable for so-called public/private partnerships and that such credit enhancement strategies would facilitate this type of infrastructure development particularly in certain areas of the country such as California-Nevada. Right now, it is difficult for the entrepreneur to move forward in what has been a traditional public monopoly, i.e., the infrastructure sector; but I have given speeches all over the country and feel confident that we would see significant activity if Congress were to devote a significant amount of credit enhancement support in the preconstruction development phase of such projects.

Question 2. Obviously, the National Infrastructure Corporation concept shares some common characteristics with the Senate Infrastructure Banks that are currently being set up. Do you have any thoughts on what you have seen of SIB's so far. Any surprises? Anything that gives you pause about the NIC proposal?

Response. As to the State infrastructure banks and the NIC proposal, we had recommended in our 1993 report that State "revolving funds" that would serve as the clients for the National Infrastructure Corporation concept. In other words we would have one Federal credit enhancement mechanism providing both development risk and the reinsurance of future project revenue streams (credit enhancement) and those services would be provided through the State revolving funds. Since that time, Congress in the debate on the National Highway System, elected to move ahead on a provisional basis with the State Infrastructure Bank concept. Obviously the SIBs have been in place only for a very brief period of time and have, in fact, had little direct funding. Therefore, one cannot expect very much from the SIBs to date, but I am optimistic that they can play the role that we had envisioned for State revolving funds utilizing the support services from NIC in a very effective manner.

ITS America ISTEA Reauthorization Task Force ISTEA Reauthorization Principles

These Principles regarding Intelligent Transportation Systems in national surface transportation reauthorization legislation were prepared by the ITS America ISTEA Reauthorization Task Force and were approved on January 16, 1997 by the ITS America Board of Directors and forwarded to the U.S. Department of Transportation as utilized Federal Advisory Committee formal program advice.

1. ISTEA II should support the National Surface Transportation Goal for ITS, which is to complete deployment of basic ITS services for consumers of passenger and freight transportation across the nation by 2005. This goal should be supported by providing that an amount equivalent to at least 5% of total surface transportation outlays be invested in ITS applications unless the appropriate officials (non-federal) formally waive or modify the goal for their area.
2. ISTEA II should continue to support an aggressive Research and Technology program. This program should emphasize system integration of ITS vehicle and infrastructure technologies for all modes.
3. The Intelligent Transportation Systems Program should be structured in such a manner as to maximize long term predictability and stability.
4. To create maximum flexibility, ISTEA II should clarify and expand the eligible uses of program category funds to allow for training, operations and maintenance of ITS technology, in addition to ITS capital expenditures.
5. ISTEA II should require regular reports to Congress on the status of deployment toward achieving the National Goal. The report should address specific progress as well as performance and effectiveness.
6. ISTEA II should encourage the use of innovative financing techniques, especially public/private partnerships, in the deployment of ITS, including construction, operations and maintenance.
7. Federal funding should be reserved for those ITS purposes which are not being carried out by private investment.
8. ISTEA II should eliminate barriers to ITS deployment by encouraging the use of innovative and flexible methods for procurement.
9. ISTEA II should continue a targeted federal role, in partnership with the private sector, in the rapid development of consensus-based ITS standards, stimulation of ITS markets, and essential research and development. To ensure interoperability, Federal funding should only be eligible for ITS systems with components that are consistent with the adopted model architecture and, where they exist, conform to adopted standards.



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January 31, 1997

The Honorable Rodney Slater
 Secretary-Designee
 U.S. Department of Transportation
 400 Seventh Street, SW
 Washington, DC 20590

Dear Mr. Secretary-Designee:

In ITS America's capacity as a utilized Federal Advisory Committee, I am transmitting advice or behalf of the Board of Directors regarding the Intelligent Transportation Systems Program within the reauthorization of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991.

In January 1996, the ITS America Board of Directors created an ISTEA Reauthorization Task Force, chaired by former Congressman and Board Member Norm Mineta, to develop a set of Reauthorization Principles as ITS America policy. The Task Force was comprised of both private and public sector representatives from the ITS community. From the Department of Transportation, representatives from FHWA's ITS Joint Program Office assisted greatly with our efforts.

At the end of last year, the Task Force finalized a set of ISTEA Reauthorization Principles, which were unanimously adopted by the Board on January 16, 1997 with instructions that the Principles be forwarded to the Department of Transportation as utilized Federal Advisory Committee formal policy advice. Accordingly, a copy of the ISTEA Reauthorization Principles are attached for your and the Department's consideration. In addition, ITS America assisted the ITS Joint Program Office in outreach efforts to the transportation community last year on the ITS program in ISTEA reauthorization. These Principles reflect the work of the Task Force as well as input from these cooperative outreach activities.

In particular, I would like to draw your attention to Principle #1. This principle seeks that a five (5) percent "soft" set-aside of total federal surface transportation funding be invested in ITS applications during the reauthorization period. This is not a mandate as the appropriate officials -- state or local -- would be given the authority to waive or modify the 5% provision. The goal of Principle #1 is not to require spending of federal funds on ITS applications, but to create a mechanism whereby ITS is fully considered as one of several options available for addressing regional and local transportation problems. The remaining eight (8) Principles seek to continue and build upon the successes already achieved in ITS for the reauthorization period.

We would like to thank the ITS Joint Program Office for its support and assistance. We are particularly grateful to Board Member Norm Mineta for his leadership of the Task Force.

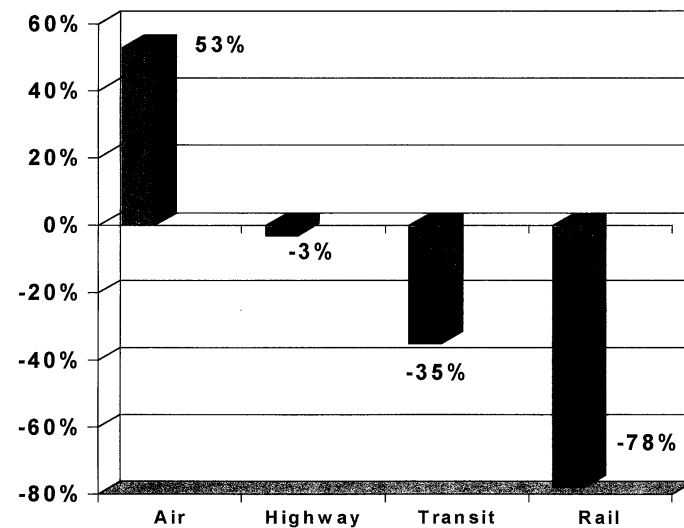
We would appreciate the opportunity very soon for a brief meeting to discuss the Principles and other reauthorization issues with you and your staff.

Sincerely,

 A handwritten signature in cursive script, appearing to read "James Costantino".

James Costantino, Ph.D., P.E.
 President & CEO

Percent Change in Federal Transportation Outlays from FY 80 to FY 94^{1,2}



¹In millions of constant 1987 dollars
²Source: National Transportation Statistics, DOT

PREPARED STATEMENT OF JAMES CONSTANTINO, PRESIDENT AND CEO OF ITS AMERICA

Good morning, I would like to thank you, Mr. Chairman, and members of the subcommittee for the invitation to speak before you today. I am James Costantino, president and CEO of ITS America.

I am here today to speak to you about the many successes of the Federal Intermodal Transportation Systems program, or "ITS", that was initiated by the Intermodal Surface Transportation Efficiency Act, or "ISTEA," in 1991. I would also like to note that the Federal ITS program is at a critical juncture. ITS is poised for national deployment, but this effort requires the continued leadership of this Congress in ISTEA's successor act ("Reauthorization Act") to ensure that deployment occurs in a truly integrated, interoperable and intermodal fashion across the United States.

ITS America, or the Intelligent Transportation Society of America, was incorporated in August 1990 and began operations in March 1991 at the behest of the Congress. It was intended to be, and is, a public/private coordinating organization in partnership with the U.S. Department of Transportation to guide the research, development and deployment activities associated with ITS. Our over 1,000 member organizations include private corporations, over 30 State departments of transportation, local government units, academia and other associations. ITS America is also a utilized Federal Advisory Committee to the U.S. Department of Transportation on ITS matters.

According to a recent study by the Texas Transportation Institute, Americans lose 2 billion hours a year in traffic congestion at a cost to the economy of \$51 billion annually. This same study predicted that in 10 years, traffic will increase by 30 to 50 percent while overall highway mileage will increase only slightly. Based on these numbers, it is clear that transportation is becoming a problem where it once provided solutions.

THE NEED FOR ITS

This dramatic increase in highway travel cannot be handled solely by continuing to build and expand highway facilities because of the great cost and land use issues. ITS uses communications, computer and information technology to make better,

safer, and more efficient use of our physical surface transportation system. ITS technologies include electronic toll facilities where you can zip through a toll booth at highway speed and have your toll electronically billed rather than stopping to pay. They include computerized control of traffic signals where traffic flow can be speeded up as conditions warrant.

They include "real time" information on traffic conditions to inform travelers ahead of time which routes are congested and which are not. They include in-vehicle navigation and route guidance systems to direct you to your destination in an unfamiliar area. They include collision warning systems now in use on many school buses and other vehicles to let drivers know when they are too close to other vehicles or objects. And they include "Mayday" systems that pinpoint the location of your vehicle in order to bring help when you are stranded.

The general benefits of ITS include fewer accidents on our streets and highways, more efficient traffic flow, fewer traffic jams, faster freight deliveries, better travel information, and quick emergency responses, to name a few.

ITS is not a replacement for continued investment in new or reconstruction in highways, bridges and transit systems. ITS enables the builders and operators of highways and transit systems to realize more bang for their buck. As Federal funding for transportation becomes tighter, maximizing the benefits of each dollar spent becomes all the more crucial.

There is a direct analogy with the history of the aviation industry and what is happening in surface transportation today. On June 30, 1956, the day after President Eisenhower signed the Interstate Highway Construction bill, two airliners collided over the Grand Canyon, killing all on board in both planes. As a result, the aviation industry immediately went high-tech, bringing in the latest in radar, communications, and traffic control systems to make air travel safer. But while air travel went high-tech, highways stayed low-tech, still using the same roadbuilding principles the Romans did in building the Appian Way 2000 years ago.

Although only one new airport, in Denver, has been built in a generation, we land two to three times as many planes as we did in the 1960's and 70's on our existing airport and airway infrastructure. We are just beginning to do for surface transportation what we did so well for air travel. ITS holds the promise of making possible quantum advances in the performance of the surface transportation system.

ISTEA

The 1991 Transportation Appropriations Act called for an organization to coordinate and accelerate ITS activities in the United States. The United States Department of Transportation charted ITS America as a Federal Advisory Committee on ITS matters. In December 1991 Congress passed the landmark ISTEA legislation, which included a subtitle titled the Intelligent Vehicle Highway Systems Act of 1991 that established the Federal ITS program and funded it at roughly \$660 million over the 6 years of ISTEA. The Intelligent Vehicle Highway Act also advised the Secretary of Transportation to seek assistance and input from Federal Advisory Committees, such as ITS America, for purposes of supporting the Federal ITS program. This partnership arrangement has worked well.

ISTEA funded research, development and testing of new technology applied to surface transportation. During the 6 years of ISTEA, the U.S. Department of Transportation has spent approximately \$1 billion in the Federal ITS program. According to the U.S. Department of Transportation, the majority of the \$1 billion was spent on basic and applied research of existing and emerging technologies (30 percent) and conducting operational tests and establishing priority corridors for ITS technologies (57 percent). Many of these ITS systems have now proven themselves and, where deployed, have delivered significant public benefits. These are real benefits that are resulting now, even though a full scale, national deployment effort is not yet underway.

REAL BENEFITS HAPPENING NOW

For the individual traveler, some of the benefits include a greater awareness of travel options and increased safety and personal security with greater convenience and reduced stress. On a broader level, benefits include enhanced system reliability and efficiency, increased safety, added productivity and competitiveness and the development of new markets and new industries.

According to the U.S. Department of Transportation, it has been shown that freeway management systems can reduce accidents by 17 percent, while permitting the system to handle 8 to 22 percent more traffic at greater speeds. Synchronization and real time system wide adaptation of traffic signals have the capability to decrease travel times by 14 percent, reduce delay by 37 percent and increase speeds by 22

percent. Incident management programs have reduced incident-related congestion and delays by 50 to 60 percent.

Examples of these systems include a 24-Hour Traffic Operations Center that has been operating in Northern Virginia since 1994 and a statewide Emergency Operations Center to coordinate the response to major accidents and weather emergencies. The New York City metropolitan area has been selected as a Model Deployment Initiative site. This will be a showcase of ITS technologies providing real-time traffic information through local government agencies as well as through independent service providers.

Electronic toll collection is another technology that has delivered clear benefits, both in terms of reducing operating costs and time saved by drivers. In New Jersey, electronic toll systems have saved approximately \$2.7 million to date through reduced labor costs. Similarly, in Oklahoma, the turnpike electronic toll collection has resulted in reducing annual cost per lane from \$176,000 to \$16,000—a savings of over 90 percent. Regarding throughput on electronic toll lanes: increases of 200 to 300 percent compared with traditional attended lanes have resulted. As for public acceptance, the E-Z Pass program has signed up hundreds of thousands of users in New York, New Jersey, Pennsylvania and Delaware.

EXPECTED BENEFITS

It is still early in the development and deployment of rural ITS technologies, but clear benefits are expected. Rural ITS technologies would include such systems as traveler mayday systems, hazard and weather emergency warning systems, tourism and travel information services, and commercial vehicle operations. "Mayday" systems will dramatically reduce the time it takes for emergency personnel to reach accidents. The benefit is key as every minute saved by emergency crews getting to an accident scene lessens the seriousness of the injuries and ultimately, the likelihood of death. In-vehicle navigation systems, already deployed in many rental car fleets and commercial vehicle fleets, are expected to have a significant impact in rural areas.

Other examples of rural deployment include roadway weather information systems that are helping to manage snow clearing operations in a number of States. A Storm Warning System is being tested in Idaho to provide accurate and reliable visibility and weather data on I-84, a highway subject to reduced visibility from blowing snow and dust. California and Nevada have already deployed a traveler information system along the I-80/US50 corridor between San Francisco and Lake Tahoe/Reno. Using satellites, land line and cellular telephones and wireless FM sub-carriers, real-time information is given to travelers via telephones, in-vehicle navigation systems and interactive kiosks.

ITS technologies are clearly applicable to Commercial Vehicle Operations, in both urban and rural environments. Systems such as electronic clearance, automated roadside safety inspections and on-board safety monitoring will provide major benefits for public agencies as well as trucking operators. Automated roadside safety inspections are predicted to save a State between \$156,000-\$781,000 in costs of avoided accidents. On-board safety systems, along with electronic clearance and automated roadside safety inspections, could reduce fatalities by 14-32 percent.

Currently, Interstate 75, which runs from Miami to Detroit and on to Ontario, Canada, is being used to test many of the ITS applications for Commercial Vehicle Operations. Upon entering the freeway, a truck will stop at the first weigh station. Information about that truck will then be stored in its truck-mounted transponder. The information is also forwarded onto the next weigh station for automatic compliance and clearance from that weigh station. This test is demonstrating reduced waiting times for inspection and clearance, resulting in reduced costs and improved efficiencies for both the trucking industry and State governments.

In addition, there are similar coalitions of Western States, including Wyoming, Idaho, Nevada and Montana, using ITS applications for Commercial Vehicle Operations to create an eventual borderless and paperless trucking system.

NATIONAL GOAL FOR ITS DEPLOYMENT

These are but a few of the many examples of successful ITS deployment. Many have come from successful operational tests. Unfortunately, in the absence of a national deployment effort, deployment to date has occurred in a fragmented fashion. If the prime goals of ISTEA—namely intermodalism and efficiency—are to be realized, then ITS technologies need to be deployed in a systematic and interoperable manner across the nation. To this end, ITS America has promulgated a National Goal for ITS, which reads:

To complete deployment of basic ITS services for consumers of passenger and freight transportation across the Nation by 2005.

Currently, there are three basic areas of ITS that are ready for deployment: (1) services related to travel information and transportation management; (2) services related to intermodal freight, including Commercial Vehicle Operations; and (3) in-vehicle and personal information products in the consumer and commercial marketplace. The U.S. Department of Transportation has established compatible deployment goals by 2005 for metropolitan ITS infrastructure, a commercial vehicle information systems and networks (CVISN), and rural ITS.

In order to achieve the ITS deployment goal, the public and private sectors must work in partnership. The public sector will lead in the deployment of core intelligent transportation infrastructure to meet essential public needs, in partnership with the private sector in the right situation. For its part, the private sector will lead in the development and bringing to market of reliable and affordable Intelligent Transportation Systems. What is crucial to this equation is that all Intelligent Transportation Systems that are developed and deployed must be integrated, interoperable and intermodal.

Integration of ITS systems must be initiated now before wide-scale deployment occurs. Without it, disjointed pockets of deployment will result that will be a barrier to the seamless flow of information across jurisdictions, regions and States. In 5 or 10 years, the cost of retrofitting these systems to achieve integration will be prohibitive.

The National Goal has been widely supported by a broad spectrum of organizations, who frequently have differing perspectives, including over 30 national associations and nearly 200 other public and private organizations. These organizations include the American Automobile Association, American Trucking Associations, Association of American Railroads, American Association of State Highway and Transportation Officials, Surface Transportation Policy Project, United States Conference of Mayors, National League of Cities and the National Conference of State Legislatures, to name but a few. (A list of the major organizations and associations supporting the National Goal is attached.) The support of the National Goal is indeed broad based, cutting across the spectrum of transportation policies and perspectives.

ITS NATIONAL INVESTMENT AND MARKET ANALYSIS

As ITS America was developing the national goal in cooperation with the U.S. Department of Transportation, and as DOT developed congruent Federal goals, the need for a thorough analysis of the costs, benefits, market growth, and economic impact of achieving the goal became evident. ITS America and the U.S. Department of Transportation jointly sponsored a study which has been conducted by Apogee Research and Wilbur Smith Associates to address these issues.

The overall market for the basic ITS metropolitan infrastructure and associated products and services in the consumer and commercial marketplace for the next 20 years is \$437 billion dollars. Of that amount approximately \$90 billion is for the public infrastructure and \$347 billion are for products and services in the market place. Early public investment, however, will leverage much of the private market activity. An overall benefit-to-cost ratio for all metropolitan areas is 5.7 dollars of benefit for every public dollar invested. The benefit-to-cost ratio for 75 of the largest metro areas is 8.8 to 1. Safety-related benefits—accident cost savings represent 44 percent of the benefits. Time savings account for 41 percent. The economic impact of achieving the national goal will see a ripple multiplier effect on the economy of 240 to 300 billion dollars triggered by 93 billion in direct public investment. 590,000 jobs will be created.

The public cost of achieving the national goal in metropolitan areas over the next 10 years will be \$48 billion dollars. Cost, benefit and market analysis for commercial vehicle operations infrastructure and rural applications will be completed this summer.

These benefits and projected economic activity are predicated on public policies that result in achieving the national goal. Reauthorization legislation will define Federal leadership and drive public investment in ITS which will be critical if the goal is to be reached.

REAUTHORIZATION PRINCIPLES

In its role as a utilized Federal Advisory Committee to the U.S. Department of Transportation, ITS America has prepared and submitted as formal program advice a set of ISTEA reauthorization principles. (A copy of the submitted document is included with this written testimony.)

The first principle states that:

1. The Reauthorization Act should support the National Surface Transportation Goal for ITS, which is to complete deployment of basic ITS services for consumers of passenger and freight transportation across the Nation by 2005. This goal should be supported by providing that an amount equivalent to at least 5 percent of total surface transportation outlays be invested in ITS applications unless the appropriate officials (non-Federal) formally waive or modify the goal for their area.

This is what we refer to as a "soft set-aside." This is not a proposal to impose additional onerous mandates on State and local governments with regard to their use of surface transportation trust fund money. In this case, Congress would indicate that an amount equivalent to at least 5 percent of each State's Federal trust fund apportionment should be used for deployment of ITS. However to "opt out" of, or modify, this requirement, all that the State and local authorities with responsibility for use of Federal surface transportation funding would need to do is to take a formal and public action stating that either the jurisdiction has chosen not to support the national goal or that different sources or levels of funding will be used to achieve it. The only condition on the funding, if used for ITS deployment, would be compliance with national standards for interoperability.

Funding incentives to initiate national deployment of ITS are essential for this reauthorization bill. Without such an incentive for the next several years, a coordinated and coherent national deployment will not occur. However, it is clear that most of the Federal funding will, in the long run, come from mainstream funding categories.

The second, third, fourth and fifth principles state:

2. The Reauthorization Act should continue to support an aggressive Research and Technology program. This program should emphasize system integration of ITS vehicle and infrastructure technologies for all modes.

3. The Intelligent Transportation Systems Program should be structured in such a manner as to maximize long term predictability and stability.

4. To create maximum flexibility, the Reauthorization Act should clarify and expand the eligible uses of program category funds to allow for training, operations and maintenance of ITS technology, in addition to ITS capital expenditures.

5. The Reauthorization Act should require regular reports to Congress on the status of deployment toward achieving the National Goal. The report should address specific progress as well as performance and effectiveness.

The sixth principle states:

6. The Reauthorization Act should encourage the use of innovative financing techniques, especially public/private partnerships, in the deployment of ITS, including construction, operations and maintenance.

In an environment of limited Federal resources, effective use of private capital and initiative become more critical. We applaud the actions of Congress in the original ISTEA and the National Highway System acts for enabling experimentation and implementation of innovative financing techniques for transportation infrastructure, including the establishment of State Infrastructure Banks. Moreover, public/private partnerships allow private initiative to be used to undertake activities that traditionally been viewed as solely public sector responsibilities.

The seventh principle states:

7. Federal funding should be reserved for those ITS purposes which are not being carried out by private investment.

The eighth principle states:

8. The Reauthorization Act should eliminate barriers to ITS deployment by encouraging the use of innovative and flexible methods for procurement.

The ITS community quickly learned that the traditional linear and segmented process for procuring capital transportation projects cannot be effectively applied to information technology and system deployment. There are successful models for ITS procurement, but, to date, their application remains the exception and not the rule. Federal law, regulation and practice should enable and encourage public agencies to use these differing procurement tools to design, build, and operate ITS systems.

The ninth principle states:

9. The Reauthorization Act should continue a targeted Federal role, in partnership with the private sector, in the rapid development of consensus-based ITS standards, stimulation of ITS markets, and essential research and development. To ensure interoperability, Federal funding should only be eligible for ITS sys-

tems with components that are consistent with the adopted model architecture and, where they exist, conform to adopted standards.

The importance of the development of standards to assure interoperability and to sustain a national market place cannot be over emphasized. Consumers, including individuals, public agencies, and companies further down the chain of product development have the biggest stake in the competitive market enabled by standards. The Federal Government is now playing a critical role, in collaboration with the traditional standards developing organizations and the ITS America public/private partnership, in coordinating, accelerating and maximizing the development process for key interoperable standards. This role should be continued and strengthened.

CONCLUSION

In conclusion, the national ITS initiative is ready to move to the deployment stage, building upon the successes to date fostered by ISTEA. A national deployment effort is essential if we are to achieve the vision of seamless, intermodal and interoperable systems that use state-of-the-art technology to gain the maximum in safety and efficiency from our surface transportation systems.

National deployment must shift away from the isolated, stand-alone systems that have proven the concept and demonstrated that the technology works. National deployment requires an incentive program that provides leadership and focus without mandates and hard set-asides. Deployment incentives, along with fostering standards for interoperability, broadening Federal eligibility criteria for ITS, facilitating private investment, eliminating procurement barriers, providing a stable funding source and supporting continued research are the key elements of what should comprise the ITS component of reauthorization.

RESPONSES OF JAMES COSTANTINO TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. Please provide more information to the committee on the traveler information system along the I-80/U.S. 50 corridor between San Francisco and Lake Tahoe/Reno.

In order to provide the most complete and up-to-date information on this project, I contacted the California Department of Transportation (CalTrans), which, along with the Nevada Department of Transportation (NDOT), is one of the leading public agencies for this project. It is called the TransCal InterRegional Traveler—Information System (TransCal) and runs between San Francisco and Reno. CalTrans sent me a packet of materials that describe the project along with photographs of the information kiosks and other hardware being developed. I have included these materials with this letter.

In brief, the TransCal project will be an integrated interregional traveler information system between San Francisco, Sacramento, Lake Tahoe and Reno. The project will provide real-time information on roadway conditions, incidents, traffic, weather, alternative transportation options and traveler services such as yellow pages and tourist information. TransCal will employ a satellite-based emergency notification system to provide emergency assistance to travelers. In addition, a frequent passenger program will be initiated using "smart" cards and incentive programs to encourage greater use of public transit. Real-time information will be made available through stationary kiosks, a Traveler Advisory Telephone system, in-vehicle devices and personal digital assistants. TransCal will also be able to interface with other existing traveler information systems, such as the San Francisco Bay Area's Traveler The Information System, called TravInfo. A 12-month operational field test of the project began this month. For more information on TransCal, I direct your attention to the enclosed materials.

Question 2. Do you share the view that DOT's design specifications for ITS are significantly behind? If so, why? If not, why not?

Response. I assume that this question is based on the conclusion of the GAO report, "Urban Transportation: Challenges to Widespread Deployment of Intelligent Transportation Systems," that ITS standards development (or "design specifications" as your question states) is occurring at an unacceptably slow pace; therefore, ITS deployment should be delayed until these standards are in-place. I believe that this conclusion is not wholly accurate. It is true that ITS standards are not expected to be finalized before 2001 or 2002. This does not mean, however, that either the standards-setting process is "significantly behind" or that deployment should be halted until that time.

In fact, just the opposite has occurred. Through the Federal Highway Administration's ITS Joint Program Office, \$16 million in Federal funding was made available in 1996 to support the standards-setting process over a 5-year period. This funding has served to bring the necessary stakeholders to the table—DOT, private industry,

traditional standards developing organizations (such as the American Association of State Highway & Transportation Officials, the American Society of Testing and Materials and the Society of Automotive Engineers) and the user community—and to create a new sense of urgency within the process. It is not the case that any one of these stakeholders could develop these standards on its own. Each has its own specialized interests that must be coordinated with other stakeholders. Conversely, by bringing the stakeholders together, DOT has maximized the strength of each. Private industry brings technical expertise and market knowledge. Standards-developing organizations bring experience and knowledge of the consensus-based process of establishing standards. The user community brings urgency—they want products and services now. Also, these stakeholders are participating as volunteers. The DOT funding is needed to focus the energy, time and strengths of the other stakeholders.

Already, this effort has borne fruit. One of the priority standards identified by DOT concerns Dedicated Short Range Communications (DSRC) for automatic toll collection and commercial vehicle operations. It is expected that the first critical standards for DSRC will be finalized by the end of this year. The project manager has stated that “we have accomplished more in 4 months than would take 4 years in a routine process.” This is possible because the Federal Government provided money and leadership after 5 years of discussions resulted in no tangible progress. Contrary to the conclusion of the GAO, this example illustrates that the standards-setting process is on course and moving forward with all deliberate speed.

Moreover, it is not the case that deployment of ITS technologies should wait until all ITS standards are established in 2001 or 2002. Many priority standards will be in place before that time, and, most importantly, deployment will occur, and is occurring now, although ITS standards are not yet finalized. Gerald Pfeffer of United Technologies testified as much at the same hearing. When deployed, the automatic toll collection and congestion-pricing project along SR91 in Southern California used the then-current standards for DSRC with the realization that the system would have to be retrofitted to the soon-to-be developed national standard. Similarly, the TransCal project described in Question #1 is not waiting on ITS standards before being deployed. Deployment should be in conformity with the completed ITS National Architecture, which identified what standards were needed, and the then-existing standards. As more standards come on line, retrofitting of the systems will occur. This is an expected cost of doing business, as Mr. Pfeffer testified. Waiting on these standards is simply short-sighted because it denies the reality of what is happening on the ground throughout the United States. With DOT involvement, it is expected that the standards-setting process can now get ahead of the parade to deployment that is underway.

Question 3. Upon their completion next summer, please provide the cost, benefit, and market analysis for commercial vehicle operations infrastructure and rural applications described in your testimony.

Response. I will be sure to provide this information as soon as it is available.

RESPONSES OF JAMES COSTANTINO TO ADDITIONAL QUESTIONS FROM
SENATOR CHAFEE

Question 1. You have testified that the public and private sectors must work as a partnership in the ITS deployment effort. What exactly are the appropriate roles for the public and private sectors?

Response. There are two areas in which the public and private sectors must work as partners for ITS deployment. First, in the era of dwindling government resources at all levels to capitalize fully new transportation projects, whether they be construction, reconstruction or ITS deployment, it will be necessary to pursue alternative methods of finance. The private sector brings expertise and experience with such alternative methods as debt financing through, for example, the sale of public bonds or an extension of credit. For projects where a return on investment can be predicted with confidence, the public and private sectors can structure a relationship where they both assume the risk and share the benefits. It is not the case that only toll projects can provide the required revenue to attract private investment. For example, the private sector has started to show success with repackaging real-time traffic information collected by public agencies for dissemination to the public. Support from the Federal Government in the form of Federal credit insurance, as suggested by Daniel Flanagan at the March 6 hearing, or raising the ceiling on private investment for tax-exempt municipal bonds from 10 to 25 percent for public infrastructure projects, as proposed in the Highway Infrastructure Privatization Act, are but two of the examples of where the Federal Government can make transportation

projects more attractive to private investment as partners to share the risks and benefits.

Second, the private sector will build on the initial investment by Federal, State and local governments in ITS deployment. A comparison here to the development of the Internet is an effective analogy. Initially, the Internet was created as a secure means for the Department of Defense (DOD) to communicate with itself and its research institutions. DOD then constructed a supporting infrastructure. At no point was it thought that private industry would build on this public infrastructure to create the exploding market we have today, and all of which occurred at no additional cost to the taxpayer.

We believe that a similar situation exists today with ITS deployment. The Federal Government is the only entity that can provide the leadership and funding incentives to create a national ITS infrastructure. Once this infrastructure is in place, the private sector will have the foundation upon which to feed the consumer market for ITS services and products. As I described in my oral and written testimony, ITS America and DOT conducted an ITS National Market and Investment study to determine, in part, whether the Internet analogy was valid. The study's results confirmed this belief.

The study concluded that the overall market for basic ITS metropolitan infrastructure and associated products and services in the consumer and commercial markets over the next 20 years is approximately \$437 billion. Of that amount, approximately \$93 billion—from Federal, State and local sources—would be for the public infrastructure. The remaining \$347 billion would be for ITS products and services in the marketplace. As was the case with the Internet, the early public investment in the infrastructure will provide the critical foundation for a private market to develop.

In sum, the public and private sectors can work as partners both in financing the development of a national ITS infrastructure and, as a result, developing a market for ITS products and services.

Question 2. Your testimony asserts that it is critical that ITS deployment occur in an integrated, interoperable, and intermodal fashion. You also mention that the deployment of ITS technology has begun, albeit in a *fragmented* manner. What impact will this fragmentation have on the prospects for effective deployment?

Response. In my testimony, I described several examples of ITS technologies that have been deployed across the United States. On the upside, these systems are producing tangible benefits. Unfortunately, these examples also illustrate that deployment is not occurring in a systematic fashion from community to community. Certain cities and regions, such as Houston, Minneapolis, and the New York City region, are leaders in deploying ITS. Other cities and regions, however, are either just beginning to examine the possibilities of ITS or are unaware that these technologies exist. ITS America's concern, which is shared by DOT, is that without a national coordinated deployment effort, the fragmentation we see today will persist such that the goals of integration, interoperability and intermodalism will not be achieved.

If deployment continues in a fragmented manner, there will surely come a time when an attempt will be made to integrate the many "islands" of deployment. What will be found is that the cost, and bureaucratic resistance, to retrofit the many stand-alone systems to be compatible with each other will be prohibitive. In other words, once deployment is done wrongly—that is, not integrated, interoperable nor intermodal—States and localities will be less likely to go back and fix these problems later. The goal of a national deployment effort based on funding incentives would be to ensure that these States and localities deploy ITS correctly from the outset. Already, the Federal seed money for the four Model Deployment Initiative sites in New York City, Phoenix, San Antonio and Seattle is used for projects that will be nationally integrated.

On a practical level, if deployment continues in a fragmented fashion, the driving public, for example, will be unable to use a single transponder that can be read by every electronic toll collection system in the country. Rather than creating a seamless and paperless commercial freight inspection and safety system from State to State, truck drivers will still have to be weighed and inspected by each State along a single route, such as along the I-75 corridor I identified in my testimony. This fragmented deployment will prevent the ultimate efficiencies in time, reduced cost and ease that ITS can deliver from being achieved.

Question 3. Your ISTEA reauthorization proposal *encourages*, rather than mandates states to invest 5 percent of their total surface transportation outlays in ITS applications. You have referred to it as a "soft set-aside." I applaud your effort not to incorporate an unfunded mandate in your proposal. Have you done any research to determine how successful the "soft set-aside" approach will be? How many States do you expect to participate in this initiative?

Response. ITS America has not done any research on how our "soft set-aside" approach will be embraced by the States. But based on our knowledge of the number of States that are involved with ITS, and those that are not, we believe that this "soft set-aside" proposal will be embraced by at least the 10 to 15 States that are already invested in ITS. In 1995 alone, the States invested over \$1 billion of Federal-aid funds in ITS. This "lead" group of States has already determined that ITS provides solutions to problems they face. These States would probably use ITS regardless of the presence of Federal money, but the "soft set-aside" will act to spur them forward with greater speed and enthusiasm.

We also believe that there is a "middle" group of States, approximately 20 to 25 in number, that are beginning to consider and deploy ITS. For this group, the "soft set-aside" could act as a critical incentive. Although our proposal is not calling for a mandatory program category, the "soft set-aside" would force States to consider ITS as an option for their transportation needs. It is hoped that if ITS is "on the plate" of State and local officials, it will be viewed more seriously and, hopefully, embraced as a solution.

Finally, there is a last group of States, 10 to 15 in number, that have yet to consider ITS and will probably not do so unless NEXTEA creates a separate program category. We do not expect that our "soft set-aside" proposal alone will be enough to convince this group that ITS will benefit them. We do, however, hope to be surprised.

Question 4. As you know, I am very interested in safety issues. You mentioned that the Freeway Management Systems will reduce accidents by 17 percent. Can you expand on your assertion? What areas of safety will see benefit?

Response. The figure of 17 percent reduction in accident rates is a composite average calculated by DOT from the experience of several freeway management systems in place throughout the country. Some systems have resulted in a greater reduction, others less. Nonetheless, the clear answer is that freeway management systems do reduce accident rates.

Freeway management systems are premised on the conclusion that the significant portion of accidents, which are mostly fender-benders and minor personal injuries, occur in urban areas under congested conditions. Therefore, by reducing the amount and severity of congestion, there will be resulting reduction in accidents. Experience on the ground has proven this conclusion.

For example, in July 1995 San Antonio, Texas, one of the four Model Deployment Initiative sites, opened its TransGuide freeway management system. The Operations Control Center and 26 miles of the proposed 191-mile system are now operational. The TransGuide System encompasses a complete digital communications network consisting of changeable message signs, ramp meters, lane control signals, loop detectors, and surveillance cameras. Since going operational, the TransGuide freeway management system has seen a reduction in accident rates of 15 percent. Future reductions are predicted at 21 percent. For freeways not covered by TransGuide, the total number of accidents rose by 7.8 percent with an overall increased rate of 4.3 percent.

A significant element of the TransGuide system, and other freeway management systems, is the improvement of incident management. The goal is to improve incident management by detecting and verifying the nature and severity of incidents more quickly and also lessening response and clearing times. San Antonio's TransGuide system has been able to meet this goal. For example, average response time to accidents improved once TransGuide became operational. For minor accidents, the rate improved 19 percent; for major accidents a 21 percent improvement was achieved. Because emergency teams are able to reach accidents more quickly, the severity of injuries and likelihood of death are also lessened.

It should also be recognized that freeway management systems result in time-saved benefits, increased throughput, less impact on the environment and improved customer satisfaction. All of which translates into cost savings for both the private and commercial driver. Other freeway management systems in Houston, Seattle, Montgomery County, Maryland, and Minneapolis/St. Paul have had similar experiences. In short, freeway management systems have proven they work.

PREPARED STATEMENT OF ROBERT E. SKINNER, JR., EXECUTIVE DIRECTOR,
TRANSPORTATION RESEARCH BOARD NATIONAL ACADEMY OF SCIENCES

Good morning, Mr. Chairman and members of the subcommittee. My name is Robert Skinner. I am the executive director of the Transportation Research Board. The Transportation Research Board has been involved in transportation research for the past 76 years since its creation in 1920 as the Advisory Board on Highway Re-

search. TRB is an independent, nonprofit organization that is part of the National Research Council, which is the operating arm of the National Academies of Sciences and Engineering. TRB's mission, in brief, is to promote innovation and progress in transportation through research. TRB fulfills this mission by maintaining over 180 standing technical committees covering all modes of transportation, hosting an Annual Meeting that attracts about 7,500 transportation professionals, publishing reports and collections of peer-reviewed technical articles, administering two contract research programs, and undertaking special studies at the request of Congress and executive branch agencies.

Innovation clearly requires more than just good research; but good research is often a prerequisite for innovation in transportation, as it is in other fields. My comments today will focus on highway research initiatives, and I will also make some brief comments about barriers to innovation and innovative finance. In addition, I have included comments on transit and rail research in which TRB is also engaged.

I will begin with highway research, and in doing so I will draw upon the work of a special TRB expert committee, the Research and Technology Coordinating Committee (RTCC), which was convened in 1992 to provide an independent, ongoing assessment of the research and technology program of the Federal Highway Administration (FHWA) as well as other highway research activities. Its members include high-level administrators and researchers from the highway field as well as some technology experts from other fields. The current committee roster is attached.

In 1994 the committee published an overall appraisal of highway industry research in TRB Special Report 244, *Highway Research: Current Programs and Future Directions*. By 'industry' the committee meant the government agencies that construct, maintain, and administer America's public highways, as well as the private companies that provide services, materials, and equipment used by these agencies.

Let me highlight several committee findings and recommendations about highway research, and begin with how highway research is organized.

As you know, the highway industry is highly decentralized in our country—nearly 40,000 public agencies administer portions of the highway system, and tens of thousands of private companies provide products and services to State and local agencies. Our highway research and technology programs are also fairly decentralized. The Federal Highway Administration sponsors in-house and contract research; most States have research programs; many universities carry out highway research programs; and private-sector trade groups and large companies sponsor and conduct research.

Of these, the Federal Highway Administration's research program is the largest, the most comprehensive, and the best positioned to pursue long-term research initiatives. State DOT research programs constitute the other major public-sector component and are largely financed through the State Planning and Research (SP&R) program, authorized by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The State programs place considerable emphasis on diagnostic, consultative, and testing activities—work that strictly speaking is not research but is a necessary component of the innovation process. But the SP&R program, like its predecessor, the Highway Planning and Research (HP&R) program, is also the mechanism that States have used for "pooled fund" research ranging from ad hoc projects supported by a few States to the National Cooperative Highway Research Program (NCHRP), which the 50 States, the District of Columbia, and Puerto Rico have collectively overseen for 35 years.

Decentralized research programs allow the potential users of research results to participate at many different levels. Because the industry is so highly fragmented, a more centralized program would probably make it even more difficult to establish productive links between researchers and the users of research products. So, while the overall highway research program in the United States is complicated and difficult to understand at first, it provides a solid foundation for highway innovation.

Now let me turn to research topic areas—do we have the right priorities? Our committee spent a great deal of time trying to understand and classify research and technology activities, and it closely examined highway research-related spending in fiscal year 1993. In a nutshell, based on its analysis, the committee urged that the research program be less conservative and more comprehensive. It recommended more support for high-risk, but potentially high-payoff, research that seeks breakthroughs in highway technology. It recommended more research that takes a long-term view of the highway transportation system and its interaction with other modes, land use, the environment, and the national economy, as well as more research on improvements in intermodal transportation that involve highways.

Altogether, the committee estimated that less than 6 percent of the research and technology expenditures for 1993 in the major public-sector programs (FHWA, SP&R, and NCHRP) were directed toward these areas. This figure has probably in-

creased since then as ITS-related research has increased; certainly a portion of ITS research is aiming for breakthrough technologies to improve safety and increase highway capacity. Nevertheless, the 1993 figures are indicative of a problem, or perhaps missed opportunity, that goes beyond any one topic area of highway research.

At the same time, the committee recognized the importance of incremental, short-term research that seeks improvements in highway performance, safety, and cost through evolutionary changes to current materials, designs, and construction and operational practices.

The committee also looked at the overall level of investment in highway research and technology. Budgets for the major public-sector research programs, when adjusted for inflation, increased by a factor of about 2.5 between 1982 and 1993. Nonetheless, when expressed as a fraction of all industry expenditures, total research and technology spending was probably on the order of 0.3 percent in 1993, well below the investment levels of "low-tech" private-sector industries. Given the magnitude of the challenges ahead and the opportunities available, the committee concluded that increased highway research funding would be a wise investment.

More recently, the Research and Technology Coordinating Committee turned its attention to highway research related to air quality—specifically, research aimed at helping State and local agencies evaluate the impact of transportation actions on urban air quality goals set forth by the Clean Air Act Amendments of 1990 (CAAA) and ISTEA. In a report released in January, the committee concluded that the prediction models and data bases mandated for determining compliance with air quality goals are inadequate and lack credibility among State and local transportation officials. It identified targeted research studies, which would address these inadequacies, and called for a research program in this area that would be cooperatively managed and supported by the U.S. Department of Transportation and the Environmental Protection Agency.

In addition to the work of this committee, other special TRB committees provide continuing advice to the Federal Highway Administration concerning specific areas of research and innovation. One such committee provides advice about the implementation of research products developed by the now complete Strategic Highway Research Program (SHRP), and another periodically reviews the SHRP-initiated long-term pavement performance (LTPP) studies.

The transportation field faces special challenges in moving good ideas from the lab to practice—challenges that stem from the decentralized nature of the industry and the lack of market incentives, which help drive innovation in other sectors. Recently, another TRB committee looked specifically at problems, such as procurement practices, that slow the pace of innovation in the highway industry.

The traditional low-bid approach to procuring highway goods and services, with highly prescriptive specifications, gives the private sector few incentives to innovate. But a new era of highway renovation has begun that offers significant opportunities to apply new technologies and practices—an era when innovation will be critical to providing more highway infrastructure with fewer public dollars. Last fall, this committee released a report calling for a concerted public-private effort to bring more innovation into maintaining and rebuilding the nation's highways. This will require application of a wide range of innovative approaches, such as design-build, warranties, life-cycle costing, and constructability reviews, to name a few. Some efforts are already under way, but more experimentation with these approaches is needed. Equally important, we must begin to educate industry leaders, from both the public and private sectors, more aggressively about the opportunities offered by these approaches. As a small step in this direction, the committee recommended formation of a "strategic forum for innovation in highway infrastructure," to bring together visionary leaders from both industry sectors.

In the area of innovative finance, TRB has organized a wide array of activities addressing different aspects of this topic, including a Conference on Innovative Finance for Transportation, to take place on April 23–25 in Dallas. The conference will showcase innovative financing techniques currently being used for highway and transit projects and will identify research and information transfer needs in this area.

In 1994, a special TRB committee completed a detailed study of one form of innovative finance, peak-period or congestion pricing on highways (TRB Special Report 242, *Curbing Gridlock: Peak-Period Fees To Relieve Traffic Congestion*). In brief, the committee concluded that congestion pricing is technically feasible and would produce a net benefit to society. It acknowledged, however, that the lack of public and political support is a significant barrier to implementation and recommended an incremental approach with small-scale experiments that might build public support over time. To support this, the committee specifically recommended that Con-

gress extend the congestion pricing pilot program of ISTEA when the legislation is reauthorized.

Now let me make some comments about public transit research. In 1987, a special TRB committee completed a strategic review of public transit research (TRB Special Report 213, *Research for Public Transit: New Directions*), which called for a new operator-oriented, problem-solving research program. Transit agencies were to play the dominant role in managing and implementing the research program, and the committee proposed that the program be funded through mandatory set-asides from Federal grants. In 1991, ISTEA authorized a new Transit Cooperative Research Program (TCRP), which closely followed this model. It provided for an independent governing board and specified that the program be administered by the National Academy of Sciences, which has fulfilled this assignment through the Transportation Research Board.

The Transit Cooperative Research Program will complete its fifth year in August 1997, and during that time 194 research studies have been authorized and 84 have been completed. Research products are now finding their way into practice. For example, Santa Clara County officials cite a TCRP report as the basis for their decision to adopt low-floor light rail vehicles and provide accessibility for riders with disabilities without costly ramps and platforms. More than 800 transportation professionals have served on the panels that guide TCRP research projects, helping to ensure that the applied research remains faithful to industry needs, and providing critical linkages for implementation. From my personal vantage point, I believe that TCRP is having a positive impact and fulfilling the mission originally envisioned by the special TRB committee in 1987.

My statement has focused on highway and public transit research, but TRB has also been involved in rail research and provided guidance to the Federal Railroad Administration (FRA) in this regard. For example, at the request of Congress, a special TRB committee is conducting periodic reviews of the high-speed ground transportation technology demonstration program, which was authorized by ISTEA. It is assessing individual program elements and how well they are integrated, program management, and the prospects for deployment of the technologies being investigated.

My comments today have highlighted research initiatives that are specific to individual modes of transportation. This type of research is and always will be important, but there is also a need for more research that cuts across modes. I mentioned earlier that TRB's Research and Technology Coordinating Committee, in its overall appraisal of highway industry research, recommended more research that takes a long-term view of the nation's highway transportation system and its interaction with other modes, land use, the environment, and the economy, as well as more research on improvements in intermodal transportation involving highways. In recent years, TRB's activity in these areas has steadily increased, with projects ranging from a national conference on setting a framework for intermodal transportation research to a study on the U.S. transportation system viewed in the context of the quest for "sustainability." Given the rapid pace of change in all aspects of our world, I expect that the need to address these types of issues will continue to grow.

Thank you for the opportunity to provide these comments this morning. I know that the subcommittee has previously heard testimony about the important role our transportation system plays in the economic vitality of our country. To be sure, a willingness by both the public and private sectors to invest in that system has been critical to this success. But innovation, often based on research, has also been critical, and will be ever more so as our financial resources are constrained.

RESPONSES OF ROBERT E. SKINNER, JR. TO ADDITIONAL QUESTIONS FROM
SENATOR REID

Question 1. According to your testimony, less than 6 percent of the Nation's highway research funds are directed to long-term initiatives such as intermodalism, land use, the environment, and the national economy. Where are the remaining 94 percent of the highway research and technology expenditures directed?

Response. In its 1994 report cited in my testimony, our Research and Technology Coordinating Committee analyzed total expenditures in fiscal year 1993 for the three major public-sector highway research and technology programs (FHWA, SP&R, and NCHRP), broken down into the following categories (for description of these categories, see *Highway Research: Current Programs and Future Directions*):

Category	Expenditures (millions of dollars)	Percentage
Incremental Improvements	\$158	58
Breakthrough Research	11	4
U.S. Transportation System Issues	1.2	<1
Policy Analysis & Regulatory Compliance	19	7
Intermodal Transportation	1.7	<1
Tech Transfer/Field Applications	27	9
Education & Training	29	10
Technical Support & Testing	29	10
Total	\$276	.....

Question 2. How can national transportation policy ensure that a larger share of research expenditures are directed to long-term initiatives such as the environment, the economy, land use, and the interaction of highways with other modes?

Response. The Research and Technology Coordinating Committee identified a need for this type of research but did not consider the question of what type of mechanism would be most appropriate to ensure its accomplishment. Clearly, there are a variety of legislative or administrative actions that might be considered as a means of requiring a reallocation of research priorities. Speaking personally, however, what is probably more important than the specific mechanism chosen is a willingness among those responsible for funding research to accept the “failures” and lack of short-term products that are inevitable in any high-risk, long-term research program.

Question 3. A TRB report released in January concluded that “the models and data bases mandated for determining compliance with air quality goals are inadequate and lack credibility among State and local transportation officials.” It also called for a cooperative EPA-Department of Transportation research program to look further into this area. I understand that there is a model called the Transportation Analysis and Simulation System, better known as TRANSIMS, that is developing new, integrated transportation and air quality forecasting procedures necessary to satisfy ISTEA and the Clean Air Act. How do you think the TRANSIMS model can improve transportation planning?

Response. The report released in January and an earlier report—*Expanding Metropolitan Highways: Implications for Air Quality and Energy Use* (Special Report 245)—identified a number of deficiencies in the data needed and the models available to forecast the effects of transportation investments on vehicle emissions, travel demand, and land use.

The TRANSIMS model is being developed at the Los Alamos National Laboratory under the auspices of the Travel Model Improvement Program, which is jointly funded by the U.S. Department of Transportation and the Environmental Protection Agency. TRANSIMS is a multimodal regional microsimulation model that is intended to provide detailed estimates of household trips and travel and vehicle movements in a metropolitan area, which can then be linked with emissions, airshed, and energy use models. The model will provide highly detailed data on travel and traffic movements in a metropolitan area that should be helpful in analyzing travel impacts on the environment and energy use.

This model may prove to be a powerful analytical tool to aid transportation planning. However, like any model, its full potential will only be realized when used in conjunction with accurate input data and with other reliable models that link travel characteristics to specific impacts on the environment or land use. For example, a separate modal emissions model must be developed and linked to the travel component of the TRANSIMS model to produce reliable estimates of the effects of specific travel characteristics on vehicle emissions and pollutant concentration levels. Moreover, my understanding is that the data requirements to support model use in the field are quite extensive. Thus, the TRANSIMS model may help correct several of the deficiencies reported in our studies, but its full potential for transportation planning is not likely to be realized without other improvements in data and modeling.

Question 4. A special TRB Committee found a lack of public and political support for congestion pricing. Mr. Pfeffer’s testimony, on the other hand, made the point that American motorists will pay market prices to avoid congestion. Can you clarify this apparent discrepancy? Is the public’s attitude to pricing a function of how severe the congestion is in a given region or locality?

Response. By all reports, the public reception is favorable to the congestion pricing being applied on the State Route 91 project in southern California. This project, which has come on line since TRB's report on congestion pricing was completed, is the first application of congestion pricing in the United States, and it may help pave the way for more projects in different settings. The project does, however, have some unique features—such as private ownership and operation, extreme congestion in the corridor, and the availability of adjacent “free” lanes—that may not be readily reproduced elsewhere.

In *Curbing Gridlock: Peak-Period Fees to Relieve Traffic Congestion*, a special TRB study committee concluded that congestion pricing, applied in a variety of settings, has great promise as a demand management tool and would be a net benefit to society, but also acknowledged that the political feasibility of this approach is not certain. The committee lists several reasons for this uncertainty, among them whether the public is prepared to pay for what it now perceives as a “free” service; the potentially complicated politics regarding how the substantial funds raised through congestion pricing would be allocated (both within transportation and between transportation and other public services); and how the potentially negative impacts on some individuals and groups would be ameliorated.

In recognition of both the potential benefit and the uncertainty, the committee recommended experimentation with this policy and careful evaluation. The committee observed (page 8 of the report), “The risks associated with congestion pricing and the nature of policy development in a pluralistic society imply that this policy will only progress in small steps. Given that congestion pricing represents a substantial change from current operation of the road system, such small steps are appropriate. If individual projects succeed, they will help convince policymakers and the public of the benefits of congestion pricing. This process will take time, however; thus it may be many more years before congestion pricing would be applied throughout a metropolitan area in this country.”

The Route 91 project is one step toward congestion pricing, and it provides a unique opportunity to learn from and expand upon this approach.

Question 5. Looking at the entire highway sector, do you think we are doing an adequate job of getting innovation incorporated into our infrastructure?

Response. We are making progress, but as I noted in my statement there are special challenges that confront the transportation field in getting innovative approaches into practice—challenges that stem from the decentralized nature of the industry and the lack of market incentives, which help drive innovation in other sectors. The TRB Strategic Highway Research Program Committee is assisting FHWA in finding effective ways to encourage and aid the implementation of innovative products that have emerged from SHRP research. TRB's Committee for the Study of Approaches for Increasing Private-Sector Involvement in the Highway Innovation Process looked specifically at problems, such as procurement practices, that slow the pace of innovation in the highway industry. In its 1996 report, that committee called for a public-private effort to bring more innovation into maintaining and rebuilding U.S. highways, through application of a wide range of approaches such as design-build, warranties, life-cycle costing, and constructability reviews. Some State agencies are already experimenting with these and other innovative approaches; more experimentation is needed, as well as a more aggressive effort to educate industry leaders from the public and private sectors about the opportunities offered by these approaches.

Question 6. Where do we need to focus our attention to accelerate innovation? For instance, should we focus on basic research, training for State and local officials, large-scale testing of new materials, or some other area?

Response. As I noted in my testimony, the Research and Technology Coordinating Committee examined the overall level of investment in highway research and technology and found that spending for research in the highway industry has been well below the investment levels of even “low-tech” private-sector industries. The committee concluded that additional spending would be worthwhile, quite possibly in all of the areas mentioned in the question. Recognizing, however, that resources are limited, the committee targeted some specific areas that are currently receiving a disproportionately small share of funding. The committee recommended a less conservative, more comprehensive research program, including more support for high-risk, potentially high-payoff research aimed at breakthroughs in highway technology. It also recommended more research that takes a long-term view of the highway transportation system and its interaction with other modes, land use, the environment, and the economy, as well as more research on improvements in intermodal transportation that involve highways.

Question 7. Do you think that having the private sector play a greater role in the design, construction, and operation of the Nation's transportation infrastructure might lead to greater innovation?

Response. Underlying the types of approaches I've alluded to in my response to question #5 above is the belief that an enhanced private-sector role could lead to greater innovation in the design, construction, and operation of the Nation's transportation infrastructure. Although much of that infrastructure is publicly owned, many opportunities are emerging for increased private-sector involvement and public-private partnerships in designing, building, and operating U.S. transportation facilities. Providing incentives to innovate and to encourage and reward efficiency is key.

REAUTHORIZATION OF THE INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT

THURSDAY, MARCH 13, 1997

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:30 a.m. in room 406, Senate Dirksen Building, Hon. John W. Warner (chairman of the subcommittee) presiding.

PROGRAM ELIGIBILITY AND FLEXIBILITY

Present: Senators Warner, Smith, Bond, Baucus, Moynihan, Reid, Graham, Boxer, and Chafee [ex officio].

Also present: Senators Lautenberg and Wyden.

OPENING STATEMENT OF HON. JOHN W. WARNER, U.S. SENATOR FROM THE COMMONWEALTH OF VIRGINIA

Senator WARNER. The subcommittee will come to order.

We will now hear from our distinguished colleagues. First, the distinguished Senator from Delaware, Senator Roth, then the Senator from New York, Senator Moynihan, followed by Senator Biden, then Senator Jeffords.

[The prepared statement of Senator Warner follows:]

PREPARED STATEMENT OF HON. JOHN W. WARNER, U.S. SENATOR FROM THE
COMMONWEALTH OF VIRGINIA

I want to welcome my colleagues, Secretary Huerta, and our other witnesses to the subcommittee today as we continue our examination of issues important to the reauthorization of the Intermodal Surface Transportation Efficiency Act.

The purpose of today's hearing is to discuss ISTEA's program eligibility, funding flexibility and proposals to expand or limit this flexibility.

Let me clarify that we are looking at two very distinct issues today.

First, we will examine the flexibility permitted under ISTEA. This flexibility allows our State and local transportation partners to use Highway Trust Fund dollars to meet their own highway and transit priorities.

Second, we will discuss the Administration's proposal to expand the eligible uses of moneys from the Highway Trust Fund.

The current ISTEA program allows States to transfer funds among various program categories—shifting funds among the National Highway System, Bridge, or Surface Transportation programs. Also, ISTEA allows States to spend their STP or CMAQ funds on transit projects and other intermodal projects aimed at moving people and goods more efficiently.

I believe giving our transportation partners this flexibility to meet their individual needs has been highly successful. It has been one of the strongest cornerstones of ISTEA and a principle that is continued in the reauthorization bill I am sponsoring—STEP 21.

On the matter of using Highway Trust Fund dollars to fund other transportation purposes that do not contribute to Fund, I have serious reservations.

The Administration's proposal to fund all of Amtrak's operating and capital expenses from the Highway Trust Fund rather than the General Fund is a major departure from current law.

This subcommittee has repeatedly heard testimony from the Federal Highway Administration and other witnesses during our hearings that we should be spending \$50 billion more than our current investments *just to maintain the conditions and performance of our surface transportation system*.

We know the significant challenge before us to increase funding to meet our existing transportation demands.

Because of this challenge, I question the wisdom of using limited dollars to fund Amtrak, freight rail activities and other purposes not central to our national transportation system.

Senator Roth.

**OPENING STATEMENT OF HON. WILLIAM V. ROTH, JR.,
U.S. SENATOR FROM THE STATE OF DELAWARE**

Senator ROTH. Thank you very much, Senator Warner and Senator Chafee. I want to express my appreciation for starting the hearing early because we also have a hearing at 9:30 and our first witness, Mr. Volcker, has to leave early. So it is very helpful.

I particularly appreciate the opportunity to testify before your subcommittee on what is an extremely important issue for me—the survival of our national passenger rail system. Amtrak is a vital part—I cannot emphasize too much—is a vital part of America's transportation network in both rural and urban areas. Due to increasing highway congestion and air quality requirements in urban areas, and the need for more transportation options in rural areas, reliance on rail passenger service will most certainly increase.

Given these facts, the question I believe is not whether the Nation needs to support rail passenger service, but how.

Our national passenger rail system is facing very serious financial challenges. If something is not done to put Amtrak on a solid basis so it can repair its track, improve its rolling stock, and speed its service, we will have more congestion, crumbling highways, dirtier air, and wasted energy. What this Nation needs is not only good highways but a good passenger rail service.

To meet this objective, Congress must make a significant investment in Amtrak's capital infrastructure.

Mr. Chairman, there are several ways Congress can do this. First, we can give States the flexibility to use their Federal transportation dollars, such as their CMAQ and STP dollars, for Amtrak service. Last year I offered an amendment on the National Highway System bill that would allow States to use their Federal transportation dollars on Amtrak if they choose to do so.

This language overwhelmingly passed the Senate but was dropped in conference with the House. At the request of States who have lost Amtrak service, this language was later included in the fiscal year 1997 Department of Transportation funding bill.

I am very pleased that Senator Moynihan's ISTEA reauthorization bill includes my flexibility language allowing States to use their STP and CMAQ dollars for Amtrak. I am also pleased that the Administration adopted my language as part of their ISTEA proposal.

I urge this committee that whatever bill is reported to the full committee to include this important eligibility for passenger rail service.

Second, and the most important in my mind, is giving Amtrak a secure and reliable source of capital funding. Today, Senator Moynihan and I will be introducing legislation that would transfer one half cent of the 4.3 cents-per-gallon motor fuels tax now being deposited into the general fund to a new trust fund for Amtrak.

The fund, totally \$3.8 billion, would allow Amtrak to make the capital improvements necessary to provide for a modern, efficient, and financially viable passenger rail system. The one half cent would revert back to the general fund after 5 years.

This legislation would provide Amtrak with a reliable capital funding source, no different than what highways and other modes of transportation currently receive. It would allow Amtrak to do long-term planning, to enhance the corporation's ability to raise funds in the private market, to make the necessary repairs to its tracks, and improvements to its equipment.

Creating a trust for Amtrak is absolutely essential if we are to have a financially sound national passenger rail system.

In closing, I would like to remind my colleagues of the importance of keeping a national passenger rail system. If we are to fulfill our ISTEA mandate "to develop a national intermodal transportation system that is economically efficient and environmentally sound," then we must deploy a comprehensive transportation network that includes a financially stable passenger rail system as an integral component.

As chairman of the Senate Finance Committee, with jurisdiction over the gas tax rates for ISTEA, I am eager to work with your committee to ensure that Amtrak's financial status is reversed.

It is my view that capital—I want to emphasize—it is my view that capital funding for Amtrak must be part of any sensible ISTEA bill. I am pleased that the Administration heeded my call for a capital trust fund for Amtrak and included a plan to do so in their ISTEA bill.

My committee can put the funding mechanism for Amtrak in place, but it will require all of us—Environment and Public Works, Commerce, Finance—working together to make Amtrak sound. I am hopeful that we can make significant strides toward this goal in the 1997 ISTEA reauthorization bill.

Mr. Chairman, I look forward to working with your subcommittee on this most important issue.

Senator WARNER. Senator, just before you leave, may I comment, speaking for myself. You started not whether, but how to finance.

Senator ROTH. And I agree with that.

Senator WARNER. Except that I would say not whether, but why should we change from the current method of financing Amtrak? That's No. 1.

Second, some committee has got to step up to the fact that Amtrak now, current management, is burdened with statutory requirements, like a 6-year pay to a laid-off, dismissed worker. That's a platinum parachute unlike anything elsewhere in America. The inability of Amtrak to contract out is another. In other words, when the Amtrak legislation was put together, there was far too much

influence by the unions and that influence now is crippling the ability of Amtrak to become financially viable no matter how much money we give to them.

Senator MOYNIHAN.

**OPENING STATEMENT OF HON. DANIEL PATRICK MOYNIHAN,
U.S. SENATOR FROM THE STATE OF NEW YORK**

Senator MOYNIHAN. Mr. Chairman, I'd just wholly endorse what my chairman has said to you. I would make the point that the 4.3 cents gasoline tax which the Finance Committee levied in 1993 extends to diesel fuel used by railroads as well as to gasoline used by automobiles. There is a case in equity as regards the origins of the revenue stream.

Just one other point. The whole purpose of ISTEA, as Senator Chafee would agree, was to restore a balance to a Federal transportation policy that had been almost wholly directed to highway travel since 1956. In that setting, railroads declined precipitously. But railroad freight has come back to an extraordinary degree, and passenger rail need not be far behind if this committee can act in concert with our committee. I hope that would be the case. I thank you, Senator.

Senator WARNER. Senator Biden, and then the chairman of our committee. Mr. Chairman, do you wish to say a few words first?

**OPENING STATEMENT OF HON. JOHN H. CHAFEE,
U.S. SENATOR FROM THE STATE OF RHODE ISLAND**

Senator CHAFEE. I would just say this, if I might, Mr. Chairman, I support the approach that Senator Roth has taken. I do want to make it, very clear that I am not for the 4.3 cents—let's start from there—I feel very strongly that should go into the general fund. Now if from that should be deducted the 5 cents, I would be agreeable to that, but I wouldn't want the balance of the money to go into the Highway Trust Fund. I believe, very strongly we need that money for deficit reduction. That's the way it's been. So I start with that.

Senator WARNER. So you would be preserving the sanctity of the Highway Trust Fund as moneys needed for the specific purposes for which that fund was created?

Senator CHAFEE. No. No. Wait a minute.

Senator WARNER. All right. Go ahead, Mr. Chairman.

Senator CHAFEE. I don't want to take too long on this. As you know, 4.3 cents goes into the general fund.

Senator WARNER. I'm very aware of that. It goes into the general treasury.

Senator CHAFEE. There have been efforts underway to have that go entirely into the Highway Trust Fund. I am not for that. And so I wouldn't want the approach that Senator Roth is suggesting that we're giving up on the balance of that going into the general fund, because that's—

Senator WARNER. But you would agree on the half cent?

Senator CHAFEE. On the half cent, yes, I would agree on that.

Senator ROTH. So we're in agreement on that?

Senator CHAFEE. We're in agreement on that.

Senator REID. Mr. Chairman, before the two finance members leave, with all due respect to my dear friend the chairman of this subcommittee, I strongly disagree that the problem with Amtrak is the unions. Even the testimony that you're going to hear today from the people at Amtrak don't say that.

Senator CHAFEE. Let me just say another thing, if I might, Mr. Chairman. I want to reiterate the point that Senator Moynihan made, that this is a transportation bill that we're dealing with with the ISTEA—that's what the letter "T" is in the ISTEA, and I would hope we would very much keep that in mind—and rail transportation is a very, very important part of the general transportation system of the United States. Thank you.

[The prepared statement of Senator Chafee follows:]

PREPARED STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Thank you, Mr. Chairman. I would like to welcome all of the witnesses who will appear before us today.

The purpose of this morning's hearing is to receive testimony on the eligibility of programs and flexibility in the Intermodal Surface Transportation Efficiency Act. ISTEA was a landmark law that afforded the states unprecedented flexibility in spending their Federal transportation dollars.

One of the important considerations to keep in mind as we develop a committee recommendation for the reauthorization is the diversity and uniqueness of the country and all of its transportation needs. All of us must resist the temptation to set a national transportation policy based solely on our own region's particular demands. The demands of the Northeast are different from those of the South; the demands of the South are different from those of the West. And so on.

We need to be cognizant of the population growth that has taken place in the South and Southwest and the strains that such growth has put on areas within that region. Many of the Western states, by contrast, with their low population density and the great distances involved in travel, rely on highways as the major mode of transportation. We also need to acknowledge the uniqueness of the Northeast United States; its older infrastructure and acute congestion make it more dependent on non-highway modes such as transit and Amtrak. Attempts to pass a new bill by forming alliances along regional lines will fail unless the bill recognizes the needs of all regions.

Another consideration that cannot be overlooked is the primary purpose of ISTEA, that is, the efficient movement of people and goods. ISTEA recognized that transportation is but one part of a complex web of competing and often conflicting demands. By unleashing the efficiency and environmental benefits of all modes of transportation, highways, rail and transit, the ISTEA reauthorization can meet these demands and deliver a better quality of life for all.

Today's hearing is important because it will examine how the eligibility of ISTEA programs can address the Nation's diverse transportation needs. A number of today's witnesses will recommend expanding the eligibility of highway trust fund moneys to accommodate alternative modes, such as Amtrak and freight rail. Others will argue that the spending categories under ISTEA should be more constrained.

I am sensitive to American taxpayers' receiving a fair shake for the contributions they make to the Highway Trust Fund. Along those lines, I co-sponsored a bill with Senators Bond, Cochran, Nickles, Gregg and Smith, to strengthen the link between taxes going into the trust fund and expenditures from the trust fund. However, let me repeat my fervent belief that gasoline taxes should not drive transportation policy.

Rather, national transportation policy must focus on needs, which brings us back to the focus of today's hearing. Maintaining and building upon the broad eligibilities provided in ISTEA is essential to creating the most efficient transportation system possible.

I am hopeful that the ISTEA reauthorization will build upon the strong record of its predecessor. Admittedly, the transition from old policies and practices to those embodied in ISTEA has not always been easy, and more work needs to be done. However, we should not let these bumps in the road cause us to retreat from the progress we have made.

Senator WARNER. Thank you, Mr. Chairman.
 Senator Biden, thank you for your patience.

**OPENING STATEMENT OF HON. JOSEPH R. BIDEN, JR.,
 U.S. SENATOR FROM THE STATE OF DELAWARE**

Senator BIDEN. Thank you very much. I'll be necessarily brief. I would like to make approximately four points. No. 1, let me compliment you for allowing us to take a shot at this, and also Senator Moynihan and Senator Chafee for what I think went largely unnoticed by the public in this bill called ISTEPA when it first came around the bend, that for the first time we acted intelligently about transportation in America, you acted intelligently about transportation in America.

Basically, what I understand ISTEPA to be about is flexibility. We've got former Governors sitting here, I've heard constantly about how States need flexibility. The transportation needs of Delaware are not the transportation needs of the Commonwealth of Virginia or the State of Missouri, New Jersey, or anywhere else. We cannot afford, Senator Lautenberg and I, to have nine more lanes of I-95 running up and down through our States. My State is small enough as it is.

Literally, I'm not joking about this, when we have these debates on the Senate floor—to my Western friends, who some help and some don't, just like Eastern friends sometimes help and sometimes don't help on water projects—I think we've got to keep in mind here the need for the flexibility in transportation relates to what I thought federalism was about, that we make up for the weaknesses of each other's territories. We subsidize your water in the West; you subsidize our transportation in the East. That's part of the deal. It's called federalism. So, No. 1, flexibility.

No. 2, explicitly exempted from the flexibility of ISTEPA, and I'm not just going to speak about the dedicated tax for Amtrak which I proposed 7 years ago, is flexibility within this legislation. These guys sitting behind me will tell you that there's flexibility. You can decide, for example, in Montana to put a bus line through from one small town to another with your highway money. But I can't in Delaware allow my Governor to use that money for rail.

We've got all kinds of rail in my State. Why can't we have the flexibility to use our rural Highway Trust Funds, for example, for rail instead of busses if we want to do it? I'll tell you why. Cement and concrete, that's why. You want to talk about the "bad guys" in this deal, it's cement and concrete, that's the "bad guys" in this deal.

Another point I'd like to make, Mr. Chairman, and I love you, you're one of the great guys in this place, but you're dead wrong in my humble opinion about the unions. Let's remember how this happened. There was a thing called the Penn-Central Railroad. We came along and decided to break this thing up. What you burden these guys with is the deal on Penn-Central. You're making them pay out the pensions that were negotiated by the Federal Government. We made a deal. Maybe they made a wrong deal before all of us got here, I've been here 24 years, this deal was made before I got here, but it's not Amtrak's fault and it's not the union's fault now. That's No. 2. They pay now effectively out of their operating

funds stuff that they could be using money for for other things. They are the ones picking up the responsibility the Federal Government flipped onto them.

The third point I would make is, again, flexibility. I have got my Amtrak coffee cup here, I ride it everyday, I admit I have a vested interest. I don't own any stock but if Amtrak shuts down, I'm moving to Washington.

[Laughter.]

Senator BIDEN. That's the thing that gets me here. But all kidding aside, Mr. Chairman, the other thing no one realizes, you do and others here do but nobody else does, about 70 percent of all those steel wheels that touch those tracks are not Amtrak trains. What does Amtrak do? When we cut this deal to set up Amtrak years ago we made another bad deal. We said, I'll tell you what, the incidental cost of MARK, and the incidental cost of SEPTA, and the incidental cost of Conrail, and the incidental costs of maintaining the rail, or the only ones assigned to these other tracks, these guys have to pay all the maintenance. I don't know, is it 70 percent, 50, 60, 80 percent, a majority of the wheels on that track are not Metroliners or Amfleet cars. They're not passenger rail. We should give the Governors the flexibility and Amtrak the flexibility to charge them the going rate.

The third point I would make, Mr. Chairman, is with regard to the unions. I heard this song constantly about contracting out. Guess what? We're contracting in. Guess what? Because my union guys do a better job than anybody on the outside does. We're contracting in. The States are coming to us and saying the guys in Wilmington, DE, build better engines than anybody else in the Nation, cheaper, better. And they do. So we're contracting in. We're saving money.

This isn't the union guys' fault. My God, they've been ripped, rapped, and raped over the last 10 years in the deals that have been made with them, last 20 years. And by the way, you do away with all the union rules, do away with them all, you still aren't going to solve Amtrak's problem. Amtrak's problem is you're making them try to do something nobody else in the world has ever done.

I come back here, and I'll end with this, Mr. Chairman, but it frustrates the devil out of me, I come back here and I'll hear people say, especially new members the first time they travel, they'll say, you know, I was in Germany and I was on a train that was amazing, that train was incredible, or I was in Japan and I was on that bullet train. Why can't we—the reason why we don't do it is we don't subsidize it like they do. We don't subsidize it. There's not a passenger rail service in the world that strictly on their operating cost makes it. Not one. So what is this fantasy that we keep saying that over here we're going to make sure they do that.

So we found a way out for you all. The way out for you all is real simple—allow us flexibility, allow the Governors flexibility. If they want to use all their highway moneys to build highways, fine. But if little old Delaware, as opposed to big old Montana, if we want to make sure that we're going to be able to do something with rail, we should be able to do it.

With regard to flexibility, set up a dedicated fund. Half a cent gives these guys \$600 million a year. That \$600 million a year takes care of all the capital costs that they have in the entire system. Now I ask, what's the total gas tax? Is it \$0.19, \$0.20?

Senator WARNER. It's \$0.183.

Senator BIDEN. OK, \$0.183. Give us a break. A half a cent? Everybody sounds like Yasser Arafat around here when we talk—it's the camel's nose under the tent, if we yield on this, we yield on everything.

My message to the concrete guys is lay off, will you? Just lay off. Give us a half a cent, a simple half a cent. I'm willing—which will drive everybody else crazy—I'm willing, I say to Frank Lautenberg who has been the leader in this thing for me, the guy I look to, I say, real simple, you want to make sure we write in for the next 20 years we can't ask for more, I'll write it in. But don't give me this nose under the tent stuff. The sanctity—the sanctity of the Highway Trust Fund, heck. We've already breached the sanctity of the Highway Trust Fund. It's a thing called ISTEA. Why the hell are my trains not as good as your busses?

I get frustrated, as you can see, Mr. Chairman, but I'm so tired of this debate—not you, Mr. Chairman, and not this committee. But every single year we go to the floor, every single year we cut Amtrak, every single year we try to zero it, every single year we make this fight, every single year we're back here, every single year we look for magicians like this guy to put it back together. He's done a hell of a job. You know why the unions don't like him, you all don't like him, nobody likes him?

[Laughter.]

Senator BIDEN. Because he's gone out there and done things that no one else has done. I say give the guy a break. Give him a shot. Give him a half cent. Why is this such a big deal? And so you concrete guys out in the audience, cool it. Asphalt guys, cool it. Let us have our half cent. I'm finished.

[The prepared statement of Senator Biden follows:]

PREPARED STATEMENT OF HON. JOSEPH R. BIDEN, JR., U.S. SENATOR FROM THE STATE OF DELAWARE

Thank you Mr. Chairman, for the opportunity to be here today.

I don't envy you the tough job you are taking on here—reauthorizing the landmark ISTEA legislation. This is an important opportunity to carry forward and perfect the historic innovations in that landmark bill.

I am here today because I am convinced that one of the ways we can build and improve on the original ISTEA is to improve the way it treats passenger rail as part of our country's transportation system.

The original ISTEA legislation was revolutionary in the way it improved the coordination among the many different modes of transportation our country depends on. It recognized that our national highway system—the envy of the rest of the world, and the greatest public works project of all time—was not the only way to move people and products.

The original ISTEA was remarkable for its emphasis on balance, on the use of the full range of transportation modes—each at its most appropriate scale and most appropriate function. To build on the accomplishments of that legislation, we should recognize our country's continuing need for a viable national passenger rail system.

A few statistics will help to make this point.

Despite being the orphan child in our nation's transportation funding, Amtrak carries 55 million passengers a year, connecting 68 of the 75 biggest cities in the country. And, to remind some of my colleagues from more rural states, fully 40 percent of its annual passengers ride Amtrak to and from rural locations and our nation's cities.

Along the northeast corridor, Amtrak carries more passengers between New York and Washington, DC. than all the airlines combined. That's the equivalent of 7,500 fully loaded 757's or 10,000 DC-9's. Without Amtrak, there would be an additional 27,000 cars on the highway between New York and Boston every day. Between New York and Philadelphia, there would be an additional 18,000 cars a day.

I don't have to elaborate for this committee what that would mean in terms of construction and maintenance of more highway lanes, time lost in congestion, additional airport construction costs and delays, health costs from air pollution—all costs that we do not have to pay now because Amtrak is filling that gap.

And Amtrak is performing these tasks under the most restrictive financial conditions. Both the administration and the Congress now assume in their budgets that Amtrak will receive no further Federal operating assistance after the year 2002. I am not convinced that this is the best course, but it is the one we are now committed to.

To move toward that goal, Amtrak has laid off 3,500 workers, and cut 15 percent of its service. In just the last 2 years, these moves have saved \$364 million a year. I don't need to add that these moves, while they are real accomplishments, also threaten to reduce the availability and efficiency of Amtrak service.

There are real limits on how much further the system can go.

Under these circumstances, it is essential that Amtrak be provided—in the ISTEA legislation that you are considering here today—with the means to reach that goal.

I am here today, along with my other colleagues, to urge you to include two provisions in the next ISTEA—authorization for a dedicated capital fund, and flexibility for states to use Federal transportation funds for intercity passenger rail, if they choose.

I am a cosponsor of the proposal made by the distinguished Chairman and ranking member of the Finance committee to use a half-cent of the existing Federal fuels tax to create a capital fund for Amtrak. This proposal would not cost the treasury a dime—it comes from an existing revenue source. It could mean a total of \$3.8 billion for Amtrak over the next 5 years, the years in which it must move to operating self-sufficiency.

A capital fund would allow Amtrak to upgrade facilities, purchase new equipment, and engage in the prudent long-term financing that other businesses can use. This would not only improve Amtrak's finances—it will help them attract the riders, to sell the tickets, that will permit them to become self-sufficient—to meet the goals that we have set for them.

Fully funded, the high-speed rail program for the northeast corridor will generate the income Amtrak needs to maintain and even expand its national passenger rail system. That will be a prudent investment, with substantial returns for our country's transportation system.

Virtually every other advanced industrial economy around the world is making this kind of investment. They are providing their citizens with not just another important option—transportation option—they are creating passenger rail equipment industries, industries that take advantage of the latest developments in materials and other technologies to build the new high-speed rail systems.

We could have those industries—and those jobs, and the new products and processes they will spin off—if we make the same kind of sensible investment in passenger rail by establishing a capital fund.

The other provision that I urge you to adopt as part of the reauthorization of ISTEA that you are considering is state flexibility to support passenger rail. I think we all know that passenger rail is uniquely and unfairly disadvantaged when it comes to the flexibility that was built into the original ISTEA legislation. That flexibility was central to the common-sense, local-option approach that made that first legislation such a success.

Right now, snowmobile trails, hike-and-bike paths, HOV lanes, transportation research, and lots of other components of our country's complex transportation system are eligible for Federal matching funds if states elect to use them for those purposes. This is a great idea, and an appropriate application of the principles of financial flexibility and local control.

The problem is that passenger rail is the only application that is currently left off that long list of eligible uses for various kinds of Federal transportation funds. That is an unfortunate accident of history—and one that should be corrected this time around.

During the last session of Congress, I offered an amendment to correct that inequity with my colleague from Delaware, the distinguished Chairman of the Finance Committee. We got the support of 64 senators, but the amendment was dropped in conference with the House.

I am asking today that you include that kind of flexibility in the ISTEA reauthorization you are now considering. That would certainly be in keeping with one of the most important principles that we have heard a lot about in Congress lately—devolution of responsibility and choices to the levels of government that are closer to the people.

Now, I think there are real limits to that idea—I think there are areas where national standards and national responsibilities are essential—but this is one area where it makes a lot of sense.

This kind of state flexibility is consistent with the principles embodied in the original legislation, and consistent with the principles of local control and responsibility.

In conclusion, Amtrak is an important, even indispensable part of our country's transportation system. And we here in Washington have decided to put it on a path to self-sufficiency in the next 5 years—quite literally, we have given it a “drop dead” date, if it does not find a way to become self-sufficient.

As Mr. Downs will tell you this morning, Amtrak has done its part. Job cuts, route reductions, and other sacrifices have cut its operating losses. Lots of states, including my own, have felt the impact of those cuts.

Now it is time for us to do our part, to provide Amtrak with the capital funds, and the support of those states that choose to support passenger rail.

Thank you for allowing me to participate here this morning.

Senator WARNER. Let me just make a comment. Senator, I'll make you a deal. Ready?

Senator BIDEN. I'm ready.

Senator WARNER. We don't take it off the top, but we allow you flexibility if you'll allow the management of Amtrak flexibility through the bargaining process to get rid of these 6-year platinum parachutes and do through the bargaining process a reasonable contracting out.

Senator BIDEN. I'm willing to sit down and find out what you specifically mean by that, Mr. Chairman. The general principle, I have no objection as long as there is genuine collective bargaining. Understand, there is another little piece here. We have a little thing where we say to the Amtrak unions, we say, by the way, if you all don't like what it is, you can't strike. You can't shut down because the President can tell you you're open. So I'm willing to open that whole thing up if we're going to do it in good faith. I'm willing to do it but I would like to know the detail of what you mean, Mr. Chairman. I'm not being facetious when I say that.

Senator WARNER. I understand.

Senator BIDEN. If I know the detail. If you're saying what I think you're saying, I'm willing to go ahead and sit down and do that with you. But, again, really guys, we're talking about a half a cent to keep alive a system.

Senator WARNER. We got that point.

[Laughter.]

Senator WARNER. Let's let your colleague, Senator Jeffords have a word or two.

Senator REID. Mr. Chairman, I have to leave, but if I could just make one comment. It is obvious that Joe had to stay here last night, so I think we should do everything we can to get that Amtrak fixed so he doesn't stay here more nights.

[Laughter.]

Senator BIDEN. I have no response.

Senator WARNER. Now, Senator Jeffords. By the way, Joe, do take a look at the policy analysis which says “Amtrak is by far the most highly subsidized form of inner-city transportation. The average taxpayer's subsidy per Amtrak rider is \$100.”

Senator BIDEN. Mr. Chairman, I'm happy to look at that if you'll look at the one I can show you that we subsidize an airline ticket more than we do an Amtrak ticket. If you're willing to treat it the same way, I've got no problem. I'm just saying in for a dime, in for a dollar, let's treat it the same way.

Senator WARNER. OK. I used 10 seconds, you used 10 seconds. Now, Senator Jeffords.

**OPENING STATEMENT OF HON. JAMES M. JEFFORDS,
U.S. SENATOR FROM THE STATE OF VERMONT**

Senator JEFFORDS. With some trepidation, I don't know how to proceed after that performance.

[Laughter.]

Senator JEFFORDS. I would like to go to an entirely different approach. This is the soft sell of success in my little State in Vermont. Vermont has an incredible railroad tradition. At one time, we were the busiest railroad center in the country. In fact, at one point we had more railroads than any other State, almost 30 railroads in our State. Billings, MT, is named for a Vermonter because he built the railroads in Montana. Just keep that in mind because we're having a little bit of a renaissance in Vermont.

Two years ago, Amtrak announced the elimination of a passenger rail service to Vermont. Today, Vermont has two of the Nation's most successful passenger trains in the Nation—the Ethan Allen Express and the Vermonter. We have plans for more. During the past last few years, Amtrak undertook an ambitious plan to turn around the troubled system. Under pressure from Congress, Amtrak moved to become free of Federal operating support. This involved eliminating rail lines that were losing money. When Amtrak called for the elimination of our train, Vermont leapt into action. Working with Amtrak, Vermont shortened the route, changed the schedule, and put in place a train that is now popular with travelers throughout Vermont, New England, and the Nation.

More recently, Vermont identified a large market for rail service. Last December, the Ethan Allen Express began running from New York City to Rutland, VT. Now millions of skiers, bikers, and travelers from the city are just a pleasant 5 hours train ride from Vermont's beautiful lakes and mountains.

Passenger rail is working for Vermont and we want it to grow. To maintain our success, two things must happen. First, Amtrak must be given the tools to modernize. This will require the one-half cent of gas tax imposed on motor fuels be put into an Amtrak trust fund. Second, States must be granted the flexibility to use Highway Trust Fund moneys to maintain passenger rail. For our two trains, Vermont pays a share of the operating costs. Other States do the same. These States need this flexibility to ensure that passenger rail service is continued. Finally, this flexibility should be extended to include local rail projects. This will allow States to improve and expand short freight rail lines.

Successful commerce in our Nation depends upon strong short line railroads. Vermont is deeply concerned about the huge increase in truck traffic, the threat of triple trailers and all. We want to do what I think the Nation will be doing, and that is to turn more and more traffic over to the rails. So I am dedicated, and Ver-

mont is dedicated to make the rail service work in Vermont, and we hope that you will go along with our request. Thank you, Mr. Chairman.

[The prepared statement of Senator Jeffords follows:]

PREPARED STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE
STATE OF VERMONT

Mr. Chairman, 2 years ago Amtrak announced the elimination of passenger rail service to Vermont. Today, Vermont has two of the nation's most successful passenger trains in the nation—the Ethan Allen Express and the Vermonter. And we have plans for more.

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Second, states must be granted the flexibility to use highway trust fund moneys to maintain passenger rail. For our two trains, Vermont pays a share of the operating costs. Other states do the same. These states need this flexibility to ensure that passenger rail service is continued.

Finally, this flexibility should be extended to include local rail projects. This will allow states to improve and expand short freight rail lines. Successful commerce in our region depends on strong shortline railroads.

Mr. Chairman, thank you for this opportunity to testify.

Senator WARNER. Thank you very much, Senator Jeffords.

I would like to indicate to my colleagues that Senator McCain desired to be here this morning, he was precluded from doing so but he will submit a statement for the record.

[The prepared statement of Senator McCain follows:]

PREPARED STATEMENT OF HON. JOHN MCCAIN, U.S. SENATOR FROM THE
STATE OF ARIZONA

Mr. Chairman, thank you for the opportunity to testify this morning on ISTEAA reauthorization. I recognize the challenges facing this committee and I want to begin by commending your leadership in steering away from the demonstration project frenzy taking place in the House. The Senate is on record opposing demonstration projects and I am committed to working with this committee in holding strong our position.

As you consider program eligibility, you will hear from members advocating that Amtrak should be entitled to funding from Highway Trust Fund. I strongly oppose their proposal. I encourage you to carefully consider Amtrak's legislative history, as well as its current financial condition.

Amtrak was created in 1971 in order to relieve the freight railroad industry from the economic burden of providing ongoing passenger service. With capital acquired from participating railroads and the Federal Government providing \$40 million in direct grants and another \$100 million in loan guarantees, the corporation was to become self-sustaining within 2 years.

By 1972, Amtrak was already losing \$152 million and requested Congress for additional funding. Congress responded as it has for 26 years, giving Amtrak more Federal money. Congress authorized another \$225 million plus another \$100 million in loan guarantees. You know the rest of the story.

Since 1971, Amtrak has received \$19 billion in Federal funding to help cover its operating, capital, and labor protective costs. I recognize Amtrak has strived to re-

duce its operating costs and increase its revenues. Frankly, many of Amtrak's financial challenges are due to statutory constraints that Congress has not lifted. But the fact remains: the Amtrak "two-year experiment" was unsuccessful 20 years ago, it's unsuccessful today, and it will be unsuccessful in the future.

Even if Congress approves statutory reforms and a dedicated funding source, Amtrak's viability remains uncertain. That is why the Commerce Committee's Amtrak authorization bill during the last Congress included a sunset trigger provision to kick in if the reforms and funding authorized in the committee-passed bill were not effective in preserving Amtrak's future.

This afternoon, the Commerce Committee's Subcommittee on Surface Transportation and Merchant Marine will hold a hearing to analyze Amtrak's financial condition. We will hear Amtrak is in dire financial straits—on the brink of bankruptcy. Amtrak is \$1 BILLION in debt and that debt level is projected by GAO to double to \$2 billion in the next 2 years.

If it can become a recipient of highway trust fund money, however, Amtrak wants us to think its troubles will be over. But the fact is its financial challenges would continue. Let there be no illusions. Once in the door, Amtrak would remain a recipient of highway funds for years to come. Amtrak already projects *negative cash balances during the next 3 years even with an injection of highway trust fund moneys*. If an Amtrak trust fund is approved, highway investment will suffer. It would be bad public policy.

Amtrak continually tells Congress it is working to be free from Federal operating support, *but that Congress needs to give them still more money for now*. And Amtrak's story has not changed in 26 years, *except in the 1980's, Amtrak wanted a whole penny of the gas tax, not just one-half*.

Even though I think it is high time to end subsidies, the political realities are that Amtrak will likely continue to receive Federal funding. But if the collective congressional wisdom concludes it is sound policy to continue pouring money into a passenger rail system that serves only about 500 locations across the Nation, why rob the trust fund? The \$19 billion given to Amtrak so far has come from the General Treasury.

Why, I ask, should highway dollars pay to subsidize Amtrak? They don't even pay into the fund. Already highway infrastructure needs outweigh public investment capabilities. Even if the budget permitted spending down all of the money in the Fund, a significant funding shortfall would remain.

Let me also point out that many states, like Arizona, are donor states. Why should gas tax dollars paid in by donor states already subsidizing highway projects in donee states, now be used to pay for Amtrak service that is not even available to most communities? And, why should citizens across the country have a portion of their gas taxes diverted away from critical transportation projects to the Northeast Corridor system that essentially subsidizes high income travelers?

According to the American Highway Users Alliance, *86.7 percent of travel is by car; 9.4 percent by air; 3.6 percent by mass transit and school buses; and 0.3 percent by Amtrak*. Instead of turning on a new spigot for Amtrak which serves less than 1 percent of the traveling public, maybe a better alternative would be to expand funding flexibility. If passenger rail service is a transportation priority, let States use their Federal funds to help support passenger rail service.

Senator WARNER. Now it is the intention of the chair to defer to the members of this committee for such statements as they may wish to make. We will start with the chairman and then the ranking member.

Senator CHAFEE. I have no statement, Mr. Chairman, except to say that I am very, very supportive of the efforts made to ensure the continuance and the viability of rail passenger service in the United States. I think the point that Senator Biden made that every rail passenger system in the world is subsidized, so we shouldn't be surprised when they are seeking this what I think to be a rather modest subsidy. Thank you.

Senator WARNER. Thank you.

Senator Baucus.

**OPENING STATEMENT OF HON. MAX BAUCUS,
U.S. SENATOR FROM THE STATE OF MONTANA**

Senator BAUCUS. Mr. Chairman, I regret that I was not here to hear Senator Biden expound.

Senator WARNER. He was at his best.

Senator BAUCUS. As he almost always is. As I understand the conversation, Mr. Chairman, it somewhat revolved around how much to take-out of the 4.3 cents, if at all, for Amtrak.

My view, quite strongly, is that 4.3 cents, because it is paid for by motorists, whether in gasoline or diesel or whatnot, should be used for transportation purposes. That's what it's for. I think a half cent for Amtrak does make sense, but I also think the balance of 3.8 cents for ISTEA makes sense. I didn't say 3.8 cents for highways; I said 3.8 cents for ISTEA.

Under ISTEA, if that 3.8 cents were to go to the highway account, that can be used for a whole variety of purposes in addition to highway construction; for example, carpool lanes, vanpool programs, bike paths, pedestrian walkways, wetland mitigation, historic preservation of transportation facilities in addition to highway construction. There is immense flexibility under that program. That's why I think it makes sense to divert that 3.8 cents to ISTEA because that's what it's for.

The Appropriations Committee—we have members of this committee who are on Appropriations Committee—can decide how much of that authorization to actually obligate. That's the role of the Appropriations Committee in the Congress generally. But I just think it does make sense to use that where it's supposed to be used and am reminding Senators that there is tremendous flexibility under that to use that 3.8 cents.

Senator WARNER. Senator, you raise, as usual, very valid points.

Senator WARNER. Senator Bond.

**OPENING STATEMENT OF HON. CHRISTOPHER S. BOND,
U.S. SENATOR FROM THE STATE OF MISSOURI**

Senator BOND. Thank you very much, Mr. Chairman. I was going to make a very brief opening statement, but I feel a responsive diatribe coming on because I felt there were certain things that perhaps we need to get out on the table to open up the debate.

First, let me speak about Amtrak. As Governor of Missouri, I started subsidizing, and we subsidized Amtrak out of State general operating funds because we believed that there ought to be alternative and rail transportation for passengers. We have been thanked by cutbacks in Amtrak so that the service is no longer feasible for many people. We also had Amtrak trains that would take a 6-hour run across the State and, due to antiquated work rules, they had to stop two-thirds of the way across the State and put on a brand new crew and pay both crews full day service. What the chairman has said about opening up Amtrak and allowing the flexibility to make efficiencies in the operation of it make a tremendous amount of sense.

But I am here today to register a very strong objection to what I understand is the Administration's proposal to add Amtrak as another one of the eligible items to be paid out of the Highway Trust Fund. We're not talking about flexibility here. As far as I'm con-

cerned, and I believe it is the chairman's point, if the Governor of Delaware wishes to use the funds for rail transportation because the needs of Delaware are for rail transportation, so long as they meet their commitments to the National Highway System, and some of the northeastern States have very deficient bridges—and I believe my colleague from New Jersey shares a ranking in his State with my State of having some of the worst bridges in the Nation—we need to have that National Highway System. We have mandated that everybody be part of a national system.

But to take money off of the top, as I understand the Administration has proposed, from the Highway Trust Fund to fund Amtrak I think is an outrage. My constituents and motorists all over the country are getting hit twice. First, they're hit in the pocketbook when they pay the Federal gas tax at the pump. Second, in my State, because of the bad conditions of over-used roads, they are paying additional costs in the operation of their cars.

I haven't heard anyone disagree that we have tremendous infrastructure needs in this country. Missouri's roads and bridges, according to a national report, have the seventh from the highest percentage of structurally deficient or functionally obsolete bridges in this country. As I said, I believe that New Jersey is right up there with us. We have a tremendous unfunded need.

According to the Department of Transportation, 25 percent of the Nation's interstate bridges are classified as deficient or in poor condition, and that doesn't include 28 percent-plus the number of deficient bridges in our arterial systems. According to an Associated Press article last June, more than one-third of our Nation's major roads are in immediate need of repair. In Missouri, more than half of our major roads are in poor or fair condition.

We all know that the condition of our Nation's roads and bridges play an important factor in highway safety. I deeply regret the comments that have just been made that implied that the only people who are interested in safety are the concrete and asphalt boys. I think that is an outrage, Mr. Chairman, and I hope to have an opportunity to address that and perhaps clarify that with our friend who made those statements.

Today, at the House Transportation and Infrastructure Committee hearing, the Winkler family from Moberly, MO, will be testifying regarding the need to finish the expansion of Highway 63, a national highway system road that should be four-lanes. You see, Mr. and Mrs. Winkler lost their son, Tracy, on October 25 last year when an out-of-State car pulled out to pass on a two-lane road and struck his pickup head-on. I wish the Dickinson family could be here to talk about the loss of their father and husband just about 10 days ago on Highway 36 when he was hit head-on on a two-lane road that is part of the national highway system and should be four-laned. Maybe Mr. Roland, from Festus, Missouri, could be here to talk about the loss of his wife, Evelyn, on Highway 21 just about a week ago on a two-lane road when she was hit head-on.

Mr. Chairman, when we're talking about safety and transportation, we have a tremendous need that is recognized by a broad cross-section of people in our Nation. I think it is truly unfortunate that we have had an attempt to frame this in the context of people who build roads being the only ones who want to see good roads.

I think that we have tremendous transportation needs. We're always willing to work with all forms of transportation. My record shows that I was willing to commit funds for Amtrak. But I can tell you that the needs for deficient bridges, unsafe two-lane highways that are supposed to be part of the National Highway System cannot afford to have a raid on the transportation funds in the Highway Trust Fund to cut back on the spending.

I would note that the Administration proposal would have us hold back significant outlays, outlaying at only about \$18 billion, for the improvement of our transportation systems. We're going in the wrong direction, Mr. Chairman. I hope to work with you. I like the direction you outlined. We have to take care of the transportation needs of our country and do so in a responsible manner.

[The prepared statement of Senator Bond follows:]

PREPARED STATEMENT OF CHRISTOPHER S. BOND, U.S. SENATOR FROM THE
STATE OF MISSOURI

Mr. Chairman, I do not want to take much of the committee's time with an opening statement, but I do want to express my serious concerns (reservations) with all the discussions centered around increasing the amount of eligible items paid for with Highway Trust Fund dollars.

Mr. Chairman, my constituents and motorists all over the country are getting hit in their wallets at least TWICE for our highway infrastructure! First at the pump when they pay the Federal gas tax that was implemented with the promise that the revenue raised would be used for highway and bridge construction and maintenance. Second, when they pay in extra vehicle operating costs to drive on roads in need of repair—in my state of Missouri this averages to be \$128 per motorist.

I haven't heard anyone disagree that we have tremendous infrastructure needs in this country. A report released on February 5 of this year on the state of Missouri's roads and bridges stated that Missouri has the seventh highest percentage of structurally deficient or functionally obsolete bridges in the country. Federal Highways has my state of Missouri tied for 6th from the bottom, with my colleague Senator Lautenberg's state of New Jersey sharing this horrible distinction.

According to the Department of Transportation, 25 percent of the nation's interstate bridges are classified as deficient or in poor condition, and this doesn't include the 28 percent plus number of deficient bridges on our arterial systems. In addition, according to an Associated Press article last June, more than a third of our nation's major roads are in immediate need of repair. In Missouri, more than half of our major roads are in poor or fair condition and in need of improvements.

Mr. Chairman, we also know that the condition of our nation's roads and bridges play a factor in highway safety.

Each day 114 Americans die on our nation's highways. This is equivalent to a major airline crash every single day. Several of these fatalities are directly related to poor highway infrastructure. Today during the House Transportation and Infrastructure hearing, the Winkler family from Moberly, Missouri will be testifying regarding the need to finish the expansion of Highway 63, a National Highway System road, to a four-lane highway. Mr. and Mrs. Winkler lost their son Tracy on October 25 when an out-of-state car pulled out to pass on the two-lane road and struck his pickup head on. Tracy's wife and three young children, as well as the rest of his family and friends are pushing for the highway investments needed in the State of Missouri, specifically Highway 63.

Mr. Chairman, I have yet to see the actual language for the Administration's NEXTEA proposal, but I have heard several comments about expanding the eligible items for funding out of the Highway Trust Fund. I will state now that I cannot and will not support diverting more highway trust fund dollars for Amtrak and other non-contributing trust fund items.

How can we STEAL money from the highway trust fund for items that especially do not contribute, when we are not even close to meeting the highway and bridge needs this country is facing?

Senator WARNER. I thank the Senator.

I'm going to allow each Senator to make opening remarks. Bear in mind, the chairman has submitted his opening statement for the record.

Senator at your invitation, this subcommittee will be holding a hearing in your State on March 26, the emphasis of that hearing being the continuation of the concept of intermodalism as we move to the next piece of legislation.

Senator BOND. I'm very grateful to you, Mr. Chairman, and to the chairman of the full committee. We will have an opportunity to hear some of these concerns in addition to the great importance we have on the intermodal aspect of the transportation system. Some exciting things, and I'm anxious to see you.

Senator WARNER. Thank you. I think at this time, on behalf of the distinguished chairman of the committee and the ranking member here, I should announce that on March 22 we will have hearings in Idaho, on the 28th of March in Las Vegas, and April 7 in New York City. Again, this clearly reflects the leadership of the distinguished chairman, Mr. Chafee, and the ranking member, Mr. Baucus, and myself in trying to go out and listen in America to their perspective of how this legislation should be shaped.

Senator Lautenberg.

**OPENING STATEMENT OF HON. FRANK R. LAUTENBERG,
U.S. SENATOR FROM THE STATE OF NEW JERSEY**

Senator LAUTENBERG. Thanks very much, Mr. Chairman. I appreciate the opportunity to be participating in this subcommittee review of ISTEA, Amtrak, and this relatively tranquil kind of debate that we've had.

One thing that I learned from the discussion this morning, from proponents of the half cent for Amtrak and opponents, is that it engenders some significant feeling and emotion. That's the way it ought to be. Because transportation in our society is starved on all fronts, whether it's highways, whether it's rail, the aviation system certainly is not keeping up with the demand that we foresee. Yet we fail to step up to the plate, as they say, and really try to do something about it. I think since this discussion was primarily focused on the half-cent for Amtrak, I would ask, Mr. Chairman, in the interest of trying to expedite things a little bit, that my full statement be in the record. I want to make some comments additionally however.

I would just point out in response to the Senator from Missouri's comments, there is something like 95,000 deficient or obsolete bridges across our country. We have them, they have them, everybody has got them. But when we talk about Amtrak, I think that we fail to recognize the contribution that Amtrak makes to the transportation well-being of our society. First of all, it is the most self-sufficient intercity passenger rail system in the world, directly responsible for reducing congestion on our roads, resulting in improved mobility, highway safety, air quality in our skies. The subsidies we provide Amtrak are far less than what taxpayers put into building bridges, highway lane miles, fund airport improvements, all to accommodate tremendous growth in need.

A few weeks ago, a panelist before the committee said that if Amtrak was abolished, there would be no measurable effects on the

roads for the Northeast corridor, particularly from Philadelphia to New York City. It was a directly incorrect statement. The route goes primarily through my State of New Jersey and I've got to respond to that. Based on Amtrak ridership figures for that route, it is estimated that Amtrak takes 18,000 cars off the road every week day. The cost of constructing one additional highway lane for that route is estimated to be between \$80 and \$100 million per mile. Look at it another way. If the Washington to New York Amtrak route were eliminated, we would need 7,500 fully booked 757s in already congested air space to accommodate these passengers. These costs would dwarf anything that we give to Amtrak.

Amtrak is a key element in our National Transportation System. And even with that it is in dire of economic straights because of the steady decline in annual funding. Last September, I watched while Congress chose to allocate fewer dollars for Amtrak and then watched and listened as members objected when routes were cut. You can't have it both ways. We must provide Amtrak with a stable funding source so that it can glide its way to self-sufficiency. Senator Roth's bill that would allocate a half-cent for Amtrak for 5 years is a sound approach, the one that I support. That will help us give Amtrak the tools that it needs to build its way into full self-sufficiency. I look forward to working with all of you toward this end.

I would say one other thing. I listened very carefully as Senator Bond called off names of people who lost someone in traffic accidents in Missouri. I would like to send out an appeal to members of this committee and those who are listening, every year we lose over 17,000 people to alcohol related traffic accidents—17,000 a year. We compete in the very negative sense with the number of murders in our society by handguns, knives, et cetera, that's 21,000. But 17,000 people a year are lost to alcohol-related accidents. If we want to save lives, that is one significant way to do it. I have a bill in. I would plead for support here. We want to get the blood alcohol content down to .08. That's when driving is impaired. If we could do that, Mr. Chairman, we would not only go a long way toward making America a happier place, but we would also go a long way toward taking care of our transportation needs.

I thank you for the opportunity.

[The prepared statement of Senator Lautenberg follows:]

PREPARED STATEMENT OF HON. FRANK LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Thank you, Mr. Chairman. I appreciate your allowing me to participate in this subcommittee hearing.

I'm glad that the subcommittee is holding this hearing on flexibility and eligibility in ISTEA. Because to me, that's what sound transportation policy is all about. ISTEA empowers states, communities, and local interests to have a real say in where their transportation dollars are allocated.

By giving them the flexibility to spend money on an expanded set of options, ISTEA allows each state, each region to tailor transportation spending decisions to fit their unique needs, while under the guidance of a national transportation framework.

If states and localities lose this flexibility, transportation decisions will revert back to satisfying special interests, rather than the public interest.

In my state of New Jersey, we have seen how ISTEA'S planning and flexibility provisions have benefited our communities and improved our quality of life.

While New Jersey is the most densely populated state in the Nation, it also has vast open spaces and is trying to cope with suburban sprawl. It is a corridor state that must contend with extensive use of its interstates and more recently, with truck traffic and congestion on smaller roads that were not designed to bear the load. We have found that one size does not fit all.

In many parts of the state, we simply cannot build our way out of congestion. ISTEA's eligibility and flexibility provisions help us to cope with the ever expanding growth, both of our communities and with interstate and intrastate commerce.

We cannot turn the clock back on ISTEA's farsighted provisions. Instead, we must build upon them to provide even more flexibility and eligibility transportation modes. We must ensure that all our options are maximized and balanced. We're not quite there.

I'm talking about Amtrak. We have a national transportation system with national goals and needs. No mode should have priority status. It is unconscionable that our national passenger rail system continues to be the forgotten step-child.

Unlike highways or transit, which are the annual beneficiaries of billions of dollars in infrastructure investment, Amtrak must year in, year out, justify its existence for a fraction of the subsidies that go to other transportation modes.

This is not a new issue: we must remember that flexibility for Amtrak has passed this committee and the Senate in 1991; and again the Senate in an Appropriations bill. Six years later, we're fighting an old fight.

The United States has the most self-sufficient intercity passenger rail system in the world. Amtrak is directly responsible for reducing congestion on our roads—resulting in improved mobility, highway safe and air quality and in our skies.

The subsidies we provide to Amtrak are less than what the taxpayers would have to pay to build more highway lane miles, or fund airport improvements or air traffic control—all to accommodate the tremendous increase in traffic.

A few weeks ago, a panelist before this committee said that if Amtrak is abolished, there would be no measurable effect on the roads for the northeast corridor, particularly from Philadelphia to New York City. Because that route goes almost entirely through my state of New Jersey, I would like to respond.

Based on Amtrak ridership figures for that route, it is estimated that Amtrak takes 18,000 cars off the road every week day. The cost of constructing one additional highway lane for that route is an estimated \$80-\$100 million per mile.

Or, to look at it another way, if the Washington to New York route were eliminated, we would need 7,500 fully booked 757's in already congested airspace to accommodate those passengers. And, those costs would dwarf any subsidies to Amtrak.

Amtrak is a key element in our national transportation system. Even still, Amtrak is in dire economic straits because of the steady decline in annual funding. Last September, I watched while Congress chose to allocate fewer dollars for Amtrak, and then watched as members objected when routes were cut. We cannot have it both ways.

We must provide Amtrak with a stable funding source so that it can glide its way to self sufficiency. Sen. Roth's bill to allocate one-half cent to Amtrak for 5 years is a sound approach, and one that I support. We must give Amtrak the tools to reach its goals, out from under the annual political flood lights. I look forward to working with all of you toward this end.

Thank you, Mr. Chairman.

Senator WARNER. Senator, I want to say you've been a pioneer on the problems of alcohol and transportation. The Senate recognizes you for that.

Now I turn to our good friend, the former Governor of Florida and valued member of this committee, co-author of Step 21, and hope we can have a fairly brief statement, Senator Graham.

[Laughter.]

**OPENING STATEMENT OF HON. BOB GRAHAM, U.S. SENATOR
FROM THE STATE OF FLORIDA**

Senator GRAHAM. Thank you, Mr. Chairman. I'll try to make this brief.

I think the fundamental point which we failed to grasp in 1991, and which I hope we will not repeat in 1997, is the fact that we are substantially under-investing in virtually every area of our Na-

tion's infrastructure. The new Secretary of Transportation has indicated that our disinvestment in the Highway System alone is in the range of \$20 billion a year to keep the system at its current state of repair, its current state of congestion.

I believe that what this committee ought to do is to step back and look at this issue not from the microscope of individual needs, but from the telescope of the broad national needs. I would add to the list of needs one that is outside of the jurisdiction of this committee, and that is the tremendous need that we have in education. All over America, school buildings are crumbling around students. Students are packed into over-crowded schools because school districts have been unable to keep pace with student growth.

I personally think that we ought to look at the 4.3 cents as a beginning of an expanded Federal-State partnership to meet a variety of our Nation's important capital needs, and that we should look at it from three perspectives. No. 1, what additional traditional resources are going to be needed to meet the needs; No. 2, how can we use Federal resources as a magnet to attract non-traditional resources to meet these needs, such as the excellent panel that we had last week on innovative financing mechanisms; and No. 3, how can we use the experience of the recent past to see which innovations will make us use our money more efficiently. I would suggest that if we could concentrate on those three questions to meet the strategic issue of a more adequate response to our Nation's infrastructure requirements across a variety of areas—of which highways, public transit, Amtrak, and education are four primary areas—that we would be fulfilling the trust that the public has placed in us as their representatives.

Senator WARNER. I thank the Senator.

We'll alternate. Senator Smith and then Senator Boxer. I hope we can then hear the Secretary.

Senator SMITH. I have no statement.

Senator WARNER. I thank you very much, Senator.

Senator Boxer.

**OPENING STATEMENT OF HON. BARBARA BOXER,
U.S. SENATOR FROM THE STATE OF CALIFORNIA**

Senator BOXER. Mr. Chairman, I just want to make a couple of comments on Amtrak to my friends in the Northeast.

I very much want to see us have a steady funding stream. But in a recent report by the California Transportation Commission, I just hope that my friends will hear this because it is a problem, while California has 11 percent of the Nation's population, it has received \$6.4 million in Federal funding for improvements to our Southwest corridor—Sacramento, Bay area, Fresno, L.A., San Diego. The San Diego to Los Angeles segment has had ridership second only to the Northeast corridor, which has received \$4 billion. That's according to our California analysis from the CTC, the California Transportation Commission. I am such an advocate of alternatives to the car because, as we look into the future, I think that is the way to go. But we do need to do something about the fairness here.

Mr. Chairman, very briefly, I serve on the Budget Committee, and I agree with Senator Graham that we're not making enough

of an investment in this whole area of our Nation's infrastructure. I want you to know that I feel this is a bipartisan sense that I'm getting on this committee and from my colleagues and that I do intend to push very hard in the Budget Committee for a greater funding level.

Senator WARNER. Senator, that's the best news we've gotten today.

Senator BOXER. I don't know if I'll be successful, but I'm going to try.

In talking to my local elected officials, that's where I started off, in county government, they like ISTEA. Our Governor doesn't like it; our local electees love it, Republicans and Democrats. And I'm going to fight to continue it. I think it gives the flexibility.

Senator CHAFEE. What did you say? You're going to fight to continue ISTEA?

Senator BOXER. Yes.

Senator CHAFEE. Generally? The broad scope?

Senator BOXER. Yes, the broad idea of giving this type of flexibility, the CMAQ program, the border infrastructure program which, for the first time, is in the Administration's proposal, and work with you on many other areas of concern. But I do think that in my State we need to get a better share for our rail, and we also do like the flexibility that ISTEA provides. I will work with my colleagues as we move this forward.

[The prepared statement of Senator Reid follows:]

PREPARED STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE
STATE OF NEVADA

Mr. Chairman, As I have said many times during my years on this committee, transportation represents a truly national concern. All of us have a stake in ensuring that America's transportation policies are coherent, efficient, and meet the present and future needs of the American people.

This session of Congress will likely include extensive consideration of not only how we finance our national infrastructure but also what our transportation policies should aim for as we head into the 21st century.

With the completion of the interstate highway system, it is vital that we turn our attention to designing multi-modal transportation policies that will allow us to not only maintain the excellent infrastructure we have, but also to move forward to meet the demands of the new century.

In many ways, the transportation issues of the future will be vastly more difficult than the ones of yesterday. We live in an increasingly diverse nation, one that is no longer able to be solely dependent upon the automobile. Even in a state as vast as Nevada, a bridge state where we desperately need more roads, we are also seriously looking at the role monorails and MagLev can play in our future transportation infrastructure. These solutions will require all of the innovative and creative thinking we can muster at the Federal, state, regional, and local levels.

Today's hearing is important. Now that the Administration has unveiled its NEXTEA proposal, the members of this committee are that much closer to making the vital determinations of how much flexibility to provide for the next 6 years; that much closer to deciding what activities are eligible for funding under the Federal program.

Although I disagree strongly with the Administration over the level of funding they are proposing, I agree with the approach that we should be building on the successes of ISTEA (and the handful of failures) rather than marching off in a completely new direction.

We no longer live in an era of limitless budgets, even for something as vital to our future competitiveness as transportation. We must be smart and strategic in how we move forward. This program is, appropriately enough, a Federal program. All of us will be judged on its success or failure. We must not lose sight of the notion that program eligibility and the ultimate level of flexibility in implementation are the most critical elements of this package (aside from the money, of course).

Don't get me wrong: more money is certainly part of the solution. While I fully support maximizing the impact of all the dollars we invest in our nation's infrastructure and transportation systems—in fact I view it as an obligation of the public trust we are sent here to uphold—I also support maximizing the dollars we have available to maximize.

I join with my colleagues on both sides of the aisle in saying that the dollar amounts being put forth by the Administration are simply not adequate. The fuels taxes paid into the highway trust fund each year will support significantly higher spending on transportation and that is what we should be doing with the money.

As you know, I introduced legislation last month to take the Highway Trust Fund off-budget to ensure that the American taxpayers are getting what they pay for when the gas tax is collected. This is another aspect of the public trust that I take very seriously. The tax was paid into the trust fund for transportation projects and that it what it should be used for every year and that is *all* it should be used for.

Our nation's infrastructure represents the lifeline that fuels our economy. When we neglect to adequately provide for the health of this lifeline all of us suffer. Whether its unsafe and degraded roads or pollution caused from over congestion, all of us are affected. The price is not only the inconvenience of traversing a dilapidated infrastructure. Indeed, the real price is the increased costs all of us pay for goods and services because of the burdens placed on a steady flow of the stream of commerce. It's similar to cholesterol buildup in the arteries—eventually there is a steep price to pay.

Thank you, Mr. Chairman.

Senator WARNER. I thank our colleague.

The committee will now have the pleasure of hearing from the Associate Deputy Secretary, Department of Transportation, the Honorable Michael Huerta. Nice to have you, and thank you for your patience. You got the message.

Mr. HUERTA. Thank you. I did.

Senator WARNER. We thank your Secretary. We are fortunate in this committee to have such a distinguished American to work with in the capacity of the Secretary of Transportation. Thank you, Mr. Huerta. Please proceed.

Now that volume before you is somewhat awesome. For those of you who can't see it, it is nearly six inches high. That does not reflect your statement, does it?

[Laughter.]

Mr. HUERTA. Absolutely not, Mr. Chairman.

Senator WARNER. And if I agree to admit not that but some comparable statement to the record in its entirety, you will summarize the very important points that are before the committee today?

Mr. HUERTA. That is my intention, Mr. Chairman. I will be very brief in my introductory remarks.

STATEMENT OF HON. MICHAEL HUERTA, ASSOCIATE DEPUTY SECRETARY, DEPARTMENT OF TRANSPORTATION

Mr. HUERTA. Mr. Chairman, Senator Baucus, Chairman Chafee, and members. Two weeks ago, Secretary of Transportation Rodney Slater appeared before this committee to describe the Administration's vision for legislation to extend the Nation's Surface Transportation Program into the next century. At that time, he pledged that the Department's proposal would be released shortly.

Last week our Deputy Secretary Mort Downey described for the committee many of the innovations in our current authorization ISTEA, and he also assured you that the release of our proposed bill was eminent.

So today it is my privilege to tell you that our promise has been kept. Yesterday morning, President Clinton, Vice President Gore,

and Secretary Slater unveiled a 6-year, \$175 billion National Economic Crossroads Transportation Efficiency Act, or NEXTEA, to continue building and operating an efficient, safe, and environmentally sound surface transportation system to carry this Nation into the 21st century.

Under this new proposal, Federal investment will reach historic highs. NEXTEA increases surface transportation funding by \$17 billion, or 11 percent over the \$157 billion authorized by ISTEA. It increases safety programs by 25 percent, and Clean Air programs by 30 percent. So it's a strong commitment to transportation but, at the same time, it's much more.

The \$175 billion we propose to invest will support almost 1 million jobs across the country in the next 6 years as we build our roads and transit systems. These investments will make it possible to help all Americans whether they live in urban, rural, or suburban America.

But, clearly, there are special people that we must help, those that are trying to get off welfare and onto jobs. As Secretary Slater has said, "Transportation provides the 'to' in welfare-to-work." Our \$600 million access to jobs program will make a difference.

There's another special feature of our proposal, one that addresses education. As we meet the President's national goals that every 8-year-old can read, every 12-year-old can log on to the Internet, and every 18-year-old can go to college, we will go into the schools to ensure that we have the transportation professionals of the 21st century. If students take the responsibility when they're in high school, we can provide the opportunity to go further with a special scholarship.

We've developed our NEXTEA proposal by going around the country asking people what was good and what was bad about the current program under ISTEA. In 1991, the Senate laid out the conceptual framework for ISTEA, and, Senators, you should be proud of what we heard from your constituents across the Nation. I am not exaggerating when I say that the overriding comments that we received at our outreach meetings can be summed up in two words—ISTEA works. It adapted the Federal Surface Transportation Program to better meet the needs of State and local decisionmakers and their reviews were clear, constructive, and consistent. As one State official in the Midwest said, "Tune it, don't toss it."

That attitude characterizes our approach to NEXTEA. Those aspects of ISTEA described as ground breaking and revolutionary have been retained. NEXTEA continues critical funding programs that have enhanced transportation decisionmaking and allowed State and local officials to spend Federal dollars on an expanded set of transportation solutions.

And about the distribution of those Federal dollars, in NEXTEA we have tried to be fair to all States. Forty-nine States would receive more dollars than they did under ISTEA. The formulas used to appropriate funds have been updated and will incorporate new information throughout the life of the authorization.

Let me also say, on behalf of the Secretary and the Deputy Secretary and the entire Department, that we look forward to working with Congress as you review both our proposal as well as those of-

ferred by others committed to their own visions of America's transportation future. Your job is to balance the demands of a large and diverse Nation. We believe that NEXTEA is a thoughtful, well-considered attempt to do just that.

The poles that define the transportation debate—urban States and rural States, truckers and railroads, highways and transit—are not the distinctions that define Democrats and Republicans. We think NEXTEA provides the foundation to build consensus in both the traditional bipartisan sense and among the multiple interests that will be prominent throughout your deliberations this year.

I was invited to speak before this committee to discuss the Department's experience with the expanded flexibility and eligibility provided by ISTEA. These features signaled a sharp departure from the previous surface transportation legislation and they are the heart of what makes ISTEA work. NEXTEA would expand the types of eligible uses under the National Highway System and the Surface Transportation Program to include publicly owned rail facilities such as intercity passenger rail capital projects, including Amtrak, passenger rail and intermodal freight terminals that connect to the National Highway System, rail safety infrastructure improvements, intercity passenger rail infrastructure, and freight rail infrastructure.

NEXTEA would extend eligibility for transit and STP funds to both publicly owned and privately owned intercity bus facilities, including terminals and vehicles.

Based on the strong positive response to the pilot phase of our State Infrastructure Banks program, NEXTEA would make it a permanent program to offer this innovative financing tool to all the States.

In recognition that the operational improvements achievable through intelligent transportation systems can improve capacity and safety of existing infrastructure, NEXTEA would make explicit the authority of the States and local entities to use NHS, STP, and transit funds for ITS operations and maintenance as well as ITS capital projects.

NEXTEA would provide an infrastructure safety program that replaces and improves upon the current STP set-aside. To the extent that a State reduces its grade crossing crashes, highway and rail funds could be spent on highway hazard elimination. Further, if a State has an integrated safety planning process, it may transfer its hazard elimination funds into behavioral programs identified under section 402 and the motor carrier safety programs.

We would propose to consolidate the transit programs to make it easier for local officials to select options that best improve mobility in their communities.

Mr. Chairman, that concludes my remarks. And, again, I feel privileged to be here to discuss our reauthorization proposal. I would be happy to answer any questions you or the committee might have.

Senator WARNER. You heard this morning I think a very good dissertation by strong representation of the Northeast corridor Senators. It seems to me the proposal centers on taking the 4.3 and dedicating some percentage of that to a dedicated fund, and let's call it the Amtrak trust fund or rail transportation trust fund, be-

cause I'm sure there are some short-line rails that likewise are going to have to be addressed. How does that proposal sound to you?

Mr. HUERTA. The Administration has not proposed dedicating one-half cent to Amtrak. We have proposed and are requesting \$767 million to be funded from the Highway Trust Fund for Amtrak, of which \$423 million would be for capital, which is not equal to the half cent, and \$344 million for operating.

We are committed to a long-term vision of Amtrak as an important component of the Nation's intermodal transportation system. We share the belief that Amtrak needs to have a reliable source of capital investment over the next several years to address the previous lack of investment if we're to preserve our national system and to permit Amtrak to achieve its potential.

We recognize that we need to strike a proper balance between what the needs are versus the needs in other modes of transportation, and how we achieve all of this in a context of the bipartisan commitment to a balanced budget. The Department is committed to working with you and the Congress, with Amtrak management and labor, with State Governments and other interested parties in the coming year to develop an affordable long-range plan that eliminates Amtrak's dependence on the Federal subsidy.

Senator WARNER. OK. I think your answer is very well programmed. Let me try something differently then. I'm speaking for myself, I feel very strongly that we do need to strengthen the ability of Amtrak to provide transportation but do it in today's real world, not the old days of the railroad barons and their corresponding union barons. Do you know of anything comparable in America of a 6-year guarantee full salary for an employee that is terminated, that is now the question facing Amtrak?

Mr. HUERTA. I don't.

Senator WARNER. Nor do I. Would you like to research that and supplement your response for the record if you can find anything in America's transportation system?

Mr. HUERTA. I'd be happy to do that.

[The information to be supplied follows:]

Labor protection arrangements have been a standard feature of the railroad industry for over 60 years. The jointly agreed-upon Washington Jobs Agreement of 1936 established a precedent of protecting employees displaced by mergers (one year's severance pay, or a guarantee of 60 percent of prior income for 5 years, plus other protections). Congress has reaffirmed the importance of, and has mandated labor protection in the Emergency Railroad Transportation Act of 1933, the Transportation Act of 1940 (mandated labor protection in mergers), the Urban Mass Transportation Act of 1964 (mandating labor protection for mass transit employees adversely affected by Federal funding), the High Speed Ground Transportation Act (1965), the Rail Passenger Service Act of 1970 (creating Amtrak), the Regional Rail Reorganization Act of 1973, the Railroad Revitalization and Regulatory Reform Act of 1976, the Milwaukee Railroad Restructuring Act (1979), the Rock Island Transition and Employee Assistance Act (1980), the Staggers Rail Act of 1980, the Northeast Rail Service Act of 1981, and the ICC Termination Act of 1995.

Amtrak's enabling legislation, 49 U.S.C. § 24706(c), required that labor and management negotiate a labor protection agreement, and that the agreement be certified by the Secretary of Labor. The protective conditions which the Secretary certified are referred to as the "C-1" and "C-2" conditions. C-1 covers employees of the freight railroads who did not transfer to Amtrak and who are adversely affected—whether by losing their jobs or having to take lower paying jobs—by a discontinuance of Amtrak intercity passenger service; C-2 covers adversely affected Amtrak employees. These protective conditions provide for a guarantee of income protection,

escalated by future wage increases, for up to 6 years (or for a period equal to the employee's length of service, if less than 6 years), optional separation allowances, moving expense reimbursement, and certain rights regarding training and rehiring. Amtrak's experience with labor protection payments following route discontinuances indicates that actual payouts have been approximately 40 percent of potential liability. This occurred because some employees were reemployed on other Amtrak jobs and others selected a one-time buyout in lieu of multi-year protection.

Amtrak's labor protection terms are comparable to the protection imposed on freight railroads as a condition of the Surface Transportation Board's approval of a line abandonment, known as *Oregon Shortline Conditions*. Freight railroad employees are also protected from the adverse effects of a coordination by two or more railroads of facilities, operations, or services ("mergers"). The merger related protective conditions are known as *New York Dock Conditions*.

Under *New York Dock*, railroad workers of the larger carriers (Class I and II) whose pay is adversely affected by a merger, get 1 year of salary protection for each year of service, up to a maximum of 6 years, plus other customary benefits. Incomes are indexed for general wage increases. In the case of line acquisitions by a Class II railroad (carriers with annual revenues of \$20.5 million or more) and merger transactions involving a Class II railroad and one or more Class III railroads, the protection imposed is 1 year of severance pay which cannot exceed the employee's railroad earnings during the preceding 12-month period, reduced by the employee's railroad earnings with the acquiring carrier during the following 12-month period. In the case of transactions involving only Class III railroads, no labor protection conditions are imposed.

Senator WARNER. I appreciate that. Do you think that's a reasonable area in which Congress to work its will and to give Amtrak the ability at the bargaining table to rework some of those old archaic union parachutes?

Mr. HUERTA. I think the Administration is certainly committed to working with the committee on the whole Amtrak question.

Senator WARNER. Well, I think that's sufficient probing by myself.

Do either of you gentlemen want to lead off, Mr. Chairman? Max?

Senator CHAFFEE. It seems to me that the point that has to be stressed, Mr. Secretary, is that the population of the country now is, what, 234 million, something like that, 260 million, that the population 20 years from now is going to be substantially more than that. The number of automobiles in the country now are X, and the number of automobiles, if everything goes along, no change, no greater alternative means of transportation is readily provided, that the number of automobiles is going to be X plus some very large percentage. Thus, it seems to me if we're sitting here in this committee in this Congress and trying to plan for the future, we need to think about not just tomorrow and the day after that, but 2020, 2030, 2050—there's nothing wrong with that, what's that, 53 years from now; after all, the war was over 53 years ago and that doesn't seem such a long time ago.

Therefore, I feel very strongly that we've got to think in the terms of transportation as not just wider and wider and wider highways, but how are we going to move people back and forth from where they want to go to from where they are now and back. That's what has got to be in the forefront of our mind. I think it is going to require bold thinking. So I do encourage the Administration to take that long view. Absent that, everything that we believe in in this committee, such as preservation of the environment, for example, is going to be harmed by continual expansion of roads wider and wider and wider all the time, and the congestion that

comes with it, the pollution that comes from the emissions of the exhausts. So I would ask your Department to use every bit of thinking about the future that you can muster. Thank you, Mr. Chairman.

Senator WARNER. Thank you, Mr. Chairman.

Our distinguished ranking member.

Senator BAUCUS. Thank you, Mr. Chairman.

I don't think there's a lot of disagreement here, frankly. It's just a matter of how they solve it. To state the obvious, the country is very diverse. The Northeast is very dense, the West not densely populated. In our part of the country, it is not so much a matter of adding more lanes, although that's true in some very congested parts, it's basically making sure that there are paved roads and the roads are maintained. We don't have the alternative of Amtrak except for in the Northern corridor.

I just am curious why you didn't recommend paying for Amtrak or at least providing more funds for Amtrak by use of the additional half-cent out of the 4.3 cents instead of taking Amtrak funds off the top of the Highway Trust Fund. The people who now pay into the trust fund, it's highway users, and if those dollars then, with your proposal, go to pay Amtrak, non-highway users, a lot of folks who pay those gasoline taxes will say that's not fair. So why isn't a better solution to take—though it's not exactly on point, it is still diluted—that half cent from the 4.3 cents to pay for Amtrak?

Mr. HUERTA. We were trying to achieve a balance.

Senator BAUCUS. Also, I say that in part because the Administration's budget recommendations nets out to a \$500 million reduction in actual highway spending compared with the current programs. And this will make it even worse.

Mr. HUERTA. What we're trying to do is achieve a balance between the modes of transportation, picking up on the point that was raised by Chafee that we need to look at transportation as an integrated system, and a balance between Federal, State, and local interests and responsibilities here. And so while we have not proposed funding Amtrak at the proposed half-cent level, we have proposed—

Senator BAUCUS. But my question is, why not with the half-cent?

Mr. HUERTA. We think we pick it up in the additional flexibility given to States.

Senator BAUCUS. But that's money taken off the top of the Highway Trust Fund which means fewer dollars being allocated.

Mr. HUERTA. There are fewer dollars being allocated, but each State overall is getting more in dollars under NEXTEA than they would get under ISTEPA.

Senator BAUCUS. But the highway portion will receive even less for actual highway spending, less than they currently receive.

Mr. HUERTA. Sure. We recognize that there are a lot of competing interests here. But we have to address all of this in the context of trying to achieve what we're all trying to achieve in the form of a balanced budget. There are a lot of competing interests out there. We want to work with you to develop whatever is going to be the most appropriate formula.

Senator BAUCUS. I can't understand why the Administration doesn't get behind the need, and we're all talking about it here, of more infrastructure spending in our country. We are woefully inadequate. You all know that. Even the DOT's needs assessment has us way behind even on just pure highway construction let alone Amtrak. As I recall, it is about \$50 billion needs in this country that are not going to begin to be fulfilled with your proposal, nowhere close to it.

So why not take that 4.3 cents and dedicate it to the Trust Fund, half a cent goes to Amtrak, the remaining 3.8 cents to the highway account where there is a lot of flexibility. That would then send the signal that we're going to spend more on infrastructure, we're going to meet our infrastructure needs in this country, and let the appropriations committees and the Congress work its will as to how much of that we're actually going to spend in this year. At least we'll be going in the direction of infrastructure. It will force us to go in that direction. Otherwise, we're consuming off the top rather than investing.

Look at other countries, some of their rail systems, some of their highway systems are very advanced. We Americans want to be No. 1; we want to have the best, I think, I assume you want America to be No. 1.

Mr. HUERTA. Absolutely.

Senator BAUCUS. Why not just take that 4.3 and spend it along the lines I've suggested?

Mr. HUERTA. We have proposed a substantial increase we believe.

Senator BAUCUS. It's a net reduction in highways.

Mr. HUERTA. But an 11 percent increase overall, recognizing the systemic—

Senator BAUCUS. I'm talking about highways right now.

Mr. HUERTA. Recognizing that Montana would have the flexibility to invest funds as it sees fit within its own State.

Senator BAUCUS. But fewer dollars.

Mr. HUERTA. Montana would actually receive more in absolute dollars overall.

Senator BAUCUS. I'm talking about fewer highway dollars. I don't want to make a case only for Montana, I'm talking about the Nation right now. The Nation will receive \$500 million fewer highway dollars, not talking about ISTEA, highway dollars.

Mr. HUERTA. It's also important though to look at the Administration's record. We have had 4 years of record levels of investment in highways and in transportation. So we're building on that success. We are proposing higher authorization levels. What we're trying to achieve here is all of this in the context of balancing the budget.

Senator CHAFEE. May I just point out briefly that forget the 4.3 cents, or balance of 3.8 cents if you want, going into the Highway Trust Fund. That currently goes to reduce the deficit, it goes to the general fund. But the moneys that are currently coming into the Highway Trust Fund are not going out. In other words, we are not appropriating for spending the total annual income into the fund. So rather than reducing the moneys that come in for deficit reduction, at least spend the money that's currently coming in, and

that's the Bond-Chafee proposal which we'd be glad to have you join.

Senator WARNER. How about your joining the Baucus-Warner letter which now has 59 signatures calling for exactly what our distinguished chairman just enunciated. Thank you.

Senator CHAFEE. It's worthy of examination.

Senator WARNER. Excuse me, Max.

Senator BAUCUS. That's fine. Thank you, Mr. Chairman, you've made the point. Thank you.

Senator WARNER. Mr. Smith.

Senator SMITH. Thank you, Mr. Chairman. Mr. Huerta, how many States do you anticipate will impose tolls under your program?

Mr. HUERTA. I think it's important to point out that the Administration's proposal would offer States the flexibility to impose tolls if that works in a financial context. We are not mandating or suggesting that tolls are the answer.

Senator SMITH. Do you have any indication how many will do it?

Mr. HUERTA. I actually think that it would probably be pretty few in the early years. But nonetheless, in the spirit of flexibility which is associated with ISTEA, we want to ensure that States have it in their toolbox and it is an option for those States that want to move forward on it.

Senator SMITH. But let me just pick up on the discussion between my three colleagues here a moment ago regarding the fact that the trust fund money that has been raised now is not being expended. So what is the justification for suggesting that tolls should be placed on these highways? We're not spending the money that we now have in the fund to do what we need to do for roads and bridges, et cetera, and now you're suggesting that we impose tolls and double tax people who are using the roads.

Mr. HUERTA. I would observe that tolls are not merely a financing mechanism, although that is an important benefit associated with them, but some might choose to use tolls as congestion management devices, as is being tried, for example, in California with the variable toll on State road 91. And so there is more than one reason that you might want to look at imposing tolls.

Senator SMITH. Did you ever ride down an Interstate on a holiday and things go along real smoothly until you get within 4 or 5 miles of a toll booth and then it all backs up, doesn't it?

Mr. HUERTA. Well, actually some do now. And that's through applications of technology. That is exactly some of the things that are being tried, for example, on SR 91 so you don't stop at all.

Senator SMITH. The sticker on the bumper, computer?

Mr. HUERTA. Transponder on the windshield.

Senator SMITH. It just seems to me that the answer that you're suggesting is extracting more money from the driving public in a more sinister way. We pay it at the pump as drivers, the taxes, and now we're going to pay it at the toll booth. And whatever the use of the money is, whether it's tangentially related or directly related to the issue at hand, that is, making better roads and bridges, the point is we're not spending what we're collecting for the purpose we're collecting it for and, therefore, I don't understand the justification. To me, it is just not an answer.

Mr. HUERTA. The point also needs to be made that we are all committed to achieving a balanced budget. We recognize that we need to make some difficult tradeoffs and choices between competing Federal needs. Our suggestion we believe represents a reasonable compromise and an honest middle ground that tries to achieve both of those objectives.

Senator SMITH. When you responded to Senator Baucus regarding the dollar amount going up for Montana and I guess 49 States, that's the authorization though, isn't it, that's not the appropriation.

Mr. HUERTA. That is correct.

Senator SMITH. No further questions, Mr. Chairman.

Senator WARNER. Thank you very much.

Senator Boxer?

Senator BOXER. Yes, Mr. Chairman. This is very interesting to me because I've long looked at the land and water conservation trust fund in the same way that you're looking at highways, and that is that fund is supposed to be used for park purposes and it is being used for deficit reduction. The fact of the matter is, I don't approve of it either. I think we ought to be more honest about the way we budget around this place. The trust funds that are set up for a particular purpose ought to be used for that purpose.

Having said that, you got to get to the next step, which is if you can't function this way, where are we going to make the cuts and where are we going to increase the revenues. So I think it is a much broader conversation that applies to a number of trust funds across the board where they are not expending—and it isn't just this Administration, I might add—it's the Congress and prior Administrations that just do not look at these trust funds in a sacred way. So I think that whole issue—and there are going to be votes to take a lot of these trust funds off budget. I think it is going to be interesting to see how that all shapes up when we are having the vote on those issues.

Mr. Huerta, I also feel that we need to have more of a priority around here. One of the areas that I support, and I support most of these, given the size of my State which is now 33 million people and growing, and we're looking out in the not too distant future to 60 million people, so when we talk about these issues, how do we really save our magnificent State? How do we really continue to be able to lead in trade and move goods and move people? So it is very key.

Last year, I supported an amendment to the transportation appropriations bill to fund the loan guarantee program, section 511, which is a Federal railroad administration loan guarantee program. Unfortunately, that amendment, though it passed the Senate, was done away with in the conference. What is your view of the section 511 program?

Mr. HUERTA. We are proposing in NEXTEA broader eligibility for use of funding certain rail freight improvements that would certainly benefit your home State and mine of California and many other States around the country. We believe that rail access for connectors between major intermodal facilities and the major infrastructure of the country is extremely important for reasons that it helps alleviate congestion on highways and it also ensures that our

Nation's gateway—our seaports, our airports, our major intermodal terminals—have what is needed in order to ensure that things don't get bottled up on the land side.

We recognize that this is a difficult question, has always been a difficult question. But rail freight, we believe that if we look at publicly owned facilities and expand eligibility on the part of the various programs, primarily STP, to use funds for that purpose, that goes a long way toward addressing the problem that you're referring to.

Senator BOXER. Well, so you support the section 511 loan guarantee program?

Mr. HUERTA. I would have to go and review section 511 specifically, and I can provide you an answer for the record on that.

[The information to be supplied follows:]

The Department believes that the combination of rail freight assistance programs proposed in NEXTEA obviates the need to revive the Section 511 loan guarantee program.

Section 511 was established in Title V of the Railroad Revitalization and Regulatory Reform Act of 1976. The aim of the Title V programs was to help keep Class I major railroads out of bankruptcy, and thus avoid a repeat of the Penn Central Railroad collapse that led to the Federal Government's creation of Conrail. To this end, these programs worked well. section 505 made \$580 million in loans available to 24 recipients, and Section 511 guaranteed \$253 million in loans to eight recipients. Of course, deregulation is the primary reason why Class I railroads are so healthy today, and it is unlikely they would need either the Section 505 or 511 programs.

The Class II regional and Class III short line railroads have also grown their business effectively.

In 1993, these railroads identified about \$400 million in infrastructure needs for which they believed they could not get financing through traditional means. The Department has responded in several ways.

First, the Department's innovative financing initiative has included 12 rail-related projects, with many more in the pipeline. Then, in 1995, Congress approved the National Highway System (NHS), which made highway connectors between the NHS and intermodal terminals eligible for NHS funding. Now, the Department's NEXTEA proposal offers a menu of opportunities for rail freight projects.

NEXTEA, for the first time, would include publicly owned rail projects as eligible uses of Highway Trust Funds. At least 74 railroads now operate on publicly owned facilities. State Infrastructure Banks allow a State the option to invest in rail freight projects, and NEXTEA's Credit Enhancement Program would provide an opportunity for large public rail projects to lower their costs of borrowing.

Of course, the CMAQ program, which through ISTEA funds alternative transportation projects in air quality non-attainment areas, has supported many rail projects. In California, CMAQ offers an opportunity to supported many rail projects. In California, CMAQ offers an opportunity to support the resumption of service on the San Diego & Arizona Eastern Railway, for which Section 511 funds were sought last year.

Senator BOXER. OK. Now just getting to your issue about publicly versus privately owned facilities, I want to ask you about the Port of Oakland, and this is my last question, Mr. Chairman. The Port of Oakland is the fourth largest container port in the United States. It has plans to build a major terminal for off-loading containers from ships to rail and trucks, it's this intermodal idea. The terminal would be used by three railroads that are privately owned. The Port has used \$2.5 million of ISTEA funds for studies and will use another \$7 million this fall from the Surface Transportation Program account. However, the Port is not allowed to use highway funds for rail projects that are privately owned.

It was my understanding that the Administration had an earlier draft of a plan that would have allowed privately owned facilities

to be eligible for highway funding if the facility served competitive carriers, was under public control, and produced public benefit. Now you're saying the eligibility will be limited to publicly owned facilities. Why did the Administration back off the earlier proposal?

Mr. HUERTA. We found it difficult in looking at public versus private facilities to find a way to address public benefits. But turning to the Oakland example, I do believe that there is a way to achieve the objectives of what is being talked about in Oakland. My understanding of the project is that it is sponsored by the Port of Oakland and the underlying property ownership would actually rest with the Port of Oakland, a public entity.

Therefore, my understanding of the facility is that it would be publicly owned, as would many port and airport connectors all around the country. And so in that circumstance, California and the Metropolitan Transportation Commission could choose to dedicate funds toward a facility such as the joint intermodal terminal.

Senator BOXER. Thank you. I appreciate that. Thank you, Mr. Chairman.

Senator WARNER. Thank you very much, Senator.

I think we've completed the shoot-out between the legislative branch and the executive branch. Thank you.

Senator WARNER. Now we will go to the real world, the users. So let's ask this very distinguished and broad panel to assemble. We start with Mr. Tom Downs, chairman, chief executive officer of Amtrak; Mr. Leslie White, chairperson, American Public Transit Association; Karen Phillips, senior vice president, Association of American Railroad; Mr. William Loftus, American Short-Line Railroad Association; Mr. Thomas Donohue, president, American Trucking Association.

Given that Mr. Downs and Amtrak have been the subject of a good deal of discussion this morning, I think there's unanimity among the Senators to let him be the wrap-up hitter and thereby hopefully benefit from the erudite wisdom that will spill forth here momentarily from this distinguished panel of witnesses.

We will ask our witnesses to limit their comments to hopefully less than 5 minutes. Our distinguished chairman, Mr. Chafee, and the distinguished ranking member, Mr. Baucus, had to depart for the Intelligence Committee this morning, and other colleagues are here there and everywhere. But I intend to stay right here unless I have a vote in the Labor Committee, in which case I'll recess for a few minutes to go cast that vote. We'll take a very thorough opportunity here to hear from your views. All statements will be placed in the record in their entirety.

So with that, Mr. White, would you be kind enough to lead off?

STATEMENT OF LESLIE WHITE, CHAIRPERSON, AMERICAN PUBLIC TRANSIT ASSOCIATION, ON BEHALF OF THE CLARK COUNTY PUBLIC TRANSPORTATION BENEFIT AREA AUTHORITY

Mr. WHITE. Thank you, Mr. Chair, and members of the committee. I am Les White, the chair of the American Public Transit Association, and also the executive director of CTRAN, the transit authority in Clark County, WA, which is the northern neighbor of Portland, OR, for those of you that are not familiar with the North-

west. I would like to submit a full statement and the American Public Transit Association's proposal for reauthorization for ISTEA to the committee for the record and simply summarize a few comments this morning, being cognizant of the committee's time.

Mr. Chair and members of the committee, ATPA appreciates the opportunity to present our recommendations for the reauthorization of ISTEA, and we would like to commend you and the members of the committee for the strong leadership role which you played in the initiation of ISTEA back in 1991.

Our reauthorization proposal would maintain the ISTEA and transit program structures, it would expand opportunities for flexible funding in both highways and transit, and it would support ISTEA's planning provisions as well as transit research and development. We seek increased funding for investment in transit and in transportation purposes generally. Our proposal would fund the annual transit and highway core programs at \$6.25 billion for transit, and \$25.4 billion for highways. Additionally, we would supplement that with a recommendation of \$3.6 billion annually for an increased Surface Transportation Program.

Our proposal is based on the premise that ISTEA works, and that the continuation of a strong Federal role in setting Surface Transportation policy is needed to ensure a healthy economic future for the Nation.

We cannot support proposals which have emerged to place total responsibility for transportation programs exclusively on the States. While we are not opposed to efforts to modify the highway funding formulas to achieve equity, we believe that a fair distribution of highway funds can be accomplished within the current ISTEA structure.

We support the level playing field provisions between highway and transit investments that were established under ISTEA, including the four to one funding ratio. Transit is critical to meeting our national goals. And one of the more important functions it serves at this point in time is providing access to jobs and education, very critical in achieving the goals of welfare reforms.

Specific recommendations in our proposal include maintaining and expanding the flexible funding program. We believe that the flexible funding provisions under the Congestion Mitigation and Air Quality program and the Surface Transportation Program, CMAQ and STP, have been successful and should be retained.

We support the metropolitan area suballocations, the equal 80 percent Federal matching shares for highway and transit projects, and the use of local soft match for certain selected transit projects. The flexible program allows communities to fund those transportation solutions that best support their goals for economic development, community revitalization, and other priorities. It truly is the forum where the nexus between land-use planning and transportation investments takes place.

Nearly 60 percent of the \$3 billion in "flexed" funds that have gone to transit in the current ISTEA came from the Congestion Mitigation and Air Quality program. The American Public Transit Association supports adjustments to the CMAQ program that would keep areas which have achieved attainment status whole so

that they could maintain those attainment levels during the course of the next ISTEA.

We are not able to support the changes to CMAQ envisioned in the current STEP-21 reauthorization plan, as it would fold the CMAQ program into the STP program and eliminate specific incentives in areas that have severe or moderately severe air quality problems.

We support higher authorization levels for the Surface Transportation Program using resources from both the Highway account and the Mass Transit account of the Highway Trust Fund. After the transit core program has been funded, we propose that additional MTA funds would go into a new STP transit program, that that would be flexible for highway uses, and that for every \$1 dollar of MTA funding going into the STP transit program, an additional \$2 in Highway account funds would go into an STP highway program. This expanded STP program would be able to be used for either highways or transit at the discretion of State and local officials.

We strongly support adding resources to the Transportation Investment program under the next ISTEA. To do that, we support taking the 4.3 cents per gallon which currently goes to deficit reduction and placing it in the Highway Trust Fund. We support allocating one-half cent of the 4.3 cents per gallon in gas tax revenue for a new intercity passenger rail account and the residual revenue being split 80 percent to the Highway Trust account and 20 percent to the Mass Transit account.

We also support applying the Byrd solvency rule to the Mass Transit account, as it is currently applied to the Highway account in the Trust Fund.

In addition, to ensure that Governors and State DOTs have the broadest flexibility to meet transportation needs, we recommend that States be authorized to use the State's share of STP funds for intercity passenger rail investments.

Our proposal retains the transit program because it has been successful and it does a good job of meeting a larger number of basic needs. The transit program fills critical gaps in the national transportation network. It helps to create transportation choices that allow existing infrastructure to move people and goods more efficiently and to reduce congestion.

We propose to expand the definition of allowable capital expenditures to include maintenance of capital assets, preservation and maintenance, if you will, to help cover the cost of compliance with Federal mandates. This change would make the Mass Transit program much more like the Highway program, as highway funds can now be used for maintenance and preservation purposes.

We support the ISTEA planning provisions, including the current authority for MPOs. Additionally, we support the public participation requirements, the transit and research development efforts, and the establishment of a unified appropriation and outlay rate for transit funds.

We ask that you keep the Federal Highway Administration section 130 Highway Rail Grade Crossing Safety Program—

Senator WARNER. Mr. White, our light is now functioning. We're at the extremity of your time, if you don't mind.

Mr. WHITE. That's fine. Thank you, Mr. Chairman.

Senator WARNER. Mr. Smith, since the two of us have the con here, I feel that now and then I'd like to interject a quick question, and you feel free to do so.

We had fascinating testimony, Mr. White, the other day on what is called "the Work Trip Chain," where the lifestyle of the American family, and particularly those where both husband and wife are working, just requires intermediate family stops to and from the workplace and so forth, and they're drifting away significantly from transit. Have you got any concept as to how we can make transit more appealing to get them back?

Mr. WHITE. Mr. Chairman, that is a concern the transit authorities across the Nation have. We propose that more mixed-use development in conjunction with transit investments begins to get at that problem. In my own community, we are finding that our park and ride facilities, once augmented with day care facilities, with grocery facilities, with auto maintenance facilities as a part of those developments which eliminate the need for auto-dependent intermediary stops, that in fact a one-stop shopping approach has made a major impact on people's travel habits. By being able to come to a park and ride facility where communities can split—

Senator WARNER. That would take some time and big bucks in the private sector to reorient all that. But maybe that is a direction which we'll have to go.

Mr. WHITE. Senator, if you will, the private sector in our community has been enthusiastic and anxious to enter into partnerships with our transit authority to make those kind of developments happen. So it in truth is happening.

Senator WARNER. It takes land values which enable the economics of those places to exist.

Mr. WHITE. That's true.

Senator WARNER. Now, Mr. Loftus.

STATEMENT OF WILLIAM E. LOFTUS, PRESIDENT, AMERICAN SHORT LINE RAILROAD

Mr. LOFTUS. Thank you, Mr. Chairman. I would like to address the issues of eligibility and flexibility as they relate to small railroads.

Our association represents more than 400 short line and regional railroads around the country in legislative and regulatory matters. Short line and regional railroads are an important and growing component of the railroad industry. Today, they operate and maintain over 45,000 miles of track, 27 percent of the American railroad industry's total route mileage. These small railroads serve every State in the Nation and thousands of small shippers and small communities. We essentially are the pick up and delivery segment of the railroad industry, the feeder lines.

In connection with ISTEA reauthorization, we and a sister organization, the Regional Railroads of America, are seeking to clarify eligibility provisions of ISTEA so that projects involving small freight railroads can be eligible to be selected by State and local decisionmakers. Our request for eligibility for small or local railroad projects under ISTEA should be viewed in terms of what is happening to the rail network in each State. The restructuring of

the Nation's rail system is still underway. Recent mergers of the giant rail systems in the West and the forthcoming merger of the giant rail systems in the East present a significant challenge to each State and each region within a State.

The States and shippers have to deal with the reality that trunk line rail service is shrinking to about a 100,000-mile rail network, when it had been 250,000 miles a few years ago. The short line and regional railroad system is the vital linkage in each State and rural areas within the State that must depend upon those railroads for connectivity to the national rail network in order to maintain their economic base and their economic future. There is a vital small railroad network in every State that must be preserved and enhanced and allowed to grow. It is a valuable, irreplaceable transportation asset.

That is the fundamental reason I am here today to seek the committee's support for permitting States and local communities the ability to direct some of their ISTEA funds to rail projects, which will not only help preserve the rail network but will continue to generate economic growth in non-urban areas.

Small railroad eligibility for ISTEA funding should not be viewed as an unwarranted incursion into STP funds. ISTEA is not exclusively a highway program today. Congress has recognized that a multi-modal approach is most appropriate, and there is eligibility for funding for intermodal connectors, private bus companies, commuter transit, biking/hiking trails, and, yes, some freight railroad projects. State infrastructure banks provide a system for funding flexible alternatives. All these various non-highway categories eligible for funds under ISTEA share a common feature—all can benefit the highway system and highway users, either by enabling a smoother transportation flow, or by offering an alternative to get some users off the highway system. Small railroad freight projects fit this mold perfectly.

We recognize that the matter of private sector railroads receiving public funds is of some concern. However, there are established ways of providing such assistance within Federal guidelines and will full protection of the public investment. These types of small railroad projects should be eligible for funding from SIBs, including pay-back requirements, and other innovative financing mechanisms which may be in ISTEA reauthorization.

In order to be chosen for funding, small railroad projects would need to clear the hurdle of a strict public benefit test. Any short line or regional rail freight project would have to be found by the State or local decisionmakers to be better, more cost-effective use of transportation dollars than other transportation projects with which they are compared. The local decision may, indeed, select the highway project, but at least the local decisionmakers would not arbitrarily be restricted from considering investing in its rail network.

We are not seeking entitlements, we're not seeking set-asides for small railroads. Our proposal would, in essence, put small railroads at the table to argue, along with advocates of every other type of eligible transportation project, for consideration as the MPO or statewide planners weigh the best use of their Federal transportation dollars.

Over the past two decades, Local Rail Freight Assistance funding from the Federal Government provided more than \$200 million in grants to short line and regional railroads for rehabilitation of track and bridge structures. However, since 1996, Congress has chosen not to reauthorize or provide funding for the LRFA program, apparently finding it hard to justify the time and effort required in the annual appropriation process and periodic reauthorization process for such a relatively small Federal program. However, this should not preclude the States from being able to do what Congress has been doing since 1976, and that is exactly what our ISTEA reauthorization proposal would do.

On other issues, the short line and regional railroads joined the Association of American Railroads in support of funding for highway-railway grade crossing warning devices, section 130 funds, including both continued earmarking of those funds for their critical safety purpose, and an increase in the amount; also, maintaining the status quo with regard to truck sizes and weights; and availability of funding for intermodal connectors.

In summary, I urge you to clarify eligibility of projects involving small railroads for funding as part of ISTEA reauthorization. To do so represents good, multi-modal public policy, and will allow State and local decisionmakers to make the transportation investment decisions they find best suited to their needs. Thank you, Mr. Chairman.

Senator WARNER. Thank you, Mr. Loftus. I put myself in the category of a railroad buff. I've always been fascinated with the ability of communities to go back and finance a short system for various purposes in my State. A very courageous group now is looking at it partially from the standpoint of freight, but more from the standpoint of tourism and I'm trying to give them a little helping hand.

Mr. LOFTUS. The Buckingham Branch.

Senator WARNER. Yes, you got it. Thank you.

Now, Ms. Phillips. It is so nice to have you with us. If I might observe, somehow through the years I've known a number of the senior executives in your distinguished association and they've been persons of incredible competence. So I'm delighted to have you associated with that group and join us here today.

**STATEMENT OF KAREN B. PHILLIPS, SENIOR VICE
PRESIDENT, ASSOCIATION OF AMERICAN RAILROADS**

Ms. PHILLIPS. Thank you very much. Mr. Chairman and Senator Smith, my name is Karen Phillips. I appreciate your invitation to appear before this subcommittee to present the views of the Association of American Railroads on reauthorization of ISTEA.

I would like to discuss four issues of concern to the railroad industry. The first of these is safety at highway-rail grade crossings. The successful partnership between Government and the railroads has resulted in a reduction in annual public grade crossing accidents of over 65 percent since the early 1970's. This success has been accomplished primarily as a result of the engineering improvements carried out under the Federal section 130 program and the driver education/public information and traffic law enforcement efforts of the Operation Lifesaver Program. AAR is proposing four

initiatives which we believe will result in a significant improvement in highway-rail grade crossing safety.

First, is that the Federal Government should continue and increase funding for the section 130 grade crossing improvement program. Without funding dedicated or earmarked for this important program, crossing projects rarely compete successfully with more traditional highway needs. This problem was the primary reason, in fact, that a separate grade crossing improvement program was established. However, many States continue to assign an extremely low priority to crossing improvement projects. That is why it is essential that earmarked funding for the section 130 program should be continued and increased.

Second, the Federal Government should establish a national mandate and a uniform process for closing unnecessary public grade crossings. Highway and rail safety officials have long advocated the closure of a large proportion of the public highway-rail grade crossings in the United States. The railroads support the establishment by Congress of a Federal crossing closing program implemented through a uniform nationwide process.

Third, the Federal Government should finance a multi-year national grade crossing safety education and public awareness program to be conducted by Operation Lifesaver, Inc. Government should take responsibility for a major, multi-year public awareness campaign designed to illustrate the life or death consequences of motorists' behavior at grade crossings. This expanded national Operation Lifesaver campaign must garner the same national universal recognition and acceptance that Mothers Against Drunk Driving, MADD, for example, enjoys for its attack on drunk driving.

And fourth, the Federal Government should create a national grade crossing warning device problem alert system. Railroads occasionally have problems receiving timely notification when warning device problems occur. The railroad industry supports the creation of a publicly funded, nationwide grade crossing warning device problem alert system operated by appropriate State agencies. The Federal Government should evaluate the feasibility of the Texas 1-800 system which has operated since 1982 and other possible nationwide alert systems, and adopt and implement an effective system.

These four grade crossing safety initiatives will significantly enhance safety at highway-rail grade crossings, and I urge this committee to include these recommendations in its ISTEA reauthorization legislation.

The second issue I would like to discuss is that of intermodal connector highways. The importance of interconnectivity of our transportation modes and systems was underscored by the National Commission on Intermodal Transportation when it found that: "Barriers to safe and efficient movement of freight occur at connections between modes. For example, inadequate roadway access to freight terminals is a barrier to the intermodal freight system."

On May 24, 1996, then-Transportation Secretary Pena sent to the Congress a recommended list of highway connectors to major intermodal freight and passenger terminals. Without first-rate connections, trains, trucks, barges, and planes are condemned to oper-

ate separately and inefficiently. Government and America's private transportation companies can provide the finest transportation systems and services in the world, but a completely efficient intermodal transportation system can never be realized without quality connections.

The third issue is the transportation planning process. ISTEA attempted to establish a new approach to transportation throughout the country by striving to break out of traditional, but limiting, perspectives. Private railroads are working closer than ever, and more successfully, with States and MPOs to develop effective transportation plans and programs. It has been an evolutionary process, but all the parties in this process are working, learning, and improving, and the transportation in this country is winning as a result.

My last issue is that of truck sizes and weights. AAR supports the status quo on truck size and weight limits. Of particular concern are any efforts that might be made to thaw the freeze on the expanded use of longer combination vehicles which are outside the scope of any legislative truck size and weight agreement that might be reached between the railroads and the trucking industry.

Advocates of increased LCV use are now proposing a State option regime in place of the current Federal LCV freeze. We have great concerns about this, and especially about the upward ratcheting of truck size and weight limits that could occur; this, in fact, was the precise reason for the 1991 LCV freeze. The railroad industry hopes that Congress will continue to oppose larger and heavier trucks in ISTEA reauthorization legislation.

In conclusion, ISTEA is working because all of us are truly working together. AAR is convinced that America must continue the progressive agenda established by the Intermodal Surface Transportation Efficiency Act. Thank you, Mr. Chairman, for inviting me to testify before your subcommittee today. I would be happy to answer any questions you might have.

Senator WARNER. Thank you very much, Ms. Phillips. An important contribution.

Now, Mr. Donohue.

STATEMENT OF THOMAS J. DONOHUE, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AMERICAN TRUCKING ASSOCIATIONS, INC.

Mr. DONOHUE. Thank you, sir. I'm Tom Donohue, president and CEO of the American Trucking Associations. As you might imagine, I'm a truck buff.

Senator WARNER. That's fine. Let me just tell you that when I go down to visit industries in my State, and I like to tell this little story, there's a blue jeans plant in Luray, VA, one of the most beautiful parts of our State, and it is surviving, doing well on turnaround time, and you know what that is. In that one-world market, they can turnaround with your trucks and beat their competitors in the Far East, beat them hands down, if we give you the roads to deliver the goods.

Mr. DONOHUE. Thank you, sir. I'm pleased to be here to represent the 9 million people that work in our industry and that contribute 43 percent of the funds that go into the National Highway

System and to our trust funds, a total of 50 percent of the funds that go into State and Federal road funds of all types.

I'm particularly pleased to be here as the only person on this panel representing an industry that pays into the Highway Trust Fund. Each of my colleagues on this panel is here trying to get some money out of it. And we encourage some of that. In the efforts we made in President Bush's intermodal group, we made a commitment to spend Highway Trust Funds, and you confirmed that, on connectors. We have, and continue to put money in transit where it has made sense. And we are probably even willing to do some very limited amount of funding for Amtrak on a capital basis.

Beyond that, I begin to feel like the banker who is looking over the transom at Willie Sutton wondering what he's doing there. Obviously, he's there to rob the bank. I listened to Ms. Phillips' extended list of the money she would like to have, and the short line railroads, and I know Mr. Downs has one view, but the Administration wants to fund the whole Amtrak thing. I think if that's the case, then we ought to look at these railroads that have billions of dollars of surpluses and 8, 9, and 10 percent profit margins, maybe we need another trust fund. All of these folks could then come and petition both trust funds. But I think after a while you have to stop and say why is Willie Sutton here and what is he after? I'm here to say that we need to put the money in the roads or we're going to have a very serious problem.

Let me say, Mr. Chairman, that the trucking industry believes that the current level of funding for roads, bridges, and highway safety is inadequate. The Administration's bill won't make it any better; they'll make it worse. The failure by this committee and by our industry to address these critical infrastructure needs is going to cost this Nation jobs, mobility, international competitiveness, as you were discussing, and, most important, innocent lives.

The trucking industry applauds this committee's leadership, and I'm glad Senator Chafee just came back in, his major effort to assure that we get an adequate amount of highway funding in relation to what we put into the system. But, like many of you, the trucking industry is very skeptical about the Administration's reauthorization proposal. They call it NEXTEA. Their proposed spending limits will be as much as \$11 billion less than could be supported by the current user fees that we're paying in. At the same time, they are increasing diversions to non-highway, non-safety related programs. You might imagine, Mr. Chairman, we object vigorously to the idea of putting tolls on roads that we've already paid for that we will then have to pay rent on. We would like to call the Administration's proposal in this regard "NEXTOLL NEXTEA."

We propose a \$34 billion annual program which can be achieved without raising taxes, but, instead, by dedicating all the Highway Trust Fund money and bringing the 4.3 cents back into the fund. And then the folks here that are petitioning on the matters we can agree on would also have an opportunity to get their programs paid for. ATA's approach to this would be to have a core highway program and then to take those 40-odds and ends grants and put them in a block grant so the States could get their business done in an orderly way.

Let me focus just for a minute on safety. Approximately 42,000 Americans die every year on our roads and highways. That's a national disgrace. Truckers take very, very little comfort in the fact that in 88 percent of those accidents we're nowhere near them, and in the 12 percent that are left, 70-plus percent of those the State police will tell you we had nothing to do with. This is a responsibility we all must step up to. And a great deal can be done. I'm very pleased that our fatal accident rates continue to go down as the miles we drive continue to go up. In 1995, we had the best accident ratio in the history of the trucking industry, while car accident rates and fatality rates began to go up. We need to work on this highway bill in a way that improves roads. If you don't fix the potholes, if you don't widen the lanes, if you don't fix the on and off ramps, we're going to continue to have fatalities and accidents that we don't need.

And, of course, going back to your example down in Virginia, 77 percent of the communities across this country are served exclusively by truck. There are no railroads there. Trains and cargo planes, they go somewhere else. Many of you have worked hard to attract business to your States and communities. You can't have it both ways. If you want business, if you want economic growth, if you want jobs, you're going to have trucks.

Let me say, sir, that between now and the year 2004, we're going to increase the miles we drive in trucks by almost 30 percent. We're going to put 14 percent more heavy trucks on the roads, and we're only going to be able to keep it at that number if the railroads can double their movement of intermodal freight. Remember, we employ 9 million people and 5 million trucks in 500,000 companies. They have 230,000 people in a very limited facility. We need to focus on that. We look forward to working with you in that regard.

Let me conclude, sir, by saying whether we live in America's largest cities or our smallest towns, the investments we make in these roads are essential to every State, whether they be a donor or a donee. If you can't get through Nevada to California, you can't deal in the Southern part of the California economic system. We need to find a way, and so we suggest a core program and a block grant to give the States flexibility that they want.

Finally, let me say, we're very willing to share the largess that our members worked so hard to put into this fund, but we want to do so sensibly. If some of our colleagues and competitors have such big appetites, perhaps they should contribute to the meal fund. Thank you very much, sir.

Senator WARNER. I thank you very much. Indulge me in just a little personal thing. I travel a great deal in my State, as do all Senators, and do it at odd hours. Late at night when I want to get a bite, I try and find a truck stop. Two reasons: first, the food is pretty quality, and second, the conversation is excellent. They don't know who I am and you don't have to ask many questions and they'll unload.

[Laughter.]

Mr. DONOHUE. Senator, truckers are not always right and they're not always wrong, but they're always sure.

[Laughter.]

Senator WARNER. I think they're a hard working lot, I guarantee you.

Senator CHAFEE. Sometimes in error, but never in doubt.

Mr. DONOHUE. That's exactly right.

Senator WARNER. Are you ready, Mr. Downs?

Mr. DOWNS. Yes, sir, Mr. Chairman.

Senator WARNER. We welcome your presence here today. Of course, both John Chafee and I knew your predecessor. We had the greatest respect for him, an able man. A very distinguished American who did much to put Amtrak back to serving the American public.

STATEMENT OF TOM M. DOWNS, CHAIRMAN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AMTRAK, NATIONAL RAILROAD PASSENGER CORPORATION

Mr. DOWNS. We all miss him.

In respect for the committee's need for brevity, I am going to ask that my formal statement be entered into the record and I will cut immediately to the chase to allow you enough time to grill me.

Senator WARNER. Without objection, your statement will appear in the record in its entirety.

Mr. DOWNS. We would like to request of the committee that two issues be addressed in NEXTEA. First, is the creation of an account that would create a trust fund account for Amtrak intercity rail passenger service for capital. We have entered into a compact with the Administration and with the Congress that we will be subsidy-free by 2002. We have never wavered from that. That is enrolled in House and Senate budget committee resolutions. It is something that we have agreed to a glide path to reach self-sufficiency in 2002.

We said we needed two things in addition to our own restructuring of the corporation and our own re-engineering of our service. The first was a reauthorization bill. It has been talked about here. The House, after a lot of controversy, a lot of struggle, passed a bipartisan bill 406-4 that dealt with a lot of those restructuring issues. I understand, because of a lack of time, this body of the Congress could not deal with it. I understand that it is expected to be dealt with again in this session of the Congress. We, of course, support that.

The other thing that we said we needed was a regular fund of capital to make up for the years of underfunding of the corporation's capital. We said it would take 5 years of that, and we understand that this bill being proposed by Senator Roth and Senator Moynihan is 5 years and out; in other words, the fund reverts.

The options are: fund it at that level, or continue the operating funding at current level, which would be about 13 to 15 percent more than that fund would create over its life, or unwind the corporation, because we're getting dangerously close to unravelling financially. We've been to the private marketplace, we've borrowed money for our equipment. In effect, most of our rolling stock belongs to banks, and foreign banks at that, because of the need to provide capital to replace aging locomotives and passenger cars. That unwind, according to the scoring provided by CBO, is about \$5 billion, because of a variety of issues around debt and labor con-

tracts. If that's the case, this fund, this half-cent is still cheaper than the bankruptcy of the corporation.

So, of the two options, if you're a deficit hawk, and I understand, Senator Chafee, you are in this process, it is still cheaper to fund this capital fund to self-sufficiency for Amtrak by 2002 than it is to continue the operating subsidy or to unwind the corporation. We're still dead serious about meeting this operating subsidy-free target in 2002. We understand the congressional direction on it, we understand the Administration's direction on it, and we're not asking for any mercy in that process. We are saying we have a compact, we've tried to deliver, we need the other two pieces of it in order to make this work, and we think we can.

The second is funding flexibility. We got to a lack of choice at the State level because of a committee jurisdiction issue in the House. When Mr. Dingell was chair of his committee, he insisted on clear lines of jurisdiction. We were part of that committee's jurisdiction. House Public Works Committee at that time said we're drawing the line, too. So there is no eligibility for any funding in highways or transit for Amtrak; therefore, it is illegal for a State to make a choice about using any of its transportation fund for Amtrak.

This is a dilemma I face in calling a number of Governors to tell them that they are about to lose their service. In particular, one comment that I had from the Governor of Wyoming on the notice that he was losing his service on the Pioneer in Southern Wyoming, he said, "I hate that and I'm sorry. Our Constitution says that we cannot use State gasoline taxes for anything other than highway purposes or to match Federal funds." He said, "I don't have that choice. I hate to see you go away, but I guess that's the answer since I cannot choose to make that choice for ourselves." He said, "That is painful for us because airfares in Southern Wyoming to Denver are often \$500 round trip just to Denver, and that's on a small commuter plane. This is the only other choice we have. If we had it, we'd probably make it, but we don't." I've heard that from a number of Governors.

We had an actual vote on this in the Senate. Two-thirds of the Senate voted to create a Governors' and States' choice around funding for Amtrak, and it passed by two-thirds of the Senate. I never took that as a vote about Amtrak; I took that as a vote to give Governors and States the funding flexibility that they think they need to make State choices about the type of transportation system they want.

Ultimately, we want to stay away from issues like allocation formulas for equity and fairness and who pays and who doesn't in this process because we're a relatively minor player in this process. We've asked for a fund that holds us accountable for relieving the Federal Government of the majority of the burden of providing intercity passenger rail and in a way that will have the least amount of subsidy for passenger rail of any country practically in the world. And we've asked for choice for States to be able to make those decisions themselves around transportation funds.

That concludes my remarks, Mr. Chairman.

Senator WARNER. Did you have sufficient time? Did you lose any point that you wanted to make?

Mr. DOWNS. Oh, I could go on forever, but——

Senator WARNER. No, no.

Mr. DOWNS. I better cut it short.

Senator WARNER. Senator Chafee has said, I guess he can best express himself, what is it, there's no place in Heaven for those who cannot control their opening statements? What is that?

[Laughter.]

Senator CHAFEE. I said there's a special place in Hell for those—

[Laughter.]

Senator WARNER. We'll stop right there.

I listened earlier to my good friends and distinguished colleagues talking about how they go to France and marvel at the trains, to Germany and marvel at the trains. Indeed, I took a trip into the NATO area, where I have other responsibilities, and I always try and use the trains. I'm fascinated with them. But in fairness, those trains are running through some of the most congested, heavily populated regions on the globe. At each station, there's an abundance of passengers who exit and get on the train.

This brings me to the realistic needs that you have. And I'm not trying to just beat up on labor, but there are some lines that you would close down tomorrow if you weren't automatically burdened with that 6 year, as I termed it, platinum parachute. Am I correct about that?

Mr. DOWNS. Well, it has never kept us from closing the lines. As you're probably aware, last year we said we were going to close five lines—the Pioneer, the Desert Wind, the Texas Eagle, Lakeshore Limited, and Gulf Service. We said we were going to do that because we had to and we were going to absorb those costs into the system. In the big continuing resolution, the Congress said, well, no, we want you to think about that a little longer, and extended that decision for another 6 months. They gave us in that continuing resolution \$22.5 million to continue those lines for another 6 months. We told the Congress at that time that it would probably cost us \$40 million to do that. So we've now lost another \$13 million on that decision.

It has never stopped us from making those decisions. We're going to go ahead, absent any other State participation, on the 10th of May and eliminate those lines. So we go ahead and do it anyway, that's because we have no choice. Our operating subsidy has declined from \$395 million when I got to the company 3 years ago to \$200 million now. We have no choice. It is a clear direction from the Congress, we just need to continue the process to the levels that we're supported by appropriations.

Senator WARNER. I can only speak for myself, but I will support you. We're privileged to have Amtrak in my State and maybe we will be confronted some day. I like to ride the Amtrak trains, but I get on and the cars are empty. Anyway, you know that far better than I.

Talk to me about your need to get other relief. You've talked about the dedicated capital fund. I think that's a concept that Senator Baucus and I will be working on here pretty soon. Let's talk about the contracting out.

Mr. DOWNS. Those labor provisions are enrolled in Federal law.

Senator WARNER. I understand that.

Mr. DOWNS. They are not in contract with labor and management. We have said that we think that it is not a defensible structure to have Federal law dictate labor and management's relationships. It doesn't happen in many other industries except under the aegis of, say, the Rail Labor Act.

Senator WARNER. By necessity, they were probably written in at the time of the financial troubles of the major Eastern rails, Penn Central and others. Would that be correct?

Mr. DOWNS. Those were written in at the beginning of our corporation as an incentive for employees to come from the bankrupt railroads into Amtrak. The assumption was that this railroad would die within 3 or 4 years of its creation.

Senator WARNER. If you didn't have that skilled labor force.

Mr. DOWNS. And we had to have the skilled labor force, and we still do.

Senator WARNER. So that provision met its need at a critical time?

Mr. DOWNS. Yes.

Senator WARNER. And is it your professional judgment as the top manager you don't need it anymore?

Mr. DOWNS. We have said consistently that we need to be able to negotiate these issues.

Senator WARNER. At the bargaining table.

Mr. DOWNS. At the bargaining table, the way—

Senator WARNER. As do other major American—

Mr. DOWNS. The way any other major railroad or private company would.

Senator WARNER. And what about this 6 year parachute that I keep referring to. Is there anything comparable you know—

Mr. DOWNS. Well, the New York dock and—

Senator WARNER [continuing]. Other than Disney World and Disneyland where there's a nice parachute.

Ms. PHILLIPS. The freight railroads are subject to the same 6 year labor protection as well.

Senator WARNER. Well, is it about time we got rid of that?

Ms. PHILLIPS. Sounds good to me.

Mr. DOWNS. We've not said that we want it eliminated. We want to be able to negotiate it. We don't want Federal law to intervene in those relationships between labor and management. That was, in effect, in the House bill that passed 406-4 and came to this body.

Mr. DONOHUE. Mr. Chairman, we could arrange for some of these workers to become truck drivers. We could hire about 300,000 of them right now at an average salary of close to \$40,000 if we could find them.

Senator WARNER. Well, here we go. I'll come back for further questions.

Senator Chafee.

Senator CHAFEE. Thank you, Mr. Chairman.

Mr. Downs, see if I understand what you're here for. No. 1, you would like the .5 cent which would be for capital, correct?

Mr. DOWNS. Yes, sir.

Senator CHAFEE. There's no limit on that? That wouldn't end in 2002?

Mr. DOWNS. It's 5 years.

Senator CHAFEE. OK. That's 5 years. But you are not making any commitment to us now that you would believe that would carry you and that in 2002 you wouldn't need any more? Are you suggesting that?

Mr. DOWNS. Senator Roth's bill reverts that fund to the general fund at the end of the 5 years. That's been what I have been told was the intent of that bill. It is clear in the language of that bill that that fund is withdrawn at the end of the 5 years.

Senator CHAFEE. All right. Now let me continue. Furthermore, you would like the flexibility in ISTEA to allow the Governors to use some of the annual moneys that are sent to the States, what percentage they wish, for rail passenger service, Amtrak subsidy?

Mr. DOWNS. Yes, sir.

Senator CHAFEE. OK. Now the third thing, as I understand it, is you currently are receiving \$300 million in an annual operating subsidy from appropriations. Is that right?

Mr. DOWNS. The President's budget for this coming fiscal year is for \$202 million worth of operating subsidy, and \$142 million for excess railroad retirement payments which go to the railroad retirement fund.

Senator CHAFEE. Now, what are you telling us is that in the year 2002, if you receive all these things I'm talking about, the three points, in the year 2002, you indicate that you no longer will need an operating subsidy?

Mr. DOWNS. Yes, sir.

Senator CHAFEE. That's not the \$0.05?

Mr. DOWNS. It is not.

Senator CHAFEE. OK. Now that's a bold commitment on your part, isn't it? As we've had testimony before, and I guess from our own knowledge and experience, there's not a rail passenger system in the world that isn't not only subsidized, but probably heavily subsidized. Yet, you're saying that you won't need that operating subsidy. I presume you would like the capital fund continued. But you said you're content for it to expire in 2002.

Mr. DOWNS. If we have to live with a term that says at the end of the 5 years we need to be capital independent as well, we will do our best to do that. I'm not as clear about our ability to say that because of the capital needs within the corporation over the long-haul. But I am clear about becoming the first passenger railroad in the world to become operating subsidy-free.

Senator CHAFEE. I think that's a bold commitment on your part. It seems to me, and nobody knows this better than you, but the same thing comes up with bus transportation, if you cut back the service, then obviously you get fewer riders, and you get fewer riders on your feed lines, and the whole thing goes downhill. I'm sorry that you had to cutoff those five lines you mentioned. Well, you wanted to cut them, and I presume you did it because of lack of ridership, and you're continuing them now. But the time you committed yourself to continue must be close to expiring, isn't it?

Mr. DOWNS. The decision by the States has to be made by Saturday in order for us to not cancel the routes on the 10th of May.

Senator CHAFEE. I'd say that's very close.

[Laughter.]

Mr. DOWNS. That's very close.

Senator CHAFEE. All right. Mr. Downs, I want to thank you for all the cooperation you've given me in the peculiar problems we've had in our State in connection with railroad-owned land. That project, that Province Place that you've given us waivers on is indeed going forward. We're having a ground-breaking on March 24. If you're not invited, you ought to be. It's no secret that Amtrak service in our State, which includes, obviously, the Northeast corridor, is extremely important.

I have no further questions, Mr. Chairman.

Senator WARNER. Thank you very much, Mr. Chairman.

Mr. Smith.

Senator SMITH. Thank you, Mr. Chairman.

Mr. DONOHUE, you indicated that the trucking industry pays about 43 percent of the trust fund. What's that in dollars, \$10 billion?

Mr. DONOHUE. A little more than that. We're doing much better, let me say, in collecting the money that's supposed to go into the trust fund because of some excellent improvements that were made here. And when you add up the trucks that run gas, the trucks that run diesel, other highway activities, it gets up just a little bit over \$10 billion.

Senator SMITH. How much do you estimate it would cost your industry if these tolls were to be imposed?

Mr. DONOHUE. If you let the Governors and the legislatures of the States decide, as was suggested by Mr. Huerta today, whether or not they want to put tolls on a road that has trucks and cars running up and down them, with all the financial problems they face, and the ones they're going to face as this Congress sends things back to them to do, you'll have tolls on roads all over this country and it will make it look like the Garden State Parkway. I'd like to say that we are vigorous supporters of a national connected, continuity-based system of roads around this country. But a toll system that tries to pay again and again for a set of roads that we've already paid for and pay to maintain would raise serious doubts in our industry about our continued support for a national system.

Senator SMITH. What percentage of the Nation's freight is transported by truck, do you know?

Mr. DONOHUE. A dollar value, it is 78 percent. The rails haul some very, very heavy commodities—grain, coal, steel, and cars in their initial movement from the manufacturing plants. But the rest of the things, unless they're going as intermodal freight that we gave to the railroads, they're all going by truck.

I think it is important to understand, if you just look at the two industries, one employs 230,000 people, one employs 9 million people, one has \$350-some billion in business, the other has \$30-some billion in business. There is a great mystic that people say, oh, we should put it all on the rail. Well, if they don't go to 77 percent of the communities, and every time they have a merger they take up more rail track, if you said today let's stop the trucks and put it on the rail, the rails would be the first people to say, please, God, don't.

This is a cooperative, integrated system where the rails play a very important role. But the Nation's freight runs on truck. That's how it goes. If I could do one thing to let the American people understand what we do, I would have plastic or glass sides on all the trucks in this country for a month so people could see what's going up and down the roads instead of just seeing the trucks. They would understand, it takes four—count them—four tractor trailers to fill the average supermarket every night. We lose sight of the fact that all of the tank trucks that come into our community to fill up the gas stations every night. If it doesn't go by truck, it just doesn't get there. That's the bottom line.

Senator SMITH. Mr. Downs, I think we've played this already pretty well here, but in the interest of fairness and not trying to be confrontational or hostile about it, I'm trying to keep an open mind on this, we do have an aviation trust fund that's paid for with a ticket tax, we have a highway trust fund that's paid for by gasoline taxes, we have harbor maintenance and inland waterway trust fund paid for by users, we even have a social security trust fund and a Medicare trust fund that's paid for by those who pay into that. Why shouldn't Amtrak. or the railroads in general, pay into the trust fund as well?

Mr. LOFTUS. First, Tom is right, Amtrak does not pay into the Highway Trust Fund. We pay \$0.055 worth of diesel tax on locomotive fuel that goes to the treasury for deficit reduction. We're not part of a non-contributor problem. The railroads are the same way. The deal was struck though that the railroads would not pay a diesel tax that went to the Highway Trust Fund for some of the same reasons about equity. We do pay, we are a payer, we pay it every day we pull a locomotive up to the pump. So, in part, the answer is, we already pay, but we pay to deficit reduction, not to the trust fund.

The second is that I spent a number of years as the associate administrator of the Federal Highway Administration. It always struck me that the modes of transportation within the DOT were on different floors, they had different funding, and different constituencies, and what the American public wanted from all of us was a national transportation system that moved people and goods safely and let us compete internationally. The American public doesn't think modes or trust funds, they think when they get in their car, have I got the best way to go to work or the best and safest way to get home. That often has us pitted against each other. I've never believed in that process. I think we all have to stay focused on what the national interest is at the national level about transportation. I agree with Tom, it has never been to have the modes run against each other, or freight against trucking, or transit against highways; it is that they work together. We think we're a partner in that. We'll never be a dominant partner, but we think we are a partner.

Senator SMITH. One final question, Mr. Chairman. Mr. White, you say you support giving States the flexibility on whether or not they want to spend highway dollars on Amtrak. How do you feel about the Administration's proposal to fully fund Amtrak out of the trust fund?

Mr. WHITE. Our proposal suggests that a half cent fund established for intercity passenger rail is the proper thing to do, but only in the context of reassigning the 4.3 cents that currently goes to deficit reduction over into the Highway Trust Fund. Currently, every mode, and I think you've heard that from the panel today, is underfunded substantially. On the transit side alone, the Department of Transportation estimates that we need a capital infusion of money of approximately \$13 billion a year. Currently, the Congress is infusing approximately \$4 billion. So we're substantially short. That type of shortfall is in every single mode.

Only if we begin to invest in all of the modes where they work together as a system will we be able to effectively improve mobility. To rob one mode to fund another in the context of current funding is not something that we can be supportive of.

Senator SMITH. Is that the way you view the Amtrak proposal?

Mr. WHITE. From the Administration or from ourselves?

Senator SMITH. From the Administration.

Mr. WHITE. From the Administration, that's correct.

Senator SMITH. Thank you, Mr. Chairman.

Senator WARNER. Thank you, Mr. Smith. Mr. Smith, I want to associate myself with your thought that some clearly identifiable tax from the rail systems into whatever fund we eventually create I think is a good concept. It is a good selling device. I'm exploring that now and we'll see what happens.

I'm sure you lay awake at night looking at these, do you not, Mr. Downs?

Mr. DOWNS. I'm old enough that my eyes are not what they used to be, so I can't—

Senator WARNER. The distinguished and very credible Cato Institute report which says you are the most highly subsidized, and the other is our GAO report. But both of them say that no matter how courageous you are in the proposals that you put before us today, they are still going to fall short and you're not going to be able to make your goals. Just give us a word or two now and then supplement the record with such rebuttal material as you would like on each of these reports for the benefit of the committee who will be studying these reports very carefully.

Mr. DOWNS. Thank you, Senator. I was requested by the then-chair of the Senate Commerce Committee to pursue the subsidy numbers between the modes by rider and by citizen of the United States. It was performed by the Congressional Research Service, and I would submit that response to you from CRS. It shows, in effect, that, if you take subsidy, Amtrak has about a less than \$10 a passenger subsidy. And if you take it on a per capita basis, the average American pays about \$0.80 a year for Amtrak's role in the United States.

I have always been leery about—I know there's an old saying about figures lie and liars figure. Arguing about modal subsidy gets into a divisive battle. It's like the President's request that Amtrak be funded out of the existing Highway Trust Fund. I like to spend time on the water, I'm a sailor, and it's a little bit like if you're overboard and you're drowning and somebody throws you an electrical wire and they say don't worry, it's not electrified, and the choice is grabbing it and getting electrocuted, which I feel a little

bit like being in the box with my good friend, Tom Donohue, about Amtrak coming out of existing resources in the Highway Trust Fund, including railroad retirement, which Tom said he loved—

Mr. DONOHUE. We've got retirement problems. If you want to start funding pension problems, I'd like to talk to you about MEPA.

Mr. DOWNS. But the issue is the Administration's recommendation is to create a fund, in other words, to have us be within the fund; the limitation is that there are no resources to fund that. I've said publicly I think that is a bad choice, because it intentionally almost pits us against very powerful forces not only in highways and trucking but also in transit. It leaves us with a very difficult Hobson's Choice—do you agree with the fund concept but disagree with the lack of funding, and I have publicly said that's our position. I'm appreciative of the President's request for a funding trust fund, but not of the lack of funds going into it.

Senator WARNER. Thank you.

Mr. DONOHUE. Mr. Chairman, could I just—

Senator WARNER. I'm sorry, I need to leave.

Chairman Chafee, I am badly needed in Labor Committee for my votes. Would you be kind enough to continue this?

Senator CHAFEE. Sure.

Senator WARNER. And I noticed Ms. Phillips indicated she wished to make a response to one of Senator Smith's points. And if the chairman would kindly ask those two questions on behalf of the Senator from Virginia. Thank you very much.

Senator CHAFEE [assuming the chair]. Let's do this, you had a comment, Mr. Donohue, on Mr. Downs' last statement.

Mr. DONOHUE. A positive one. I want to say that I think that what Tom is doing is a herculean job. I think you laid it out very clearly. There are benefits in terms of congestion and there are benefits in terms of citizen service to this passenger system. That is the reason that we would accommodate ourselves on the capital portion of this thing for a limited period of time. It's maybe not the best of arguments, but it is one we can rationalize and deal with. We are impressed with what he has tried to do.

Our concern is when we then get into the questions of pensions and operating funds and these short line railroads and every other matter. So we look forward to working with the Senator and with his colleagues to work this out, but we do have a lot of respect for what Tom Downs is trying to do.

Senator CHAFEE. OK. Meaning the passenger transportation?

Mr. DONOHUE. Yes.

Senator CHAFEE. OK. Ms. Phillips.

Ms. PHILLIPS. I just wanted to add on to Senator Smith's question about railroads paying into trust funds. I just want to make sure to clarify the fundamental difference in some of the points here. The Highway Trust Fund is used to finance highways, the infrastructure that the trucking industry uses. With respect to the freight railroads, the freight railroads pay for their own infrastructure to the tune of approximately \$7 billion per year. One of the reasons there is no railroad trust fund is that we fund these expenses privately. These are business decisions made by the privately operated freight railroads. For that reason, we feel very

strongly that the freight railroads should not be paying into any sort of railroad trust fund.

With your permission, I would like to submit for the record a presentation made by the chairman of the board of directors of the AAR to Chairman Archer's Transportation Tax Task Force a couple of weeks ago on the railroad trust fund issue.

Senator CHAFEE. Senator Smith, do you want to comment on that?

Senator SMITH. No, go ahead. Good point.

Senator CHAFEE. See if I understand this. You currently pay into the general fund of the United States a 5-point-something—

Ms. PHILLIPS. It's \$0.055 a gallon.

Senator CHAFEE. Per gallon of diesel fuel. Do you pay into that, too, Mr. Downs?

Mr. DOWNS. We do, Senator.

Senator CHAFEE. Amtrak does. So all the publicly held railroads or the private railroads, if you want to call them that, Union Pacific and so forth. And you get no appropriation back, nothing back?

Ms. PHILLIPS. That is correct. From those payments, that is correct.

Senator CHAFEE. And so it is being discussed that that be a—what's the problem you're pointing out here? I think you'd say to yourself, gee, we'd like to get some of that back.

Ms. PHILLIPS. Ideally, we would like to see the 5.55 cent fuel tax repealed, especially if you start talking about getting rid of deficit reduction taxes for all the other modes of transportation that are now paying for deficit reduction. However, we recognize that there are budgetary concerns that must be addressed. The \$0.055 a gallon paid by Amtrak and the large and small freights is somewhere over \$200 million a year. So we recognize the budgetary consequences.

What we are concerned about, however, is any thought that might be given to creating a railroad trust fund, using the money that's going into deficit reduction from all the different modes barges, aviation, highway users and the railroads as well. We would just argue that the nature of private railroading is such that we're already paying for our infrastructure. We should not be made to pay again for infrastructure maintenance or improvements or anything like that.

Senator CHAFEE. I'm not sure I understand you. You are saying you don't violently object with going into the general fund to reduce the deficit.

Ms. PHILLIPS. We're not thrilled about that either.

Senator CHAFEE. I know you're not thrilled about it, but you—

Ms. PHILLIPS. We're good citizens, however.

Senator CHAFEE. You're good citizens. OK.

Ms. PHILLIPS. Let the record show.

Senator CHAFEE. Let the record show we concede that. But you don't want it earmarked for—I'm missing a beat in here—you don't want it earmarked for a railroad improvement trust fund?

Ms. PHILLIPS. We're not thrilled about paying for deficit reduction, and we are especially concerned about the fact that right now as current law exists we pay more into deficit reduction than any

other mode. That is an inequity that, no matter what else happens here, we believe strongly needs to be resolved.

What we're saying, however, is while we're good citizens but we're not happy about paying deficit reduction, we will continue to do so if that's what everybody else has to do. If what is being discussed, however, is moving everyone else's deficit reduction taxes out of deficit reduction—

Senator CHAFEE. Namely, the 4.3 cents or 3.8 cents, whatever is left.

Ms. PHILLIPS. Precisely, whatever is left out of deficit reduction payments, if that's going to go into the Highway Trust Fund or the barge or aviation trust funds. We're saying don't create a railroad trust fund, we just should not be paying anything at all at that point. It would be inequitable for the railroads to pay deficit reduction when no one else is doing so, but it would be also terribly inequitable to make us pay into a trust fund from which we would really not receive any benefits. We already pay for our own infrastructure and maintain it.

Senator CHAFEE. I can understand that.

There are a couple of questions that were left here from Senator Warner. Mr. Loftus, Senator Warner had a question of you. Your testimony supports an expansion of eligibility of highway funds for all short line and regional railroad systems, both public and private. My understanding, i.e., Senator Warner's, is that the Administration's bill only expands eligibility to use the National Highway System and the STP funds for publicly owned rail facilities. What's your view of this proposal, and how many publicly owned short line regional railroads are there?

Mr. LOFTUS. The number of railroads, first of all, is about 550 railroads, 9 of which are Class I, very large railroads, and the other 541 would be very small railroads. Of that, I would estimate about 10 percent would be publicly owned railroads. All the port railroads are generally publicly owned. Railroads have been purchased by industrial authorities to—

Senator CHAFEE. I must say this term "publicly owned" is confusing. When you say publicly owned, you mean governmentally owned or they're traded with the public on the Big Board or something?

Mr. LOFTUS. Government-owned.

Senator CHAFEE. When you use the publicly owned, you mean government-owned?

Mr. LOFTUS. Government-owned, yes. Port authorities, industrial development authorities. Senator Warner has one on the Eastern Shore owned by a transportation district. About 10 percent I think of the railroads would fit in that category. The others are privately held, small entrepreneurs, and essentially ones that bought the properties as the large railroads slimmed down to a core system and we essentially built a substantial 45,000 mile feeder line system.

Senator CHAFEE. We've got some in our State, a relatively small one, Providence—

Mr. LOFTUS. A very important one in New England.

Senator CHAFEE. To you, Mr. Donohue, and Mr. Loftus. How do we ensure that establishing a new Federal subsidy for local freight

rail will not distort decisions made by private companies and introduce inefficiencies into the marketplace? That's assuming that a Federal subsidy for local rail is established.

Mr. LOFTUS. Let me try to answer. The issue that we're raising is one of essentially eligibility. Small railroad projects have been funded in a fairly erratic or inconsistent way under ISTEA I. CMAQ funds, some enhancement funds, and some innovative uses of STP funds have come into these projects.

Our point is that with a small rail network in every State, the State should have the ability to decide whether or not that is truly a public interest-public benefit type of facility and it would have to meet a fairly strong public benefit test. It would have to meet a test that investing in that small railroad project, and these are relatively very small dollars, would have to provide a larger public benefit than perhaps putting it into a highway project. An example would be maintaining a railroad line at a level that would maintain high volume grain coming out of it versus perhaps putting it into rebuilding secondary road bridges in a grain area. The decision may indeed be to do the highway project. But right now, the State or the local communities would not have the ability to make those decisions.

So it is really not a question of expanding a subsidy, it's a question of opening up eligibility and whether or not it would be beneficial. Also, all of these projects would be, obviously, on a cost-sharing basis and not fully a direct subsidy from whatever source.

Senator CHAFEE. Mr. Donohue.

Mr. DONOHUE. Mr. Chairman, I believe there is a fundamental difference between helping a United States major passenger railroad on its capital and beginning a process of subsidizing short line railroads. You heard Ms. Phillips' presentation where the first part of her presentation was a whole series of suggestions that involve railroads using highway funds. I think there are three things to note here. Everyone of those projects that you get involved in reduces the number of dollars available to the Highway Trust Fund.

Second, while I understand that the railroad folks are paying into the deficit reduction fund, you should keep in mind that the other trust funds, such as FAA and highways and so on, pay for their whole operation over in the Department of Transportation. It doesn't come out of general funds. But the Federal Railroad Administration comes out of general funds. So it's just about a wash.

What we're really sitting here talking about is how these other modes, very important to our country, can get their fingers on money that is in the Highway Trust Fund paid by highway users. We need to be very careful because this Government is full of things that were started off as a few dollars and have turned into some of the major nightmares that you and your colleagues face. I say let's really think about this very carefully.

The third point I want to make, and this goes back to transit, to Mr. Downs and others, we are all better served, we will all resolve our problems in a more thoughtful way if we make the available fund as big as possible. I think your proposal of money in, money out, and then a thoughtful look at the 4.3 cents, and the 4.3 cents the railroads are paying as well, they pay another penny, gets looked at, and we move it where it belongs.

Highway users, highway consumers have a trust that was established a long time ago. And although the diversion has been going on, the Administration's bill you will find, takes lots of money away from highways and puts it in lots of places we haven't figured out yet. So I encourage your very careful review of that, and we look forward to working with you and your colleagues on it. But a little bit of skepticism might be helpful this time around.

Senator CHAFEE. Mr. Donohue, I'm going to ask that you be given a chart here, I'll give it to everybody at the table so you can follow it, which is made up from information we received from the Federal Highway Administration. What this does is the red line shows the diesel taxes paid by trucks as they go up in weight, and the bottom line on the graph is weight in 1000 pounds. The vertical line is cents-per-mile. So the cost to the trucker by weight is the red line, and the damage to payments and bridges is the blue line.

As you know, as the weight goes up, the damage increases, but the cost to that particular truck percentage-wise decreases. I bring this up because you were rather forceful in stating you were opposed to tolls.

Mr. DONOHUE. Yes, sir. Excuse me, tolls on existing Federal roads that have been paid for. There are places for tolls, and we would encourage—

Senator CHAFEE. Sure. OK. But these would be tolls on federally paid for highways. In my State, we have to reconstruct I-195, it's collapsing and so the local authorities, the State is looking at moving it. The cost of doing that is way beyond the amounts that the State receives from the Federal Government for highway construction. So the question is how to pay for it.

The fact is that tolls are a user fee. It seems to me, as I look at this chart, that we've got a situation where the larger heavier trucks are not paying their fair share for the damage they do. Somehow that strikes me as unfair. We've got all kinds of testimony that the infrastructure of the country is falling apart and no one knows more about the relationship between weight and destruction or damage to payments than you do probably. What's your answer to this? Why should we tolerate this?

Mr. DONOHUE. First of all, I think this is a very good question and I thank you. May I ask a question, who produced this chart?

Senator CHAFEE. This chart came from the Federal Highway Administration. It was produced by my staff based on the Federal Highway Administration's figures.

Mr. DONOHUE. Fine. Let me respond then, if I might. First of all, if you were to go down and draw a line at 80,000 pounds and draw that straight up through your chart, everything on the left of that represents almost all of the heavy trucks in this country operating at 80,000 pounds.

Second, you would know, if your staff has carefully looked at this, that what really is important on the highway is not the total weight of the truck, but the weight on the axles. So that, for example, if in Rhode Island you allowed a permit to have things coming out of your ports that were a little over-weight, over 80,000 pounds, what generally would happen is it would have extra axles so that there would not be incremental damage to the road, because what really damages the road is not the weight of the truck but the

weight on the axles. We, for the most part, unless we have a very special thing maybe where we're moving a generator or something, don't let the axle weight get over the allowed limit.

Finally, let me say, Senator, that all of these special exception trucks that are over 80,000 in most instances pay permits, fees, additional money to run at the higher weight.

Senator CHAFEE. To whom? To the Federal Government?

Mr. DONOHUE. To the States. You could then, your staff, being very astute as it is, could then say, wait a minute, what about the triple trailers that weigh more, none of which, by the way, run in your State. The answer would be that the axle weights are actually lower than on some of the 80,000 pound trucks, they run on very specific and identified roads, and they run primarily out in the West where they have highways prepared to accept them. So I would say about this chart, we have some additional information, and would welcome working with your staff.

What I would say is, if you would draw the line straight up to where the axis is, 90-some-odd percent of all the heavy trucks in the country are to the left. The ones to the right, generally you will find that their axle weights are within the 34,000 pounds tandem limitation. And if they are heavier than that because of the need of the community—they have a port, for example, or they may be taking containers to the railroads—they pay a permit to do that.

I would be very happy, Senator, to submit some additional information in very brief form that would help you look at this chart and get more value out of it, and then we could discuss how it should happen.

I would add, finally, that there have been two or three cost allocation studies done in recent years in some of our States that said that trucks continue, and, in fact, are doing more, in paying their fair share on the highways. So we look forward to submitting some additional material, and I thank you for raising the subject.

Senator CHAFEE. Thank you, Mr. Donohue.

Let me just stress to everybody that I don't believe there is a necessity to reach out for the 4.3 cents that is currently going into the general fund for deficit reduction, or 3.8 if a half a cent goes to Amtrak, to reach out and include that in the Highway Trust Fund. Currently, there is about \$24 billion coming into that fund and \$22 billion going out. So that the first order of business is, it seems to me, to make efforts to get out what goes in, not increase what goes in because, as I say, we're not even currently taking out what goes in. I think that's important because if you included the 3.8 cents going in and then took that, that would really make a very substantial increase in the annual expenditures or outgo from the trust fund.

So it seems to me, first, let's concentrate on the immediate problem that's before us. If new money is required, then, OK, let's take out what we're putting in and not effect the moneys that go into deficit reduction.

Mr. DONOHUE. Senator, I said we applaud very much your thinking on this. I would encourage your staff to look at not only what the Administration proposes, but also what they're trying to do in the appropriations. For example, last year, Congress appropriated \$20 billion. The Administration is showing \$23 billion, but they're

going to ask in the appropriations for less than \$20 billion. So that's why your suggestion gets very simple and very to the point—what comes in goes out. That is an excellent start and I applaud you.

Senator CHAFEE. Now that differs from some presentations which, forget the 4.3 cents or the 3.8 cents, forget that, some are saying what goes in, take out, plus reducing the balance that's in there, take out the interest that is occurring on the balance. Mine doesn't do that.

OK. Fine. I would like to leave the thought, and I think Mr. Donohue has touched on this, and certainly Mr. Downs has, that the country is growing in population. If we let passenger rail collapse, as Mr. Downs said is thoroughly possible absent action by the Federal Government, it would be, to me, a very, very sad thing for the Nation as we look to the future. But you've all got my speech memorized on that, so I won't repeat it.

Thank you all very much. I want to thank every one of you for coming. We appreciate it. Thank you.

[Whereupon, at 12:20 p.m., the subcommittee adjourned, to reconvene at the call of the chair.]

PREPARED STATEMENT OF MICHAEL P. HUERTA, ASSOCIATE DEPUTY SECRETARY OF TRANSPORTATION, DIRECTOR, OFFICE OF INTERMODALISM, U.S. DEPARTMENT OF TRANSPORTATION

During the course of these hearings, many people will no doubt describe the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) as "groundbreaking" and "revolutionary" in its approach to addressing national transportation issues in an era when such singular goals as the creation of the Interstate Highway System have been accomplished. It is my distinct pleasure to appear before you to discuss those innovative aspects of ISTEA that drive this shift in Federal transportation policy. Thank you, Mr. Chairman, Senator Baucus, and members of the committee, for inviting me to assess the Department of Transportation's experience with the enhanced flexibility and eligibility provisions of ISTEA: in essence, the freedom given to State and local officials to spend Federal dollars on an expanded set of transportation solutions.

In my testimony today, I will describe several ISTEA funded projects that demonstrate this multi-modal approach to addressing transportation challenges. Many States and regions have gratefully embraced ISTEA's improved flexibility and eligibility opportunities. Just as significantly, however, many others have not, and this one fact demonstrates the essential wisdom of the policy embodied in ISTEA. Faced with different challenges—and given different options—States have selected different paths to reach their goals. Within the context of our national goals of safety, mobility, economic development, environmental stewardship and community enhancement, ISTEA gives State and local decisionmakers a bigger and better "tool box" with which to work. Based on this experience, the Administration's proposal for ISTEA's successor—the National Economic Crossroads Transportation Efficiency Act, or NEXTEA—continues those critical programs that have enhanced local decisionmaking. Because these past 6 years have also taught us the importance of being flexible in our delivery of these Federal programs, we also propose certain refinements that I will describe shortly.

Let me first describe some of the specific impacts of ISTEA's enhanced flexibility and eligibility provisions.

TRANSPORTATION AND PLANNING

One of the hallmarks of ISTEA is that it establishes a clear linkage between planning and transportation decisionmaking. Notably, it accomplishes this linkage through both explicit and implicit means.

It is well known that ISTEA's statutory language gives metropolitan planning organizations (MPOs) greater say over how Federal funds are spent in their region, and requires both State and metropolitan planners to seek the participation of less traditional constituencies such as freight providers and environmental advocates.

ISTEA also recognizes that good planning requires hard choices based on available resources, and therefore requires that transportation plans reflect fiscal reality.

ISTEA's statutory planning language, however, as admirable as it is, would have been significantly less influential were it not for the complementary flexibility of several of its major funding programs. In truth, flexibility has done more to empower transportation planning than any specific instructions regarding the planning process. To a much greater extent than previous surface transportation legislation, ISTEA allows State and metropolitan areas to spend their apportioned Federal funds based on thorough planning rather than restrictive program categories. Specifically, almost 60 percent of the funds authorized by ISTEA have been available, at the initiative of State and local officials, for almost any type of surface transportation project.

FLEXIBLE FUND TRANSFERS

Probably the most noted result of this flexibility is the approximately \$3 billion administratively transferred ("flexed") during the first 5 years of ISTEA from the Federal Highway Administration to its DOT partner, the Federal Transit Administration (FTA), for delivery to FTA's State and local grantees.

Such transfers occurred in 45 different States. Across the country, State and local officials chose to spend "highway program" funds to purchase buses and rail cars, build park-and-ride lots and bus transfer facilities, renovate rail stations and railroad track, and pay for rail signal systems and paratransit vehicles to implement the Americans with Disabilities Act (ADA). Eighty-five percent of these funds originated from two flexible programs introduced by ISTEA: the Surface Transportation Program (STP) and the Congestion Mitigation and Air Quality (CMAQ) program.

But the fact that most States have flexed funds among programs fails to tell the entire story. As I noted above, the use of this option varies widely among States. In fact, just two—New York and California—account for nearly half of all such spending. At the other end, the combined transfers in 27 States and territories amount to less than 3 percent of the national total!

This disparity demonstrates what we all understand to be true: that the most suitable solutions for a dense urban area may be irrelevant to an expansive and largely rural State. So it's hardly a surprise to see many such States represented by this committee—Montana, Idaho, Nevada, Oklahoma, Wyoming and New Hampshire—among those that have transferred the least amount of flexible program funds.

All of which forcefully demonstrates the point previously made: ISTEA's flexible programs are adaptable to local needs. Flexibility means more than highway funds paying for transit improvements, or vice versa. Whether you choose, e.g., to buy extra buses or to improve a highway, you are taking advantage of the flexibility inherent to these programs. Flexibility provides different means to an end, and that makes it a valuable tool.

EXPANDED ELIGIBILITY

Another dimension of ISTEA's flexibility, beyond the shifting of funds between administrations of the DOT, is its expansion of eligible uses for Federal dollars based on good intermodal planning. Without any administrative financial transfers, the STP and CMAQ programs in fact support many projects that directly benefit multiple transportation modes.

For instance, last month saw the opening of a unique alternative to traffic congestion in the US-1 corridor in Miami, Florida. The eight-mile South Dade Busway, built exclusively for Miami's Metrobuses as a rubber-tire extension of the existing rail system, connects outlying suburbs to the city's rapid transit network. The Florida Department of Transportation, in coordination with both FHWA and FTA, conceived and built the \$25 million construction project using Federal funds administered solely by FHWA: \$19 million from CMAQ and \$1.2 million from STP.

In Albany, New York, the State spent funds from FHWA's National Highway System (NHS) program to build park-and-ride lots in the heavily congested I-87 "Northway" corridor to link to the FTA funded buses of the region's transit operator, the Capital Transit District Authority.

Through the Intelligent Transportation Systems (ITS) program, ISTEA also recognizes that improving operations can be more cost-effective than building new infrastructure, and thus is an eligible use of STP and CMAQ funds otherwise designated for capital projects. ITS technology provides an alternative to physical expansion, increases the efficiency of existing facilities and enhances their safety. The use of ITS as a standard tool to coordinate highway and transit infrastructure and operations

will help blur the distinction between modally based programs in favor of an orientation toward the perspective of the individual traveler.

As noted above, ISTEA's expansion of eligible uses for Federal funds goes hand in glove with its insistence that a wider array of parties become involved in planning State and regional transportation systems. One group that had rarely been part of the public decisionmaking process was the freight transportation industry. Today, advisory councils of private sector freight operators are providing essential input into comprehensive public plans. Although in some instances this involvement has yet to produce tangible projects, CMAQ and STP funds have supported many freight improvements that previously would not have been eligible for Federal money.

For example, the CMAQ program will fund half of a \$15.3 million project to improve intermodal access to the Barbour's Cut Container Terminal at the Port of Houston. By creating a dedicated corridor for rail and truck movements between existing roads and a new on-terminal rail facility, the project will eliminate current congestion at a rail bridge and reduce truck trips between Barbour's Cut and existing offsite rail facilities. CMAQ's emphasis on improving mobility in order to mitigate air quality problems made Federal participation much easier than under more traditional program categories.

In California, more than \$1 million of STP funds will help improve local streets to ease truck access to the Port of Stockton. In addition to demonstrating local recognition of the important economic contribution of freight transportation, this project exemplifies how ISTEA has extended eligibility to vital street networks that, because of their classification as local roads, were not part of the hierarchical Federal Aid system that existed before 1991.

Transportation planning decisions also have the flexibility to consider efforts to redevelop "brownfields," particularly urban areas that have been abandoned or underutilized due to environmental concerns. ISTEA has played an important role in brownfields successes in Portland, Oregon and Lawrence, Massachusetts, where Federal funds have supported transportation-related brownfields projects.

FINANCIAL FLEXIBILITY AND INNOVATION

As you have often heard, the challenge of meeting increased infrastructure needs in an era of budget discipline means that public agencies must do business in a new way. A single strategy of grant reimbursement will no longer meet our Nation's transportation needs. Last week, Deputy Secretary Mort Downey described to the committee our incentives for States to take full advantage of ISTEA financing opportunities. These efforts respond to President Clinton's January 1994 Executive Order on infrastructure which encourages innovation, private sector participation, and more efficient use of Federal funds.

The centerpiece of our effort, the Partnership for Transportation Investment, has cut red tape to speed construction projects and developed new strategies to leverage private investment. The 74 projects in this pilot program started an average of 2 years early and attracted \$1.2 billion in investment beyond that available through conventional financing. Building on these successes, the National Highway System Designation Act of 1995 (NHS Act) made many of these strategies a regular part of how we do business.

For example, one common sense strategy is to allow private money to substitute for public funds in providing the local match for federally funded projects. This will be the case in New Hampshire, where the State will increase the clearance over the Gorham Railroad Bridge for double-stack container freight trains. This clearance restriction is the last remaining U.S. impediment to double-stack trains between Maine and Chicago. The \$200,000 fix will alleviate congestion on the 1-95 corridor in the Northeast and improve operational safety. Eighty percent of the funds, \$160,000, will come from ISTEA program funds. The privately owned St. Lawrence and Atlantic Railroad will pay the remaining \$40,000.

Mr. Downey also described another initiative, the State Infrastructure Bank (SIB) program, which uses Federal seed money to leverage private and non-Federal public funds in 10 pilot States. I'm pleased to note that five of these 10 States are represented on this committee: California, Florida, Missouri, Oklahoma and Virginia.

NEXTEA'S ELIGIBILITY AND FLEXIBILITY REFINEMENTS

The innovations provided by ISTEA have changed the way Federal dollars are spent for State and local needs. The truth is, however, that a lot of sweat equity was needed to make the projects noted above successful examples of flexible planning and implementation. Because these efforts broke new ground, they represented a higher degree of difficulty compared to the delivery of the familiar pre-ISTEA pro-

grams. DOT officials in every part of the country had to revise eligibility interpretations, invent new administrative procedures, and help coordinate the participation of transportation groups whose previous activities had rarely intersected. As a result of 5 years of hard work, we're in position to extend ISTEAs landmark philosophy of flexible transportation solutions through our reauthorization proposal: NEXTEA.

Of course, as often happens after working with new programs, we do believe that certain refinements would help us better achieve the goals of ISTEAs. Based on our experience of the past 5 years, and after intensive discussions with our customers and among our own program staff, we propose that NEXTEA embrace the following eligibility and flexibility changes:

Publicly owned rail facilities. NEXTEA would expand the types of eligible uses under the National Highway System and Surface Transportation Programs to include publicly owned rail facilities. Delineated uses would be:

- intercity passenger rail capital projects, including Amtrak (NHS),
- passenger rail and intermodal freight terminals that connect to the NHS (NHS),
- rail safety infrastructure improvements (STP),
- intercity passenger rail infrastructure and vehicles (STP), and
- freight rail infrastructure (STP).

Intercity bus facilities. NEXTEA would extend eligibility for transit and STP funds to both publicly owned and privately owned intercity bus facilities, including terminals and vehicles.

State Infrastructure Banks (SIBs). Based on the strong positive response to the pilot phase of the SIB program, NEXTEA would establish a permanent SIB program to offer this innovative financing tool to all States.

Intelligent Transportation Systems (ITS). In recognition that the operational improvements achievable through ITS can improve the capacity and safety of existing infrastructure, NEXTEA would make explicit the authority of States and local entities to use NHS, STP and Section 5307 transit funds for ITS operations and maintenance, as well as ITS capital projects.

Infrastructure Safety Program. NEXTEA would provide an Infrastructure Safety Program that replaces and improves upon the current STP safety set-aside. These funds would be designated in separate accounts to eliminate highway hazards and improve the safety of rail/highway grade crossings. To the extent that a State reduces its grade crossing crashes, however, the rail/highway funds could be spent on highway hazard elimination. Further, if a State has an integrated safety planning process, it may flex its hazard elimination funds into behavioral programs identified under the Section 402 and motor carrier safety programs.

Transit Formula Programs. NEXTEA would consolidate transit programs to make it easier for local officials to select options that best improve mobility in their communities. Our proposal would combine the Fixed Guideway Modernization and Bus Discretionary Programs into FTA's Section 5307 urbanized area program. This would make these funds available for any eligible transit purpose, including planning, bus and rail car purchases, facility repair and construction, preventive maintenance, and, in areas under 200,000 population, operating expenses. NEXTEA would also streamline various formula programs by adopting simpler and more flexible definitions of eligible capital costs, matching ratios and grant requirements.

CONDITIONAL FUND TRANSFERS

NEXTEA doesn't only propose to expand existing limits. Two important exceptions are described below.

Interstate Maintenance (IM) Program. The IM Program provides funding to preserve the Interstate System, which is critical to the nationwide movement of people and goods. NEXTEA would continue to allow States to transfer any IM funds not required for Interstate pavement and bridges to the NHS and STP programs. However, all transfers would be conditioned upon DOT's acceptance of a State's certification that its Interstate System is adequately maintained. ISTEAs allows a State to transfer the first 20 percent of its IM funds without conditions.

Highway Bridge Replacement and Rehabilitation Program (HBRRP). This program provides funds to replace or rehabilitate deficient highway bridges and to undertake preventive measures to prolong the life of existing highway bridges. NEXTEA would continue to allow States to transfer up to half of their HBRRP funds to the NHS and STP programs. However, unlike ISTEAs, in which transfers are unconditional, transfers would be allowed only if a State's bridges on the National Highway System meet certain standards of condition. Since the HBRRP formula is based upon the condition of the bridges in the State, we believe the priority should be to fix those bridges.

THE MULTI-MODAL FUTURE

It is a truth universally acknowledged—to borrow a phrase from Jane Austen—that we live in an era where Federal, State and local governments face fiscal and physical limits. When it comes to transportation, each industry mode can demonstrate needs far in excess of public resources. And when it comes to preserving mobility, our understanding of transportation's impacts on neighborhoods and the natural environment has made insufficient the traditional approach of simply adding infrastructure.

These restraints intensify the urgent need to get the best return on Federal transportation investments. This, in turn, requires integrated planning and coordinated operations to exploit the synergy that comes when each improvement is built and operated as part of a system. Despite the rhetoric that often attends presentations such as mine, the reality of a "seamless intermodal national transportation system" lies well in the future. Nevertheless, if we resolve today to continue our hard work to reach this ideal, we will no doubt achieve many worthy accomplishments. As part of this effort, we must enable local transportation decisionmakers to leverage their fiscal and physical resources through flexible and intelligent use.

I think one of the best examples of this approach can be found in Houston, Texas. During the past several years, Houston has implemented a comprehensive transportation mobility program that covers a region of 600 square miles. Elements of the program include freeway improvements, High Occupancy Vehicle (HOV) lanes dedicated to transit and carpools, clean fuel buses, transit stations, park-and-ride lots, a state-of-the-art ITS traffic signal system, and a regional travel information network. Since this program began, transit ridership has increased significantly, as have average highway speeds—a unique combination among major metropolitan areas. Money spent on the program has included a local sales tax designated for transit, State and Federal highway funds, and Federal transit funds previously set aside for a rail system.

Houston's experience—intermodal regional planning, sophisticated information and operations technology, multi-modal improvements in critical transportation corridors—demonstrates features that will become more commonplace as we seek optimal transportation solutions. In this case, local decisionmakers made choices, and even reversed earlier decisions, without regard to the supposed restrictions attached to their available funds. To replicate this success elsewhere will require continued commitment to a flexible Federal surface transportation program.

CONCLUSION

ISTEA gave us the tools to respond to the Nation's transportation needs in the post-Interstate construction era. Our proposal for NEXTEA extends this effort, and it has been my privilege to describe the flexibility and eligibility tools that remain essential for success. As Secretary Slater and Deputy Secretary Downey have said in their earlier hearings, the Department looks forward to working with Congress to make it a reality. Mr. Chairman, this concludes my statement, and I would be happy to answer any questions.

RESPONSES OF MICHAEL HUERTA TO QUESTIONS FROM SENATOR CHAFEE

Question 1. The Administration's NEXTEA expands the eligibility of ISTEA's programs to better accommodate all modes of transportation and meet the nation's diverse transportation needs. Regrettably, some interests criticize increased flexibility as a "diversion" of highway trust funds from "highway purposes." Is there any way to reconcile the "diversion" argument with flexibility, which is one of the key principles of ISTEA?

Response. If "diversion" is viewed as any use of motor fuel taxes for purposes other than the construction, maintenance and operation of highways and highway vehicles, the arguments can never be reconciled. However, we do not believe that the flexibility of the surface transportation programs is a "diversion" of funding. Congress in its last several reauthorization bills—and most significantly in ISTEA—has explicitly recognized that all Americans benefit from a balanced, multimodal transportation system and, further, that state and local decisionmakers should be afforded the flexibility to shape a multi-modal transportation system to serve, as efficiently as possible, their unique transportation, economic, environmental and social needs—regardless of mode.

Congress, of course, has previously crossed the so-called "diversion" line in order to meet other competing public goals. For example, starting in 1982, it dedicated a portion of the motor fuel tax toward transit capital projects. In ISTEA, Congress

explicitly linked Federal transportation assistance to national clean air goals via a program (CMAQ) that, not only provides mobility benefits, but funds improvements to reduce congestion and mitigate air pollution related to transportation. NEXTEA continues and strengthens the commitment to local decisionmaking and flexibility reflected in these earlier laws.

Question 2. I commend the Administration's NEXTEA proposal for providing greater program eligibility and funding flexibility for States and localities in meeting their transportation needs. In your opinion, what aspect of increased flexibility and eligibility in the NEXTEA proposal is the most substantial departure from current law?

Response. Extending eligibility to certain intercity bus and passenger, including Amtrak capital projects, and publicly owned freight rail facilities may be seen as the most significant departure from current law. In truth, however, NEXTEA expands only incrementally on the approach embodied in ISTEA, which truly revolutionized Federal transportation spending. The major new programs established by ISTEA OHS, STP and CMAQ—remain central elements of our proposal for reauthorization. The enhanced eligibility of NEXTEA builds on the flexible programs in ISTEA. For example, using CMAQ funds, Chicago and the Soo Line Railroad are jointly funding a \$35.1 million project to improve access into and out of a major rail facility in Chicago; the railroad will fund all but \$2.1 million of the cost. The Chicago MPO calculated that the public benefit from the project was more than \$2.6 million in reduced waiting time at rail-highway grade crossings and reduced pollution—benefits to highway users who pay into the trust fund. The project will have additional public safety benefits from reducing exposure to trains at crossings, as well as additional capacity for Chicago commuter rail service. Other examples of projects that could only be funded under CMAQ are the Auburn, Maine intermodal project that takes 14,000 long haul trucks off the highway a year and the Cincinnati third track project that reduces congestion and air pollution in the Cincinnati area.

The expansion of eligibility proposed under NEXTEA will allow additional projects to be funded without limiting such projects to non-attainment areas (i.e. under CMAQ eligibility criteria) and, on the passenger side, without limiting funding to commuter projects in areas where intercity projects offer attractive opportunities.

Question 3. As you know, representatives from the American Short Line Railroad Association and Association of American Railroads are here and will testify shortly. The Administration's proposal, NEXTEA, extended Surface Transportation Program funding eligibility to publicly owned freight rail infrastructure. It did not extend funding eligibility to private freight rail. Why is it appropriate not to do so?

Response. The Administration did consider extending eligibility to private freight rail, provided that the improvements demonstrated public benefit. Constructing an acceptable test of public benefit, however, promised to be problematic and controversial. Our targeted approach relies upon the fact of public ownership as a simple and undisputed demonstration of public benefit without raising issues of subsidies to private freight railroads. Further, it would assure that federally funded initiatives would be available to multiple private sector users.

Question 4. Your testimony indicates that ISTEA played an important role in some brownfield success stories. Can you provide me with an example of a success story? How does NEXTEA address brownfields?

Response. One example of a success story is the Lawrence Gateway Project in Lawrence, Massachusetts. This brownfields redevelopment project called for the cleanup of the most visible brownfield in Lawrence—The Oxford Paper Plant—located at the gateway to the historic, industrial part of town. Following almost a decade of frustration and lack of funding, in 1994 officials launched an initiative to redevelop the Oxford site by linking the project with a nearby bridge replacement and traffic interchange project, thus enabling the city to draw on Massachusetts Highway Department funds. Working closely with citizens and the business community, Lawrence officials developed a new plan to revitalize the city by restoring the historic entrance into the city.

Under this plan, a historic bridge will be converted into a pedestrian crossing, and a new arched bridge will be built to handle automotive traffic. In spring 1998, officials expect to begin building the new road and bridge that will form the backbone of the Lawrence Gateway Project.

Total projects costs are expected to be over \$8 million. Over half of this funding was secured through the Massachusetts Highway Department, which dedicated \$4.5 million for demolition and remediation at the Oxford site, as well as construction of the new canal Street bridge and a traffic interchange. FHWA contributed 80 percent of this money, the state provided the remaining 20 percent. DOT also provided \$500,000 in ISTEA enhancement funds. ISTEA Enhancement money cannot

be used for any demolition or construction activities; instead, it will fund Gateway corridor studies for establishment of a historic, scenic parkway.

According to city officials, the Lawrence Gateway Project has triggered a domino effect of revitalization in Lawrence's historic industrial district. Encouraged by redevelopment at the Oxford Paper site, public and private investors already have committed over \$160 million for improvement in the surroundings area.

NEXTEA addresses brownfields by continuing the emphasis on strong planning and funding flexibility necessary to support successful transportation-related brownfields redevelopment. NEXTEA continued existing authorities which allow States and MPOs to fund brownfields cleanup as part of transportation infrastructure development efforts. At the same time, although not specifically required by NEXTEA, DOT is continuing other efforts to support brownfields redevelopment, including: (1) working with transportation and economic development agencies and industries to consider the redevelopment of brownfields for transportation-related uses; (2) encouraging consideration of transportation access in redevelopment planning; and, (3) identifying policies that discourage transportation-related brownfields redevelopment.

Question 5. Your testimony clearly indicates that NEXTEA would expand funding flexibility and program eligibility. Why then is it appropriate to maintain two separate State Infrastructure Bank accounts (one to fund highway projects and one to fund transit capital projects) when NEXTEA expands eligible projects funded out of the highway account to all Title 23 projects, including transit capital projects?

Response. By maintaining separate transit and highway accounts within State Infrastructure Banks (SIBs) we are seeking to balance the distinction Congress has established between highway and transit funding accounts with the goal of enabling flexibility.

The separate accounting for SIBs mirrors the separate accounting within the Highway Trust Fund. The NEXTEA proposal would keep the SIB program structure consistent with its original establishment in Section 350 of the National Highway System Designation Act of 1995. To date, DOT has not heard from the initial pilot States that the separate accounts have posed a significant obstacle. In fact, of the ten original pilot States, four States are actively planning to establish both transit and highway accounts.

Question 6. Can you expand on NEXTEA's welfare to work initiative? What does it involve and what are the goals of the program?

Response. Welfare reform has profound implications for our public and human service transportation systems. People cannot work if they cannot get to work. Providing transportation for the economically disadvantaged is among the most difficult transportation problems to solve. Nationally less than 6 percent of the AFDC recipients own cars.

Studies are showing that we face major challenges in meeting the transportation needs of welfare recipients. There is a spatial mismatch between where people on welfare live and where most entry level jobs are. Today's high growth job markets are outside the central cities—two-thirds of all new jobs are in the suburbs. Transit does not always serve these markets well.

For example, a recent Cleveland Study of five inner city neighborhoods showed that less than 45 percent of the entry level jobs could be reached with less than an 80 minute transit ride. In Boston, a recent study showed that two-thirds of the entry level jobs in high growth areas are not reachable with less than a 2-hour transit ride. In addition, transit timetables generally serve the traditional 9-5 commute, not the shift schedules that entry level jobs demand. In rural areas, particularly in the deep South, transportation problems may even be worse than those in the inner-city, because few services are available.

Furthermore, over 90 percent of the welfare recipients are single parents. Day care and shopping needs complicate the commutes of working parents. A recent Washington Post article recounted the transportation difficulties of one DC resident. Her commute, which involved dropping her daughter off at day care, took 2 hours and involved 6 bus transfers—and her trip was not even to the suburbs but took place entirely within DC.

To address these problems, DOT has proposed a 6-year, \$600 million competitive grant program to support flexible, innovative transportation alternatives to get welfare recipients to jobs and training. Collaboration is a key element of this program—to make sure that the services meet the real needs. Providing the transportation needed to transition individuals from welfare to work is a shared responsibility. The transportation strategies must be closely coordinated with other human services assistance provided to states and localities working to meet the special needs of the welfare population. Transportation/human resource financial partnerships, fostered by the 50/50 match requirement, will enhance this coordination.

PREPARED STATEMENT OF LESLIE WHITE, AMERICAN PUBLIC TRANSIT ASSOCIATION

The American Public Transit Association (APTA) appreciates the opportunity to testify on the subject of Intermodal Surface Transportation Efficiency Act (ISTEA) funding flexibility and program eligibility. Mr. Chairman, at the outset we want to commend you and the subcommittee for the strong leadership role you played in securing passage of ISTEA in 1991.

OVERVIEW

APTA believes that continuation of a strong Federal role is needed to provide an efficient, balanced transportation system for all Americans. Toward this end, APTA has adopted a comprehensive ISTEA reauthorization working proposal, which has been submitted for the record, that would preserve the ISTEA and transit program structures, expand opportunities for flexible funding—both highway to transit and transit to highway—and support ISTEA's planning provisions and transit research and development.

The APTA proposal is based on the premise that additional investment in the nation's surface transportation network is needed to provide a solid foundation for economic growth. It would fund the annual transit and highway core programs at \$6.25 billion and \$25.4 billion respectively, and also authorize some \$3.6 billion annually for an increased Surface Transportation Program. These funding levels can be supported with existing trust fund revenues, balances, and interest, and with revenues from the 4.3 cents Federal fuels tax that now goes to deficit reduction. It assumes that commitments from the Mass Transit Account (MTA) would be subject to the same spending limitations that are applied to the Highway Account.

Mr. Chairman, we oppose efforts to repeal Federal gas taxes that support investment in the nation's transportation infrastructure, or to eliminate the existing Federal partnership with state and local governments. On the other hand, we are not opposed to efforts to modify the highway funding formula, but we believe that a fair distribution of highway funds can be accomplished within the current ISTEA program structure. We also strongly support the "level playing field" provisions between highway and transit investments established under ISTEA, including the roughly four to one funding ratio. Without these provisions modal balance—an important ISTEA hallmark—will be jeopardized.

APTA'S ISTEA REAUTHORIZATION PROPOSAL

ISTEA established a sensible program to carry out post-interstate Federal highway and transit policy, which should be retained in the next authorization act. It recognized that Federal interests are best served by a balanced transportation system. ISTEA achieves balance by allowing Federal, state, and local resources to be used a range of transportation alternatives and it allows state and local authorities to choose the alternative that best meets their particular objectives. ISTEA's flexible funding and intermodal emphasis allow transportation policy to address national and local needs while recognizing that transportation is linked to other factors that effect each community's economy and quality of life. In short, ISTEA works, and its reauthorization is critically important in the face of significant surface transportation infrastructure needs.

Maintain ISTEA's Flexible Funding Provisions

ISTEA's flexible funding provisions under the Congestion Mitigation and Air Quality Improvement program (CMAQ) and Surface Transportation Program (STP) have been successful and should be maintained. APTA supports metropolitan suballocations, the equal 80 percent Federal matching shares for highway and transit projects, and the use of local "soft match" for transit projects.

The flexible funding provisions allow communities to identify those transportation solutions that best support or otherwise affect their goals for economic development, community revitalization, and other priorities. They have also created new incentives to manage Federal resources more efficiently and strengthened the partnership among Federal, state, and local governments. Flexible funding transfers to transit have risen from \$304 million in fiscal year 1992 to \$780 million in fiscal year 1996. This is a clear indication that ISTEA's flexible funding provisions have been successful and that transit is a priority at the state and local level.

The CMAQ Program

Nearly 55 percent of the \$3 billion in surface transportation funds "flexed" to transit in the first 5 years of ISTEA have come from the CMAQ program. CMAQ recognizes the connection between transportation improvements and air quality. The ability to fund innovative projects that improve the overall transportation sys-

tem's effectiveness is one of CMAQ's most significant contributions to a balanced transportation system. CMAQ funds have been used to purchase alternative fuel buses, expand parking at rapid transit stations, and to construct intermodal facilities that connect local bus service with intercity bus, train, and airline service.

APTA's proposal supports adjustments to the CMAQ program that would keep "maintenance areas" eligible for CMAQ funding, because these areas remain subject to EPA requirements and should have access to Federal funds that can help them to keep their air clean.

Our proposal does not support the changes to CMAQ envisioned in the "STEP-21" reauthorization plan, which would fold the CMAQ program into a streamlined Surface Transportation Program. While our proposal to use CMAQ funds in maintenance areas would have the effect of distributing CMAQ funds more broadly, we do not feel that CMAQ program goals should or need to be diluted to address the allocation of funding among the states. Although the STEP-21 proposal would make CMAQ purposes eligible under the new STP, there is no guarantee that any of these funds would be used to advance national goals relating to congestion mitigation or improved air quality. By enacting the STEP-21 proposal, the commitment to funding Clean Air Act mandates could be reduced greatly.

Expand Opportunities for Flexible Funding

APTA supports an increase in the authorized funding level for the Surface Transportation Program using resources from the Highway Trust Funds's Highway Account (HA) and Mass Transit Account (MTA). After the transit core program has been funded at our recommended level of \$6.25 billion in fiscal year 1998, additional MTA funds would go to a new STP-transit program. For each \$1.00 of MTA funds that go to the STP-transit program, an additional \$2.00 in Highway Account funds would go to the STP-highway program. Funding for each program would be apportioned in the same manner as the existing STP program, and would include metropolitan area suballocations, and would be subject to the same planning standards.

4.3 Cents/Gallon Revenue

Additional resources for the expanded STP program would be provided by depositing revenue from the 4.3 cents per gallon "deficit reduction" motor fuels tax into the Highway Trust Fund and by applying the Byrd rule solvency test to the Mass Transit Account of the Highway Trust Fund. APTA's proposal would allocate one-half-cent of the 4.3 cents per gallon gas tax revenue for a new intercity passenger rail account and the revenue from 20 percent of the remaining 3.8 cents to the Mass Transit Account.

Intercity Passenger Rail Capital Investments

In addition, to ensure that Governors and state DOTs have the broadest flexibility to meet transportation needs, APTA recommends that, under the current program, states be authorized to use the state share of flexible funds for intercity passenger rail investments.

Preserve the Federal Transit Program Structure

The Federal transit program is an essential element of the Federal surface transportation program. It supports transit services that fill critical gaps in a comprehensive national transportation system. It helps to create transportation choices that allow the existing infrastructure to move people and goods more efficiently and reduce ever more costly congestion. A recent study by the Federal Transit Administration (FTA) indicates that transit saves at least \$15 billion per year in traffic congestion costs. Transit also carries millions of Americans to jobs each day and is vital to the success of welfare reform.

In this regard, the existing transit program structure should be retained because it has been successful. It does a good job of meeting a large number of basic needs. The major capital investment programs for new start, fixed guideway modernization, and bus/bus facilities; the urban, rural, and elderly/disabled formula programs; and the planning, research, and administrative functions, all support essential needs and encourage innovative projects and management practices in various regions of the country.

Expanded Definition of Capital Expenditures

Within the transit program we also propose to expand the definition of allowable capital expenditures to include the maintenance of capital assets and to help cover the costs of Federal mandates; these changes would allow elimination of operating assistance in areas of 200,000 or more in population. This change would help to create a more level playing field between the highway and transit programs, since highway funds can now be spent on maintenance.

Public Highway/Rail Grade Crossing Safety Improvements

In addition, the Federal Highway Administration's Section 130 Highway/Rail Grade Crossing Safety Program should be maintained to protect the motoring public who use highways that cross over commuter, light and freight rail tracks throughout the United States.

Support ISTEA's Planning Provisions

ISTEA's planning provisions are fundamentally sound, including current authority for Metropolitan Planning Organizations, public participation requirements, transportation and land use linkages, and multi-modal corridor analysis through the Major Investment Study (MIS) criteria. APTA recommends changes to ensure that the planning process fully accounts for often-ignored benefits of transit investments and to provide sufficient resources so that planning does not become another "unfunded mandate."

THE ADMINISTRATION'S PROPOSAL

We applaud provisions in the President's fiscal year 1998 budget proposal that retain a strong Federal role in the nation's surface transportation network. We are pleased that the proposal generally maintains the transit program structure created under ISTEA, and that it proposes greater flexibility in the way transit systems can use Federal funds. This sets the stage for a renewed, reaffirmed ISTEA later this year.

However, the proposed funding for both transit and highway investment falls short of meeting the growing needs of America's transit riders and highway users. A bright economic future requires a world-class, intermodal transportation system. The efficient movement of people and goods by bus, rail, truck, and automobile is critical to our economy.

The funding recommended in the proposal for surface transportation programs does not meet the Administration's own estimates of the investment required just to maintain our transit and highway infrastructure. The U.S. Department of Transportation (DOT) has estimated that nearly \$13 billion should be invested in capital projects each year, just to maintain existing transit services and provide modest improvement to meet a variety of needs. The current Federal investment of \$4 billion per year is simply not enough. That is why we support the use of gas tax revenues, including the 4.3 cents per gallon gas tax that now goes to non-transportation purposes, for investment in transportation.

CONCLUSION

Mr. Chairman, APTA strongly supports a continued Federal role in transportation and continuation of ISTEA and its flexible funding provisions. A greater investment in surface transportation must be made. Building on ISTEA's innovations and emphasis on intermodalism, we can improve the nation's transportation system and ready our economy for global competition in the next century.

RESPONSES OF LESLIE WHITE TO QUESTIONS FROM SENATOR CHAFEE

Question 1. Your testimony recognizes the importance of the Congestion Mitigation and Air Quality Improvement (CMAQ) program in helping nonattainment and "maintenance" areas improve their air quality. Many Critics of the CMAQ program claim it has done little to clean the air. What is your answer to such criticism? Are there any reforms that we could make to the program to strengthen its air quality component?

Response. The CMAQ program has prevented air quality degradation and congestion growth that would have otherwise occurred without the CMAQ program. Critics of this program often claim that the air quality problem in our cities has been solved by technology and that they can fix congestion by building more highways. Both of these assertions are wrong.

According to the Environmental Protection Agency, on-road vehicles are a primary source of several air pollutants. In 1995 on-road vehicles accounted for 64 percent of carbon monoxide emissions, 35 percent of nitrogen oxide emissions, and 27 percent of volatile organic compound emissions. In the past 2 years nitrogen oxide emissions from on-road vehicles have increased 1.2 percent, carbon monoxide emissions have decreased 2.6 percent, and volatile organic compound emissions have been stable. These changes may reflect a difficulty of using technological improvements to overcome continuing increases in vehicle miles of travel.

An effective strategy for controlling vehicle emissions must address both emissions from individual vehicles and the number of vehicles on the road. Transit service can help control the growth of vehicle miles of travel.

New 1995 Federal Highway Administration (FHWA) data show vehicle miles of travel continue to increase. Vehicle miles of travel increased 2.8 percent from 1994 to 1995, vehicle miles per vehicle by 1.0 percent, and motor fuel consumption by 1.7 percent. The increase in motor fuel consumption is also a negative factor in the emission of green house gases. Emissions by vehicles of carbon dioxide, a significant contributor to green house gases, increases nearly in proportion to motor fuel consumption.

The FHWA data also show continuing increases in congestion. Average daily vehicles per lane mile on urban interstates increased another 2.3 percent from 1994 to 1995 with a total increase of 31 percent over the past 11 years. Many researchers recognize that it is not possible to build enough roads to build our way out of congestion. New roads induce as much or more traffic amount of traffic they are expected to take off other roads. New roads make locations further apart closer in time so that some people chose to drive farther and cause the dispersal of destinations so that others must drive farther.

Transit helps control emissions and congestion through efficiency and through reductions in vehicle travel. A transit vehicles carries many more people than an automobile. Buses reduce the number of vehicles on a road and rail vehicles take travelers totally off the road. Both buses and rail vehicles, when operated with efficient passenger loads, reduce emissions. Transit travelers on average travel shorter distances on vehicles than drivers, further improving the ability to transit to help reduce emissions and congestion. If transit commuters were to drive instead, at least \$220 billion more would need to be spent on new roads and parking facilities, calculated at 1993 prices.

CMAQ funds are often used as an inducement to demonstrate the feasibility of emission reduction technology such as heavy duty alternative fueled vehicles or innovative traffic management procedures. These programs offer models for what can be done. The CMAQ program also ensures that national emission reduction and congestion management goals are considered when transportation investment decisions are made at the state and local levels. In APTA's view that the CMAQ program should remain a significant part of the surface transportation program.

Finally, APTA believes that the CMAQ program can be improved by the inclusion of "maintenance areas" in future funding distributions. Urbanized areas should not be penalized for achieving attainment status. Continued effort is often needed to maintain maintenance status as these areas continue to grow.

Question 2. The Administration's NEXTEA proposal would consolidate transit programs by combining the "Bus Discretionary" and the "Fixed-Guideway Modernization" programs into a single program, making the funds available for any eligible transit purpose. What is APTA's position on NEXTEA's streamlining of the transit formula program?

Response. APTA does not support the provision of the NEXTEA proposal that would consolidate the transit formula, bus discretionary, and fixed-guideway modernization programs. The proposed consolidation will not streamline the program but rather will significantly redistribute funds among communities and transit modes compared to ISTEA.

This is shown on Table 1, which is a comparison of the percentages of all funding groups in the consolidated formula as authorized in ISTEA for fiscal year 1997 and in NEXTEA for fiscal year 1998, fiscal year 1999, and fiscal year 2000. (The ISTEA distribution for fiscal year 1997 is similar to the proportions for the last 5 years of ISTEA while the proportions for NEXTEA change during the first 3 years of the authorization period.) We also note, moreover, that while the formula consolidation proposal is characterized as streamlining the transit program, in fact it does not reduce the number of formulas which are used to distribute the funds.

Table 1: Percent of Funds by Recipient Category
[Includes all ISTEA Programs Consolidated into NEXTEA Formula Program]

Category	ISTEA	NEXTEA	NEXTEA	NEXTEA
	FY 1997 (in percent)	FY 1998 (in percent)	FY 1999 (in percent)	FY 2000 (in percent)
Urbanized Area Fixed Guideway	39.42	42.96	45.66	46.56
Urbanized Area Bus	54.42	51.54	48.84	47.94
Rural	4.49	3.75	3.75	3.75

Table 1: Percent of Funds by Recipient Category—Continued
 [Includes all ISTEAs Programs Consolidated into NEXTEA Formula Program]

Category	ISTEA	NEXTEA	NEXTEA	NEXTEA
	FY 1997 (in percent)	FY 1998 (in percent)	FY 1999 (in percent)	FY 2000 (in percent)
Elderly and Disabled Persons	1.67	1.75	1.75	1.75

Between fiscal year 1997 and fiscal year 2000, the percentage of authorized funds for urbanized area rail would increase from 39.42 percent to 46.56 percent; for urbanized area bus would drop from 54.42 percent to 47.94 percent; for rural areas would drop from 4.49 percent to 3.75 percent; and for elderly and disabled person programs would increase from 1.67 percent to 1.75 percent. The decline of urbanized area bus funding results primarily from the elimination of the bus capital program and the distribution of those funds to the entire urbanized area formula, both rail and bus. The continued decline in the urbanized area bus percentage in the second and third years of NEXTEA results from increased funding for fixed-guideway modernization while the total formula program amount remains constant. The decline in rural funding results from the transfer of 5.5 percent of the bus capital program designated for rural areas to the urbanized area formula program.

Bus operators in medium size and smaller urbanized areas may be particularly disadvantaged by the consolidation proposal. These areas are often dependent on bus capital grants to obtain sufficient funds for a facility investment or to replace a significant part of the bus fleet at one time. They are unable to accumulate adequate funds for these investments from their formula amounts (in part because Federal funds cannot be banked for a long time period). With a reduced percentage of total funding directed to these properties, major investments would become even more difficult.

Question 3. In my opinion, mass transit is essential for three reasons: it protects the environment, it promotes efficient mobility by reducing congestion, and it provides greater accessibility for all to transportation. Does APTA recommend any legislative reforms in the ISTEA reauthorization that would yield even greater benefits for efficiency, accessibility, and the environment?

Response. APTA believes that ISTEA increases the efficiency of our surface transportation system, increases accessibility for all Americans, including the disabled, and improves protection for the economic and social as well as the natural environments.

We believe an important way to maintain the benefits of ISTEA is to reauthorize the basic ISTEA structure so that it will have an adequate time to fully realize its potential. We believe it is especially important to retain a distinct transit program, flexible funding provisions, and a distinct CMAQ program.

It is also essential that the new authorization bill fund these programs at adequate levels. The U.S. DOT estimated that transit capital funding shortfall below needed funds was over \$6 billion annually, which should assure the Congress that any increase in transit funding will be used for necessary investments.

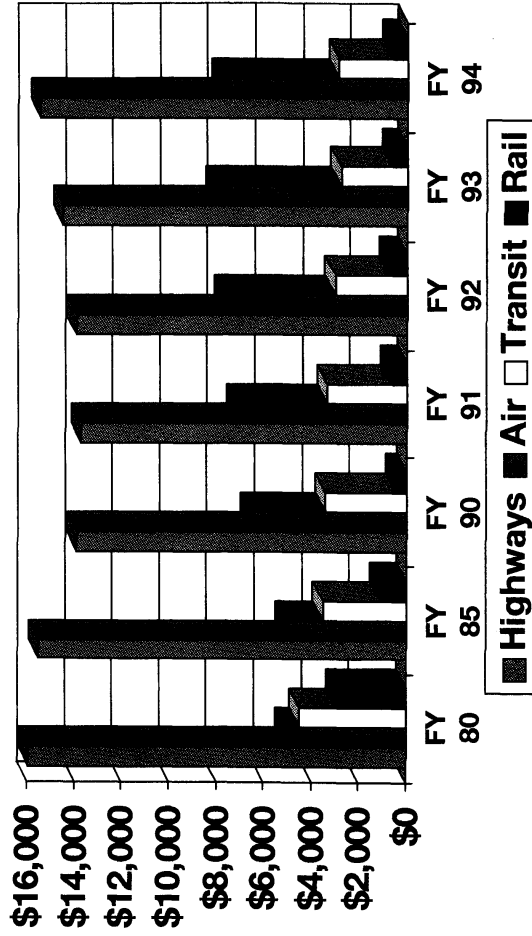
APTA does, however, recommend some improvements that would make ISTEA more efficient and more effective. These improvements are described in detail in APTA's reauthorization proposal, which has been provided to your office. If you or your staff have any questions concerning the implementation of the recommendations, APTA's staff are available to provide any assistance you require. I would like, however, to point out some of the recommendations that would provide great benefits:

- Expand the definition of allowable capital expenditures for the transit program to include maintenance. An assistance program restricted solely to capital investments without any funding for maintenance will eventually result in over capitalization and a loss in value of the capital funding. If the Congress chooses to reduce or eliminate operating funding for larger urbanized area, it is essential that capital funding include maintenance as an eligible use to maximize the return from the total investment. Adopting this provision would be another step toward putting the transit and highway programs on a level playing field since highway funds can now be used for maintenance purposes.

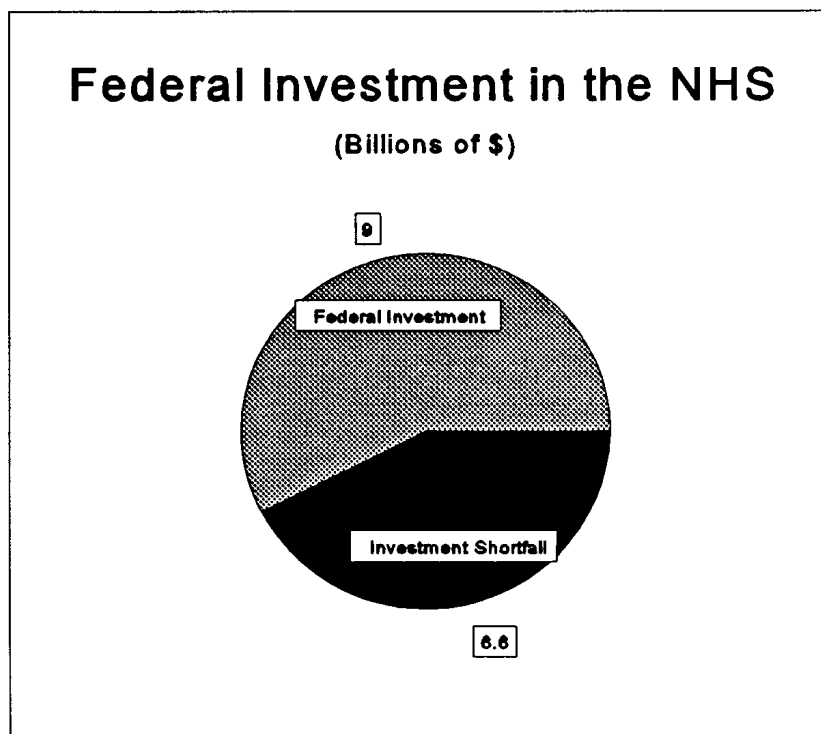
- Allow use of transit formula funds for both capital and operating expenditures in small urbanized areas in the same flexible manner as funds are now made available to rural areas. Small urban areas face similar constraints and needs as rural areas. Experience has shown that the flexibility of the rural program has been successful in directing investment to meet the greatest local needs.

- Provide for a unified appropriation. If the transit program had a single appropriation like the Federal-Aid Highways program, the transit program could be scored for first-year outlays at a single rate. This would show that the transit program has had relatively lower first-year outlays than the highway program and reduce the need to vary levels of the individual transit programs in appropriations to meet outlay caps. Since the portion of funds directed to each transit program would still be identified in authorizing legislation, the Congress will still be able to identify appropriation levels for specific programs if investment needs made such specification desirable.
- Equalize the values of tax free benefits available to commuters for parking or transit. Under current law a commuter is penalized for taking transit. While a commuter who drives can receive up to \$165 per month tax free parking, a transit commuter can only receive \$65 of transit benefits before being taxed. This action would be another step toward leveling the playing field.
- Ensure that the transportation planning process fully accounts for the transit benefits noted in your question by making necessary changes in the planning process.
- Change the Mass Transit Account solvency test to the Byrd Test so that transit can use as much anticipated revenue as highways are currently allowed to use.
- Use the 4.3 cents of the motor fuel tax currently directed to deficit reduction purposes for surface transportation. From this amount provide funds for intercity passenger railroads as well as transit and highways. The funding shortfalls for transit and highways are well documented as is the need for increased revenues to reduce those shortfalls. Intercity passenger rail also has documented needs. If the intercity passenger rail needs are not met, the funding needs for highways will grow to accommodate travelers forced from rail travel to highway travel.

Federal Transportation Outlays by Mode^{1,2}



¹In millions of constant 1987 dollars
²source: Natl Transportation Statistics



**\$15.6 Billion is Needed Just to Maintain
current NHS Conditions and Performance**

PREPARED STATEMENT OF WILLIAM E. LOFTUS, PRESIDENT, THE AMERICAN SHORT
LINE RAILROAD ASSOCIATION

Senator Warner, and members of the subcommittee, I am William E. Loftus, President of the American Short Line Railroad Association (ASLRA). I appreciate the opportunity to appear before you today to testify concerning a subject of critical importance to this Nation's transportation network—program eligibility under the new legislation which will replace ISTEA.

ASLRA is a non-profit trade association which represents the interests of its more than 400 short line and regional railroad members in legislative and regulatory matters. Short line and regional railroads are an important and growing component of the railroad industry. Today, they operate and maintain over 45,000 miles of track (27 percent of the American railroad industry's total route mileage); and employ approximately 24,000 persons (11 percent of the rail industry total). These small railroads serve every state in the Nation and thousands of small shippers and small communities.

In connection with ISTEA reauthorization, ASLRA is working together with another organization, Regional Railroads of America (RRA), toward our common goal of clarifying eligibility provisions of ISTEA so that projects involving small freight railroads can be eligible to be selected by state and local decisionmakers to receive ISTEA funds under certain circumstances. By "small freight railroads," I refer to Class II and Class III railroads as defined by the Surface Transportation Board, more commonly referred to as regional and short line railroads. It is only projects involving these carriers, i.e., Class II and Class III railroads, that our proposal addresses.

Our request for eligibility for small or local railroad projects under ISTEA, should be viewed in terms of what is happening to the rail network in each state. The re-

structuring of the nation's rail system is still underway. Recent mergers of the giant rail systems in the West and the forthcoming merger of the giant rail systems in the East present a significant challenge to each state and each region within a state. They have to deal with the reality that trunk line rail service is shrinking to about a 100,000 mile rail network, when it had been 250,000 miles a few years ago. At the same time the growth of the short line and regional railroad system is the vital linkage that each state. Regions within the state must depend upon small railroads for connectivity to the national rail network in order to maintain their economic base and economic future.

In 1970, the state of Georgia had 90 miles of short line railroad service. Today it has 1,200 miles. The entire New England region has only one Class I railroad line, Conrail's Albany to Boston mainline; the rest of the region is served by short line and regional railroads. The same statistics are repeated in Alabama and Mississippi, Pennsylvania and Ohio, Indiana and Illinois, Oregon and California—anywhere you look. There is a vital, small railroad network in every state that must be preserved, enhanced and allowed to grow. It is a valuable, irreplaceable transportation asset.

I feel very strongly, that without direct financial assistance, the railroad feeder line system in the states will not be able to fully serve the needs of the state and its regions. That is the fundamental reason I am here today to seek the committee's support for permitting states and local communities the ability to direct some of their ISTEA funds to rail projects, which will not only help preserve the rail network but will continue to generate economic growth in non-urban areas.

Under the current ISTEA provisions, more than \$180 million has been spent on the Rails to Trails program. We have no quarrel with the conversion of abandoned railroad rights-of-way to hiking trails and such, but we are concerned that the nation's priorities are out of sync. If no ISTEA funds can be spent by a state or community to preserve and enhance its local railroad network in order to prevent rail line abandonments, but \$180 million, and more, is available for trails after the community loses a rail line, I question those priorities.

The joint ASLRA/RRA effort is particularly focused on clarification of eligibility in regard to Surface Transportation Program (STP) funds. Small railroad projects are already eligible to receive funds under the limited CMAQ and Enhancements Programs, and under the Section 130 Program for funding highway-rail grade crossing warning devices which is set aside from STP. Under the ASLRA/RRA proposal, eligibility of freight projects involving small railroads to receive funds under CMAQ, Enhancements, Section 130, and STP as a whole should be clarified.

Small railroad eligibility for ISTEA funding should not be viewed as an unwarranted incursion into STP funds. ISTEA is not exclusively a highway program today. Congress has recognized that a multi-modal approach is most appropriate, and there is eligibility for funding for intermodal connectors and private bus companies and commuter transit and biking/hiking trails and, yes, some freight railroad projects. State infrastructure banks (SIB's) provide a system for funding flexible alternatives. All these various non-highway categories eligible for funds under ISTEA share a common feature: all can benefit the highway system and highway users, either by enabling a smoother transportation flow, or by offering an alternative to get some users off the highway system. Small railroad freight projects fit this mold perfectly.

Small freight railroad projects have a positive benefit to the efficient functioning of an overall multi-modal transportation system, and can represent a more efficient use of Federal transportation funds in some cases. Indeed, these projects can have demonstrable highway benefits by relieving highway congestion, reducing wear and tear, avoiding expenditures for upgrading highways and bridges, and reducing air pollution and fuel consumption.

We recognize that the matter of private sector railroads receiving public funds is of concern to some. However, there are established ways of providing such assistance within Federal guidelines and with full protection of the public investment. These types of small railroad projects should be eligible for funding from SIB's including pay-back requirements, and other innovative financing mechanisms which may be in ISTEA reauthorization.

In order to be chosen for funding, small railroad projects would need to clear the hurdle of a strict public benefit test: any short line or regional rail freight project would have to be found by the state or local decisionmakers to be a better, more cost-effective use of transportation dollars than other transportation projects with which they are compared. The local decision may indeed favor the highway project, but at least the local decisionmakers would not arbitrarily be restricted from considering investing in its rail network. The option to allow consideration of railroad freight projects as part of an overall, multi-modal state or local transportation plan

represents good government policy. Based on my contacts with many state and Metropolitan Planning Organization (MPO) officials, they want this flexibility.

We are not seeking entitlements or set-asides for small railroads. Our proposal would, in essence, put small railroads at the table to argue, along with advocates of every other type of eligible transportation project, for consideration as the MPO or statewide planners weigh the best use of their Federal transportation dollars to meet their community or regional transportation needs and plans. From across the country, we are aware of examples in which local or statewide planners would like to have the ability to fund a short line railroad project today, because it makes the most sense to them and represents the most efficient use of transportation dollars.

Attached to my testimony is a copy of the statement given last summer at a U.S. Department of Transportation field hearing in Huntington, West Virginia by Mr. Leo Howard, Chairman of the West Virginia State Rail Authority. In his prepared statement, Mr. Howard explains the critical role that Federal LRFA funds played in the startup of the South Branch Valley Railroad in 1978. In response to a question from then-Federal Highway Administrator Rodney E. Slater, who chaired the Huntington hearing, about why Federal transportation dollars should go to a rail project, Mr. Howard explained that a perfect example was to be found in a 132-mile CSXT line slated to be abandoned between Tygart and Bergoo, West Virginia. An investment of under \$5 million to save this rail line would allow the State Highway Department to avoid expenditure of between \$25 and \$40 million that would be required to upgrade secondary roads and bridges to handle the large tonnages of coal and lumber traffic they will be required to carry if the railroad goes away.

On Virginia's Eastern Shore, the Accomac Northampton Transportation District Commission owns and operates the Eastern Shore Railroad. It links the Eastern Shore of Delaware, Maryland and Virginia with the Norfolk Southern and CSXT's national systems by operating a freight car barge across Hampton Roads and 70 miles of mainline. The Eastern Shore Railroad requires an investment of \$250,000 to upgrade 38 miles of its mainline trackage to 25 mph in order to attract more customers and operate more efficiently. Those funds could come from ISTEAs, under our proposal, if the Transportation District had the ability to decide to use Federal ISTEAs funds for track rehabilitation work.

Another example of the need for states to have more flexibility can be seen in Maine and New Hampshire, where a major port development project is dependent upon upgrading rail access—as an alternative to highway access—so that overall investment costs can be justified and the economic benefits obtained. The states are in the best position to decide whether to invest in upgrading the rail line or investing in highway access facilities.

A few freight railroad projects already have benefited from innovative funding in states which managed to “stretch the envelope” in terms of eligibility under the current ISTEAs. Based on a report prepared by the U.S. Department of Transportation's Federal Railroad Administration in September, 1996, these include:

- Up to \$5 million per year of STP funds set aside for high-speed rail crossing improvements.
- \$2.5 million from STP funds for a new intermodal bridge to bring rail services directly into the Port of Seattle (total project cost \$300 million).
- Ventura County, California's Transportation Commission is purchasing two partially abandoned rail corridors, one existing rail corridor, 40 miles of rail track and contiguous land to expand rail freight service. Projected funding includes \$4.2 million in STP grants, \$3.5 million in STP enhancement funds, and \$1.0 million local matching funds.
- Santa Teresa, New Mexico, proposed new intermodal terminal will apply advanced technology to speed truck and rail freight between New Mexico and Mexico. A blending of STP, state, and private railroad funds has been used for planning and research.
- Ft. Collins, Colorado, track consolidation project. This \$2.75 million public-private partnership used a combination of local, state and STP funds as well as private funds from affected railroads.
- Hiawatha line improvements, Illinois and Wisconsin. STP and interstate maintenance funds are being used for Amtrak's Hiawatha line connecting Chicago and Milwaukee.

When passed by the Congress and signed into law by President Bush in December 1991, ISTEAs refocused this Nation's transportation policy, moving away from the emphasis on building the interstate highway system which had dominated U.S. transportation policy since the 1950's, to a focus on enhancing that system's performance and productivity. In addition, ISTEAs moved transportation policy into the era of multi-modal planning and investment.

Small railroads preserve and maintain rail infrastructure that might otherwise have been lost to abandonment. They are the vital link connecting communities and regions to the national rail system, aiding in creation and preservation of jobs, and economic development efforts. Railroads are a fuel-efficient and environmentally friendly way to move freight, and contribute to reducing, postponing or avoiding gridlock on roads and highways.

Over the past two decades, Local Rail Freight Assistance (LRFA) funding from the Federal Government provided more than \$200 million in grants to short line and regional railroads for rehabilitation of track and bridge structures. In most instances, the assistance was provided in the early stages of a railroad's startup operation, soon after acquisition from a major Class I railroad. This is the critical time when the new owner/operator has to deal quickly and effectively with the problem of deferred track and bridge maintenance, acquisition of locomotive power, rebuilding a traffic base that had lost customers to other modes—all while meeting the debt service on commercial loans used to acquire the line. Attached to my testimony is a copy of the statement given last summer at a U.S. Department of Transportation field hearing in Missoula, Montana by Ms. Carla Allen, General Manager of Central Montana Rail, Inc. Ms. Allen underscored the critical role Federal funding played at startup of this 87-mile grain line.

However, since 1996, Congress has chosen not to reauthorize or provide funding for the LRFA program, apparently finding it hard to justify the time and effort required in the annual appropriation process and periodic reauthorization process for such a relatively small Federal program. However, this should not preclude the states from being able to do what Congress had been doing since 1976, and that is exactly what our ISTEA reauthorization proposal would do. Support for our proposal in both Houses of Congress is growing. Copies of bipartisan letters of support in the House and Senate are attached.

The restructuring of the American rail system into a core network and feeder line system has had enormous economic benefits for every section of the country in the form of continued rail service, often with an increase in both the number of shippers and the amount of traffic coming back to the railroads. The restructuring process is continuing in all regions of the country. The Staggers Act and the policies of the Surface Transportation Board (formerly the Interstate Commerce Commission) have been the foundation of these benefits. The need for some one-time infrastructure investment support for startup operators who face an uphill struggle to deal with long-deferred maintenance issues will only continue to grow in coming years as more lines are spun off.

It is critically important that state and local decisionmakers, who will be faced with tough choices and many tradeoffs as they make transportation policy and investment decisions, have all transportation options available. Funding choices should allow sufficient flexibility to preserve and enhance short line and regional railroad freight facilities if the local planners decide that is the best use of their transportation funds.

OTHER ISSUES

The short line and regional railroads fully support the priorities of the railroad industry as a whole. As explained in more detail in testimony presented today by Karen B. Phillips, Senior Vice President of the Association of American Railroads, these include:

- funding for highway/rail grade crossing warning devices (Section 130 funds), including both continued earmarking of these funds for their critical safety purpose, and an increase in amount,
- maintaining the status quo with regard to truck sizes and weights, and
- availability of funding for intermodal connectors.

The Section 130 Program

The Highway Safety Act of 1973 created and funded a national highway safety program, now called the Section 130 program, which has enhanced safety at highway-rail grade crossings by providing for necessary engineering and warning device improvements. In fiscal year 1996, approximately \$150 million was apportioned to the states for this program. Since the 1973 Act was passed, a total of \$3.2 billion has been distributed.

The Section 130 program has had a significant and positive impact on the number of accidents, fatalities and injuries occurring at highway/railway grade crossings. As a direct result of Federal funding for grade crossing improvements, annual crossing accident and fatality rates have been reduced by over 50 percent. The Federal Highway Administration has estimated that the Section 130 program has prevented over

8,000 fatalities and 36,000 injuries since 1974, with an overall benefit/cost ratio of approximately 2.7.

To remain fully effective, I believe that the earmarked annual Federal Highway Administration funding for the Section 130 program should not be lumped in with other categorical grants to be given to the states on a lump sum basis. I fear that some grade crossing funds could be diverted to other highway safety issues.

The level should be increased to at least \$185 million to maintain overall safety performance, and to provide some important relief for small railroads. Currently the funds are limited to the installation of new devices. I believe that a portion of the funds should be directed to upgrading and replacing existing devices, particularly when damaged in accidents and from storm activity. Railroads now fund all maintenance costs at grade crossings, including the repaving of crossing surfaces. I seek your support to correct these inequities. I can assure you that the cost of annual maintenance of public grade crossing warning systems and crossing surfaces is a heavy and unfair burden on small railroads.

In addition to Section 130 funding, other important Federal initiatives critical to improving grade crossing safety include standards for closure and elimination of redundant crossings, separation of crossings where feasible, and a vigorous public information campaign under the leadership of Operation Lifesaver, Inc. to increase awareness of drivers and to prevent trespassing.

In summary, I urge you to clarify eligibility of projects involving small freight railroads for funding as part of ISTEA reauthorization. To do so represents good, multi-modal public policy, and will allow state and local decisionmakers to make the transportation investment decisions they find best suited to their needs. Projects involving small freight railroads can, in some cases, demonstrate sufficient highway benefits to meet the test of being the best use of transportation funds. Public/private partnerships should be encouraged. I look forward to working with you as you draft the legislation.

Suggested legislative language to clarify small railroad eligibility is attached.

PREPARED STATEMENT OF THOMAS J. DONOHUE, PRESIDENT AND CHIEF EXECUTIVE OFFICER, THE AMERICAN TRUCKING ASSOCIATIONS, INC.

I. INTRODUCTION

Chairman Warner, Senator Baucus, members of the committee, thank you for the opportunity to express the trucking industry's priorities regarding reauthorization of the Federal highway program.

ATA Represents the Trucking Industry

The American Trucking Associations, Inc. (ATA) is the national trade association of the trucking industry. ATA's membership includes nearly 4,200 carriers, affiliated associations in every state, and 13 specialized national associations. Together, ATA represents every type and class of motor carrier in the country. We are a federation of over 36,000 member companies and represent an industry that employs over nine million people, providing one out of every 14 civilian jobs. We are a highly diverse industry, but we can all agree that a good system of roads is crucial both to our bottom line and to the safety of all drivers, including millions of truck drivers who deliver to all Americans their food, clothing, finished products, raw materials, and every other item imaginable. Actions that affect the trucking industry's ability to perform these services have significant consequences for the ability of every American to do their job well and to enjoy a high quality of life.

Current Spending Levels Cannot Support a Safe and Efficient Highway System

The trucking industry contributes over \$10 billion each year to the Federal Highway Trust Fund, about 43 percent of total receipts. As an investor, we expect a return on our investment. The user fees that we contribute to the trust fund should be invested in a manner that makes our highways both safer and more efficient.

Investing all revenues collected is especially important given the tremendous pressures our highways and bridges will face in the future, when economic growth will spur tremendous increases in the demand for freight transportation. In 1994 the revenue for trucking was \$362 billion and is projected to reach \$437 billion in 2004. By this same date, the total volume of freight carried by truck will reach 6.5 billion tons, 19 percent more than in 1994. Both the total number of miles driven and the total volume of ton-miles will grow 29 percent. More than half a million more trucks will be needed to meet these increased demands. This assumes that we will be successful in increasing intermodal business substantially to \$12.9 billion—150 percent of today's levels. The safety and efficiency of the freight industry will

depend in no small measure on the actions of this committee and the 105th Congress.

II. CURRENT FUNDING LEVELS ARE INSUFFICIENT

I would like to thank the committee for the leadership it has given to restore integrity to the Highway Trust Fund. Both the Highway Trust Fund Integrity Act and efforts by 59 Senators to increase annual spending to \$26 billion are laudable. Your commitment to significantly raise transportation spending sends a clear message that this country and this Congress can no longer make the inadequate investments that are failing to meet the critical needs of our nation's highway infrastructure. We also support efforts to move the 4.3 cents fuel tax now directed to deficit reduction to the Trust Fund. According to the Congressional Budget Office, this could help support an annual highway program of \$34 billion.

Current Spending will not Sustain Highway Infrastructure

The trucking industry is prepared for the tremendous challenges posed by ever increasing demands for more efficient freight service. However, if under-investment in our highways continues, it will be impossible for the industry to meet these challenges. The resulting productivity losses will take a severe human toll as stiff competition from abroad wipes out existing jobs and reduces the ability of our economy to create new jobs for a rapidly expanding population. To simply maintain conditions and performance on the National Highway System (NHS), an annual Federal investment of \$15.6 billion is needed. Despite the fact that the 160,000-mile NHS carries 40 percent of all traffic and 75 percent of truck traffic, the Federal Government dedicates just \$9 billion to these most important highways, 58 percent of the investment necessary just to maintain the status quo.

APPENDIX

January 10, 1997

Funding Comparison
ISTEA vs ATA PROPOSAL

	ISTEA (billions)		ATA PROPOSAL (billions)	
CORE Program:				
NHS and Interstate Maintenance	6.5	10.9	19	25
Bridge	2.8		4	
Federal Lands	.5		.5	
Safety	.7		1	
R&D	.4		.5	
State Block Grant Elements:				
STP (non-NHS)	2.5 ¹⁰	6.06		9
Transit Section 3 and 9 Capital	3.56 ¹¹			
Other Programs:				
CMAQ	1.029	6.988	Folded into the State Block Grant	
STP (NHS), State-built Interstates, Demonstration Projects, Funding Equity, miscellaneous small accounts.	5.959			
Total	FY 1997 Program Level	23.948	Annual Program Level	34

¹⁰ \$1.69 billion in STP funding was obligated to be spent on the NHS in FY 1995 and \$4.09 billion was authorized. In FY 1997, it is assumed the same proportion of the FY 95 authorization will be obligated to the NHS.

¹¹ FY 1997 Appropriations Act, liquidation of Highway Trust Fund contract authority only.

This dismal level of spending has contributed to the current situation now faced by users of the system. The NHS has been allowed to deteriorate to the point where nearly half of urban Interstate miles are congested during peak periods. Forty percent of travel on urban NHS routes takes place under such congested conditions that even a minor incident can cause severe traffic flow disruptions and extensive queuing.¹ Congestion on urban Interstates increased from about 55 percent of peak hour travel in 1983 to approximately 70 percent in 1989, remaining relatively constant since then.² Travel delays in the nation's 50 largest urban areas as a result

¹ FHWA 1995 *Conditions and Performance Report*, pp. 105-109.

² *The Bottom Line: Transportation Investment Needs 1998-2002*. American Association of State Highway and Transportation Officials, 1996, p. 11.

of increased congestion costs society an estimated \$43 billion every year.³ Congestion increases the risk of accidents and interferes with our ability to serve our customers' "just-in-time" delivery needs.

Highway Investment Saves Lives

Adequate highway funding allows states to make roadway improvements that increase safety. Improved roadway characteristics such as 12-foot lanes and ample shoulders, gentler curves, and improved median and median barriers, can significantly reduce the number and severity of accidents.⁴ One 1995 study estimated that full funding for the NHS over a 10-year period would prevent 720 fatal crashes, 55,000 personal injury crashes, and 120,000 property damage crashes on the NHS alone.⁵ The report estimated average annual societal savings of \$800 million as a result of the accident prevention. Additional funding for other roads would increase these savings even more.

It is important to keep in mind that 43 percent of the NHS includes two-lane roads. These roads often have no median separation to prevent head-on collisions. Although lanes, shoulders and clear zones can provide motorists with the critical space to recover if they lose control of their vehicles, these features are inadequate or nonexistent on many NHS routes. These two-lane roads may have very tight curves with few warning signs and poor visibility to alert motorists before it is too late to adjust. FHWA crash statistics confirm the danger posed by the hazardous conditions on these narrow roads. While the Interstate System has the lowest fatality rate per 100 million vehicle miles traveled (VMT), 0.74, NHS routes not on the Interstate have a death rate of 1.48, twice that of Interstates.⁶ Other Federal aid highways not on the NHS take an even higher toll, with a fatality rate of 1.81 per million VMT.

We cannot afford to become complacent. In 1995, 41,798 people died on our nation's highways. The vast majority of these fatal crashes involved cars, motorcycles, and pickup trucks. This is equivalent to a ValuJet crash every single day! Safety must be given the highest priority, and the Federal commitment must be demonstrated through adequate funding and strong leadership.

Highway Investments are the Key to Economic Development and Employment Growth

According to a Federal Highway Administration (FHWA) report, investment in the nation's highways stimulates tremendous job growth.⁷ The report states that for each \$1 billion in highway investment, 42,100 full-time jobs are created and supported.

United States productivity improvements are the key to global competitiveness, rising standards of living, and economic growth. Investing in the NHS results in significant, nationwide improvements in productivity.⁸ In fact, every dollar invested in the NHS results in a 24-cent reduction in overall production costs for U.S. manufacturing. These productivity improvements let U.S. industry sell more goods and services at lower prices both at home and abroad. More people can be employed at higher wages. Since salary increases are firmly tied to the increase in the amount of goods and services each worker produces, living standards are improved. In addition, these real wage increases result in elevated tax revenues.

Through new innovations such as just-in-time (JIT) delivery, the trucking industry has played a vital role in improving U.S. productivity. This would have been difficult, if not impossible, to achieve without an efficient network of good roads that connects markets, centers of industry, and multi-modal transportation facilities. A 1994 study of five diverse U.S. companies demonstrates the importance of transportation to American businesses' daily operations.⁹ For instance, a reliable system of roads allows Saturn Corporation, which has its manufacturing and assembly plant in Spring Hill, TN, to utilize a just-in-time strategy. Saturn's JIT approach to its inventory control system, combined with the company's advanced communications system and a safe, well-functioning highway network, has allowed the company to

³ *Ibid.*

⁴ McGeen, H.W., W.E. Hughes, K. Daily, *Effective of Highway Standards on Safety*, Final Report to National Cooperative Research Program, Project 17-9, Bellomo-McGee, Inc., Dec. 1994.

⁵ *Safety Effects Resulting from Approval of the National Highway System*. AAA Foundation for Traffic Safety, Bellomo-McGee, Inc., July 1995.

⁶ FHWA, *Highway Statistics*, 1994.

⁷ Federal Highway Administration, *Highway Infrastructure and Job Generation: A Look at the Positive Employment Impacts of Highway Investment*, 1996.

⁸ Nadiri, M. Ishad and Theofanis Memuneous. *Highway Capital and Productivity Growth*, June 1996.

⁹ Apogee Research, Inc. *The Economic Importance of the National Highway System*, Feb. 1994.

reduce order cycle times and inventory costs by holding down in-plant inventory to an average of 2 days' stock.

A Minimum of \$34 Billion Annually Can and Should be Available for Investment

If all funds coming into the Highway Trust Fund are spent in a timely manner, a \$26 billion program could be sustained. A slow drawdown of the existing balances in the trust fund would increase revenues by approximately \$2 billion annually, allowing a \$28 billion program. Ensuring that all highway user fees are dedicated to transportation improvements, including the 4.3 cents now deposited in the General Fund, would make a \$34 billion annual program possible. This level of investment would stop the deterioration of our highways and bridges, allowing our nation's economy to move forward, renewing our commitment to safer, more efficient, and less congested highways, and improving our quality of life. Another important benefit of a higher funding level is that it would diminish the contentious and divisive debate over funding formulas. We all support a better surface transportation system, and this issue is a barrier to achieving our common goals.

Given the tremendous economic and social benefits of highway investment, it is illogical to fail to spend the highway user fees collected to correct the many deficiencies of our highways and bridges. Although the fees paid into the Highway Trust Fund are sufficient to improve conditions and performance on the National Highway System and related roads, not enough of the funds are being spent to even maintain the status quo. The status quo itself is unacceptable.

By the end of the 1997 fiscal year, the unspent balances in the Highway Trust Fund will exceed \$22 billion. Extending the Administration's budget proposal for fiscal year 1998, that figure could reach nearly \$50 billion in just five more years. For many years the trucking industry has been a steadfast supporter of the user fee system. Support for that system and the Federal program will erode if the balances in the Trust Fund continue to rise or if user fees are not invested in highways in a timely manner. We urge the committee to continue to heighten efforts to restore trust in the Highway Trust Fund, ensuring that the maximum amount is available for investment.

III. ATA'S PROPOSAL FOR HIGHWAY REAUTHORIZATION

ATA's proposal is a comprehensive plan which ensures that the national interest in a safe and efficient system of highways is preserved. We propose an annual \$34 billion total funding level, which includes \$25 billion for a Core Highway Program and \$9 billion for a highly flexible State Block Grant Program (See appendix). We propose to invest highway user fees in a targeted set of programs which serve important national needs. Our proposal creates a flexible state Block Grant and ensures that the Trust Fund balances are spent down.

The Core Highway Program would include the NHS, a Bridge Program, a Federal Lands Program, a national highway safety program, and a Research & Technology Activity program. Investment in these areas ensures the preservation and improvement of a seamless national highway network that benefits all Americans. Funding distribution, therefore, would be based on national need, rather than on contributions to the Trust Fund.

ATA's proposed Block Grant Program gives states and localities the flexibility to select and fund highway and transit capital projects, as well as congestion mitigation and air quality projects. This flexibility allows them to address their unique needs in a manner best suited to their circumstances. Funds now available for sub-allocation would continue in the same proportion. Funds in the block grant would be distributed to states in exactly the same proportion as the dollars are collected from the states, so that there would not be any donors or donees.

IV. THE ADMINISTRATION'S PROPOSAL IS INADEQUATE AND UNACCEPTABLE

During Secretary Slater's most recent appearance before this committee, he declared that ISTEA's successor must be judged by how it affects "the lives of our people, the health of our economy, and the welfare of our Nation . . ." I am sorry to say that the Administration's proposal for reauthorization, which is called NEXTEA, will fall far short of meeting these laudatory criteria.

The Administration's fiscal year 1998 \$22.7 billion allocation to the Highway Account falls over \$3 billion short of where it could be under current revenue circumstances and is \$11 billion short of where it would be if the Administration made changes that restored the honesty and integrity of the user fee system. In addition, any potential for reducing highway infrastructure deterioration is obliterated by programmatic changes that further dilute highway investment. Instead of targeting limited funds where they can most effectively address national highway needs,

NEXTEA diverts an additional 25 percent of user fees to programs, such as the Congestion Mitigation and Air Quality Program (CMAQ) and Transportation Enhancements Program (TEP), that will not reduce highway fatalities.

NEXTEA also includes funding for passenger and freight rail facilities and operations. ATA opposes funding Amtrak out of the Highway Account because Amtrak expenditures do not measurably help reduce highway fatalities. Moreover, Federal decisions to allocate funds to Amtrak create a new class of donors and donees—with most of the states being losers.

Some short line railroads are proposing to fund private rail freight projects out of the highway account. The trucking industry has to pay for our vehicles, terminals and operating costs out of our pockets. Our competitors should not have their private costs paid out of the highway account. This is especially true since truckers typically earn two cents on the revenue dollar while railroads often earn 15 cents or more. If the railroads want public funding, they also should pay a reasonable fuels tax and create a railroad account. Each one cent would raise around \$30 million dollars. We do not believe that these proposals have the support of the major railroads.

Finally, the administration has proposed turning its back on 40 years of history by allowing tolls on the Interstate Highway System. Charging highway users to rent what we have already bought is a travesty. We are already paying more in highway taxes than we get back. Moreover, putting tolls on free Interstate Highways will force cars to slow from freeway speed, adding to safety, congestion, air pollution, and noise problems. ATA urges the committee to adamantly oppose any effort to impose tolls on Interstates for which we have already paid.

V. OTHER REFORMS WILL INCREASE SAFETY AND PRODUCTIVITY

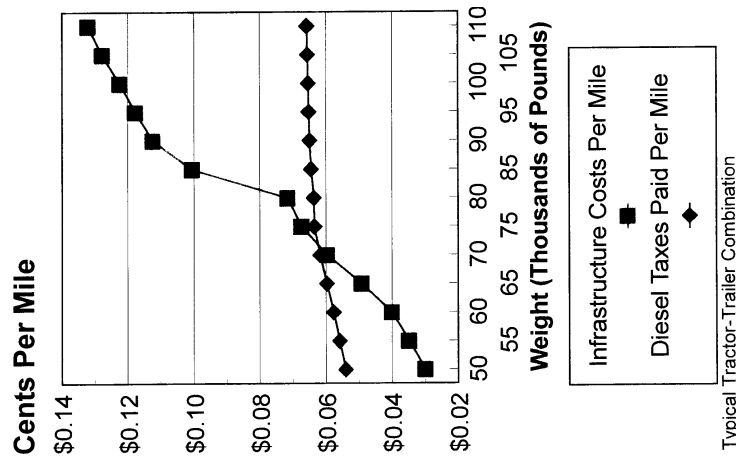
Several other important issues are likely to be subject for discussion during reauthorization, and I will touch on them briefly. The freight planning process which ISTEA set in motion needs to be improved. Many Metropolitan Planning Organizations have not fully addressed the essential freight planning needs that are important to freight mobility both in their own communities and as a link in the national supply chain. Current hours of service regulations, many of which have been on the books since the 1930's, are too inflexible and outdated. While we are not sure at this point whether a legislative or regulatory approach is preferable, a new option should be developed that improves highway safety, as well as industry productivity and efficiency. Truck drivers suffered inequitably from the cutback in the meal deduction, and this should be corrected. Finally, states should be given more flexibility to determine the most appropriate regulations governing the size and weight of trucks on highways within their jurisdiction.

VI. CONCLUSION

A few weeks ago, Deputy Transportation Secretary Mort Downey told this committee that, given current investment levels and travel growth projections, 9,500 more people will die on our nation's highways in 2005 than in 1996. In the face of such a grim statistic, the Administration offers a proposal that would decrease funding for investment in highways and increase diversion of highway user fee revenues to non-highway purposes, further straining the highway system's ability to safely transport people and goods. This, despite the fact that sufficient revenue is readily available. ATA's proposal makes targeted, nationally significant investments which would both improve highway safety and spur economic growth. It also gives states and localities unprecedented resources and flexibility to address their unique surface transportation needs in the most creative and effective manner possible.

I look forward to working with the members of this committee as you strive to meet the many challenges ahead. I hope ATA's proposal can serve as a basis for discussion during reauthorization of the highway program. Thank you.

Infrastructure Costs vs. Taxes



- The **red line** in this chart shows how Federal diesel taxes paid into the Highway Trust Fund change as the vehicle weight changes. It shows that the Federal taxes only grow marginally as weight increases. This is because diesel fuel consumption only grows slightly as weight is increased.
- The **blue line** shows how pavement damage costs and bridge damage costs increase as weight increases. Pavement and bridge damage increase dramatically as weight increases.
- The graph shows that heavier trucks do significantly more damage, but only pay marginally more in taxes.
- The result is that the Federal tax system is a very poor user fee because costs paid by trucks and the amount paid have only a loose relationship. Trucks over 75,000 lbs are not paying enough in taxes in proportion to the costs imposed.
- In effect, large trucks are being subsidized by smaller trucks and passenger cars.

AMERICAN TRUCKING ASSOCIATIONS, INC.,
Alexandria, VA, April 8, 1997.

Hon. JOHN CHAFEE, *Chairman,*
Committee on Environment and Public Works,
U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: Thank you for the opportunity to testify before your committee on March 13 on the need to improve the safety of our nation's highway system by increasing highway investment. At the hearing, you provided me with a copy of a chart labeled "Infrastructure Costs vs. Taxes" and I asked me to react to it. I responded at the hearing, but, because the chart had never been presented before, I asked to provide additional comments for the record. My comments are as follows:

We understand that the data in your chart is derived from the work of the Federal Highway Administration (FHWA) on its new highway cost allocation study and applies only to five axle tractor semi-trailers. Because this study has not been released, we would like the opportunity to expand our comments after it is made public.

There are several key points that I'd like to make with respect to the chart and some of the conclusions drawn from it.

- First, taking the chart at face value, it shows that trucks weighing less than 75,000 pounds are paying more than enough taxes to cover even the most costly estimate. According to FHWA, the actual operating weight for this type of truck is less than 75,000 pounds 81 percent of the time. Your chart leads to the conclusion that the vast majority of tractor semi-trailers are entitled to a tax reduction.

- Second, the amount of wear and tear on a highway is related to the actual weight of the vehicle and the number of axles on which it operates. Unfortunately, your chart is based on the *registered* weight of the trucks, rather than the *actual* weight. Trucks are registered at the maximum weight they can safely carry, but rarely operate at the weight because the trailer is filled with cargo before the weight limit is reached. Moreover, many trucks, such as those carrying fuel and automobiles return empty. The chart treats these vehicles the same as those that operate nearly all of the time at their registered weight. To be fair to these operations, such vehicles would be entitled to an even greater tax reduction.

- Third, the expense side of the chart includes costs that have nothing to do with the variation in truck weight. According to FHWA, the numbers on which the cost line is based include all Federal infrastructure costs including metropolitan planning, parkways (on which trucks do not run), billboard removal costs, and bikepaths. This fact suggests a further reduction in tax demand based on your chart.

- Finally, the chart does not include all of the taxes paid¹ by carriers. For instance, it does not include the 4.3 cents per gallon fuel tax that is paid by trucks into the General Fund. It also does not include billions of dollars paid by this type of truck to states in the forms of fuel taxes, registration fees, permit fees, and other highway taxes.

To summarize, according to your chart, most trucks are paying more than their fair share because they operate at weights less than 75,000 pounds. Moreover, the chart overstates the costs created by a particular weight truck, because it uses registered weight rather than the actual weight which is typically thousands of pounds lighter. Finally, the assumptions in the chart are not a fair way to compare taxes with pavement damage since it fails to include all of the taxes and other fees paid by trucks and includes costs that have nothing to do with pavement damage.

The bottom line is this: the typical interstate tractor-semitrailer combination currently pays \$22,579 annually in Federal, state and local taxes, and another \$15,307 in government-imposed regulatory compliance costs—and the truck doesn't start turning an after-tax profit for its owners until December 26. Senator Chafee, trucking not only carries most of America's freight, we carry more than our fair share of the burden when it comes to paying for the nation's infrastructure.

Thank you for the opportunity to respond more fully to your question. We would be pleased to discuss these issues with your staff so that we can get a common understanding of these very technical issues.

Sincerely,

THOMAS J. DONOHUE.

RESPONSE OF THOMAS J. DONOHUE TO QUESTIONS FROM SENATOR CHAFEE

Question. Your testimony emphasizes the need for the committee to focus on highway safety as we think about the ISTEA reauthorization. It is obvious that we need to make greater efforts to reduce the horrible amount of injuries and fatalities on our nation's highways. Your position is supported by members of this committee, and by others who have testified before us, including Secretary Slater, who cited safety as his "North Star" which will guide him in reauthorization. Given this consensus on the need to improve highway safety, it seems to me that we should significantly increase our spending on highway safety programs in the ISTEA reauthorization. Do you agree? Would you support a much larger safety program or emphasis in the ISTEA?

Response. I agree wholeheartedly that we should significantly increase spending on highway safety programs in the ISTEA reauthorization. I support a larger safety program in ISTEA and special emphasis on safety issues. Increased investment in highway infrastructure will improve safety and reduce the 42,000 fatalities that occur annually on the nation's highways. We also need to have targeted safety programs to improve safety procedures.

¹The chart is also mislabeled. It describes that the red line represents "diesel taxes paid per mile." According to FHWA, the numbers represent all Federal taxes paid into the Highway Account of the Highway Trust fund, including the heavy vehicle use tax.

Over the past decade, the trucking industry's support for safety measures has contributed to a 39 percent reduction in the fatal accident rate for crashes involving trucks. However, in over 30 percent of highway fatalities—11,000 lives every year—inadequate roadways are cited as a factor in the fatality. The Federal Highway Administration reports a backlog of more than \$300 billion in the funding needed for road repairs. A significant increase in the size of the highway infrastructure program would address root causes of these fatalities. Taxes already being collected from highway users would support an increase from the current \$20 billion annual program to a \$34 billion annual program.

A range of safety efforts that extend beyond infrastructure concerns, and which focus on both drivers and vehicles, should also be pursued. For instance, since only 12 percent of fatal accidents involve trucks, we have launched an education campaign to teach *all* drivers techniques to drive more safely. We hope to work in partnership with the U.S. Department of Transportation to expand these efforts. To address driver fatigue, more funding should be available for additional highway rest areas. We believe that it is time to reexamine the 10-year-old commercial driver license program and find ways to improve the program's ability to identify safe drivers and weed out bad drivers. To take overweight and unsafe trucks off the road, more funds should be available to states for truck inspection facilities and portable scales.

I look forward to working with you and the committee to promote initiatives that will make our roads safer for all. As we head into the new century, safety must become a key factor behind any decision regarding the investment of highway user fees.

Reauthorization Proposal Funding Levels, Page 1 of 2

Program/ Funding Source by Program Beginning in FY 1998	Actual Authorization			APTA Proposed Authorization Levels				
	FY 1996 (Millions)	FY 1997 (Millions)	FY 1998 (Millions)	FY 1999 (Millions)	FY 2000 (Millions)	FY 2001 (Millions)	FY 2002 (Millions)	
Federal Transit Administration Program Funding								
Major Capital Investment Programs	2,050.0	2,900.0	2,500.0	2,572.5	2,647.1	2,723.9	2,805.6	
New Starts and Extension (MTA)	820.0	1,160.0	1,000.0	1,029.0	1,058.8	1,089.5	1,122.2	
Fixed-Guideway Modernization (MTA)	820.0	1,160.0	1,000.0	1,029.0	1,058.8	1,089.5	1,122.2	
Bus Capital (MTA)	410.0	580.0	500.0	514.5	528.4	544.8	561.1	
Formula Programs	2,865.1	4,055.9	3,494.0	3,595.3	3,689.6	3,806.9	3,921.1	
Urbanized Area - Large & Medium (MTA)	2,388.3	3,381.0	2,912.6	2,997.0	3,083.9	3,173.4	3,268.6	
Urbanized Area - Small (GF)	254.3	360.0	310.1	319.1	328.4	337.9	348.0	
Rural (GF)	153.8	217.7	187.6	193.0	198.6	204.4	210.5	
Elderly and Disabled (MTA)	68.7	97.2	83.8	86.2	88.7	91.2	94.0	
Planning and Research (GF)	153.8	217.5	187.5	192.9	198.5	204.3	210.4	
University Centers (GF)	7.0	7.0	8.5	8.8	9.0	9.3	9.6	
FTA Administration (GF)	49.2	69.6	60.0	61.7	63.5	65.4	67.3	
TOTAL TRANSIT CORE PROGRAM	5,125.0	7,250.0	6,250.0	6,431.3	6,617.8	6,809.7	7,014.0	
Core Program Mass Transit Account (MTA)	2,775.0	4,800.0	5,496.3	5,655.7	5,819.7	5,988.5	6,168.1	
Core Program General Fund (GF)	2,350.0	2,450.0	753.7	775.6	798.1	821.2	845.8	
Increased STP (transit) (MTA)	---	---	1,203.7	1,238.3	1,274.3	1,311.5	1,350.9	
TOTAL TRANSIT PROGRAM	5,125.0	7,250.0	7,453.7	7,669.6	7,892.1	8,121.2	8,364.8	
Intercity Passenger Rail Account Program Funding								
TOTAL INTERCITY PASSENGER RAIL PROGRAM (IPRA)	---	---	900.0	926.0	953.0	981.0	1,010.0	

Calculations based on following assumptions: (1) 4.3 cents returned to Highway Account with 0.5 cents to IRPA, 0.76 cents to MTA, and 3.04 cents to the HA; (2) all accounts subject to the Byrd Test; (3) increase in core programs 22 percent above FY 1996 authorizations for FTA and FHWA; (4) creation of a flexible MTA program using available MTA funds up to Byrd Test at the end of FY 2002 with a flexible highway fund increase of twice that amount; and (5) funding inflated annually.

December 11, 1996

American Public Transit Association

Reauthorization Proposal Funding Levels, Page 2 of 2

Program/ Funding Source by Program Beginning in FY 1996	Actual Authorization			APTA Proposed Authorization Levels				
	FY 1996 (Millions)	FY 1997 (Millions)	FY 1998 (Millions)	FY 1998 (Millions)	FY 2000 (Millions)	FY 2001 (Millions)	FY 2002 (Millions)	
Federal Highway Administration Program Funding								
Titles I, II, IV, V Excluding STP and CMAQ (HA)	15,705.1	15,717.1	19,152.6	19,708.0	20,279.5	20,867.6	21,493.7	
Existing STP and CMAQ (HA)	5,126.0	5,126.0	6,432.5	6,432.5	6,619.0	6,811.0	7,015.3	
Titles I, II, IV, V (GF)	5.0	5.0	6.1	6.3	6.5	6.6	6.8	
TOTAL HIGHWAY CORE PROGRAM	20,836.1	20,848.1	25,409.9	26,146.8	26,905.0	27,685.3	28,515.8	
Increased STP (highway) (HA)	--	--	2,407.4	2,476.6	2,548.6	2,623.0	2,701.7	
TOTAL HIGHWAY PROGRAM	20,836.1	20,848.1	27,817.3	28,623.4	29,453.6	30,308.3	31,217.5	
Summaries: Subtotal Flexible Funding and Total Funding by Source								
Subtotal Flexible Funding Amounts:	5,126.0	5,126.0	6,251.2	6,432.5	6,619.0	6,811.0	7,015.3	
Existing STP (highway) and CMAQ (HA)	--	--	1,203.7	1,238.3	1,274.3	1,311.5	1,350.9	
Increased STP (transit) (MTA)	--	--	2,407.4	2,476.6	2,548.6	2,623.0	2,701.7	
Increased STP (highway) (HA)	5,126.0	5,126.0	9,862.3	10,147.4	10,441.9	10,745.5	11,067.9	
TOTAL FLEXIBLE FTA AND FHWA FUNDING	5,126.0	5,126.0	9,862.3	10,147.4	10,441.9	10,745.5	11,067.9	
Total Funding by Revenue Account:	2,355.0	2,455.0	759.8	781.8	804.5	827.8	852.7	
General Funds (GF)	2,775.0	4,800.0	6,700.0	6,894.0	7,094.0	7,300.0	7,519.0	
Mass Transit Account (MTA)	--	--	900.0	926.0	953.0	981.0	1,010.0	
Intercity Passenger Rail Account (IPRA)	20,831.1	20,843.1	27,811.2	28,617.1	29,447.1	30,301.6	31,210.7	
Highway Account (HA)	25,961.1	26,098.7	36,171.0	37,218.9	38,298.6	39,410.5	40,592.4	
TOTAL FUNDING ALL PROGRAMS	25,961.1	26,098.7	36,171.0	37,218.9	38,298.6	39,410.5	40,592.4	

MTA = Mass Transit Account
 IPRA = Intercity Passenger Rail Account
 STP = Surface Transportation Program
 HA = Highway Account
 FTA = Federal Transit Administration
 CMAQ = Congestion Mitigation and Air Quality Improvement Program
 GF = General Fund
 FHWA = Federal Highway Administration

PREPARED STATEMENT OF THOMAS M. DOWNS, PRESIDENT AND CEO, NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK)

Mr. Chair and members of the subcommittee: Thank you for the opportunity to appear before this subcommittee to discuss Amtrak's top priority for 1997: Inclusion of a dedicated source of capital funding, as well as program eligibility, for intercity passenger rail in the upcoming reauthorization of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). Our top priority is the creation of a trust fund for intercity passenger rail, which will require cooperation among the committees of jurisdiction, and second, eligibility for intercity passenger rail under the various programs, which clearly comes under the jurisdiction of this committee.

ISTEA was truly visionary legislation. It was the first step down the path toward a balanced transportation system. It was the first law that sought to put movement at the forefront, and not the different interests that comprise our methods of movement. At many state DOT's, "Intermodal" needed to be defined and added to the vocabulary.

But ISTEA brought us only part way down the path. In order to reach our ultimate destination—a truly balanced transportation system—we must eliminate modal bias. A significant step in the right direction would be to discontinue the bias against intercity passenger rail that is inherent in ISTEA. That is consistent with what has historically been the position of this committee, and the Senate as a whole, and it is my hope that this year, with the jurisdictional problems in the House resolved, the Senate's position will prevail.

For those who were not here, in 1991 the Senate-passed version of ISTEA included passenger rail as an eligible entity in all state-administered programs, but when the conference on the bill began we were left in no-man's land between the insurmountable boundaries of jurisdiction in the House. And it was there that eligibility for intercity passenger rail died—on a jurisdictional impasse, not due to any substantive objection. Now, after it being codified that way for 6 years, we need to remind people it was never a policy decision to exclude rail—we fell victim to clearly drawn lines of committee jurisdiction. Now, with jurisdiction over all surface transportation programs, including Amtrak, consolidated in the House Transportation and Infrastructure Committee, the obstacle has been removed, and this indefensible modal bias should be eliminated.

Everyone on this subcommittee knows that public policy on transportation modes is incredibly skewed—and that goes well beyond the gross inconsistencies in funding levels for the different modes. Current Federal funding policies distort state and local decisionmaking. The Federal Government offers generous matches to a state if they are making highway, transit or aviation investments, but offers *little or no funds* to match state investment in rail passenger service. The result is states and localities are discouraged from investing in rail even when it's the best system for the area. Elimination of modal bias and the desire for a balanced, truly responsive intermodal transportation system demands that this change. And "NEXTEA" is the most appropriate vehicle for that change.

As you know, highway trust fund moneys can be spent on mass transit, bus acquisition, light rail, bike paths, pedestrian walkways, technology research, planning, snowmobile trails, intermodal freight facilities, driver education programs, hiking trails, and much more. I am not here to discourage these types of investments, but I would like to point out the absolute inconsistency on prohibiting expenditures on intercity passenger rail. If a state chooses to spend a portion of their Federal transportation allocation on Amtrak, they should clearly be allowed to do so.

Including passenger rail as an eligible use of Congestion Mitigation and Air Quality (CMAQ), Surface Transportation (STP), National Highway System (NHS) and eligible transit program funds would eliminate this bias. States would be able to leverage a 75 or 80 percent match on their investment, and thus would be financially free to choose the best transportation solution based on transportation efficiency, not skewed economic incentives.

The legislative discrimination against passenger rail should be terminated with the enactment of NEXTEA. Inclusion of passenger rail as an eligible use of NEXTEA funds would require *no* new spending, would not change any Federal transportation allocation formulas, and would not mandate that a state spend one penny on rail service. What it would do is provide states with the flexibility to buy the transportation service that best meets their needs.

In 1995 when Amtrak announced a major route and service restructuring, Governors from across the country made personal appeals to then Secretary Pena asking that ISTEA funds be approved for expenditure on intercity rail service. Except in the most narrow case, where the Secretary found the grounds for making an exception, Federal law prohibited it. Instead, these Governors were forced to seek and spend state general revenues—dollars that are much harder to come by, that are wrestled from State Legislatures, and that provide no leverage of Federal funds—to support Amtrak service. Despite that, many of the states worked with us, and came up with the funding to preserve some form of the service proposed for termination. We currently have 13 states partnering with us for services, so it's clear that states want to have these partnerships. It is clear that the American people want a national passenger rail system—the challenge for this Congress is how best to support it and ensure its healthy existence. Allowing states the right to spend a portion of their Federal transportation allocation on Amtrak, if they so choose, is one critical response to this challenge.

The Senate approved legislation to provide this flexibility and eligibility in 1991, and again, by a nearly 2-1 bipartisan vote, during consideration of the National Highway System Designation Act (NHSDA) in 1995. Sixty-four Senators in the last Congress, supported by many of the nation's Governors, voted in favor of this. I am pleased to see that Senator Moynihan's ISTEA reauthorization, cosponsored by Senators Lautenberg, Lieberman and others on this committee, includes this eligibility for Amtrak. I urge this committee to ensure that whatever bill is reported to the full Senate for consideration include this very important eligibility for intercity passenger rail. Simply, it is a states' rights issue. If a state decides that Amtrak best meets their transportation needs, that state should be able to leverage the same amount of Federal dollars for rail service that it can for a new highway, a new bridge, a transit improvement or a bike path.

That is what Amtrak is seeking. Parity. Parity doesn't require an indictment of our highway system, or our transit systems, or our aviation system. As a former highway administrator, the head of a bridge and tunnel authority, a transit agency and a state DOT, I have never argued the merit of one mode over the other. Each serves a different need and a different population. They should be woven together to supplement and enhance each other.

The other issue that must be addressed in NEXTEA is the inclusion of a dedicated funding source for Amtrak. Amtrak has explained why we need it, GAO has agreed the National Commission on Intermodal Transportation has called for its creation, and leadership on both sides of the Hill have agreed. I'm not going to sit here in front of you and "cry wolf," but I know our national rail system cannot survive intact through yet another year of inadequate funding, and I can assure you that Amtrak will have to break its commitment to achieve independence from Federal operating support if we are not given an adequate, reliable dedicated source of capital funding. As we have always said, operational self-sufficiency is absolutely dependent on adequate capital investment in the system.

For some reason Amtrak, the only major mode of transportation which does not have a dedicated source of funding, is held to a higher standard than any other mode, all of which are dependent on the Federal Government for support and none of whom are called upon to defend themselves in terms of "profitability." We are also held to a higher standard than any other passenger rail system in the world, all of which rely on some level of Federal support. Amtrak covers more of its operating costs—an estimated 84 percent—than any other passenger railroad in the world, and serves more than 93 percent of the continental United States, while receiving less than 3 percent of all Federal transportation spending.

Although we were not witnesses, providing flexibility and a dedicated source of funding for Amtrak has been discussed in previous hearings before this subcommittee, and I must address some of the issues that have already been raised. One issue discussed, when the Highway Users Federation and the Surface Transportation Policy Project were testifying, was the number of riders on different modes. To provide some context, if Amtrak were an airline carrier, we would be the third largest in the United States. We carry almost half of the combined air-rail market between Washington, DC and New York, and when intermediate cities (such as Baltimore and Philadelphia) are included, Amtrak's share of the air-rail market rises to 70 percent. Loss of Amtrak service in this corridor would not only put a huge financial burden on the affected states, it would require another 7,500 fully booked 757's to carry our passengers every year, or hundreds of thousands of cars added to already congested highways. If Amtrak disappeared tomorrow, there would be an additional 27,000 cars on the highway between Boston and New York every day. To address the particular Northeast city pair discussed by Mr. Fay and Senator Chafee at an earlier hearing, between New York and Philadelphia Amtrak service removes 18,000 cars from the highways every weekday.

That number—18,000 cars a day—does not include the thousands of commuter rail passengers, and their parked cars, that are carried on Amtrak's Northeast Corridor by commuter agencies such as New Jersey Transit (NJT) and the Southeastern Pennsylvania Transit Authority (SEPTA) every day. These commuter agencies could not operate if Amtrak did not maintain the track, bridges, signals and electric traction system on the Corridor. Above and beyond Amtrak's enumerated ridership, another 220 million commuter passengers ride on Amtrak's Corridor between Boston and Washington, DC every year. You can measure Amtrak's impact not only in the number of cars removed from the road, but also in terms of avoided costs—as reported in the *Journal of Commerce* last May, Amtrak's presence eliminates the need for 20 additional highway lanes in New York City, and ten new tunnels under the Hudson.

Finally, it also must be noted that Amtrak carries all these passengers even as the terms of relative investment by mode become more and more disparate. In real

terms, spending for highways approached \$20 billion last year while capital investment for Amtrak was less than \$450 million. In relative terms, between fiscal year 1980 and fiscal year 1994, transportation outlays for highways increased 73 percent, aviation increased 170 percent, and transportation outlays for rail went down by 62 percent. In terms of growth, between 1982 and 1992 highway spending grew by 5 percent, aviation by 10 percent, while rail decreased by 9 percent. The overall funding amounts as well as the relative levels of investment should make one wonder how Amtrak has managed to maintain a fairly constant level of ridership, not why it hasn't increased its share. Amtrak has been accused of not serving enough of the traveling population, but that must be weighed against the price of not serving those travelers. It isn't just a matter of slightly more clogged roads or additional pollution. For some people it is the only way "to get there from here."

It's not just the urban corridors that depend on our service. Some 22 million of our 55 million passengers depend on Amtrak for travel between urban centers and rural locations some of which have no alternative modes of transportation. Some of the most persuasive appeals for flexibility for Amtrak and some of the strongest advocates for a dedicated trust fund have been elected officials from those states who are facing the elimination of Essential Air Service (EAS) or the disappearance of local bus service, and truly face the elimination of all other modes.

I have also been advised that opponents have made claims in front of this committee about the sanctity of the highway trust fund. I believe that the highway trust fund was legitimately expanded long before ISTEA and the funding of bike paths, pedestrian walkways, and "enhancements" was allowed. Fifteen years ago, when mass transit fought for a piece of the revered Highway Trust Fund, it met fierce opposition from a powerful highway lobby—who claimed the Highway Trust Fund would become insolvent and the Nations' roadways would all collapse, all within a few years. As everyone here knows, that is not the case. So when we hear these accusations against any usurping of the gasoline tax by Amtrak, realize they are not new, they are not accurate, and they are not convincing.

As the Chairman of this committee has said, there is no law—no covenant with the people—that says excise fuel taxes need to be spent on highways, nor for that matter, transportation. States use revenues collected from the gasoline tax for non-highway uses, and it goes unquestioned. Texas spends 25 percent of what it collects on the state's education system, while for states represented on this committee, the uses range from environmental protection in Florida and Arkansas to support for the Fish and Game Department in New Hampshire, to aiding the critically important ports and transit systems in Virginia, and maintaining snowmobile trails in Wyoming. Oklahoma already spends a portion of the gas tax on transit and railroad needs. Like the states, Congress should spend the revenues raised by the excise fuel tax on those programs it feels are deserving. I think passenger rail should be one of those programs.

Finally, I am not aware of any transportation system that supports itself sadly through user fees. According to the US DOT, in fiscal year 1994 nearly \$6 billion more was spent on highways than was collected in user fees. In fiscal year 1995 nearly \$8 billion more was spent on highways than was collected in user fees. That amount represents significantly more than Amtrak is requesting in funding over the entire 6-year life of NEXTEA. It's not just highways—transit is exempt from the gas tax and received approximately \$3 billion in gasoline revenues last year. No mode is self-financed. One parting thought. Like so many worthwhile things that have been done to little applause, ISTEA has faced criticism. You have invited witnesses here to discuss the good and the bad, to criticize and commend, and they may disagree by mode, or by state, or by region. Despite that, I believe your highest priority must be defending the ground already gained with that landmark bill and to build on it.

If we are to continue the vision of ISTEA and maximize our transportation resources in NEXTEA, we must move past the counting up and comparing of costs of each mode. A truly balanced transportation system is like an effective education system. All of society benefits from its existence, those who use it directly and those whose lives are eased or enriched by its existence. That is what NEXTEA should embody, promote and protect, and we at Amtrak believe intercity passenger rail should be a part of it.

PREPARED STATEMENT OF KAREN BORLAUG PHILLIPS, SENIOR VICE PRESIDENT,
ASSOCIATION OF AMERICAN RAILROADS

INTRODUCTION

Mr. Chairman and members of the subcommittee, my name is Karen Phillips. I am Senior Vice President of the Association of American Railroads (AAR).¹ I appreciate your invitation to appear before this subcommittee and present AAR's views on the reauthorization of the Intermodal Surface Transportation Assistance Act (ISTEA).

As you begin your work on ISTEA reauthorization with these hearings, I would like to discuss four particular issues of significant concern to the railroad industry. The first of these issues is one of overriding interest to all of us—transportation safety, and in this instance safety at highway-rail grade crossings. The second issue involves an essential element in any serious effort to continue to improve the movement of freight in this country and in the global marketplace—intermodalism, and specifically the important connections between different transportation modes. Third, I would like to address the roles of States and MPOs in effective transportation planning, and, finally, I will briefly discuss the important issue of Federal truck size and weight standards.

HIGHWAY-RAIL GRADE CROSSINGS

There has been an extremely successful partnership among Federal and state governments, the railroad industry, and other transportation safety interests for many years. This partnership has resulted in a reduction in annual public grade crossing accidents of over 65 percent since the early 1970's. This success has been accomplished primarily as a result of engineering improvements carried out under the Federal Section 130 Program, and the driver education/public information and traffic law enforcement efforts of the Operation Lifesaver Program. In fact, the Federal Highway Administration estimates that the Section 130 Program and Operation Lifesaver efforts have prevented over 8,500 fatalities and 38,900 serious injuries since 1974.

Despite the impressive safety improvement, the record of 3,697 accidents and 432 fatalities at public grade crossings in 1996 is unacceptable. More must be done to eliminate these tragic accidents, and the partnership among the involved interests must be strengthened. AAR is proposing four initiatives which it believes will result in a significant improvement in highway-rail grade crossing safety:

1. The Federal Government should continue and increase funding for the Section 130 Grade Crossing Improvement Program.

The historic Highway Safety Act of 1973 created and funded a national highway safety program specifically dedicated to enhanced safety at highway-rail crossings by providing for needed engineering and warning device improvements (Section 130 Program). In fiscal year 1997, approximately \$150 million in highway user revenues was apportioned to the states to carry out this important program. As mentioned earlier, as a direct result of the earmarked Federal funding for highway-rail crossing improvements, the annual crossing accident rate has been reduced by over 65 percent. This substantial reduction in accidents has occurred despite significant increases in both highway and rail traffic.

Without funding dedicated or earmarked for the Section 130 Program, crossing projects rarely compete successfully with more traditional highway needs, such as highway capacity improvements and highway maintenance. In fact, this problem was the primary reason a separate crossing improvement program was established in 1973. Despite the proven success of the Section 130 Program, however, many states continue to assign an extremely low priority to crossing improvement projects. Through the end of 1996, over \$227 million of Section 130 Program funds remained unspent by the states, and approximately \$230 million had been transferred to other Federal-aid highway program categories.

Earmarked funding for the Section 130 Program should be continued, and the annual funding level should be increased to at least \$185 million. The "Rail-Highway Crossing Study" completed by the U.S. Department of Transportation in 1989 found that:

"For warning systems, an estimated annual investment of \$185 million in improvements is necessary to maintain current overall safety performance. . . . An

¹ AAR is a trade association whose members account for 75 percent of total rail line-haul mileage, produce 93 percent of total rail freight revenues, and employ 91 percent of the freight railway work force.

initiative to cost effectively reduce current accident levels would require another \$30 million annually.”

Additionally, in order to increase state priority for Section 130 Program projects and assure crossing improvement spending, the authority to transfer Section 130 Program funds to other Federal-aid highway program categories should be restricted and obligation authority should be specifically reserved for the Section 130 Program.

2. The Federal Government should establish a national mandate and a uniform process for closing unnecessary public grade crossings.

Highway and rail safety officials have long advocated the closure of a large proportion of the public highway-rail grade crossings in the United States. Many grade crossings are redundant, serve no significant transportation mobility or access purpose, and continue to constitute a rail and highway safety hazard.

However, closing grade crossings is often not an objective transportation safety decision because the issue causes local emotional/political confrontations. The railroads support the establishment by Congress of a Federal crossing closing program implemented through a uniform nationwide process. Such a process should require state transportation agencies to identify and evaluate candidate crossings for closure, utilizing uniform criteria established by the U.S. Secretary of Transportation, and to develop and implement a statewide crossing closing plan. Active participation in this National Grade Crossing Closure Program should be required of all states. DOT should also develop guidelines which states would be required to follow in deciding whether to permit the opening or creation of any new grade crossings.

3. The Federal Government should finance a multi-year national grade crossing safety education and public awareness campaign to be conducted by Operation Lifesaver, Inc.

Since motorists frequently are unaware of the grave dangers of their behavior, government should take responsibility for a major, multi-year public awareness campaign designed to illustrate the life-or-death consequences of motorists' behavior at grade crossings. ISTEA authorized \$300,000 annually for the National Operation Lifesaver Program to increase public awareness of the grade crossing safety problem. Additional funds to support Operation Lifesaver are generally included in annual Federal Railroad Administration appropriations. However, a substantially increased commitment of resources is required to ensure the broadest understanding of the inherent danger of highway-rail grade crossings and the critical responsibility of motorists and the public to exercise appropriate care.

This expanded national Operation Lifesaver campaign must garner the same universal recognition and acceptance that Mothers Against Drunk Driving (MADD), for example, enjoys for its attack on drunk driving. The need to “Look, Listen . . . and Live” at grade crossings must be as familiar to the general public as “Friends Don't Let Friends Drive Drunk”.

As an example of a possible component of such a national campaign, Operation Lifesaver—joined by FRA and various state agencies—is sponsoring a national campaign called “Highway or Dieways.” AAR is giving significant support to this campaign. This is a very graphic and hard-hitting public service advertising campaign promoting highway-rail grade crossing safety. The campaign consists of television and radio spots, print advertising, and billboards. The strategy is to introduce the campaign in every state through Operation Lifesaver state coordinators. Begun in 1996, it has been introduced in five states, Texas, Georgia, South Carolina, Alabama, and Missouri, and has received significant media interest. The campaign will also begin next month in Ohio and California.

4. The Federal Government should create a national grade crossing warning device problem alert system.

Despite regular and thorough grade crossing warning device testing, inspection, and maintenance conducted by railroad personnel, the industry has occasionally experienced problems in receiving timely and accurate notification when warning device problems occur. To address this problem, in 1982, the Texas legislature created the Texas 1-800 Number Rail-Highway Crossing Notification Program. Texas has installed signs at public crossings encouraging the public to call the 1-800 telephone number in the event of a crossing warning device problem. The calls are received by the Texas State Police, which in turn alert the appropriate railroad personnel.

The railroad experience with the Texas 1-800 System has been generally positive. Although occasional “crank” calls are received and the public's perception of a warning device problem may be inaccurate, the system continues to provide valuable and timely information concerning warning device problems to appropriate railroad maintenance personnel.

The railroad industry supports the creation of a publicly funded, nationwide grade crossing warning device problem alert system operated by appropriate state agencies. The Federal Government should evaluate the feasibility of a variety of possible nationwide alert systems, and adopt and implement an effective system.

These four grade crossing safety initiatives will significantly enhance safety at highway-rail grade crossings and strengthen the essential partnership between the railroad industry and government. I urge this committee to include these recommendations in ISTEA reauthorization legislation.

INTERMODAL CONNECTORS

I would now like to discuss briefly the second issue of concern to the railroad industry—intermodalism and intermodal connector highways.

In ISTEA, Congress declared that:

It is the policy of the United States to develop a National Intermodal Transportation System . . . The National Intermodal Transportation System shall consist of all forms of transportation in a unified, interconnected manner . . .

In an effort to achieve that important objective, the Congress established the National Highway System, and determined that:

The purpose of the National Highway System is to provide an interconnected system of principal arterial routes which will serve major population centers, international border crossings, ports, airports, public transportation facilities, and other intermodal transportation facilities . . .

The importance of the interconnectivity of our transportation modes and systems was subsequently underscored by the National Commission on Intermodal Transportation when it found that:

Barriers to safe and efficient movement of freight occur at connections between modes . . . For example, inadequate roadway access to freight terminals is a barrier to the intermodal freight system and a major contributor to urban congestion. The lack of adequate connectors between the interstate highway system and the Nation's port, rail, airport, and truck terminals results in urban congestion, air pollution, negative impacts on adjacent neighborhoods, and delivery delays for shippers.

On May 24, 1996, then-Transportation Secretary Pena sent to the Congress a recommended list of highway connectors to major intermodal freight and passenger terminals. In his letter of transmittal, Secretary Pena observed:

The Congress, in creating the NHS, recognized that the Nation's transportation infrastructure must be viewed as a single system with each mode complementing the others. With the NHS and its connections to major intermodal terminals as the united force, our national transportation network will sustain economic growth, increase our competitiveness in the international marketplace of the 21st century, and enhance the personal mobility of every American.

Representing our major freight railroads, I can assure you that these observations and findings concerning intermodal highway connectors are absolutely correct. These essential highways are the glue that holds much of this country's intermodal transportation system together. Without first rate connections, trains, trucks, barges, and planes are condemned to operate separately and inefficiently. Government and America's private transportation companies can provide the finest transportation systems and services in the world—and that is occurring—but a completely efficient intermodal transportation system can never be realized without quality connections.

During ISTEA reauthorization these important intermodal connectors are to be considered for inclusion on the National Highway System (NHS). AAR enthusiastically supports improvement of intermodal connectors and urges their addition to the NHS.

TRANSPORTATION PLANNING

ISTEA attempted to establish a new approach to transportation throughout the country, by striving to break out of traditional, but limiting, perspectives. Transportation after ISTEA would no longer suffer from historic compartmentalization. The interests and concerns of both public and private providers of transportation facilities and services would be considered jointly and cooperatively. Passenger and freight transportation needs would both receive adequate attention and an appropriate allocation of resources. State, local, and metropolitan transportation interests would each have an appropriate and important role in planning and resource allocation. These goals of ISTEA have not yet been achieved, but that should in no way tarnish the vision or diminish our efforts.

Private railroads are working closer than ever, and more successfully, with states and MPOs to develop effective transportation plans and programs. It has been an

evolutionary process, primarily because all participants have had a great deal to learn about each other and about just how to integrate our respective interests and needs into a truly comprehensive transportation planning process. But the learning and improving is happening, and transportation in this country is winning as a result.

TRUCK SIZE AND WEIGHT

AAR supports the status quo on truck size and weight limits. Of particular concern are any efforts which may be made to thaw or otherwise modify the freeze on the expanded use of longer combination vehicles (LCVs)² that was included in ISTEA which are outside the scope of any legislative truck size and weight agreement that may be reached between the railroad and trucking industries.

The railroad industry has, of course, a vital stake in truck size and weight policy. Larger, heavier trucks—especially LCVs—would cause serious traffic and revenue losses to the U.S. railroad industry. This is obviously a grave concern for the railroad industry. This vital interest extends not just to the rail companies themselves, but also to the 213,000 rail employees, rail shippers, and the railroad supply industry. Additionally, there is strong evidence that heavy trucks pay user charges far less than the costs they impose on our highways and our society. This underpayment enables them to reduce rates and divert traffic from railroads. In the absence of full cost recovery, the further diversion from rail that will result from expanded use of LCVs is likely to mean a significant net economic loss not only to railroads, but also to society.

The public strongly supports Federal truck weight standards. Sixty-eight percent of Americans endorse a Federal weight freeze on trucks, according to a April, 1995, nationwide poll conducted by The Tarrance Group. Further, by exercising control over the nation's infrastructure through continuation of current truck size and weight standards and the LCV freeze, Congress can prevent highway infrastructure damage and congestion, increased highway safety problems, and exacerbated harm to the environment.

Advocates of increased LCV use are now proposing a "State Option" regime in place of the current Federal LCV freeze. Under "State Option", States without LCVs would come under intense pressure to allow bigger trucks as they spread to neighboring jurisdictions. Stopping this "upward ratcheting" of truck size and weight limits was the reason for the 1991 LCV freeze. Ending the current freeze through such a "State Option" approach would mean a rapid spread of LCVs throughout the United States.

The truck size and weight status quo—including the LCV freeze—is also threatened by the negotiations on standardizing truck size and weight limits which are being held with our NAFTA partners, Canada and Mexico. Last summer, 57 members of the Senate and 232 House members signed a letter to then-DOT Secretary Pena, urging him not to allow the NAFTA negotiations to be a vehicle for truck size and weight increases in the United States. AAR commends those members who signed the letter to the Secretary and the railroad industry hopes that Congress will continue to oppose larger and heavier trucks not just in NAFTA negotiations, but also in the ISTEA reauthorization.

In conclusion, ISTEA is working, because all parties are truly working together. AAR is convinced that America must continue the progressive agenda established by the Intermodal Surface Transportation Efficiency Act into the 21st Century.

Thank you for inviting me here today to present our views on ISTEA reauthorization. I would be pleased to answer any questions you may have.

AMERICAN PUBLIC TRANSIT ASSOCIATION, RECOMMENDATIONS ON REAUTHORIZATION OF THE INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT

STATEMENT OF NATIONAL PURPOSE

To enhance mobility in the 21st Century, the nation's transportation system must provide a solid foundation for economic growth by moving people and goods, not just vehicles, and by serving as an efficient, comprehensive, integrated network. Toward this end, the U.S. transit industry is ready to build on its outstanding record of cus-

²Longer combination vehicles, or LCVs, include three main truck types: triple 28 foot trailer combinations or triples; twin 48' or 53' tractor trailer combinations, also known as long or turnpike doubles; and Rocky Mountain Doubles, combinations with one long and one short trailer. The 1991 ISTEA defines LCVs as combinations with two or more trailers operating at weights above 80,000 pounds.

tomer service, innovative public-private cooperation, and a wide range of contributions to American life. Federal support for transit investments is a fundamental part of a balanced national transportation program that will strengthen our economic productivity and global competitiveness, improve the quality of life in our nation's communities, and provide all Americans with access to the broad range of affordable transportation services they need to lead fulfilling, productive lives.

From our very beginnings as a nation, Congress has determined that a national role in transportation is important to "ensure domestic tranquility, provide for the common defense, promote the general welfare . . ." This national role has been manifested in assistance for coastal and seaborne shipping; the Post Office's transportation needs; canal, turnpike, and railroad construction; aviation; and a Federal highway aid program that culminated in the 1954 authorization of the Interstate and Defense Highway system. The following decade saw the development of Federal transit programs as Congress recognized that transit was essential to achieve Federal objectives.

By 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) reformed Federal policy to meet the mobility challenge of the post-interstate era by integrating surface transportation planning, programs, and services. ISTEA recognizes that our economic health and the quality of life in our communities depend on more efficient use of infrastructure and careful planning in regions and states.

ISTEA also addresses the complications posed by our past insensitivity to the environmental and social impacts of massive urban freeway construction, which has stiffened public resistance to transportation improvements. We need more effective strategies to blend transportation infrastructure into the social and neighborhood fabric of our cities and suburbs, addressing human needs and impacts as well as physical and engineering questions.

Over the past 30 years, the U.S. transit industry and its riders have prevented:

- the emission of 1.6 million tons of hydrocarbons, 10 million tons of carbon monoxide, and 275,000 tons of nitrogen oxides into our air;
- the importation of 20 billion gallons of gasoline; and
- the construction and maintenance of 20,000 lane-miles of freeways and arterial roads and five million parking spaces to meet rush-hour demands, saving at least \$220 billion (as much as all Federal highway spending for the last 14 years).

Today, transit saves at least \$15 billion per year in congestion costs and provides a lifeline for people in thousands of metropolitan and rural communities. The Federal Government relies on transit to protect the environment; conserve energy; provide accessible transportation for people with disabilities, the elderly, and other transit-dependent riders; and ease the burden on crowded roads.

By standing firm on ISTEA's reforms and allowing the Federal-state-local transportation partnership to flourish, the Federal Government can ensure that transit will function even more effectively as a thriving part of a balanced national transportation system. As the economic losses caused by congestion grow in suburban as well as central cities, transit will become an even more important alternative to congestion. Continued Federal support for balanced transportation will enable every community to improve its transit service and increase the range of affordable, convenient transportation options, and revitalize our central cities, maintain the health of our suburbs, and weave our smaller towns and rural America more closely into the fabric of our national life.

Therefore, the American Public Transit Association (APTA) holds that it is the policy of the United States to create an environment that provides expanded opportunities for business, industry, households, and individuals to grow and prosper. Among the most important of these are the opportunities to:

- Enhance the economic security of individuals and businesses;
- Assure personal safety and security;
- Improve the quality of our neighborhoods and regional environments; and
- Enhance the effectiveness of public services.

Public transit links people to these new opportunities. The mission of public transportation is to foster personal mobility, economic opportunity, and an improved quality of life through partnerships, communication, and technology. Investments in transit are needed to enhance the economic health and the quality of life in central cities, suburbs, small towns, and rural areas. These transit investments will improve the quality of all citizens' lives and avert a future of congestion, economic stagnation, environmental degradation, and increasingly severe constraints on mobility for all people including those with no access to personal vehicles.

So that public transit can carry out this mission, we recommend the following proposals for the reauthorization of Federal surface transportation programs.

PRINCIPAL RECOMMENDATIONS

I. Maintain ISTEA'S provisions for flexible funding and a level playing field between transit and highway investments, with expanded opportunities for flexible funding.

II. Maintain the existing transit program structure.

III. Expand the definition of allowable capital expenditures to include maintenance and mandate relief.

IV. Support transit in small urbanized areas and rural areas.

V. Provide for a unified appropriation of transit funds.

VI. Increase the Federal transit program's efficiency.

VII. Modify the congestion mitigation and air quality program.

VIII. Maintain and strengthen the planning requirements.

IX. Apply the highway solvency test instead of the more stringent mass transit solvency test to the mass transit account.

X. Recapture the "deficit reduction" 4.3 cents/gallon gasoline tax for the Highway Trust Fund, depositing the revenue from 0.5 cents in a new intercity passenger rail account and 20 percent of the revenue from the remaining 3.8 cents in the mass transit account.

XI. Continue to support the transit cooperative research program (TCRP), university transportation centers, and ISTEA institutes; and create a new technology development and demonstration program.

XII. Allow states to use the state shares of flexible funding programs for intercity passenger rail investments and maintain the section 130 program to provide safety improvements for public highway/rail grade crossings.

SUMMARY OF RECOMMENDATIONS

I. Maintain ISTEA'S provisions for flexible funding and a level playing field between transit and highway investments, with expanded opportunities for flexible funding.

ISTEA's innovative flexible funding and level playing field provisions have been successful and should be retained. Among these important programs and principles are:

- The Surface Transportation Program (STP) and the Congestion Mitigation and Air Quality (CMAQ) program, with metropolitan suballocations;
- Equal, 80 percent Federal shares for highway and transit projects; and
- The use of local "soft match" for transit projects.

Additional flexible funding should be authorized by expanding the Surface Transportation Program using revenue from the Highway Trust Fund's Highway Account and Mass Transit Account. For every \$1 in Mass Transit Account revenue that would go to a new STP-Transit Program, an additional \$2 in Highway Account revenue would go to an STP-Highway Program. The STP-Transit Program would be part of the Federal Transit Program, but would be apportioned in the same way as the STP program, including metropolitan area suballocations, and its funds could be used for the same purposes as STP program funds.

II. Maintain the existing transit program structure

The existing transit program structure should be retained because it works well. The discretionary new start, rail modernization, and bus components; urbanized area, non-urban, and elderly/disabled components, and planning, research, and FTA administrative functions, all provide funds for a range of specific needs and encourage innovative new start projects in all regions of the country.

The next authorization act should provide funding for a core transit program before additional flexible funding is provided through the STP-Transit Program as proposed in our Recommendation. Even the maximum amount of Federal revenue that is likely to be available during the next authorization period is insufficient to fund the appropriate Federal share of the nation's transit investment needs. The following recommended funding levels for the core and new flexible programs are based on the revenue that is available from the Mass Transit Account.

Funding for the core transit program should be authorized at \$6.25 billion in Fiscal Year 1998 and should be adjusted for inflation in later years. Since transit capital needs alone are \$15 billion per year, this proposal does not meet clearly identified transit funding needs. Instead, it sets funding at levels that can be supported with existing gasoline tax revenues and MTA balances, along with additional revenue from our proposal to return to the transportation trust funds the revenue from the 4.3 cents per gallon Federal gasoline tax that now goes to deficit reduction.

Transit funds should be divided among individual programs as authorized by ISTEA, retaining to ratio of \$1.36 in formula funds for each \$1.00 in discretionary

funds; the 40:40:20 ratio for the New Start, Fixed Guideway Modernization, and Bus discretionary components of the Major Capital Investment Program; the 80 percent Federal share for transit projects and the 90 percent Federal share for Clean Air Act and Americans with Disabilities Act (ADA) costs; and Federal authority for the use of "soft match" resources such as toll revenues for the local share of project funds. Funding should continue to flow to Designated Recipients.

III. Expand the definition of allowable capital expenditures to include maintenance and mandate relief

Despite ISTEA's overall record of success, annual appropriations measures have significantly reduce" urbanized area (UZA) transit operating assistance, causing serious problems for transit agencies. To ameliorate the problems caused by this operating assistance shortfall, APTA proposes to expand the transit program's definition of allowable capital expenditures. For small UZAs, we propose to eliminate the distinction between capital and operating assistance as is now the case for non-urban areas, so that transit operators in these areas could use all of their funds for capital or operating purposes as currently defined. This proposal would not affect the program structure or the distribution of funds. No transit agency would receive a lower share of funds. If Congress retains operating assistance for large UZAs, we further propose that transit operators in these UZAs be able to trade in \$1 of operating assistance for \$2 of capital.

IV. Support transit in small urbanized areas and rural areas

To provide adequate support for transit in smaller urbanized areas (UZAs) and in rural areas, APTA supports the existing ISTEA formulas for smaller UZA and non-urban funding, as well as a provision to allow all these funds to be used for operating assistance as defined under current law, as is currently permitted for rural areas, and minimum regulatory requirements for these areas.

V. Provide for a unified appropriation of transit finds

To create more stability and predictability in annual transit funding levels, APTA proposes that transit funds be appropriated in a unified amount as is done for the Federal-Aid Highway Program. Any shortfall of appropriations below authorized levels would be proportioned equally among all transit programs. This procedure would result in a uniform first-year outlay rate for the total transit program in the same way that a uniform first-year outlay rate is calculated for the Federal-Aid Highway Program.

This proposal would:

- Seek as a worthy goal equality in first year outlay rates for transit and highways, which is currently a 17 percent first-year outlay rate; and
- Establish a level playing field between the highway and transit programs as they are treated in the budget and appropriations processes.

The next authorization act can fulfill these goals by applying the principle of a level playing field between transit and highway investments to the budget and appropriations process.

VI. Increase the Federal transit program's efficiency

Building on Congressional and U.S. DOT initiatives, APTA proposes several administrative and regulatory changes to make the Federal transit program more cost-effective. We propose to:

- (1) Increase capital flexibility by eliminating the associated capital maintenance item threshold and expanding capital maintenance eligibility to be consistent with FHWA programs;
- (2) Provide flexibility under the drug and alcohol testing program, for example, when a recipient must comply with FHWA and FTA rules;
- (3) Apply Federal procurement requirements only to capital funds;
- (4) Allow proceeds from sale of transit assets—including real property—to remain with grantee if used for transit purposes;
- (5) Permit transit operators to coordinate or combine Federal and state reviews to avoid duplication of efforts;
- (6) Reassert that ETA Circulars do not carry the weight of regulations;
- (7) Establish a direct link between non-rush hour half-fare requirements for senior citizens and the provision of Federal operating assistance;
- (8) Modify the parking tax benefit to narrow the difference between the \$65 per month tax-free transit benefit and the \$165 per month tax-free parking benefit. Require that Federal employees pay market prices for workplace parking. Create a Federal income tax deduction for transit commuter expenses;
- (9) Establish a procedure to give transit agencies credit for their contributions to attainment under the Clean Air Act;

- (10) Allow transit operators to provide charter bus service with fewer restrictions;
- (11) Extend the current exemption for public transit buses that exceed Interstate System axle weight standards, consistent with an FHWA/FTA study on this subject;
- (12) Ensure that compliance with the Americans with Disabilities Act:
 - Establishes a method that accommodates financial burden on transit systems;
 - Provides discretion to local officials;
 - Defines compliance that is certified by FTA;
 - Strengthens the coordination process at the Federal level to ensure transit access to all Federal funding for transportation services;
- (13) Reform section 13(c) legislatively with respect to its applicability, to ensure that it complies with the Administrative Procedure Act (APA) and is subject to a time limit, and to cover substantive issues.

VII. Modify the congestion mitigation and air quality program

Steady annual increases in flexible funding transfers to transit prove that ISTEA's flexible funding provisions respond to the needs of states and metropolitan regions. APTA favors adjustments to the CMAQ program so it will continue to provide resources for areas that come into attainment, but continue to face serious congestion problems and potential long-term air quality deterioration. The Federal Government should not penalize states and regions for achieving air quality goals.

VIII. Maintain and strengthen the planning requirements

ISTEA's planning provisions are fundamentally sound, including current authority for Metropolitan Planning Organizations, public participation requirements, transportation and land use linkages, and multimodal corridor analysis through the Major Investment Study (MIS) criteria. APTA recommends changes to ensure that the planning process fully accounts for often-ignored benefits of transit investments and to provide sufficient resources so that planning does not become another "unfunded Federal mandate."

IX. Apply the highway solvency test instead of the more stringent mass transit solvency test to the mass transit account

Spending from the Mass Transit Account of the Highway Trust Fund should be required to comply with the Byrd Test instead of the more restrictive Rostenkowski Test. This change will create a more level playing field between highways and transit since the Byrd Test applies to the Highway Account.

X. Recapture the "deficit reduction" 4.3 cents/gallon gasoline tax for the highway trust fund, depositing the revenue from 0.5 cents in a new intercity passenger rail account and 20 percent of the revenue from the remaining 3.8 cents in the mass transit account

We join other transportation industry organizations in calling for a return of the deficit reduction gas tax to the Highway Trust Fund. The revenue from a half-cent of this tax should be deposited in a new Intercity Passenger Rail Account. In keeping with the precedent set by President Reagan and reaffirmed by Presidents Bush and Clinton, the Mass Transit Account should receive 20 percent of the revenue from the remaining 3.8 cents, with the balance reserved for the Highway Account.

XI. Continue to support the transit cooperative research program (TCRP), university transportation centers, and ISTEA institutes; and create a new technology development and demonstration program

ISTEA has enabled the nation's transit agencies to improve productivity and serve their customers more effectively. ISTEA established the Transit Cooperative Research Program (TCRP), the first national research program to give the transit community a direct role in addressing critical challenges. Like its highway counterpart, TCRP makes a significant contribution to the national interest that deserves continued support. The university transportation centers (UTCs) and the university institutes established by ISTEA (ISTEA Institutes) also conduct important research, education, and training programs. The next authorization should retain these programs and provide them with no less than their current percentage of transit program funding. We also recommend the creation of a Technology Development and Demonstration Program as a partnership of the Federal Government, transit agencies, and the private sector. This Program would support the implementation of new transit technologies and practices, including those identified through TCRP.

XII. Allow states to use the state shares of flexible funding programs for intercity passenger rail investments and maintain the section 130 program to provide safety improvements for public highway/rail grade crossings

Since it is important to ensure that Governors and state DOTs have control over the use of flexible funds, we recommend that states be authorized to use the state share of flexible funding programs for intercity passenger rail investments. The use of funds for intercity passenger rail purposes is acceptable, however, only if there is an increase in the total amount of flexible funding. Therefore, this proposal is conditioned on the adoption of APTA's proposal to make available a higher total level of flexible funding with Highway and Mass Transit Account and "deficit reduction" gas tax resources.

APTA also supports the Federal Highway Administration's Section 130 Highway/Rail Grade Crossing Safety Program, which has successfully improved safety by funding state efforts to reduce accidents at highway/rail grade crossings.

DETAILED RECOMMENDATIONS

I. Maintain ISTEA'S provisions for flexible funding and a level playing field between transit and highway investments, with expanded opportunities for flexible funding

Proposal: Retain the Title I program structure of formula and discretionary programs and expand the Surface Transportation Program using revenue from the Highway Account and the Mass Transit Account.

Background: ISTEA's innovative flexible funding and level playing field provisions have been successful and should be retained. Among the most important programs and principles are the Surface Transportation Program (STP) and the Congestion Mitigation and Air Quality (CMAQ) program, including the metropolitan suballocations; the equal, 80 percent Federal shares of highway and transit projects; and the use of local "soft match" for transit projects. ISTEA has strengthened the partnership among Federal, state, and local governments, created new incentives to manage Federal resources more efficiently, and gone far to reduce Federal policy biases against transit investments.

Flexible funding transfers to transit have risen from \$304 million in fiscal year 1992 to \$780 million in fiscal year 1996, for a total of nearly \$3 billion in the first 5 years of ISTEA. This steady increase is one indication that transit is a priority at the state and local level, and that ISTEA's flexible funding Provisions have been successful.

APTA supports an increase in the authorized funding level for the Surface Transportation Program using resources from the Highway Trust Fund's Highway Account (HA) and Mass Transit Account (MTA). After the transit core program has been funded at our recommended level of \$6.25 billion in fiscal year 1998, additional MTA funds would go to a new STP-transit program. For each \$1.00 of MTA funds that go to the STP-transit program, an additional \$2.00 in Highway Account funds would go to the STP-highway program. For fiscal year 1999 and future years, the transit core program, STP-transit program, STP-highway program, and highway core program funding levels would be adjusted for inflation.

Although funding for the STP-transit and STP-highway programs would be authorized in different titles of the U.S. Code, each program would be apportioned in the same manner as the existing Surface Transportation Program and would include metropolitan area suballocations like the existing program. Funds from each program could be used for the same purposes allowed under the existing program; proposed changes in the definition of eligible projects would apply to each of the programs in an identical manner. STP-transit funds could be flexibly used for highway projects selected by states or MPOs, just as STP-highway funds could be flexibly used for transit projects.

APTA estimates that the new STP-transit program could be authorized at \$1.2 billion in fiscal year 1998. Under the 1-to-2 ratio, additional STP-highway funding would be \$2.4 billion in fiscal year 1998. [See attached Table, Reauthorization Proposal Funding Levels.]

For fiscal year 1998, transit core funding and transit-flexible funding would total \$7.45 billion, and this amount would increase with inflation. Total transit funding over 5 years (FY 1998-2002) would be \$39.5 billion. To provide this funding level, we propose that the Mass Transit Account receive the revenue from a share of the 4.3 cents/gallon Federal motor fuels tax that now goes to deficit reduction, that the Byrd rule solvency test apply to all Highway Trust Fund Accounts, and that existing balances in the Mass Transit Account be fully committed.

Action: Amend subtitle III of Title 49 to create a Surface Transportation Program-transit program with funding from the Mass Transit Account; for each \$1.00 of

funds Authorized for this program, increase the authorized funding for the Title 23 Surface Transportation Program by an additional \$2.00 from the Highway Account.

II. Maintain the existing transit program structure

Proposal: Retain the current Federal transit program structure of formula and major capital investment (discretionary) programs.

Background: Federal surface transportation programs provide essential funding for infrastructure investments that promote economic development, increased productivity, and individual opportunity. The Federal Transit Program is a vital component of this program: It supports transit systems that fill critical gaps in the comprehensive national transportation network, and it creates more transportation choices so that our infrastructure can move people and goods more efficiently and provide an alternative to ever more costly congestion.

To meet these critical economic and social needs, the existing Federal transit program structure should be retained, including a Major Capital Investment (Discretionary) Program with New Start, Fixed Guideway Modernization, and Bus/Bus Facility Components; a Formula Program with Urbanized Area, Non-Urban, and Elderly/Disabled Components; and the Research and Development Program. The Federal program should be administered by a transit agency or advocate whose status within DOT is equal to its modal counterparts. Funding should be \$6.25 billion in fiscal year 1998 and should be adjusted for inflation in later years.

A categorical program:

- Provides a base level of predictable, stable funding that is important to all transit operators including those in medium-sized and smaller metropolitan areas and rural areas;
- Retains a focus on the needs of transit-dependent individuals and the high quality service that must be provided to attract and keep new customers, both of which might be ignored or undervalued in the allocation of block grant funds;
- Allows transit agencies to participate in local and regional planning as full partners with their own assets to contribute, rather than putting them in the position of supplicants with few resources of their own;
- Within DOT, ensures that transit needs will receive appropriate attention and consideration.

Transit Program Funding

The next authorization act should provide funding for a core transit program before additional flexible funding is provided through the STP-Transit Program as proposed in our Recommendation. Even the maximum amount of Federal revenue that is likely to be available during the next authorization period is insufficient to fund the appropriate Federal share of the nation's transit investment needs.

We recommend that funding for the transit core program be set at \$6.25 billion in fiscal year 1998 and adjusted for inflation in later years for a 5-year total of \$33.1 billion in fiscal year 1998–2002. As discussed above, additional Mass Transit Account authorizations above the amount for the transit core program would go to the new STP-transit program. When these transit-flexible funds are included, transit funding would total \$39.5 billion during fiscal year 1998–2002. The \$39.5 billion funding level can be achieved if the Mass Transit Account receives the revenue from a share of the 4.3 cents/gallon Federal motor fuels tax that now goes to deficit reduction, the Byrd rule solvency test applies to all Highway Trust Fund Accounts, and existing balances in the Mass Transit Account are committed. We also support the highest possible authorization level of General Fund support for the Federal transit program, although we recognize that in recent years, General Fund support for transit has declined steadily in relative and absolute terms.

Equitable Funding Within the Transit Program

The formula program is an essential component of the Federal transit program and should continue to receive an equitable share of Federal transit funding. The current equity formulas, derived from the funding levels authorized in ISTEA, should be retained:

- There should be \$1.36 in urbanized area and rural Formula funding for every \$1 in Major Capital Investment (Discretionary) funding.
- The Major Capital Investment Program should continue to be divided on a 40:40:20 basis among the New Start, Fixed Guideway Modernization, and Bus/Bus Facility programs, respectively.
- Within the Formula program, we support the division of funds authorized in ISTEA. Thus the Section 18 Non-urban program should receive 5.5 percent of the total funding provided for the Section 9 and 18 programs.

Major Capital Investment Program

APTA supports all the existing Major Capital Investment programs, but is neutral on the process that Congress uses to earmark funds for individual New Start and Bus/Bus Facility projects. These discretionary programs provide a strong incentive for innovative, customer-responsive transit investments.

The New Start program creates incentives for metropolitan areas to develop and implement innovative transit alternatives in high density corridors. This program promotes greater choices for commuters who would otherwise have fewer alternatives to congestion and rush hour travel. It is essential not to limit the New Start program to existing projects or otherwise inhibit the efforts of more metropolitan areas to incorporate innovative rail and busway options into their long-range planning processes. The planning requirements for transit New Starts should, under the MIS regulations, be comparable to those for highway developments. The next authorization act should provide for equity in planning applications for all modes.

The Fixed Guideway Modernization program helps maintain and extend the useful life of major capital investments in many of our largest metropolitan areas. It has enabled the historic rail cities to maintain infrastructure which, in many cases, had suffered many years of neglect or disinvestment by private owners. Any proposal to change the formula for distribution of fixed guideway modernization funds should be the product of a consensus among the fixed guideway cities.

The Bus/Bus Facilities program meets major facility and equipment purchase needs that cannot be accommodated through the formula program. Further consideration should be given to changes in the Section 3 Bus/Bus Facility program that would provide minimum allocations to states or regions over the life of the reauthorization.

Action: Affirm support for the current law version of the Federal Transit Act, except as noted elsewhere in this proposal.

III. Expand the definition of allowable capital expenditures to include maintenance and mandate relief

Proposal: Expand the transit program's definition of allowable capital expenditures and eliminate the distinction between capital and operating assistance for small UZAs as is now the case for non-urban areas.

Background: For transit operators, ISTEA's most serious shortcoming has been the failure to achieve full funding of the urbanized area operating assistance cap. Operating assistance shortfalls have undermined ISTEA's goal of providing stable, predictable transit funding to allow elective long-term planning and the provision of cost-effective, affordable service. Congress and the Administration have undertaken several initiatives to ameliorate the problems caused by the decline in operating assistance, including measures to reduce unneeded regulations and to expand the definition of allowable capital expenditures.

Looking to the Federal-Aid Highway Program as a model for additional reform in this area, APTA proposes to incorporate features of that program into the transit program. Instead of an operating cap that limits spending on certain categories of expenditures, the transit program could have a uniform definition of allowable expenditures that includes the use of Mass Transit Account and General Revenue funds for maintenance expenditures, the costs of Federal mandates, planning, and research. This change would build on steps taken in the Fiscal Year 1996 Transportation Appropriations Act, which expanded the definition of allowable capital expenditures.

This proposal would not affect the program structure or the distribution of funds. No transit agency would receive a lower share of funds. The proposal would:

- Eliminate the "operating limit" formula apportionment;
- Expand the use of UZA formula funds for maintenance, mandates, etc.; and
- Eliminate the restrictions on the use of funds for UZAs with fewer than 200,000 people and rural areas, as is now the case for rural areas.

Action: Amend subtitle IN to expand the definition of allowable capital expenditures.

Alternative Capital-Operating Trade-In Proposal

Proposal: Establish a Capital-Operating Trade-In Program.

Background: In the event that Congress maintains the operating assistance provisions of current law for large UZAs, APTA recommends the establishment of a program that would allow transit operators to trade operating assistance dollars for capital dollars. Under this proposal, an amount from \$400 million to \$800 million would be a take-down off the top of the transit appropriation. Transit operators in UZAs with more than 200,000 people that choose to trade in their operating limit would receive an additional \$1 of capital for each \$1 of operating funds they used

for capital purposes. In effect, they would trade in \$1 of operating assistance for \$2 of capital. All funds in the takedown pool that are not used to match traded-in operating funds would revert to the urbanized area formula program for reapportionment.

Action: Amend subtitle III to establish a capital-operating trade-in program.

IV. Support transit in small urbanized areas and rural areas

Proposal: Support transit agencies in small urbanized areas and in rural areas by allowing them to use all Federal funds for operating or capital purposes without restrictions, and eliminating burdensome reporting requirements.

Background: Transit operators provide essential basic mobility for millions of people in the nation's small urbanized areas and non-urban areas. ISTEA affirmed the importance of Federal support for these programs by expanding the existing formula programs that assist them; transit operators in these areas also receive discretionary funds, chiefly through the bus/bus facility program.

For transit-dependent residents of these communities, including many elderly and low-income working people and people with disabilities, transit service is a critical lifeline to jobs, stores, schools, churches, and health care. The next authorization act must protect the programs that give these Americans access to affordable transit service.

Given the shortfalls in operating assistance during the ISTEA era, the transit industry recommends that small urban and non-urban transit agencies be allowed to use all formula funds for operating assistance needs as defined in current law. We also recommend that these transit agencies be exempted from burdensome regulatory requirements.

The current relationship between Section 9 and 18 should be maintained: The Section 18 non-urban program should receive 5.5 percent of the total funding provided to Sections 9 and 18. All of these funds should be available for operating as well as capital needs. The 18(i) set-aside for intercity bus service should be eliminated. The next authorization act should include a provision requiring that section 18 funds should first be made available to section 18 public entity recipients before such funds may be made available to other entities that are not necessarily open to the public.

Action: Amend relevant sections of the law.

V. Provide for a unified appropriation of transit funds

Proposal: Have the transit program appropriated as a single amount with programs funded proportionately to authorized levels.

Background: The ability to plan long-term investments in transit has been restricted by uncertainty in transit appropriations. Variations in outlay rates among transit programs have resulted in uneven reductions of program levels when appropriations have fallen below authorized levels. The operating limit for urbanized area formula funds has been significantly reduced as have research funds. The ratio of formula to Major Capital Investment funding also changes from year to year.

APTA proposes that transit funds be appropriated in a uniform amount as is done for the Federal-Aid Highway Program. Any shortfall of appropriations below authorized levels would be proportioned equally among all transit programs. This procedure would result in a uniform first-year outlay rate for the total transit program in the same way that a uniform first-year outlay rate is known for the Federal-Aid Highway Program. APTA proposes that the portion of expenditures from formula funds allowed for maintenance and mandate relief be consistent for all recipients and sufficiently high that the first-year outlay rates for the entire transit program and the entire Federal-Aid Highway Program be equal. This would eliminate the need to appropriate transit and highways at different portions of their authorized levels to achieve first-year outlay savings.

This proposal would:

- Seek as a worthy goal equality in first-year outlay rates for transit and highways, which, currently a 17 percent first-year outlay rate; and
- Establish a level playing field between the highway and transit programs as they are treated in the budget and appropriations processes.

The next authorization act can fulfill these goals by applying the principle of a level playing field between transit and highway investments to the budget and appropriations process. Improved economic productivity and individual access to opportunity both require a Federal transit program that allows transit operators to meet customers' needs in a businesslike way with a minimum of bureaucratic restrictions.

Action: Amend subtitle III to establish a unified transit appropriation as described above.

VI. Increase the Federal transit program's efficiency

Because they increase transit operating costs, Federal mandates limit transit agencies' ability to provide their customers with efficient, affordable service. The total annual cost of Federal mandates is greater than the level of operating assistance authorized by ISTEA, and far in excess of the actual operating aid levels appropriated during the ISTEA era. Federal policymakers must weigh the need for transit service as well as their desire to achieve the laudable goals of Federal mandates. To reduce the conflict among these varying needs, Federal policy should increase the resources available to transit agencies and reduce the regulatory burden on these agencies.

We propose the following regulatory efficiencies for inclusion in the next authorization act:

Proposal 1: Eliminate associated capital maintenance item threshold. Expand capital maintenance eligibility to be consistent with FAWN programs.

Background: Congress has cut Federal operating assistance significantly. One concern is that transit systems as a result may be forced to cut back on routine and ongoing maintenance, which could result in a more rapid depreciation of federally funded assets. A response to this concern would be to permit the capitalization of maintenance costs, which already is the case under programs administered by the FHWA and, to a lesser extent, the FTA. The fiscal year 1996 DOT appropriations act, for example, made certain bus overhaul costs eligible for capital funding. This proposal could be implemented piecemeal—by modifying existing provisions of law—or by a wholesale change in the definition of “capital” under Federal transit laws.

Action: For piecemeal approach, at 49 USC 5307(a)(1) delete “. . . each costing at least .5 percent . . . [through end of sentence].” For broader approach, amend statutory definition of capital at 49 USC 5302(a)(1).

Proposal 2: Provide flexibility under drug and alcohol testing program.

Background: APTA supports Federal drug and alcohol testing of safety workers, including operators of transit vehicles. Nonetheless, the application of the rules sometimes is duplicative, burdensome, and costly. Where the underlying program goals are unaffected, APTA urges greater flexibility in DOT's administration of the program. For example, if an entity is subject both to FTA's and FIIWA's programs, which have different requirements, the entity should be permitted to comply only with the program that affects its operations more. In addition, under the existing DOT regulations, transit systems may have their random drug and alcohol testing rates lowered only on the basis of industry-wide data. Random testing is costly; if a transit system can show from its own data that positive drug and alcohol rates are low, it should be able to apply to FTA for lowered random testing rates on an individual basis, and not be held to a more difficult industry-wide standard.

Action: Amend FTA law, not Omnibus Transportation Employee Testing Act.

Proposal 3: Apply Federal procurement requirements only to capital funds.

Background: Under current FTA policy, Federal procurement requirements apply to all federally funded projects, including those funded with operating assistance. Because operating assistance is “fungible” and cannot be limited to a particular project in the way that capital funds can, this FTA policy essentially means that Federal procurement rules apply to all of a grantee's procurements, even those funded solely from state and local sources. There is no indication that Federal procurement requirements were meant to apply so broadly. Accordingly, APTA recommends that Federal transit laws be amended to limit Federal procurement requirements to the use of Federal capital funds, thereby permitting projects not using Federal capital funds to be subject to relevant state and local requirements.

Action: Add new provision at 49 USC 5302.

Proposal 4: Proceeds from sale of transit assets—including real property—should remain with grantee if used for transit purposes.

Background: Under current Federal transit law, if a grantee chooses to sell federally funded assets, the Federal share of the proceeds generally must be returned to the Federal Government. This acts as a barrier to good business practices, and tends to discourage a grantee from making decisions based on local conditions and circumstances. ISTEA added a new provision permitting a grantee to transfer Federal assets to another public body if the assets no longer are needed, and APTA recommends that the provision be amended to permit a grantee also to sell federally funded assets and to keep the proceeds so long as they are used for transit purposes.

Action: Amend 49 USC 5334(g) to permit such dispositions.

Proposal 5: Permit transit operators to coordinate/combine Federal/state reviews to avoid duplication of efforts.

Background: Recipients of Federal transit funds are subject to comprehensive Federal triennial reviews. Increasingly, such systems are subject to state and local reviews as well. To reduce duplicative costs and encourage comprehensive and coordinated reviews, to the extent practical Federal reviews should be administered in concert with related state or local reviews.

Action: Amend triennial review section of law at 49 USC 5307(i)(2).

Proposal 6: Reassert that FTA Circulars do not carry the weight of regulations.

Background: In contrast to FTA regulations that are issued in draft form and subject to comment and revision, FTA circulars are frequently issued without the benefit of the same public review. Unfortunately, however, circulars often carry the same weight and penalties as regulations.

Action: Include statutory or, more likely, report language that instructs the FTA to limit circulars for the purpose of providing guidance.

Proposal 7: Establish a direct link between non-rush hour half-fare requirements for senior citizens and the provision of Federal operating assistance.

Background: Under section 5307(d)(1)(D)—formerly section 5m—of the Federal Transit Act, approval of formula program grants by the Secretary are contingent on half fares being provided to the elderly and handicapped during non-peak hours of operation. While many transit systems may prefer to maintain this benefit, the elimination of this provision would give others the discretion to structure fares in a manner more appropriate to their demographics and financial condition. A redefinition of this provision would make the implications of operating assistance cuts more apparent to Congress and would provide discretion to local authorities.

Action: amend 49 USC 5307(d)(1)(D) to tie this requirement specifically to operating assistance grants.

Proposal 8: Modify the parking tax benefit to narrow the difference between the \$65 per month tax-free transit benefit and the \$165 per month tax-free parking benefit. Require that Federal employees pay the market rates for workplace parking. Provide a Federal income tax deduction for public transit commuting expenses.

Background: Employers can subsidize employee work trips through tax-free fringe benefits. Persons commuting in personal vehicles can receive free parking and transit users can receive transit passes. The value of these two benefits is not, however, equal. The parking benefit is tax free up to \$165 per month whereas the transit pass benefit is tax free only up to \$65 per month. Transit users are limited to 39 percent of the benefit available to private vehicle drivers simply because they choose to use transit. In addition to encouraging private vehicle commuting and discouraging transit commuting, the tax-free parking benefit costs the Federal Government \$17 billion annually in lost tax revenues.

In recent years, Congress has made significant progress in redressing this imbalance. APTA recommends further reforms to equalize the tax-exempt fringe benefit for transit riders and private vehicle commuters, and supports certain revisions to the tax code to eliminate barriers that deter employers from offering the benefit. APTA recommends that employees of the Federal Government be subject to market rates for parking costs.

We further recommend that individuals (both itemizers and nonitemizers) should be allowed an income tax deduction in the amount of their public transit expenses commuting to and from their places of employment. For example, if the cost of a monthly transit pass is \$100, a commuter could deduct \$1,200 from his/her taxable income. A 28 percent taxpayer would save approximately \$336 from his/her Federal income tax annually. To control the overall cost to the Treasury, an annual ceiling could be imposed, perhaps as high as \$1,500.00 per taxpayer.

Action (1): Amend the Tax Code to provide equal monthly tax-free benefits for employee parking and employee transit expenses; make certain revisions to IRC Section 132(f)(4) to make the benefit more attractive to employers; and to allow individuals to claim as a Federal tax deduction the cost of commuting to and from work on public transit. This tax deduction would be available to all taxpayers across the economic spectrum—both itemizers and nonitemizers.

(2) Require Federal agencies to charge employees market rates for workplace parking.

Proposal 9: Establish a procedure to give transit agencies credit for their contributions to attainment under the Clean Air Act.

Background: Transit is one of the most environmentally beneficial forms of urban transportation. Transit riders use less energy and cause smaller quantities of emission than private vehicle drivers. Transit vehicles use less right-of-way than roads and encourage land use patterns that use fewer resources and cause less stress for the natural environment.

With the recent relaxation of Employee Commute Option and Inspection and Maintenance requirements, some of the mandatory tools available to local officials to achieve their clean air standards have been reduced. The goals, however, remain in place without any more definitive means of achieving them. Transit investment and enhancement should be available as a measure by which local officials can receive enhanced credit for achieving their clean air attainment goals.

Action: Amend Clean Air Act.

Proposal 10: Allow transit operators to provide charter bus services with fewer restrictions.

Background: ISTEA established a charter bus demonstration program pursuant to which transit systems could meet the needs of government civic, charitable, and other community activities which otherwise would not be served in a cost effective and efficient manner. The demonstration program went well, and APTA recommends that its principles be embodied in permanent law. Alternatively, APTA recommends that the remaining charter bus program be administered in accordance with the more flexible and less costly regulations that were in place before 1983.

Action: Make provisions of demonstration program permanent law; incorporate key provisions of pre-1983 regulations into law.

Proposal 11: Extend the current exemption for public transit buses that exceed Interstate System axle weight standards, consistent with an FHWA/FTA study on this subject.

Background: Current law provides an exemption from Interstate System axle weight standards for transit buses until the date that ISTEA is reauthorized. An FHWA/FTA study has found that only a portion of such transit bus traffic is overweight, and that use of interstate highways is vital to some transit agencies. The study further notes that, due to cost and scheduling problems, it is not feasible to operate different types of buses on and off the interstate system. Accordingly, the study recommends that public transit buses be allowed to operate on the interstate system at a grandfathered weight until 2003.

Action: Amend the law to extend the exemption until 2003.

Proposal 12: Ensure that compliance with the Americans with Disabilities Act:

- Establishes a method that accommodates financial burden on transit systems;
- Provides discretion to local officials;
- Defines compliance that is certified by ETA;
- Strengthens the coordination process at the Federal level to ensure transit access to social service funding.

Background: Preliminary estimates indicate that total ADA costs to transit operators will exceed \$1.4 billion annually, including some \$1.1 billion in paratransit costs (of which at least \$980 million is for operation or contract operation of paratransit service). The final implementation of paratransit plans is likely to increase costs even more. Therefore, every effort should be made to control future cost increases. Because the goal of meeting 100 percent of demand is unrealistic, APTA recommends a number of regulatory reforms that would help contain costs. They include:

- The establishment of a flexible interpretation of compliance that would provide local officials with some discretion in balancing paratransit requirements with mainline needs.
- Statutory language stipulating that agencies that receive funding from any Federal source for non-emergency transportation service shall participate in the design and delivery of paratransit services, and in the cooperative transportation planning process, as identified in ISTEA.
- Provisions to broaden flexibility of Federal transportation funds to authorize eligibility for paratransit operating and capital costs necessary to comply with the complementary paratransit service requirements of the ADA

Action: Add a new "ADA Enhancement Program " with these provisions at 49 USC 5310(h).

Proposal 13: Reform section 13(c) legislatively with respect to its applicability, to ensure that it complies with the Administrative Procedure Act (APA) and is subject to a time limit, and to cover substantive issues.

Background: In 1964, Congress responded to the collapse of many private mass transit systems with the Urban Mass Transportation Act (UMTA) of 1964, which provided Federal assistance to public transit systems. In drafting the UMTA, Congress included Section 13(c) in response to the concerns of organized labor that the status and bargaining rights of private sector employees would be undermined by the conversion from private to public mass transit systems.

Section 13(c) has long outlived its original intent of protecting private sector employees as they were absorbed into public transit systems. Accordingly, APTA rec-

ommends that Section 13(c) be reformed legislatively in the three areas of applicability, process and substance.

Action: Amend section 13(c) to reflect the following positions:

A. Applicability

(i) 13(c) should not apply to grants for operating assistance, routine rolling stock replacements, or other projects with no adverse impact on workers or that are required to carry out another Federal mandate.

(ii) Protective arrangements should expire within a fixed time (e.g. 3 years for capital assistance).

B. Process

(i) The process for making 13(c) certifications should be reformed to comply with the Administrative Procedure Act (APA) and be subject to a time limit (e.g., 60 days) after which grant funds may be awarded by the Department of Transportation (DOT) without a Department of Labor (DOL) certification.

(ii) The specific reforms that would be achieved by applying the APA include:

- Require legal basis for DOL decisions to be stated
- No ex parte contacts
- Precedential value of decisions established
- APE judicial review available, both before or after grant funds accepted
- Burden of proof on claimant

(iii) Consideration should be given to administering section 13(c) in DOT rather than DOL.

C. Substantive Issues

(i) Reform efforts should make clear that:

- A wide range of impasse resolution measures may be agreed upon by the parties and should be based on state law. These may include the right to strike, fact finding, mediation, and interest arbitration provided both parties are in agreement. Interest arbitration is not to be imposed unilaterally.
- Section 13(c) does not provide carry over employment rights from contractor to contractor.
- Section 13(c) does not infringe on basic management rights to contract out, use part time employees, plan routes and service, etc.
- The 6-year severance provisions should be eliminated.
- Contingent liability arising from issues such as service area workers included under 13(c) protections should be ended

VII. Modify the congestion mitigation and air quality program

Proposal: Modify the Congestion Mitigation and Air Quality (CMAQ) program to provide for the weighted apportionment of CMAQ funds in states that had carbon monoxide or ozone non-attainment areas on January 1992, and that have since come into compliance with Mean Air Act standards. Such areas would be considered "clean air maintenance" areas and apportionment would be calculated using the weighting factors in current law.

Background: CMAQ funds under ISTEA are distributed on a basis where the population in non-attainment areas, as it Dates to all such areas, is multiplied by a factor of 1.0 to 1.4 (depending on the severity of the air quality problem). Notwithstanding such factors, each state receives at least 1/2 of 1 percent of the total. States without non-attainment areas for carbon monoxide or ozone within their borders can use funds for projects eligible for assistance under the Surface Transportation Program. ISTEA was, however, amended under the National Highway System Designation Act (P.L. 104-59) so that no state receives less CMAQ funds in fiscal year 1996 or fiscal year 1997 than it received in fiscal year 1995.

Support for the CMAQ program is likely to increase if funds are distributed to more states for congestion mitigation and improvement or maintenance of air quality. As more areas come into compliance with air quality standards current law would reduce the number of areas receiving such funds, which are one of the best sources of flexible funding for transit. Project eligibility standards should be retained, however, and in particular, the prohibition on the use of CMAQ funds for projects that result in the construction of new capacity available to single occupancy vehicles (except in off-peak hours) should be retained.

Action: Amend 23 USC 149(b) to ensure distribution of CMAQ funds to "clean air maintenance" areas.

VIII. Maintain and strengthen the planning requirements

Introduction: ISTEA's planning provisions triggered a more inclusive, comprehensive, intermodal, flexible, locally responsive, and transit-friendly approach to trans-

portation planning. ISTEA provides communities with a planning process to help make difficult choices and justify them in the short and long terms. APTA strongly supports a continued Federal role in transportation planning. APTA endorses ISTEA's planning provisions, and in some cases recommends measures to strengthen them.

This endorsement is based in large part on the results of APTA's Survey on the Planning Provisions of ISTEA. In May 1995, under the leadership of the APTA Policy and Planning Committee, a survey was sent to members of the Policy and Planning and Legislative Committees in order to obtain their views on ISTEA's planning provisions. The enclosed survey results overwhelmingly support most provisions and recognize the need for improvement in a few others.

APTA endorses ISTEA's regulatory framework for process, criteria, elements to consider, level of detail, participants, funding assumptions, and update schedules as appropriate. The regulatory framework provides minimum protections for the non-traditional players in the transportation planning and programming process.

The transportation planning process should be guided by broad goals that include: (a) reduced vehicle miles traveled (Vow), (b) increased average vehicle occupancy, and (c) coordinated land use and transportation plans.

A. Metropolitan Planning Organizations (MPOs)

Proposal: Strengthen Metropolitan Planning Organizations and Transit Relationships

Background: The economic health of metropolitan regions is an essential component of our nation's economic health. Making metropolitan regions more economically productive depends on an effective intermodal transportation system that moves people and goods more efficiently into and throughout each region. APTA believes that Metropolitan Planning Organizations (MPOs) are best suited to be the power brokers of transportation decisionmaking in metropolitan areas and that their prominent role must be strengthened. Eighty-one (81) percent of members surveyed endorsed providing more power to MPOs; 86 percent supported the current MPO role in long range planning, and 88 percent endorsed the MPO's role in Transportation Improvement Program development. One issue is the need for disclosure by states of the obligation amounts since passage of ISTEA for each urbanized area by funding category, including transit and highway programs.

Current law allows MPO board members representing 75 percent of an area's population to approve redesignation. APTA proposes that the next reauthorization bill require all MPOs to reconfirm their composition if they have not done so since the passage of ISTEA. The reconfirmation process should be preceded by widespread, proactive public involvement, culminating in formal public hearings. Further, in addition to membership, the process should address issues such as equitable representation, transit representation, meeting frequency, chair rotation procedures, the ability of members other than the chair to convene meetings, the composition and operational procedures of key committees, and the independence of MPOs housed in modal agencies. Finally, APTA believes the 75 percent trigger for redesignation is overly restrictive, and recommends that it be changed to 51 percent plus the central city. Ninety (90) percent of the survey results support transit representation on MPO boards and 89 percent support central city representation on MPO boards.

APTA supports the Transportation Management Area (TMA) concept; 86 percent of our survey respondents endorsed the power of local transportation decisionmaking to TMAs.

Action: (1) Reduce the redesignation threshold from 75 percent to 51 percent of the population so that MPO board members representing 51 percent of an area's population plus the central city can trigger redesignation.

(2) Require local affirmation of each MPO's composition and institutional, structural, and procedural arrangements under the new redesignation ground rules to publicly reaffirm the MPO's decisionmaking process for plans, programs, and the use of public funds. This should be accomplished with proactive public involvement MPOs that have experienced redesignation since ISTEA's enactment would be exempt.

(3) Require states to make public the obligation amounts since passage of ISTEA for each urbanized area by funding category, including transit and highway programs.

(4) Provide adequate MPO funding; at a minimum, this would be equivalent to current ISTEA levels

B. Public Involvement

Proposal: Maintain inclusive decisionmaking in the planning provisions.

Background.—The importance of participatory planning in developing transportation plans, programs, projects, and policies cannot be overemphasized. Effective transportation planning does not take place without meaningful public involvement programs tailored to the particular local circumstances. Benefits of public input include improved planning, facilitated decisionmaking, enhanced legitimacy, and increased implementation prospects. Ninety-five (95) percent of the survey results endorsed continued public involvement in the transportation planning process.

Action: Retain all existing public involvement legislation, and implement final adoption of the “Interim Policy on Public Involvement” and the corresponding “Questions and Answers.”

C. Major Investment Studies (MIS)

Proposal: Support the continued use of Major Investment Studies as a process to make sound investment choices to solve problems and/or achieve objectives in selected corridors.

Background: Major Investment Studies (MIS) are a way of leveling the playing field in making major investment decisions because they subject highway and transit projects to the same level of review. Eighty-one (81) percent of the survey results support the major investment study process for seeking transportation solutions in problem corridors. APTA strongly supports the continued use of MIS to make sound choices in transportation investments.

Action: (1) Add language that explicitly recognizes the MIS. Require the long range transportation plan to identify major corridor investments only after conducting multi-modal investment studies, undertaken in a cooperative manner, that consider a reasonable range of alternatives against investment criteria

(2) Repeal the transit-only investment criteria found in Section 49 USC 5309(m)(3) (formerly 3(j)) and replace them with multi-modal criteria

D. Consideration/Consolidation of Planning Factors

Proposal: Consolidate existing factors, where possible, while maintaining the spirit and flexibility of ISTEA; add one new factor.

Background: ISTEA included factors to be considered in metropolitan planning with the intent of stimulating comprehensive thinking. While the factors have sometimes been dealt with in perfunctory ways, APTA supports the underlying premise of the 16 factors and recommends the following provisions to broaden their scope. Seventy-eight (78) percent of the survey results support the consideration of the planning factors in the planning process.

The legislation should recommend that DOT issue guidance explaining the flexibility of the factors. The factors are benchmarks for consideration. For example, if an MPO feels that a criterion does not apply, it can meet the requirement simply by explaining why.

Action: (1) Require an additional factor, the consideration of central city issues.

(2) Include statutory or report language recommending that DOT issue guidance explaining the flexibility of the concept. The factors are benchmarks for consideration.

E. Fiscally Constrained Plans

Proposal: Retain fiscally constrained plans.

Background: ISTEA’s “financial constraint” requirements are necessary to protect the integrity of the state and MPO planning processes. They also force decisionmakers to set a more realistic set of priorities in a collaborative, participatory setting. In addition, financial constraints can also help areas to get more resources. When state and local officials fully realize the shortfall between available funding and transportation needs, they more readily work to support additional funding sources. Seventy-eight percent of survey results support fiscally constrained programs and financial assessment for the long range plan. However, many comments suggested a two-tiered approach that includes a less constrained, more visionary long range plan.

By programming to the authorized level, not an uncommon tactic in most plans, the plan provides a minimum cushion of over-programming to meet unexpected delays that hamper project implementation. In addition, the 3-year nature of the Transportation Improvement Plan (TIP) provides another mechanism for identifying projects that can be advanced without creating the need for a special set of “contingency” projects, which then have questionable status.

Action: Retain the provision for fiscally constrained metropolitan and statewide plans.

F. Land Use/Transit Linkage

Proposal: Encourage and promote the coordination of land use and transportation planning.

Background: Although the Federal Government does not require land use planning, it has recognized that transit-supportive land use patterns and associated policies are the cornerstone success for major transit investments. Therefore, Congress and the Administration must continue to give special consideration to projects with transit-supportive land use patterns and/or legally binding policies and must encourage and promote the coordination of land use and transportation planning.

Action: (1) Continue to emphasize transit-supportive land use planning for major capital investments.—Compatible and transit-supportive land use must continue to be a major criterion for capital investments. The use of public transit investments to enhance, stimulate, facilitate, reorient, and/or organize adjacent land development or redevelopment strategies needs to be recognized and supported. Areas that adopt and implement enforceable transit-supportive policies in land use, infrastructure, and related areas should be given priority.

(2) Provide greater flexibility in the use of ISTEA funds for transit-supportive and development activities.—Major Capital Investment (Discretionary) funds provide flexibility for using funds for non-vehicle-related activities that are functionally and operationally related to a transit project. This allows for pedestrian access, mixed uses in transit facilities, etc., and the creative use of funding to encourage more transit-supportive land uses. Explicit language is needed in the reauthorization bill that extends the flexibility afforded to Major Capital Investment Program 3 funds to projects using Formula, STP, and CMAQ funding.

(3) Modify cost-effectiveness analyses to recognize infrastructure savings achieved with compact transit-supportive land uses.—There are potential savings of local infrastructure costs associated with compact development which should be included in the analyses.

(4) Authorize Federal funds to improve modeling to identify benefits of transit-supportive land use.—Current trip models are weighted by automobile trips and travel times. These models currently do not adequately consider the beneficial impact of short trips, transit usage, or pedestrian access. Funding should be provided to improve modeling capability to include better quantitative methods, including sensitivity to specific design details. Needed are model refinements and data to test options such as a direct connection to transit, pedestrian amenities, bicycle facilities, etc.

(5) Continue and increase FTA's Livable Communities initiative grant programs as part of the next authorization act, and integrate these programs with other governmental programs and private sector activities. The FTA's Livable Communities initiative has sought opportunities to place transit services and projects in the context of the community-its relationship to the needs of the residents and businesses, its reinforcement of the unifying aspects of transit services to community identity, and its commerce. Emphasis is placed on the comprehensive plan of the community, public involvement, coordinated community development strategies, intergovernmental and private partnerships, and the synergy of the project.

Funding and flexibility for Livable Communities needs to be increased under reauthorization.—Local communities, transit providers, and businesses need to see more success in collaborative, cooperative, and coordinated partnerships to enhance and reinforce transit services' impact on community vitality.

(6) Include a policy statement regarding transit's role in improving the quality of life.—Transit provides jobs; access to jobs; mobility for all segments of the population; and needed transportation to school, medical treatment, services, recreation, shopping, etc. It also provides capability to respond to community disasters and emergencies and a transportation choice to citizens who choose not to use or do not have access to personal vehicles. Communities dealing with air and noise pollution rely on public transit as part of the solution. Transit encourages urban forms that offer variety in density and land use that are often defining of a community. Transit supports pedestrian flows and access which creates the street environment that makes cities livable and inviting. Transit also provides essential transportation to rural communities. Therefore, transit's role in improving the quality of life in our communities needs to be recognized.

(7) Authorize at least three demonstration projects of integrated land use and transit policies.—The transit/land use connection is more theory than practice in much of the United States where it has been tried, the implementation of new, legally binding transit supportive plans and policies in conjunction with major transit investments has been a way to achieve local land use objectives and help guarantee the transit project's success. More local success stories—such as examples of corridor—wide station community planning, land banking for joint development, or

transit supportive development incentives-are needed to advance the state-of-the-art and provide practical examples from which to learn.

(8) Require MPOs to collaborate with other agencies to conduct a broad-based visioning process for transportation and land use if they have not already done so.— Experience has demonstrated that such processes best provide a framework for subsequent transportation planning, and can develop a cadre of interested citizen and government officials who will be actively involved in subsequent phases of project development. Many communities have successfully used a visioning process to define quality-of-life issues for their communities. Their aspirations for healthy commerce and communities have led to a reconsideration of land use and development policies, and greater emphasis on ensuring the development of a balanced transportation network.

As part of the visioning process, MPOs should explicitly recognize the importance of revitalizing the nation's central cities and creating new employment, housing mobility, and economic opportunities in these areas. MPOs should be encouraged to incorporate the goal of revitalizing our center cities and the inner rings of older suburbs into their regional transportation, land use, and development plans. All participants in the MPO process should cooperate toward this end, recognizing that the economic health and quality-of-life in the suburbs and central city are inextricably linked.

(9) Extend the regional and statewide planning structure developed under ISTEA to other Federal programs, e.g., HUD's new block grants, HHS service grants, etc. All should be linked to a regional structure for metropolitan planning so that housing, business development, and service delivery can be regionally designed and delivered as part of regional growth strategies. Incentives should be provided for regional cooperation.

(10) Assure reasonable representation of agencies with control over land use on decision/policy bodies for MISs and MPOs. Without the active involvement of land use agencies in MISs and MPOs, the transportation land use connection envisioned in ISTEA is an impossibility.

G. Federal Certification Reviews

Proposal: Continue Federal oversight in the planning process to ensure consideration and consultation between state and regional stakeholders.

Background: APTA believes that the FHWA/FTA certification process can provide much-needed oversight to ensure that all the players are adhering to the principles of ISTEA (or any subsequent authorization bill). In our membership survey, 85 percent supported Federal certification and 79 percent favored sanctions for non-compliance with ISTEA planning mandates.

ISTEA changed the way we do business. Some oversight must be expected to ensure that the new principles are being followed. Over time, perhaps the need for Federal oversight will diminish.

Action: Maintain Federal certification of the metropolitan and statewide planning processes.

H. State Planning

Proposal: Continue statewide planning and programming process under ISTEA.

Background: APTA supports state planning as generally defined in ISTEA. Seventy-four (74) percent of survey results support the development of a state plan as required under ISTEA. In addition, 79 percent of survey results support a statewide transportation improvement program. However, there is some confusion at state DOTs when an MPO TIP is amended, particularly when the amendment involves a transit project. All ISTEA partners would benefit from a consistent, clearly defined TIP amendment process.

Action: (1) Require MPO review and approval of a metropolitan area's portion of the state long-range plan.

(2) Require a legislative provision that defines the TIP amendment process.

IX. Apply the highway solvency test instead of the more stringent transit solvency test to the mass transit account

Proposal: Apply the Byrd Test Instead of the Rostenkowski Test to the Mass Transit Account.

Background: Under current Federal tax law, the solvency of both accounts of the Highway Trust Fund is protected by automatic spending restrictions. The Byrd Amendment of the Federal-Aid-Highway Act of 1956 applies to the Highway Account and specifies that the trust fund must maintain a sufficient balance to make all reimbursements. The Byrd test permits commitments to equal revenue for the year being appropriated plus two additional year's anticipated revenue. Spending from the Mass Transit account is limited by a stricter standard, known as the Ros-

tenkowski Test. It is similar to the Byrd test but requires that transit be able to pay its authorizations with the cash balance plus 1 year's anticipated cash revenue. APTA recommends that the MTA be subject to the Byrd test instead of the Rostenkowski test. This change would allow the authorization of an additional \$2.8 billion from the MTA and provide the same rule for highways and transit.

Action: Amend USC 269503 (e4).

X. *Recapture the "deficit reduction" 4.3 cents/gallon gasoline tax for the highway trust fund, depositing the revenue from 0.5 cents in a new intercity passenger rail account and 20 percent of the revenue from the remaining 3.8 cents in the mass transit account.*

Proposal: Amend the Tax Code to provide that revenue from the 4.3 cents per gallon "deficit reduction" Federal motor fuels excise tax be deposited in the Highway Trust Fund. The revenue from a half-cent of this tax should be deposited in a new Intercity Passenger Rail Account subject to the same budget rules as the Mass Transit and Highway Accounts. In keeping with the precedent set by President Reagan and reaffirmed by Presidents Bush and Clinton, the Mass Transit Account should receive 20 percent of the revenue from the remaining 3.8 cents, with the balance resented for the Highway Account.

Background: The Surface Transportation Assistance Act of 1982 created the Mass Transit Account within the Highway Trust Fund and provided that this Account would receive 20 percent of the revenue from a five-cent per gallon increase in the Federal fuels excise tax. In 1990, the Mass Transit Account received the revenues from an additional one-half cent per gallon of the Federal fuels excise tax. The Omnibus Budget Reconciliation Act of 1990 (OBRA) increased the gasoline tax by 5.0 cents per gallon. Of this total, the revenue from 2.5 cents per gallon was earmarked for deficit reduction and the revenue from 2.5 cents per gallon was deposited in the Highway Trust Fund with 20 percent going to the Mass Transit Account. President Clinton's economic package, the Omnibus Budget Reconciliation Act of 1993, included the 4.3 cents per gallon deficit reduction tax and provided that OBRA's deficit reduction 2.5 cents would be turned over to the Highway Trust Fund on October 1, 1995, with 20 percent of that amount deposited in the Mass Transit Account.

Recent studies, including APTA's definitive evaluation of transit funding needs, confirm that transit and other surface transportation funding needs are far greater than the amount of funding available under current law. Transit capital funding requirements are \$15 billion per year.

Over a 10-year period, capital needs include:

- \$38 billion for new vehicles, including 67,800 buses and 51,400 vans;
- \$25 billion for new bus facilities including parking lots for bus passengers;
- \$13 billion to modernize bus facilities and equipment;
- \$23 billion to modernize and rehabilitate existing fixed guideway rail and bus routes, stations, and maintenance facilities;
- \$46 billion for additional fixed guideway services that respond to new customer demands; and
- \$5 billion to rehabilitate more than 14,900 buses, rail cars, and other vehicles to extend their useful lives.

Additional revenue is needed to support the maintenance of existing transit facilities and services, transit operators' compliance with Federal mandates and requirements, and investments in new transit facilities and services that respond to unmet demands. Adequate Federal support for the transit program under a self-sufficient, wholly dedicated source helps to facilitate predictable planning and investment by individual transit operators and local governments. Moreover, the Federal transit program has been funded to an increasing degree from the Highway Trust Fund's Mass Transit Account, the source of 81 percent of transit funds in fiscal year 1997, up from 68 percent in fiscal year 1996 and 62 percent in fiscal year 1995. Transit funding needs greatly exceed the available resources in the Mass Transit Account.

Action: Amend tax code to provide that the revenue from 4.3 cents per gallon of the Federal fuels excise tax now used for deficit reduction be deposited in the Highway Trust Fund. The revenue from a half-cent of this total should be deposited in a new Intercity Passenger Rail Account subject to the same budget rules as the Mass Transit and Highway Accounts the Mass Transit Account should receive 20 percent of the revenue from the remaining 3.8 cents (the revenue from .76 cents per gallon), with the balance (the revenue from 3.04 cents) deposited in the Highway Account

XI. Continue to support the transit cooperative research program (TCRP), university transportation centers, and ISTEA institutes and create a new technology development and demonstration program

Proposal: Retain the Transit Cooperative Research Program established in ISTEA, continue to support University Transportation Centers and ISTEA Institutes, and authorize a new technology development and demonstration program.

Background: Through its support of research programs, ISTEA has enabled the nation's transit agencies to improve productivity and serve their customers more effectively. ISTEA established the Transit Cooperative Research Program (TCRP), the first national research program to give the transit community a direct role in addressing critical operating challenges. Like its highway counterpart, TCRP makes a significant contribution to the national interest that deserves continued support. The university transportation centers (UTCs) and the university institutes established by ISTEA (ISTEA Institutes) also conduct important research, education, and training programs. The next authorization should retain these programs and provide them with no less than their current percentage of transit program funding. We also recommend the creation of a Technology Development and Demonstration Program as a partnership of the Federal Government, transit agencies, and the private sector. This Program would support the implementation of new transit technologies and practices, including those identified through TCRP.

1. Transit Cooperative Research Program

The Transit Cooperative Research Program (TCRP), administered by the Transportation Research Board (TRB) of the National Research Council (NRC), is a cooperative research program authorized by ISTEA and created by an agreement among the Federal Transit Administration, the Transit Development Corporation (TDC), and the NRC. The program addresses research needs as identified by transit operating agencies, planners, designers, and others in operations, hardware, physical infrastructure, economics, human resources, and other contemporary issues selected by the TDC Board of Directors/TCRP Oversight and Project Selection (TOPS) Committee, which plans the program. Reauthorization of this highly successful program is imperative. TCRP is the first national research program in which the transit community has had a direct role in addressing the many operating challenges common to the transit industry. The program has been operating since August 1992 and is producing results of significant value to the transit industry.

TCRP Reports have addressed a number of critical issues, including rural transit planning and service delivery assessment, access to transit for people with disabilities, and a wide range of operational, scheduling, maintenance, and other issues. There is no other source for these studies; they cannot be carried out at the local level. Moreover, they enhance transit service providers' ability to help achieve a wide range of Federal objectives including those outlined in ISTEA: "Significant transit improvements are necessary to achieve national goals for improved air quality, energy conservation, international competitiveness, and mobility for elderly persons, persons with disabilities, and economically disadvantaged persons in urban and rural areas of the country." Like its highway counterpart, the TCRP's contribution to the national interest is significant and worthy of continued support. APTA recommends that TCRP should receive no less than its current percentage of transit program funding in the next authorization act.

2. University Transportation Centers and Research Institutes

Ten University Transportation Centers (UTCs) were established by Federal legislation in 1987. ISTEA added four more Centers and seven university research, education, and training institutes (ISTEA Centers and Institutes) with non-redundant topical assignments. The UTCs and ISTEA Centers and Institutes develop areas of expertise and perform research, education, and training programs that are designed to advance the state-of-the-art; interest, recruit, and train students; and provide continuing education for professionals in the field. They are among the only places for fundamental research in transportation in an environment designed to deliver products useful to practitioners. These programs build a base for future transportation systems and identify transportation as a discipline on the frontier of technology. They attract, and prepare for careers in the transportation industry, the best and the brightest students interested in careers in management, technology, engineering, and science. Federal dollars are matched by non-Federal funds to leverage the investment in this program.

3. Technology Development and Demonstration Program

Investments in new technology development and the demonstration of new services and methods ensure maximum utilization of capital investments, safer oper-

ation, and lower operating costs. Such investments benefit transit agencies and the riding public alike. Neither the private sector nor the public sector can be expected to make these technological or service demonstration investments alone. Consequently, a portion of Federal transit program funds should be set aside for a technology and service innovation program that works in partnership with private and public sector investments. A creative and reliable funding source should be identified which will allow multi-year commitments for projects initiated under this program.

Action: (1) Ensure the retention of funding and appropriate authorizing language for the TCRP, the UTCs, and the ISTEAs; and (2) Establish a Transit Technology Development and Demonstration Program.

XII. Allow states to use the state shares of flexible funding programs for intercity passenger rail investments and maintain the section 130 program to provide safety improvements for public highway/rail grade crossings

Proposal: Amend the definition of allowable expenditures under the Surface Transportation Program (non-suballocated funds) to include intercity passenger rail capital purposes, and maintain the Federal Highway Administration's Section 130 Program.

Background: Intercity Passenger Rail Capital Investments. Since it is important to ensure that Governors and state DOTs have control over the use of flexible funds, we recommend that states be authorized to use their share of flexible funding programs for intercity passenger rail investments. Aside from this change, we propose to retain the current definition of eligible expenditures under the Surface Transportation Program, which includes "capital costs for transit projects eligible for assistance under the Federal Transit Act". The use of funds for intercity passenger rail purposes is acceptable only if there is an increase in the total amount of flexible funding. Therefore, this proposal is conditioned on the adoption of APTA's proposal to make available a higher total level of flexible funding by using funds from the Mass Transit Account and "deficit reduction" gas tax resources.

Section 130 Program to provide safety improvements for Public Highway/Rail Grade Crossings. The Federal Highway Administration's Section 130 Highway/Rail Grade Crossing Safety Program should be maintained to protect the motoring public who use highways that cross over commuter, light, and freight rail tracks throughout the United States. The Section 130 Program provides Federal funds for state efforts to reduce the incidence of accidents, injuries, and fatalities at public highway/rail grade crossings. Under the Section 130 Program, fatalities at highway/rail grade crossings have been reduced from 1,500 in 1972 to 615 in 1994. The Federal Highway Administration estimates that the Section 130 Program has saved over 9,000 lives and helped prevent nearly 40,000 injuries.

Action: (1) Amend 1 Title 23, Section 133 of the U.S. Code to authorize grants for intercity passenger rail services

(2) Maintain the Federal Highway Administration's Section 130 program.

Figure 1a. Estimated On-road Vehicle VOC Emission Reductions from CMAQ

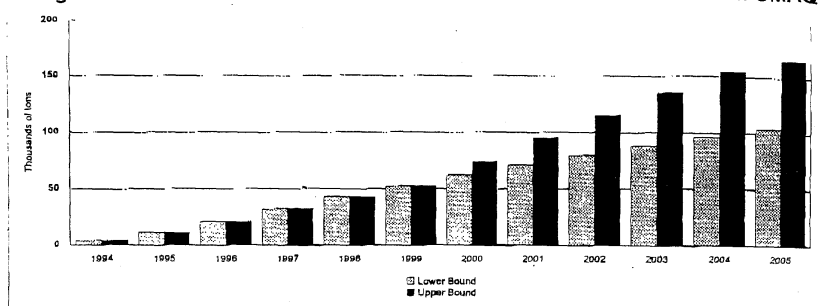


Figure 1b. Estimated On-road Vehicle CO Emission Reductions from CMAQ

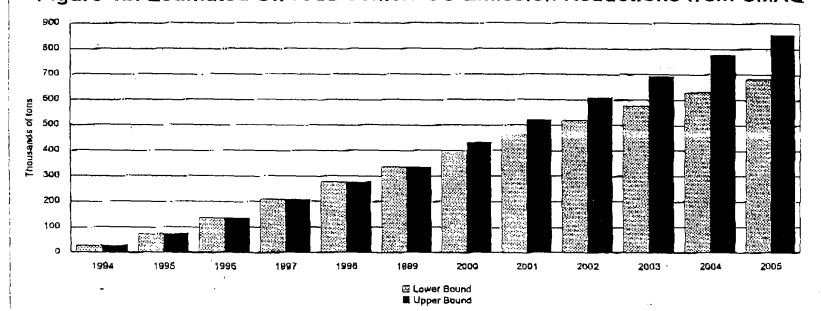
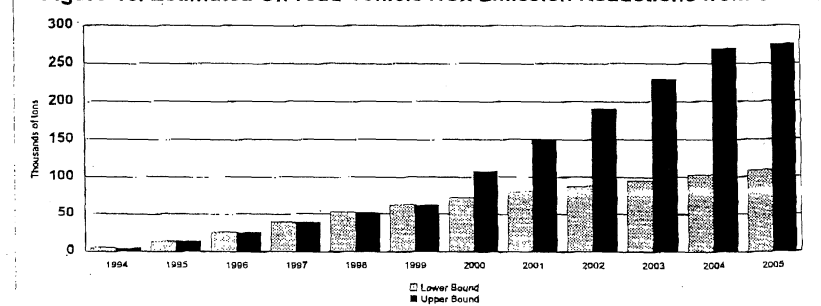


Figure 1c. Estimated On-road Vehicle NOx Emission Reductions from CMAQ



PREPARED STATEMENT OF JERRY DAVIS, CHAIRMAN OF THE BOARD OF DIRECTORS,
ASSOCIATION OF AMERICAN RAILROADS

INTRODUCTION

• Good morning. My name is Jerry Davis, and I am here as Chairman of the Board of Directors of the Association of American Railroads, representing the large freight rail carriers. First of all, I would like to thank the Task Force for the opportunity to appear before you today to share our views on rail excise taxes and related issues. I have been in the rail industry for more than 40 years in a variety of positions with Union Pacific Railroad, CSX and Southern Pacific. With me today is Mary McAuliffe, also with Union Pacific, Karen Phillips and Paul Oakley with the AAR, Dan Westerbeck, with the Burlington Northern Santa Fe, and Jim Hixon, with Norfolk Southern. As an introduction to our presentation, I would like to show you a brief video to give you a flavor of how the freight rail industry operates, builds and maintains its infrastructure.

(Video)

As you can see from the video, building and maintaining rail infrastructure is a complex, labor-intensive operation, now requiring a capital investment of more than \$7 billion annually. Our "interstate" system is comprised of more than 212,000 miles of track, essentially built and maintained with private capital, not derived from a government trust fund. Our primary business is the transportation of freight and bulk commodities—more than 1.55 billion tons per year.

For the remainder of my presentation I will refer to the notebook which you have each been provided. Tab #3 contains the slides to which I will refer from time to time. The other sections of the notebook represent materials which provide further elucidation on the issues being discussed here today. Slide #1 of Tab #3 sets out the three recommendations which are the focus of this presentation.

(1) The 1.25 cents-per-gallon deficit reduction fuel tax paid exclusively by the railroad industry is discriminatory and should be repealed;

(2) While the railroad industry is dedicated to the goal of deficit reduction, it is fundamentally unfair to single out one industry—transportation—from other segments of the economy to pay for deficit reduction. As long as the fuel tax is viewed as an appropriate vehicle for deficit reduction, however, the burden of achieving such deficit reduction should be shared equally among competing modes of transportation so as not to distort market choices; and

(3) The railroad industry is different from other modes of transportation in that we build, maintain, and own our infrastructure and, accordingly, the creation of a Federal Railroad Trust fund is unwarranted.

BACKGROUND OF DEFICIT REDUCTION FUEL TAXES

Now, let me give you some brief background on where we are today with respect to deficit reduction fuel taxes, and how we got here. Please refer to slide #2, which is a condensed history of the deficit reduction transportation taxes. I have also included more detail on the history elsewhere in your notebooks.

- The 1990 Reconciliation Act extended fuel taxes beyond their traditional role as transportation user fees by introducing a 2.5 cents-per-gallon Federal deficit reduction tax on railroad and highway fuels. In fact, to the best of our knowledge, with the exception of the Leaking Underground Storage Tank (LUST) fuel tax, this was the first time railroads had ever been required to pay a Federal fuel tax.

- The 1993 Reconciliation Act imposed an additional 4.3 cents-per-gallon deficit reduction tax on all transportation modes (commercial aviation was exempted until October 1, 1995). As you can see from the second line of slide #2, this resulted in a deficit reduction tax of 6.8 cents-per-gallon for railroads and trucks, 4.3 cents-per-gallon for barges, and a suspended 4.3 cents-per-gallon for airlines.

- On October 1, 1995, the entire 2.5 cents-per-gallon deficit reduction fuel tax paid by highway users was redirected into the Highway Trust Fund to pay for highway infrastructure needs. At that time, the railroad 2.5 cents-per-gallon fuel tax was reduced to 1.25 cents-per-gallon, but railroads were left as the only payers of the original 1990 deficit reduction fuel tax. Consequently, today highway users, inland waterway users, and commercial aviation pay 4.3 cents-per-gallon into the Treasury's General Fund, while the railroads alone pay 5.55 cents-per-gallon for deficit reduction.

INEQUITABLE TRANSPORTATION TAXATION

- As depicted in slide #3, the current structure of deficit fuel taxes is obviously inequitable. There is absolutely no policy justification for railroads to pay deficit reduction fuel taxes at a rate of 1.25 cents-per-gallon greater than motor carriers and barges with whom we vigorously compete. Allowing this inequity to continue only perpetuates tilting the marketplace in favor of the trucking and inland waterway industries.

- Some would argue that there is no inequity because motor carriers continue to pay the full original 2.5 cents-per-gallon imposed by the 1990 Reconciliation Act. Such a contention ignores the essential fact that the revenue from the 2.5 cents-per-gallon tax paid by motor carriers now goes into the Highway Trust Fund and is used to pay for improvements and maintenance of highway infrastructure. This portion of the highway fuel tax is now a true user fee investment in highways.

- By contrast, the railroad industry operates over its own privately funded and maintained rights-of-way. Slide #4 illustrates the enormous, increasing cost of building, maintaining, and upgrading a safe and efficient railroad right-of-way. In 1995, for instance, freight railroads spent more than \$7 billion maintaining and improving their infrastructure. As shown on slide #5, if we translate this investment to a cost per gallon basis in order to compare modal expenditures on their respective rights-of-way, this is equivalent to \$1.98 per gallon of fuel consumed by railway loco-

motives—an amount which is four to ten times the equivalent per gallon tax paid by competing modes.

- This \$1.98 is directly comparable to the Federal user fees shown on slide #4 that are paid by other modes to help finance their public rights-of-way. These fees are not directly at issue here. However, what is critical and absolutely fundamental, is the realization that when deficit reduction taxes of other modes are converted to infrastructure user fees, these fees become synonymous with the \$1.98 railroads are already paying for infrastructure. In other words, the transfer of other modes' deficit fuel taxes into infrastructure trust funds is the equivalent of those other modes paying themselves for infrastructure improvements and maintenance. Under these circumstances, the railroads would alone be left to pay for deficit reduction.

- It should be noted, as the trucking industry pays for its infrastructure via fuel excise taxes, their payments are immediately expensed in the year paid and deducted for tax purposes. As railroads directly invest in their infrastructure using their own funds, their investment must be depreciated, spreading the tax deduction over a period of years. Additionally, U.S. DOT research shows that even the fuel taxes paid into the Highway Trust Fund by truckers, with whom the railroads directly compete, do not cover the full highway cost which they cause.

- While the current deficit reduction fuel tax situation is clearly inequitable, it is likely to get much worse without relief for the railroads. During 1996 there was an intense effort by Senator Robert Byrd to redirect the remaining 4.3 cents-per-gallon paid by highway users, including truckers, into the Highway Trust Fund. Already in the 105th Congress there is legislation (H.R. 255) introduced by Representatives Petri and Rahall to accomplish the same objective. Placing the 4.3 cents highway user tax into the Highway Trust Fund would exacerbate an already inequitable situation, adding to the railroad industry's competitive disadvantage. In essence, the railroads would continue to contribute to deficit reduction, while the truckers would contribute to their own infrastructure.

- As long as the transportation fuel tax is viewed as an appropriate vehicle for deficit reduction, public policy should be neutral regarding competition among modes of transportation, with all competing modes required to make equal contributions. Tax burden equity should serve as an overriding principle in the structure of the tax system, otherwise it will artificially affect the structure and efficiency of the transportation system.

SOLUTIONS TO DEFICIT REDUCTION FUEL TAX INEQUITY

- Solution 1—Tax equity requires that the 1.25 cents/gallon deficit reduction fuel tax differential currently paid by railroads above that paid by competing truckers should be repealed. Further, as illustrated on slide #6, should the 4.3 cents/gallon tax paid by truckers be placed into the Highway Trust Fund, the railroad industry urges the repeal of the entire 5.55 cents/gallon tax paid by railroads, thereby equalizing the deficit reduction payments for the railroad and trucking industries. Similarly, as indicated on slide #7, should the 1.25 cents/gallon tax be repealed and the truckers' 4.3 cents/gallon tax be converted to a Highway Trust Fund user fee in the future, the railroads' 4.3 cents/gallon deficit reduction tax should likewise be repealed.

- Solution 2—The railroad industry recognizes the need to compensate for the budgetary consequences of repealing the 1.25 cents/gallon differential. The railroads are of the opinion that sufficient new revenue or budget savings can be identified to offset losses due to the repeal of inequitable deficit reduction taxes, especially concerning the \$50 million annual revenues generated by the current 1.25 cents/gallon tax differential. However, if that is not possible, equity demands that all transportation modes, including railroads, truckers, barges, and airlines, share equally in any deficit reduction tax so as not to distort market choices. To that end, in order to offset the revenue lost by elimination of the discriminatory 1.25 cents/gallon tax on the railroad industry, a tax of only 0.03 cents/gallon should be imposed on fuel used by the same transportations modes, including railroads, subject to the 1993 deficit reduction tax. Such a small additional tax would raise sufficient to offset the repeal of the 1.25 cents/gallon railroad fuel tax. Should the 4.3 cents/gallon fuel tax paid by truckers also be placed in the Highway Trust Fund, identifying an appropriate budget offset would be more difficult. Once again, though, if finding such an offset were to prove to be impossible, simple equity would require that all transportation modes equally share the burden of paying for deficit reduction.

SUPPORT FOR AN EQUITABLE SOLUTION

- The railroads are not alone in calling for a fair and equitable solution to the current deficit reduction fuel tax problem. The U.S. Chamber of Commerce and the

American Road and Transportation Builders Association (ARTBA) have adopted policies in support of the railroads' position on this issue.

- The Chamber of Commerce said in 1994 that taxes and user fees that are currently collected from transportation users should be used for transportation infrastructure improvements and should be directed to the appropriate trust fund, or repealed.
- ARTBA in 1996 supported the repeal of railroad excise taxes used for Federal deficit reduction, should competing modes not similarly be required to pay such excise taxes for deficit reduction purposes.

RAILROAD TRUST FUND PROPOSALS

- Various proposals have been made to solve the fuel tax inequity problem by creating a Federal Railroad Trust Fund in which to place the railroad deficit fuel taxes in order to finance a variety of railroad needs. Rather than solving the problem, such proposals would compound the inequity by instituting an inappropriate cross subsidy.

- The deficit reduction fuel tax on railroads generated over \$1 billion since it began, and approximately \$250 million in 1995—a substantial drain on the funds available for infrastructure investment, and an amount sufficient to purchase 179 new locomotives each year. Of that 1995 amount, \$227 million came from large Class I railroads. Clearly, the great preponderance of these funds have and will continue to come from a few very large railroads. As a notable example, Union Pacific Railroad is the No. 1 private consumer of diesel fuel in the United States (well over 1 billion gallons/year).

- While large freight railroads would contribute the bulk of the tax revenues, the possible uses of such a Railroad Trust Fund would be for purposes which are the primary responsibility of interests other than those large freight railroads. As an example, proposals have been made to use such a Railroad Trust Fund to finance shortline/regional railroad improvements, intercity or commuter passenger rail needs, or highway-rail crossing traffic control devices. In such a scenario, the beneficiaries of the Trust Fund, while having contributed little or nothing to the Fund, would profit from a cross-subsidy from the large freight railroads. It is not appropriate to expect the large railroads to provide additional funding support for passenger rail, shortlines, or highway-rail traffic control devices, the latter of which has legitimately been the responsibility of highway users for 25 years. Neither do the large railroads care to finance their own infrastructure needs through such a Trust Fund by inefficiently sending funds to Washington, DC, simply to be returned to the private sector railroads, minus bureaucratic administrative and overhead costs, and subject to political manipulation and government regulatory red tape.

- There are particularly sharp distinctions between the interests of freight and passenger railroads. While freight railroads support a U.S. passenger rail system, we believe it would be totally inequitable to require us to subsidize an industry that we ourselves found it necessary to exit 25 years ago. I have included slides #8 and #9 so there will be no confusion between profitable, private sector freight railroads and Amtrak. With all of its stock owned by the Federal Government, Amtrak is the nation's only intercity rail passenger provider, serving 45 states with over 300 trains per day. It also is a major provider of rail commuter operations, under contracts with states and cities.

Amtrak receives between \$500 million and \$1 billion annually in operating and infrastructure assistance from the General Fund of the U.S. Treasury. Slide #10 shows the approximately 24,000 mile route structure over which Amtrak operates. Aside from roughly 600 miles mostly between Washington, DC and Boston, the trackage is owned by the individual freight railroads. The operating rights fees paid by Amtrak to the freight railroads do not cover the costs incurred by the freight railroad industry to accommodate Amtrak.

In fact, my railroad has just completed a study of the level of subsidy it is forced to provide Amtrak. Excluding the less direct, but nonetheless real, economic costs of delays to freight trains and other congestion impacts, the Union Pacific Railroad alone is effectively providing an operating subsidy to Amtrak of \$56 million every year.

SUMMARY

- In conclusion, slides #11 and #12 depict the substantial role of the freight railroads to our nation's transportation system.

With harmful economic regulation reduced, the railroads' true advantages in cost, environmental impact, highway congestion, safety, and fuel efficiency have rightfully become important criteria in modal choice. Artificial cost barriers to the use

of freight transportation, in terms of inequitable deficit reduction taxes, can only disadvantage rail in the competitive marketplace and distort consumer choice.

- Thus, the final page of your slide packet, slide #13, summarizes the freight railroad industry's position on deficit reduction fuel taxes.

(1) The 1.25 cents/gallon tax should be repealed because it is:

Discriminatory against railroads, since no other mode of transportation pays it. Economically unsound, because it artificially diverts traffic that would otherwise travel by rail.

Inconsistent with national policy, because it violates the goals of economy, impartiality, energy efficiency, and environmental friendliness.

(2) With regard to the 4.3 cents/gallon tax, the railroads:

Request repeal of the 4.3 cents/gallon tax if the corresponding tax of other modes is directed into trust funds which finance the building and maintenance of those mode's infrastructure.

(3) Finally, we oppose large freight railroad participation in a Federal Railroad Trust Fund.

VINCENT B. MANCINI, ATTORNEYS AND COUNSELORS AT LAW,
Media, PA, March 10, 1997.

Hon. JOHN H. CHAFEE, *Chairman,*
Committee on Environmental and Public Works,
United States Senate,
Washington, DC, 20510.

RE: Reauthorization of Funding for the Intermodal Surface Transportation Efficiency Act (ISTEA)—Opposition to Funding for "Rails to Trails" Projects

DEAR SENATOR(S): Please accept this letter on behalf of the many concerned American citizens who oppose the use of their tax dollars to fund so called "rails to trails" projects under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The idea of converting abandoned railway lines to pedestrian and bicycle trails may have superficial appeal at first glance. However, a careful review of the facts will demonstrate that such "rails to trails" projects are unnecessary luxuries which our country can ill-afford if a balanced Federal budget is to be achieved by the year 2002. Bicycle and pedestrian activities may be pleasant forms of recreation, but the current and future Federal funds available for surface transportation purposes should be used for exactly such purposes, i.e. for transportation, not recreation. Surely it is beyond dispute that the money would be better spent maintaining, expanding, and improving our nation's highways, bridges, and mass transit systems, which are capable of transporting far more people and goods than are bicycle and pedestrian walkways principally used by joggers and cycling enthusiasts for recreation.

Consider the actual costs of a "typical" bicycle/pedestrian trail conversion. For example, land for the project must be acquired. If the state or other relevant governmental authority does not own title to the land, it must acquire it through eminent domain proceedings. Once this land has been acquired by the government (at the taxpayer's expense), it is unavailable for productive use by the private sector. Furthermore, such land is removed from the property tax base of the local economy, further placing a burden upon the average taxpayer.

While the foregoing would be true of any traditional transportation project (e.g., an interstate highway), the burdens involved in such a traditional project would be more than offset by the benefits to a much broader community than might benefit by a rails to trails project, i.e., many, many people would be able to make productive use of that highway, which could be used for commercial and business uses as well as individual needs. In stark contrast, the inherent limitations of local bicycle and pedestrian uses dictates that only a relative few would be able to make use of these facilities.

Moreover, the inherent limitations of bicycle and pedestrian trails also include, *inter alia*, the following shortcomings:

- locating bicycle/pedestrian "railways adjacent to residential neighborhoods infringes upon the privacy rights and may be detrimental to the security of the neighborhood residents (see *e.g.* the enclosed excerpt from the *Seattle Times*);
- bicycle/pedestrian trails do not allow for the transport of meaningful quantities of goods in furtherance of interstate commerce;
- given the user's exposure to the elements, the potential use of bicycle/pedestrian trails is severely limited in adverse weather conditions (particularly when compared to other means of transportation);

- the difficulties in workers commuting to major urban centers from outlying suburbs and the return commute home to the suburbs on a daily basis given the distances involved and the nature of the typical work schedule (often involving additional travel far away from the office) limit the utility of bicycle and pedestrian trails as a means of transportation;

- the cumulative effect of having workers start the cold engines of their cars in the morning followed by a drive to a bike/pedestrian center, (perhaps circling for parking or otherwise having the engine idling at the center), to be followed by another engine cold start at the end of the day and a return drive home further increasing emissions is at odds with the goals of improving the air quality reducing congestion, the ostensible goals of the Congestion Mitigation Air Quality (CMAQ) subcomponent of ISTEA;

- trails limited to bicycle and pedestrian access place additional burdens on local municipalities in terms of public safety (i.e. access by police, fire, ambulance, and other emergency services);

- the rights and concerns of reversionary interest owners and abutting landowners are often neglected or ignored in the trail development process (see enclosed May 2, 1996, letter from Mr. Henry Ingram of the Pennsylvania Landowner's Association (PLA) regarding his resignation from the Program Committee for the Governor of Pennsylvania's Conference on Greenways and Trails, which is attached herein with Mr. Ingram's permission).

Perhaps most importantly, the funding of ISTEA projects in practice appears to have no oversight on a day to day basis other than a "rubber stamp" approval by administrative agencies without regard as to whether or not the particular project satisfies the criteria specified in the ISTEA statute and the regulations promulgated thereunder. If more than a "rubber stamp" approval were to take place, many ISTEA projects would not survive for their failure to conform to the requirements specified by law, i.e., that such projects be for transportation purposes rather than for recreational uses. The average citizen attempting to learn about the eligibility and funding process for an ISTEA project and participate therein must navigate the treacherous shoals of an administrative Bermuda Triangle—a daunting task indeed! Moreover, in attempting to seek accountability for public funds spent pursuant to ISTEA or otherwise obtain a remedy to this inequity, the resources of the average taxpayer are dwarfed in comparison to those possessed by the bureaucrats for whom an accounting is sought. In sum, it is respectfully requested that the Senate and/or the Congress as a whole undertake a review and investigation of the funding and eligibility of "transportation enhancements" under ISTEA (both in history and in practice) to determine whether or not such projects are developed within the statutory criteria set forth by ISTEA or otherwise serve our Nation's transportation needs.

For all the foregoing reasons, the reauthorization of the ISTEA statute for 1997 and beyond, if it is to take place at all, should be subject to the deletion of funds for bicycle and pedestrian trail projects as transportation "enhancements" under CMAQ or any other provision of ISTEA or its successor statute. By terminating this funding, scarce Federal transportation dollars can be better allocated to the maintenance and improvement of the Nation's highways, bridges, and mass transit systems which serve the transportation needs of a broad base of citizens rather than a select few recreational users of bicycle/pedestrian trails.

Should the Honorable members of this committee or of the Senate as a whole request further information or public comment regarding this issue in the course of their deliberation of ISTEA's reauthorization, both I and several of my clients have experience with the proposed development of a rails to trails project funded by ISTEA. We have sought answers from the appropriate transportation officials to the concerns listed above (as well as many other concerns related to the proposal) and our questions have fallen on deaf ears. In any event, both I and my clients would be pleased to respond to your inquiries regarding our experience with ISTEA at your earliest convenience.

In the course of the Senate's deliberations regarding the reauthorization of ISTEA, please keep in mind that the decisions made by this Honorable body will have a major impact upon the future of surface transportation in the United States and the everyday lives of taxpayers. Given the importance of spending tax dollars wisely and reducing the Federal budget deficit while continuing to maintain and improve our nation's transportation systems, it is our earnest hope and our respectful request that the eligibility, funding mechanisms, and oversight of ISTEA projects

be subjected to a rigorous cost-benefit analysis and the strictest of scrutiny by your committee, the Senate, and the Congress as a whole.

I remain,
Very truly yours,

VINCENT B. MANCINI.

PREPARED STATEMENT OF JOAN BRAY, CHAIR, MIDWEST INTERCITY PASSENGER HIGH SPEED RAIL COMPACT

The mission of the seven-state High Speed Rail Compact is to explore the potential for high-speed ground transportation in the Midwest and Great Lakes Region and promote a cooperative, coordinated approach for related planning and development. As part of this goal, the Compact has adopted a Regional Rail Passenger Development Program encompassing the member states of Missouri, Illinois, Michigan, Indiana, Ohio, Pennsylvania and New York. The Compact strongly supports Federal legislation that contributes to implementing this program—ultimately, high speed ground transportation throughout the region. The Compact recognizes that for its goal to be realized, all levels of government—Federal, state and local—must first commit programs and resources to re-establishing a reliable and efficient network of passenger rail service.

The Compact region is home to approximately one-third of the nation's population, manufacturing employment and wholesale trade. The nation's first, third, fourth, and fifth largest urbanized areas are situated in the region. It also has four of the nation's top five manufacturing employment states and four of the top seven wholesale trade states. Amtrak rail passenger service is a vital link serving the Compact region's population and employment centers. The Federal Railroad Administration (FRA) is, in many cases, a funding partner in the development of the intercity rail passenger system.

The High Speed Rail Compact wholeheartedly endorses the following legislative measures, being considered at this time, that impact intercity rail passenger service:

- Establishing a dedicated capital funding source for intercity rail passenger service (Amtrak);
- Broadening eligibility criteria for the use of fuel taxes to include passenger rail;
- Continuing to focus on safety by funding the elimination of highway-railroad grade crossing hazards; and
- Continuing to fund the development of rail technology, including that specifically for high speed rail.

We support incorporating these provisions in the reauthorization of the Intermodal Surface Transportation Efficiency Act (ISTEA).

About \$750 million a year could be dedicated to intercity rail passenger service by dedicating one-half cent of the 4.3-cent fuel tax currently used for deficit reduction. Currently, passenger rail is the only mode of public transportation without a dedicated funding source. The funding could be used to improve passenger rail trackage, signaling systems and stations, and to acquire new locomotives and coaches.

This investment in the future of rail could result in tremendous economic opportunities in the Midwest. In the long term, high speed rail networks would bring jobs, people and businesses to our cities. According to the U.S. Department of Transportation's Federal Railroad Administration report, "High-Speed Ground Transportation for America," the Chicago Hub Network, which links the Chicago, Detroit, Milwaukee and St. Louis corridors, has the highest benefit/cost ratio of any of the proposed regional corridors. The report says that for every dollar invested, about \$2.50 in benefits would be realized. One particular economic benefit to the region is apparent. Much of the nation's steel is produced in the Midwest, and steel would be a vital resource in the expansion of rail development.

Investment in passenger rail also would be less expensive for taxpayers. Upgrading existing railroad infrastructure is far less expensive than expanding and maintaining highways, bridges and airports. New rights-of-way would not be needed, thereby reducing the impact on smaller communities that new automobile and airplane infrastructure causes. The involvement of Federal, state and local governments in passenger rail would also encourage private investment in the system.

Establishing a dedicated funding source for passenger rail and making Federal transportation funding to the states more flexible would create more equitable conditions for all surface transportation modes. It would also enable individual states to make transportation decisions that are the most appropriate to meet that state's needs. Consequently, this would help develop a seamless intermodal transportation system that would be safer and more efficient. For example, integrating Amtrak rail

passenger service with the National Highway System would have many benefits, such as reductions in highway congestion and in automobile emissions that pollute the environment.

Continuing to fund technology development and eliminating highway-railroad grade crossing hazards are necessary to further enhance rail's safety advantage and to make high speed rail a reality. Among the initiatives affected would be positive train control, arrester nets, and new and refined equipment technologies such as improved turbine-powered locomotives, tilt-body coaches and diesel multiple units.

In summary, investment in passenger rail would result in multiple benefits to the people, the economy, urban development, the environment and the rail industry. It also would bring advancements in technology and rail transportation together in a way that has not been fully developed in this country. The members of the Compact urge you to support legislation that moves high speed rail closer to implementation and to join our effort toward building a future for our constituents that gives them reasonable transportation choices. All of these measures would enable the Compact states, Amtrak and the FRA to take major steps toward the development of the Compact's regional rail passenger system.

REAUTHORIZATION OF THE INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT

WEDNESDAY, MARCH 19, 1997

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:35 a.m., in room 406, Senate Dirksen Building, Hon. John W. Warner (chairman of the committee) presiding.

ENVIRONMENTAL PROGRAMS AND METROPOLITAN PLANNING

Present: Senators Warner, Baucus, Boxer, Graham, Inhofe, Reid, Thomas, and Chafee [ex officio].

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Also present: Senator Allard.

Senator CHAFEE [assuming the chair]. We are going to get started here. Senator Warner is unavoidably delayed for a few minutes and will be right along.

I want to welcome all the witnesses.

When enacted in 1991, certainly ISTEA radically altered the focus of transportation policy. It recognized the integral role and enormous impact of surface transportation on the environment in which we live, work, and play. And for the first time, transportation decisions became part of a larger planning process that considered how transportation touches every part of our lives.

I must say, for those of us who were present in 1991 at that ISTEA legislation, I don't think even we realized how significant a piece of legislation it was and what a departure from the traditional legislation dealing with highways as opposed to transportation that had taken place in the past.

I am delighted the Administration has chosen to continue the important legacy of ISTEA. Yesterday, Senator Moynihan and I had the pleasure of introducing the Administration's bill in the Senate. I am particularly pleased the Administration has chosen to increase funding for some of the key environmental programs through the original ISTEA such as congestion mitigation and air quality, so called CMAQ, the improvement program in transportation enhancement activities.

The bill isn't perfect, but it will serve as a sound foundation for bipartisan legislation to address the Nation's surface transportation needs.

As much as transportation benefits society through the efficient movement of people and goods, it is not without its costs. One of the major unintended consequences of mobility is its negative impact on the Nation's air, water, and land. It is appropriate, I believe, that we tap the highway trust fund to offset some of these formidable costs.

The single largest source of flexible funds in ISTEA has been the CMAQ program, which provides funds for States to improve air quality in areas that do not meet the Clean Air Act standards. ISTEA also established several programs to help preserve environmental and scenic resources, such as the scenic byways program and the transportation enhancements program.

In addition to creating flexible programs to offset some of the costs of transportation to the environment, ISTEA created a sound planning process that is a very important part of all this. The State-wide metropolitan planning provisions of ISTEA have yielded high returns by bringing all interests to the table and increasing the public input into the decisionmaking process.

As you know, it is not a simple task to resolve often competing and conflicting demands. ISTEA provides States and localities with a set of tools to cope with the growing demands on our transportation system and the corresponding strain on the environment. We must preserve and build upon these tools as we move forward on reauthorization.

[The prepared statement of Senator Chafee follows:]

PREPARED STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Thank you, Mr. Chairman. I would like to welcome all of the witnesses that we will hear from this morning.

The purpose of today's hearing is to receive testimony on environmental programs and Statewide and metropolitan planning under the Intermodal Surface Transportation Efficiency Act. When it was enacted in 1991, ISTEA radically altered the focus of transportation policy. It recognized the integral role and enormous impact of surface transportation on the environments in which we live, work, and play. And for the first time, transportation decisions became part of a larger planning process that considers how transportation touches every corner of our lives.

I am delighted that the Administration has chosen to continue the important legacy of ISTEA. The NEXTEA proposal builds upon the strong record of its predecessor. I am particularly pleased that the Administration has chosen to increase funding for some of the key environmental programs of the original ISTEA such as the Congestion Mitigation and Air Quality improvement program and Transportation Enhancements activities. Yesterday, Senator Moynihan and I introduced NEXTEA. While the bill is not perfect, it will serve as a sound foundation for bipartisan legislation to address the Nation's surface transportation needs.

Speaking of needs, we have heard a great deal of attention toward infrastructure needs alone. You are undoubtedly familiar with the arguments for more money to build and repair roads and bridges to preserve the Nation's economic future. As much as transportation benefits society through the efficient mobility of people and goods, however, it is not without its costs. We cannot afford to ignore all of the consequences, good and bad, of our transportation system.

One of the major unintended consequences of mobility is its negative impact on the Nation's air, water and land. The costs of air pollution that can be attributed to cars and trucks range from 30 billion to 200 billion dollars per year. Passenger cars alone account for almost 30 percent of the Nation's total oil consumption. Highway construction and other transportation activities often pollute the Nation's surface waters and groundwater. Vehicles and other infrastructure are also major

sources of solid waste. It is therefore only appropriate that we tap the Highway Trust Fund to offset some of these formidable costs.

ISTEA provided States and localities with a set of tools to cope with the growing demands on our transportation system and the corresponding strain on our environment. The single largest source of flexible funds has been the Congestion Mitigation and Air Quality improvement program. The CMAQ program provides more than six billion dollars nationwide over 6 years, to improve air quality in areas that do not meet Clean Air Act standards. These are the so-called "non-attainment areas." The entire State of Rhode Island is a non-attainment area, so our share of this money, about five million dollars per year, can be spent anywhere in the State for projects that improve air quality. Examples could include bicycle and pedestrian facilities, or capital improvements to our transit systems.

ISTEA also established several programs to help preserve scenic resources. One tool is the National Scenic Byways Program, which provides 80 million dollars in grants to States over the 6-year duration of the law. Its purpose is to maintain the scenic, historic, recreational, cultural, and archaeological characteristics of scenic byway corridors, while accommodating tourists. So far, the States have designated 34,000 miles of American roads as scenic byways. It is a small but significant program.

Another tool to help preserve our environmental and scenic resources is a provision that requires each State to spend 10 percent of its Surface Transportation Program or STP funds on transportation enhancements. The enhancements program is designed to make the roads that go through our communities blend with and preserve our natural, social, and cultural environment. Some of the early Interstate construction provides a clear example of the destructive power a freeway can have on a community and its surrounding environment. To redress some of the damage highways have done in the past, enhancements money can be used for a variety of things, including the acquisition of scenic easements, historic preservation, bike paths, removing billboards, and mitigating stormwater runoff.

In addition to creating flexible programs to offset some of the costs of transportation to the environment, ISTEA created a sound planning process. It strengthened the notion of partnership among State and local governments and all affected interests by elevating the role of the metropolitan planning organization in the planning process.

The Statewide and metropolitan planning provisions of ISTEA have yielded high returns by bringing all interests to the table and increasing the public's input into the decisionmaking process. As you know, it is not a simple task to resolve these competing and often conflicting demands.

Finding the right solutions to address all of our needs requires strategic and comprehensive approaches to transportation policy. Tunnel vision is downright risky as we move toward reauthorization. We must therefore ensure that our transportation system is maintained according to high national standards and that all of its elements are integrated into a coherent whole.

That is why today's hearing is so important. Initiatives established in ISTEA, such as the CMAQ program, transportation enhancements and the planning process, must be preserved to build the best transportation system for all Americans.

Senator CHAFEE. On our witness list, we welcome again Ms. Jane Garvey, acting administrator of the Federal Highway Administration, and Mr. David Gardiner, assistant administrator for policy, planning, and evaluation of EPA.

Why don't you proceed and I won't restrict each of you to the 5 minutes, but if you could try to stay in that general area, it would be helpful.

Ms. Garvey, welcome. Go to it.

**STATEMENT OF JANE GARVEY, ACTING ADMINISTRATOR,
FEDERAL HIGHWAY ADMINISTRATION**

Ms. GARVEY. Thank you very much, Mr. Chairman.

I thank you for the opportunity to testify on behalf of NEXTEA, President Clinton's \$175 billion proposal for reauthorization of Federal highway, transit, and highway safety programs.

Mr. Chairman, I would like to say at the outset, on behalf of Secretary Slater and the Administration, how very grateful we are to

both you and Senator Moynihan for your show of support yesterday. We know very much the significance of that action and we certainly celebrate that sort of support and enthusiasm, if you will. Thank you very much. We appreciate that.

This morning I would like to review some of NEXTEA's highlights in the area of planning and the environment. I also have a more detailed statement that I would like to submit for the record, with your permission.

NEXTEA, Mr. Chairman, as you indicated, is the President's proposal to succeed ISTEA, the landmark 1991 law that transformed transportation decisionmaking. ISTEA moved us from a single mode perspective, reflecting instead a broader problem-solving orientation that has given States and local decisionmakers greater leeway and more flexibility to address their own individual needs. At its most fundamental level, ISTEA recognized the interconnection between transportation and the environment, and it gives us the tools to prove that a sound transportation system and a healthy environment need not be mutually exclusive.

Because of ISTEA, we have initiatives which improve the quality of life in our community, such as transportation enhancement, recreation trails, and scenic byways. Because of ISTEA, we have CMAQ, the congestion mitigation and air quality improvement program, which helps communities reduce congestion on their streets while improving the quality of air. And because of ISTEA, we have a planning process that focuses on inclusiveness and public involvement on realistic financial planning, on multimodalism, and on links across policy concerns such as air quality.

ISTEA's history has been a series of success stories. The consensus we have heard from our partners, the chorus we have heard from our stakeholders around the country, has been to tune it, not to toss it. NEXTEA follows that advice. It continues the many programs which work, refines those which have not yet fully realized their promise, and creates new initiatives which apply what we have learned. The planning and environmental provisions of our reauthorization proposal seek to build on the successes of an ISTEA and make strategic revisions oriented toward reducing the burdens on our partners and enhancing their flexibility.

I would like to take just a minute to mention a few of the recommendations included in our proposal.

In the area of planning, for example, we have proposed to streamline the 23 State-wide and 16 metropolitan planning factors into seven broad goals that States and localities can use to guide their planning. We are also emphasizing system operations and management so that planning considers a complete range of transportation options, including intelligent transportation systems. And we are expanding planning inclusiveness by ensuring that the concerns of freight shippers are heard.

Planning can achieve results only if funding is available to carry out its recommendations. That is why NEXTEA's authorization levels include an 11 percent increase over current funding levels. Part of the increase is in programs focused on improving the environment such as CMAQ and transportation enhancements.

CMAQ has been the most flexible and innovative of our programs, targeting funding to where it produces results, whether it

is high-speed ferry service in Rhode Island, an intermodal freight transfer facility in New York, or bicycle and pedestrian paths in Montana. Through administrative changes, we have streamlined the CMAQ program over the past couple of years.

We want to build on that success, so we are recommending the following changes: to increase CMAQ funding by 30 percent to \$1.3 billion annually; to make areas with unhealthy levels of particulate matter eligible for CMAQ funding; and to make eligible for funding those areas designated as non-attainment under the proposed new air quality standards.

CMAQ is the largest of our environmental programs. We are also sustaining our commitment to recreational trails, to scenic byways, and to bicycle and pedestrian facilities. We are proposing a 30 percent increase in our transportation enhancements program in order to fund those types of projects which are low in cost but high in the value they return to our communities. Transportation enhancements have become an important part of our commitment to communities through a variety of activities from the renovation of historic rail depots to rehabilitation of stone arch bridges to recreational trails.

While retaining the programs, we have also put in place a number of streamlining measures. For example, we are allowing States to use their own procurement procedures. We have streamlined the rules for environmental clearance and reduced the Federal oversight requirements.

Thanks to Congress, the NHS also included other streamlining measures, such as those allowing States to use donated funds or materials as their non-Federal match and providing advance payment options, as well as streamlined provisions for environmental documentation. All of those provisions are continued in NEXTEA.

Let me close by saying that we believe our proposal is faithful to what we heard from our constituents: sustain and retain ISTEA's principles, streamline its requirements, and increase its flexibility in funding levels. We have listened, we have learned, and we have produced a proposal which can take America's transportation system well into the 21st century.

Mr. Chairman, we look forward to working with this committee and with Congress to make it a reality.

Thank you very much.

Senator CHAFEE. Thank you very much, Ms. Garvey.

Several have come in and the chairman has arrived. While he is getting organized, Senator Baucus, do you have anything?

Traditionally, as you know, the last panel all too often get short-shrift as time races by. It would be my hope that we could move right along today and give full attention to the last panel.

Senator REID. Is that a suggestion that we don't say anything?

[Laughter.]

Senator CHAFEE. Well, you can take it as a suggestion. I tossed it out there.

Senator Baucus.

**OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR
FROM THE STATE OF MONTANA**

Senator BAUCUS. Mr. Chairman, there is not a lot to say here. We want to hear the witnesses.

There are some benefits and there are some problems with the CMAQ and other programs. I just hope that the witnesses are candid and up-front, not just giving each one side only, but also suggesting some solutions and compromises, hearing both the benefits as well as the problems of all these programs.

Senator CHAFEE. Senator Thomas.

**OPENING STATEMENT OF HON. CRAIG THOMAS, U.S. SENATOR
FROM THE STATE OF WYOMING**

Senator THOMAS. Thank you, Mr. Chairman.

I will submit a statement, but I too want to—I guess when you come from a State like mine I think we need to know a little more about what you're talking about with the CMAQ program. You talked about recreational trails rather enthusiastically, but it is my understanding that you are spending down substantially over what it was before. I think you might ought to talk a little more about that.

We have been having some real problems from Cody to Yellowstone in trying to get a road built because of all the conflicting problems and the environmental problems with the agencies there, a road that clearly needs to be rebuilt. There will be much more traffic and yet it is stalled. In fact, the State has withdrawn their support because of the difficulty. I am interested in what you suggest we do about that if we really want to do something with the roads.

Thank you.

I will submit a statement, Sir.

[The prepared statement of Senator Thomas follows:]

PREPARED STATEMENT OF HON. CRAIG THOMAS, U.S. SENATOR FROM THE
STATE OF WYOMING

Mr. Chairman, thank you for holding this hearing today. I think it is important that we examine the environmental programs and the State and local planning provisions of ISTEA. Some of these programs have been successful and should be continued; however, some should be changed or dropped entirely.

I am deeply concerned about the environmental planning process and its effect on safety. For example, the design work on the Cody to Yellowstone Highway (U.S. 14/16/20) started in 1987, but the preliminary design on two-thirds of the project is still not complete. The design work is on hold until the Wyoming Department of Transportation and various Federal agencies can resolve certain differences on recreation and fish and wildlife mitigation issues. These delays have exacerbated problems with a road that is unsafe and in dire need of improvement. In fact, accident rates on segments of this highway continue to far exceed the Wyoming average by as much as 225 percent. In addition, tourist traffic to Yellowstone National Park over this road will increase by more than 50 percent over the next 20 years. In the reauthorization of ISTEA, we must find a way to get the Federal Highway Administration, the environmental community, the States and all other interested parties involved in the process so that we can shorten the time and lessen the design costs of important projects like this one.

Another safety issue that involves the planning process is the current prohibition on using safety set-aside money on the Interstate system. In Wyoming, one of the most useful safety features on our system is the addition of "rumble strips" on the shoulders of our Interstate highways. They are particularly effective on rural Interstate highways. The use of safety set aside money for this type of work would be ideal. Although the Administration claims that safety is its top priority, it's

NEXTEA proposal does nothing to address this issue. However, the bill Senators Baucus, Kempthorne and I are about to introduce, the Surface Transportation Authorization and Regulatory Streamlining Act (STARS 2000) will make this important change to ensure safer highways in rural America.

An environmental issue I am interested in examining today is the Congestion Mitigation and Air Quality (CMAQ) program. I hope the Administration will do a better job of explaining the effects of the proposed National Ambient Air Quality Standards (NAAQS) on CMAQ. I am troubled by this proposal that will take more and more money from the Surface Transportation Program (STP) that otherwise would help address some of Wyoming's roads needs in order to pay for air quality problems in other parts of the country.

Two other "environmental" programs that should be looked at are the enhancements and the recreational trails programs. While we will hear from some strong advocates of enhancements today, I believe we should allow states and localities to make the decisions about these projects, not the Federal Government. At the very least, the program should be maintained at its current level, not increased as the Administration proposes. We need to take a hard look at our priorities. For example, 44 percent of Wyoming's roads are in fair to poor condition and Yellowstone National Park faces \$250 million in road needs while receiving less than \$10 million annually. That is where my focus during the reauthorization of ISTEA will be.

Recreational trails, however, is an entirely different program. I agree with my colleague Senator Kempthorne, who has done great work on this issue. The program operates on a "user pays" system. It is the only one of these programs that is financed by user fees—from taxes on fuel purchased for use on recreational trails and in outdoor recreation equipment, which are paid into the national recreation trails trust fund established by ISTEA. The U.S. Department of Transportation estimates that this user fee brings in somewhere between \$65 and \$120 million annually. Yet the Administration has proposed to spend \$7 million per year on this program. I find this proposal for recreational trails to be completely inadequate. STARS 2000 addresses this important issue and I encourage the Administration to reconsider its position.

Finally, Congress and the Administration need to think about reducing Federal regulation of State and local governments. We took a big step forward a year and a half ago under the National Highway System Designation Act, but more work remains to be done. We need to simplify prescriptive interpretations of Federal regulations by several Federal agencies. We should also consider initiatives that review and reduce many obsolete and unnecessary regulations on State and local governments. This will ensure that American taxpayers will get more for their fuel tax dollars.

Again, Mr. Chairman, thank you for holding this hearing. I am hopeful these concerns will be addressed today.

Senator CHAFEE. Of course there will be a chance for questions as soon as we hear from Mr. Gardiner.

Mr. Gardiner.

STATEMENT OF DAVID M. GARDINER, ASSISTANT ADMINISTRATOR FOR POLICY, PLANNING, AND EVALUATION, ENVIRONMENTAL PROTECTION AGENCY

Mr. GARDINER. Thank you, Mr. Chairman.

I am happy to be here on behalf of the Environmental Protection Agency to support the Administration's proposal on NEXTEA.

As you pointed out in your opening remarks, our transportation network enables us to maximize our economic potential, provides us with unprecedented amounts of personal freedom, and gives us both a figurative and a literal path for the things we want in life. However, it also exacts a price on the environment. These problems manifest themselves in many forms, including local air pollution, such as smog and particulate matter, water pollution, habitat fragmentation, and contributions to climate change. Environmental costs are real and they impact the economy.

The enactment of ISTEA in 1991 marked a watershed in national transportation policy as it linked transportation and environmental

policy in ways that had never been thought of before. That linkage should be improved and strengthened as Congress reauthorizes ISTEA.

In no area, it is more important to consider the conflict and the linkage between transportation and the environment in our effort to provide clean and healthy air for every American to breathe. The technology mandated by the Clean Air Act, and its subsequent provisions, has been remarkably successful. New cars today are much cleaner than they were in 1970. Generally speaking, tail pipe emissions standards applied to new cars today allow only about 5 percent of the typical emissions of cars prior to 1970.

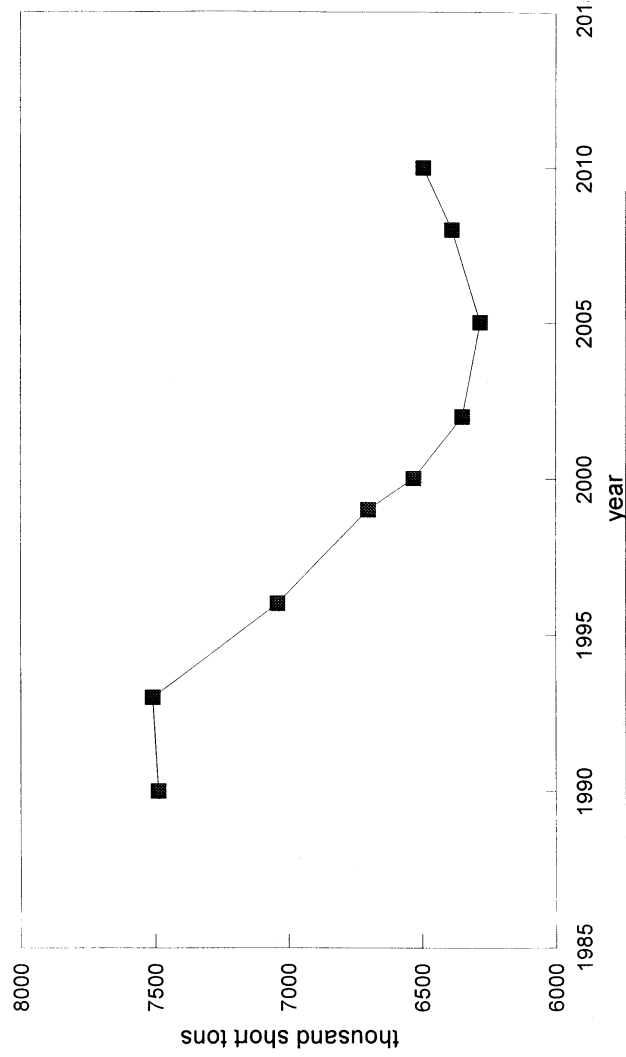
Despite this progress, the history of transportation-related air quality in the United States over the past 25 years is not a story of unqualified success. For one thing, the emission reductions derived from end-of-pipe control technologies on cars and trucks have been undermined by steady and ongoing increases in the number of vehicle miles traveled.

If you look at this chart, you will see the trend over the course of time. You can see that the trend of vehicle miles traveled continues to go up. In 1970, Americans drove their vehicles about 1.1 trillion miles. By the end of 1995, vehicle miles traveled had more than doubled to over 2.4 trillion miles.

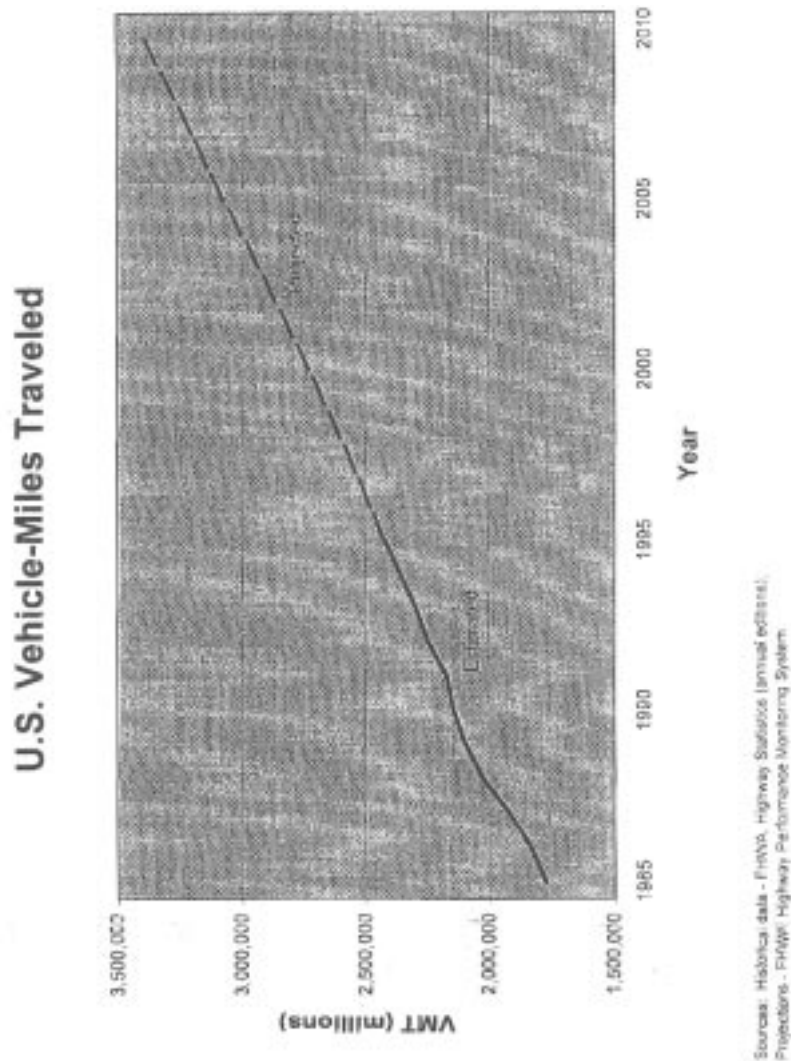
Senator CHAFEE. Mr. Gardiner, I think the charts are in your testimony, right?

Mr. GARDINER. That is correct. They are also attached to my testimony that was submitted to the committee.

Nitrogen Oxides
from on-road vehicles



U.S. EPA National Air Pollutant Emission Trends, 1900-1994.



Senator CHAFEE. Either my eyes are going on me, or these are the most illegible charts.

[Laughter.]

Senator CHAFEE. I am for bolder charts.

[Laughter.]

Senator CHAFEE. In any event, we have it here. Your point is the dramatic increase of vehicle miles traveled.

Mr. GARDINER. That is correct.

Senator CHAFEE. You show in your chart here. Is this in trillions?

Mr. GARDINER. The chart is in millions of miles, but what I spoke of, it adds up to trillions.

Senator CHAFEE. So it is very dramatic, certainly percentage-wise, in every way.

Mr. GARDINER. That is correct. And the increases have been especially rapid in America's cities and surrounding suburbs where typical patterns of economic development have caused millions of commuters to drive more miles between their homes, their jobs, and the typical activities of their daily lives.

This steady increase in vehicle miles traveled nationwide—about 3.3 percent per year for the past decade—has had several adverse effects on the quality of American life. First, it is slowing the air quality benefits we expect to gain from end-of-pipe controls and improved fuel technologies. After a quarter of a century of technology improvements, 74 million Americans still live in the 106 counties that do not meet national health standards for ozone or smog. Almost 30 million Americans still live in the 41 counties that do not meet national health standards for particulate matter.

Between now and 2010, more widespread use of better catalyst and cleaner fuels will not reduce vehicle-related emissions much further. In fact, over time you will see that they begin to rise. If you look at the next chart, if you follow the curve, you see that as a result of the passage of the Clean Air Act in 1990, which mandated new controls on automobiles and on fuels, emissions go down to about 2005. But after 2005, this steady increase in vehicle miles traveled erodes the gains we make between now and 2005 or so. You can see that the trend in air quality emissions goes up after 2005. That is largely due to this increase in vehicle miles traveled.

Obviously, one of the major creations of ISTEA in 1991 was the creation of both the congestion mitigation and air quality funds and the enhancements program. These were excellent examples of the wholly appropriate emphasis on both innovation and its connection to the environment.

In CMAQ I would point out that for the first time we have a federally funded transportation program that is targeted explicitly at air quality and the Federal mandate that we have to deliver clean air for every American. In effect, CMAQ funds the mandate we require under the Clean Air Act, or at least a portion of it. The CMAQ and enhancements programs have made funding available for projects and activities that never before would have been eligible for Federal-aid highway or for transit.

I think the results speak for themselves. Let me just give you a few examples of some of the improved transportation options and improvements in the environment we have seen as a result of the CMAQ and enhancements programs.

In Boise, ID, as a part of an effort to encourage alternative transportation, the city has replaced 28 of its old diesel buses with a fleet of smaller buses fueled by compressed natural gas. Besides the fact that these new buses are more efficient and user friendly than their predecessors, they eliminate particulate emissions and cut carbon monoxide emissions by 90 percent.

In order to fight a serious ozone pollution problem in St. Louis, the public can now purchase cards that enable them to ride the regional light rail or bus system for free on days with high ozone or smog levels. In 1996, the first year of the program, over 8,500 of these cards were used. Private companies and retail stores have

begun to offer their own incentives to use these cards. Thousands of people in the area now have even more reason to leave their cars at home during high pollution days.

Agencies in New York and New Jersey have come up with an innovative way of reducing traffic on the Gowanus Expressway and the Verrazano Narrows Bridge. Because highway construction over the next several years is expected to reduce available lanes by up to half, a new water freight service has been set up across the Hudson River. As freight moves by water instead of truck, air pollution and congestion will both be reduced. This new barge service is expected to eliminate about 50,000 truck trips per year across the Verrazano Narrows Bridge.

Finally, in San Jose, CA, a state-of-the-art child care facility has been constructed at one of the areas major transportation hubs. Parents can now drop off their kids, park their cars in the free commuter parking lot, and use one of the hundreds of trains and buses that stop nearby. A study estimates that this day care center and the resulting facilities could reduce area vehicle miles traveled by more than 700,000 trips per year, with consequent reductions in vehicle emissions.

The diversity of these local programs is truly striking. Clean-fuel buses, free transit passes, new intermodal freight facilities, day care centers, pedestrian and bicycle paths, traffic flow control projects—all these and more are now in use in American communities because ISTEA thought about old problems in a new way.

Our communities have a bigger voice in designing transportation systems to meet their unique needs. Now, they now have more options. The diversity of projects funded through CMAQ and the enhancements programs is itself one of the primary benefits of ISTEA because out of this rich profusion of ideas will emerge the set of linked transportation and environmental policies that will sustain us in the 21st century.

I have heard some of ISTEA's projects criticized because their environmental benefits are difficult to quantify or because they have not helped a local community attain national air quality standards. As we evaluate these projects, it is important to remember that compared to the history of national transportation policy, a relatively small amount of money has been spent on these projects over a relatively short amount of time.

We should not criticize these programs because we expect too much of them too soon. We are trying to shift the momentum of 50 years of transportation policy, and that is not going to happen over night. We have to keep at it. It is going to take a while for these ideas to catch on and show measurable results, but we are undoubtedly moving in the right direction.

We also have to remember that cleaner air and a healthier environment are not the only benefits derived from CMAQ and enhancements projects. Some of the projects help to reduce congestion on local streets. Others made local transportation systems more flexible or more efficient in giving local communities more transportation options. The varied benefits derived from most of these projects argue eloquently for the success of ISTEA and for its continuation in the future.

EPA stands squarely behind ISTEA and we stand squarely behind NEXTEA, particularly the increase in funding for CMAQ. Like President Clinton, we believe that NEXTEA is one of the most important pieces of environmental legislation that Congress will consider over the next 2 years.

We see great cause for hope in the hop-shuttle service in Boulder, CO, where clean-burning propane-fueled buses are carrying an average of 4,300 passengers a day, more than twice the number originally expected. In Glendale, CA, the public-private partnership is rewarding employees for leaving their cars at home and heading to work in car pools, van pools, bicycles, mass transit, and on their own 2 feet. We see a less congested and cleaner future in the 45-mile long Pinellas Trail linking St. Petersburg with Tarpon Springs, FL, and in the 235-mile long Katy Trail that traverses nine counties and joins 35 towns in Missouri.

Let's keep the successes for the environment and for public health and for communities going by reauthorizing the CMAQ and enhancements programs with increases in funding as proposed by the Administration.

Thank you very much, Mr. Chairman.

**OPENING STATEMENT OF HON. JOHN W. WARNER,
U.S. SENATOR FROM THE COMMONWEALTH OF VIRGINIA**

Senator WARNER [assuming the chair]. Thank you, Mr. Gardiner. [The prepared statement of Senator Warner follows:]

PREPARED STATEMENT OF HON. JOHN WARNER, U.S. SENATOR FROM THE
COMMONWEALTH OF VIRGINIA

I want to welcome Acting Administrator Garvey and EPA Assistant Administrator Gardiner, and our other witnesses today to discuss ISTEA's environmental and planning programs.

The particular focus this morning will be on the Congestion Mitigation and Air Quality program—known as CMAQ.

First established in ISTEA, CMAQ had sound goals of promoting more transportation choices for consumers. It properly gave States and local governments the flexibility to fund their highest transportation needs.

To those who believe that legislation I have introduced—STEP-21—would terminate the CMAQ program, let me set the record straight.

STEP-21 continues the flexibility for State and local governments to continue to select their own transportation choices, including transit, commuter rail and highways.

Transportation projects in non-attainment will continue to recognize their impacts on air quality because of the conformity requirements of the Clean Air Act.

The Clean Air Act guides the types of projects selected in non-attainment areas and ensures that transportation plans work together with a State's air quality plans.

The result will be that the States will continue to invest in transit alternatives, HOV lanes, and other opportunities to reduce automobile trips and improve air quality.

STEP-21 does not change this important relationship.

As important, STEP-21 continues the statewide and metropolitan planning requirements. It preserves the metropolitan planning organization structure and the allocation of funds so that local governments in urban areas can determine their own transportation priorities. I welcome the views of our witnesses today and look forward to a thoughtful discussion of these important issues.

Senator WARNER. We will now proceed to have questions and I will lead off with one to you, Mr. Gardiner.

On the question of congestion—I experienced it this morning first-hand—CMAQ restricts the State's and MPO's choice of options

that may provide much-needed congestion relief. As all transportation plans in non-attainment areas must conform to a State's air quality plans, shouldn't we permit CMAQ funds to be used for any project that is included in a conforming transportation improvement plan?

Mr. GARDINER. I think, again, Mr. Chairman, we have to go back to the purposes for which the congestion management and air quality fund was created in the first place, and that is to deal with the very serious air quality problems that we have across the country and to make an attempt to pursue innovative strategies, as I was elucidating in my testimony, that local communities can dream up that can help them attain their air quality objectives by trying innovative transportation policies.

I think the record of CMAQ speaks for itself, that in fact the communities have been marvelously innovative and that that move us in the right direction.

I think it is going to be very important, if we are going to maintain our momentum toward achieving clean air in communities across the country, that we continue to try to have this sort of contribution that the CMAQ projects can make both in the short-term and the long-term toward enhanced air quality for communities across the country.

Senator WARNER. Let me ask it this way.

Transportation plans that are consistent with air quality plans should use CMAQ funds. Is that a yes or a no?

Mr. GARDINER. Transportation plans that meet the conformity test that use funds from other areas then may go forward. There was a test that was established in the Clean Air Act in 1990. That so-called conformity test says that items that are in a transportation improvement plan must conform with the area's clean air plans. That is a very important test that has been established. I think it is an essential element of the integration the Congress was seeking in both the Clean Air Act amendments of 1990 and the creation of ISTEA in 1991. That is the way we get a consistency between our objectives for clean air and our objectives for transportation.

Senator WARNER. Is it a yes or a no?

Mr. GARDINER. The CMAQ funding can be used for projects which are in an air quality plan, yes.

Senator WARNER. Do you want to comment at all, Ms. Garvey, or let that one slide by?

Ms. GARVEY. I think I will.

[Laughter.]

Senator WARNER. Let's talk a little about the 9 years to take a project from the design phase to construction.

Many have indicated that the new requirement to conduct a major investment study duplicates the purpose of the environmental impact statement, which requires that all alternatives, including alternative modes of transportation, be analyzed.

What is the Federal Highway Administration doing to ensure that the MIS does not duplicate the EIS and does not recreate the regional planning process for each project?

Ms. GARVEY. Let me try to answer that question in two ways, Mr. Chairman.

First of all, we are conducting a pilot program now with a number of States to really demonstrate how an MIS can be used in coordination with and merging into the NEPA process, because that is a very fair question and one that has been raised by our State coalition at the beginning of the MIS process. We are conducting with our colleagues at FTA a pilot project which I think is going to give us some very good examples.

We have also suggested to States that they can approach an MIS in two ways, either on its own or as part of the planning process. But I think we are going to learn a great deal from the pilot programs on how we can merge the two.

Senator WARNER. I am going to digress for a few seconds.

Mr. Chairman, I understand that prior to the arrival of myself and Mr. Baucus you made a statement this morning regarding the intention of yourself and Mr. Moynihan to introduce the Administration's bill.

I think Mr. Baucus and I and the members of the subcommittee would like to have an opportunity to talk with you about which bill will serve as the initial markup document.

Senator CHAFEE. Certainly, I have introduced the bill with my staff. But that doesn't mean that that is the only bill I will put in. There are a variety of bills.

The answer to your question is yes.

[Laughter.]

Senator WARNER. I thank the chair.

[Laughter.]

Senator WARNER. Would you like to ask any questions?

Senator CHAFEE. Yes.

Mr. Gardiner, I think it is important that we get across once again the point you are making, as I understand it. What you are saying is that we have built these highways all across the country—and we are continuing to do so and widening them and so forth. As a result of that, the vehicle miles traveled has increased dramatically, as you showed in the first chart up there. And the effect of that is to denigrate the air quality in many communities across the country.

Am I correct in the point you are making?

Mr. GARDINER. In essence, yes. I think what we find is that the growth in vehicle miles traveled is undermining the technological improvements that we can make. The technological improvements in the other chart actually show a real benefit. But over time, as we continue to increase vehicle miles traveled, that will erode the air quality gains we get from technology.

Senator CHAFEE. So therefore, it is legitimate to use highway trust fund moneys to do something about this?

Mr. GARDINER. We certainly believe so. Certainly under the Clean Air Act we are asking communities across the country to design plans to achieve air quality. They are wrestling with the challenges they are facing as VMT in their communities grows substantially. It has been our thought that the CMAQ funding has been the primary place where communities have been able to go to use innovative funding to seek, in essence, alternatives to single occupancy vehicle travel. They have been able to fund these innovative

projects that look at transportation alternatives within their community.

Senator CHAFEE. Well, I agree with you. I agreed with that philosophy in 1991 and I agree with it now.

Ms. GARVEY, one of the arguments we are constantly going to hear is regarding the enhancements—that's a nice thing, but if the States want it let them do it themselves and don't have a designated sum set aside for the enhancements. Leave this big thrust toward options or flexibility and let the States do what they want with that. If they want to put more or less in, that is their business.

What is your answer to that?

Ms. GARVEY. That issue came up a great deal during our discussions both within the Administration and also when we conducted the outreach and forums in the last year. But we also heard from proponents of transportation enhancements that it was a fairly new program, that it was really just getting started, and that there was strong support for staying the course one more time. Perhaps in NEXTEA III or ISTEA III, moving much more toward eligible activities may be the right approach.

But for now, the proponents felt very strongly—and we agreed—that having a separate program was important. It is still a small amount of money. It is extraordinarily popular with communities, with cities and small towns across this country. So we opted for a set-aside in this reauthorization.

Senator CHAFEE. I agree with you, too.

I wish those who do the enhancement programs in the States would make every effort they could to invite Senators to come and cut the ribbon.

[Laughter.]

Ms. GARVEY. We will make that suggestion. I think it is a good one.

Senator CHAFEE. I think it would be a good one, myself.

[Laughter.]

Senator CHAFEE. I thank the chair.

Senator WARNER. Mr. Baucus.

Senator BAUCUS. Thank you, Mr. Chairman.

I would like to ask both of you to respond to this question.

The chairman makes a good point that more people drive. That's true. And there are more highway lanes added with highway construction. But the point is that a lot of those lanes are added not for the sake of just adding lanes but because people are driving more. They just are. That helps alleviate congestion and reduce air pollution because car engines burn more cleanly when they are not stopped at intersections and so forth.

Do we really get a big bang for our buck in spending money on CMAQ? I ask that because I think GAO has raised the question that we are not getting a lot of benefit from all this. It sounds good, but the fact of the matter is that we are not getting many benefits. One could ask the question, Why not take that same \$1.3 billion—or whatever it is you are suggesting—and put that into research for batteries so that we get more efficient automobiles? Why not put more into oxygenated fuels or something like that so that we

do get a greater bang for our buck if our goal is cleaner air, which it obviously is?

Here is your opportunity to respond to that question. It is a fair question and one that reminds us that it sounds nice and good, but when you really look at it, we don't really get that many benefits. There is probably a better way to get clean air benefits than putting all this money into feel-good stuff.

Ms. GARVEY. I will start. Thank you, Senator.

Let me try to answer your question in a couple of ways. I think there still are some benefits for a number of localities. It is a way to get into conformity. So there are some benefits to it.

I think what has been the most encouraging when you look at the CMAQ program is that it is a good mix of projects. When we started CMAQ, there were a lot of just traffic flow improvements. But I have to say that that got communities into conformity. So they did use it well and effectively.

If you look at it now, you can almost divide it into three categories. There is about 46 percent that goes into transit. I think your point, Senator, is that in the area of transit there is a great deal to reduce congestion. The air quality benefits may not be as great as some of the others. But States and localities are also putting money into traffic flow improvements. That is about 30 percent and that does get some immediate gains for them.

Then finally, I think there is a real interesting mix, as David Gardiner has suggested, on newer approaches such as transportation control measures, demand management and so forth.

Senator BAUCUS. Why not spend that money on more research for efficient batteries and so forth? You are just describing to me how the money has been spent. I asked a different question.

What about other uses of that same dollar that might be more efficient and might more efficiently reach our goal?

Ms. GARVEY. I think we can do both.

Senator BAUCUS. We can't do both. There is only a limited number of dollars.

Ms. GARVEY. Yes, there is a limited number of dollars.

Senator BAUCUS. So we have to decide what our priorities are, given the limited number of dollars we have.

Ms. GARVEY. I guess I would say that with the research money we have, we are undertaking a number of those initiatives, looking at ways that we can get cleaner fuel, get better vehicles working with—

Senator BAUCUS. What about the rural areas? Rural areas can't use these programs, such as transit systems and light rail. They are unavailable. Traffic synchronization doesn't mean anything. It can a little, but the benefits aren't very much. So what about the rural areas that are non-attainment, small communities?

Ms. GARVEY. Smaller communities—

Senator BAUCUS. They can't use CMAQ dollars nearly as efficiently as big cities can.

Mr. GARDINER. But they can still use the funding to help them get toward attainment of the air quality standards, which was the purpose of CMAQ in the first place. Again, the CMAQ funding is immensely flexible and very innovative funding of a wide variety of projects. I think the notion has been to allow communities—

whether they be rural or any other kind—to use their own innovative capacities. I think we are seeing that across the country. Communities are being very innovative in coming up with new strategies.

For rural areas that are in attainment, they can flex the money into—

Senator BAUCUS. How much of the benefits in cleaner air are attributable to stationary source and mobile source provisions in the Clean Air Act?

On the other hand, how much is attributable to programs like CMAQ?

Mr. GARDINER. It varies from pollutant to pollutant. Carbon monoxide would be a pollutant that was very heavily dependent on the transportation sector. Sixty-four percent of carbon monoxide emissions, according to EPA's most recent trends report would come from the mobile source sector.

Senator BAUCUS. But how much Clean Air Act as opposed to CMAQ?

Mr. GARDINER. I think the way to think about that is by looking at the chart that we had up there before. Again, I think you see that the requirements in the Clean Air Act—which are in essence technology requirements that are both requirements on the technology on the automobile as well as requirements for at least certain communities around the country for cleaner fuels, for other kinds of technology programs—that they yield a very substantial benefit that in fact they make a real dent in clean air. But what you see over time is that the increase in vehicle miles traveled will erode those benefits and it will turn up.

Senator BAUCUS. That is not responsive to my question.

Mr. GARDINER. I don't know the fraction. I can happily see whether we have an answer.

Senator BAUCUS. And the reason that is going up is because people are traveling more. Americans have more cars and they are driving more, too. It is not just because of a deterioration—it is because people are driving more.

Mr. GARDINER. That is correct. And there are many factors that are causing that to occur. All I think we are saying is that in essence, just as you would not invest all of your finances in one particular stock, you want some diversity in your portfolio of approaches in the transportation area in dealing with air quality problems.

Senator BAUCUS. But you don't want to go into a stock that is not going to pay dividends, either.

Mr. GARDINER. That is correct. Certainly my impression has been that in looking at the CMAQ projects that have been done already—I have provided examples where I think there are real world benefits.

Senator BAUCUS. I am trying to give you an opportunity in some respect to come up with some good evidence here. Frankly, I hear a lot of words, but I don't hear a lot of data or a lot of hard evidence.

Thank you, Mr. Chairman.

Senator WARNER. Mr. Thomas.

Senator THOMAS. Thank you, Mr. Chairman.

EPA is seeking to implement some more stringent standards on smog and particles. What do you think that will cost and what impact does that have on what you are seeking to do?

Mr. GARDINER. There are two questions there. First, what is the impact on cost?

As I think you know, Senator, accompanying the standards we are setting is a complete analysis of both the cost and the benefits of those standards. That analysis is under revision now and will be available.

Senator THOMAS. We haven't seen that, I don't believe.

Mr. GARDINER. There is a draft version that has come out along with the draft standards. That has been available for public comment. The public comment period has just closed. But we have also been revising the analysis. The final analysis, which is responsive to the public comments as well as the standards, will be available later this year when the standards are proposed.

In terms of the——

Senator THOMAS. Does it increase the cost or not?

Mr. GARDINER. The analysis shows that standards will actually have net benefits, that the cost will be exceeded by the benefits.

Senator THOMAS. Does it increase the cost?

Mr. GARDINER. It will increase the cost and will even more substantially increase the benefits.

The second point you asked about was how this related to the reauthorization of this law. The Administration is proposing to make it clear that any new areas that might come into non-attainment would be eligible for the CMAQ funding. So that if the standards would cause an area in your own State to come into non-attainment, they would be eligible for the funds that they could then use to make a contribution from the transportation standpoint.

Senator THOMAS. Ms. Garvey, there is something that I should know, but does the CMAQ fund come off the top before the State formula division?

Ms. GARVEY. Yes, in the sense that the CMAQ program is authorized separate from other programs.

Senator THOMAS. So in a State like mine or Montana, where there is relatively less activity here, we get less money than we would otherwise?

Ms. GARVEY. And it would be built into the rest of the program, into for example, the STP.

Senator THOMAS. So we would get less money than we would otherwise?

Ms. GARVEY. Not necessarily, you would get less money in CMAQ, but it would be counted by increases in the STP program and into other programs that would go to your State.

Senator THOMAS. Not if you take it off the top, would it?

Ms. GARVEY. Staff is reminding me that because of the hold-harmless that is the case. But we can get you some more detail and perhaps do the breakout for your State, if that would be helpful.

Senator THOMAS. I understand what you are saying.

Mr. Gardiner, you have cited that rail and mass transit—there isn't much mass transit between Shoshone and Greybull, Wyoming. So my point is that these are all substantially different kinds of circumstances. It does appear that you have a one-size-fits-all propo-

sition here for congestion and all those things when they are quite different.

Mr. GARDINER. That is correct. I actually think that the current law is structured to be flexible enough to accommodate different circumstances. Under the CMAQ funding, all States get some money under CMAQ. States which have no non-attainment areas—if Wyoming has no non-attainment areas, then Wyoming can take the money that they get from CMAQ and move it to traditional highway projects and other kinds of things.

Senator THOMAS. But let me remind you again that the money has been taken off the top.

Let me ask you a little more about safety.

You indicate flexibility and yet in Wyoming one of the most useful futures is the rumble strips on the sides of our interstates. They are particularly effective. But why do you insist on not allowing safety set-aside money to be used on the interstate?

Ms. GARVEY. I am going to have to get back to you with more specifics on that, but I am assuming it is because we are using the interstate maintenance program that is set up and that that would be an eligible activity under the interstate maintenance program.

Senator THOMAS. This is the kind of flexibility that our State highway department would like to have.

Ms. GARVEY. Right, but I believe that it is eligible under the interstate maintenance.

Why is it not eligible under the separate set-aside for safety?

Senator THOMAS. Yes, for safety.

Ms. GARVEY. Let me take a look at that, Senator, and get back to you.

Senator WARNER. These are non-attainment areas, two Virginia counties. One has 6,000 people and one has 19,000. I know both of them. The largest city in either county is 350 people. They are both non-attainment. What can they do with the money? Put up a stop light?

I don't think there is an answer to that question except to change the law.

Mr. GARDINER. I would be happy, Senator, to take a look at the situation in those two counties and to see what is already happening in those two counties and what might some of the things be to use that funding. I will get back to you on that.

Senator REID. Mr. Chairman, I think this morning's session has indicated the wisdom of when this committee was formed and it being Environment and Public Works because they really go hand in hand. I think sometimes people ask why it is Environment and Public Works. The hearing today indicates clearly why it is important that we keep our eye on the prize. Whenever we do public works projects, we have to keep the environment in mind.

I would ask our first witness, Ms. Garvey, in following up on what was stated by Senator Thomas in his brief opening statement, when we did the conference on this bill 5 years ago, one of the last things we did was come up with the program for trails. Some will remember Senator Symms was leaving and this was something he had worked hard on and we wanted to make sure that was in the bill. And it is in the bill. I think it has been one of the most popu-

lar aspects of the program, even though just a small amount of money has been spent.

You have spent a lot of your testimony today, in effect, boasting about the program. But if you look at the bill we get from the President, it cuts this program back significantly. Why?

Ms. GARVEY. We had two goals for the recreational trails program as we were developing the bill. One was to provide contract authority so that there was a consistent stream of funding, which is something that we heard loud and clear in our outreach sessions. The second was to provide some additional flexibility so that the Federal dollars from other programs could be used as a match for the non-Federal share, which was another issue we heard.

When we looked at the tough choices we were making at the end, recreational trails came out with a lower number in part because the transportation enhancements program is another opportunity for projects like that. But I know it is an issue Congress is going to look at. I understand the question.

Senator REID. It is very popular, doesn't take much money, and it really adds some light to the bill.

Senator Baucus mentioned that one of the things he thinks we should look at rather than paving more roads is research with Federal agencies through better batteries, as an example. This has been an ongoing project and we have spent very little money on this.

Also Senator Harkin and I and others have been very concerned about why we haven't done more with hydrogen fuel. The technology is there, we just need some direction from some of the Federal agencies—for example, with some of the Federal fleets—to use hydrogen fuel there. Magnetic levitation is something that Senator Moynihan, the former chairman of this committee, has talked a lot about, as have I.

In answer to Senator Baucus' question—I really didn't get one—could you tell us why we don't do more. Why is there not more coordination with Federal agencies in some of these programs?

Ms. GARVEY. Actually, you are going to see in 1998 and beyond much more of an emphasis in this area and much more coordination. We are in the midst of a cooperative agreement with the Department of Energy as well as with EPA to really look at the issues of alternate fuels, to do it in a cooperative way, and to combine our research dollars so that we can get a better bang for the buck. The area of alternate fuels is one we are going to be focusing on. There are some elements of cleaner vehicles where we have a partnership with the auto industry.

Our research budget in 1998 and beyond will focus on those areas. That is something that our colleagues in the Department of Energy have raised with us as well. We will do this in a cooperative manner.

Senator REID. There will be witnesses later on today that will testify. Their testimony bears on your testimony here—both Mr. Gardiner and Ms. Garvey—and that is why it takes so long to get things done at the permit level. There will be examples of project delays that will be given today by the American Consulting Engineers Council, some of the examples taken from testimony of Senator Boxer in January of last year.

We hear this all the time. The examples they give are 5, 6, and 7 years from the beginning of a project until the Federal Government will give the approval. Most of the time is taken by the Federal Government.

You or Mr. Gardiner may not have the responses to the testimony given by the American Consulting Engineers, but I would ask that you inform the committee in writing as to what we can do to speed up the permitting process.

Ms. GARVEY. Senator, if I could just respond very briefly on that.

Senator WARNER. Let's take a minute on that. That issue is central to everything we are doing.

Ms. GARVEY. It is a very important issue. I have not yet seen the testimony, but I am certainly familiar with the issue.

We have in the last 9 months been engaged in a discussion again with our colleagues at the Federal level as well as with some of our State partners to look at that issue, how we can make the process work better. We have a report that was just completed with some very specific recommendations, which I would be very happy to share with members of this committee.

Let me just mention two or three very quick recommendations.

Very often we bring our environmental colleagues into the process very late in the game. Frankly, they raise issues that are very important, but we brought them in too late. So sitting down early in the process with all the affected agencies is one recommendation that comes through loud and clear in the study.

Second, there is a need to do simultaneous reviews rather than sequential reviews, which often add months if not years to the process.

Third, we need to let one agency really be the lead as opposed to a kind of confusion as to who really is taking the lead and who is acting as the point agency, if you will.

But there are a number of other recommendations, including delegating some of these responsibilities out to the field rather than bringing everything into Washington where it often gets—

Senator REID. Who made these recommendations?

Ms. GARVEY. We have had a cooperative process with our sister agencies as well as some of the States.

Senator REID. Is that in writing?

Ms. GARVEY. Yes.

Senator REID. I think that is something we should take a real close look at.

Mr. Chairman, the reason this is so important—not only the delay in time, but it winds up costing so much more money. Most of these projects are done by the State's bonding authority. By the time they get around to actually being able to do it, these projects have gone up and they don't have the money to do them anymore. They have to cut back the projects, redesign, and so forth.

Senator WARNER. The bottom line is that it is a failure in the Government to serve the people.

Thank you. And thank you for your comments about the history of this committee. You are absolutely right. This is a hearing that shows the importance of the two.

Senator Inhofe.

**OPENING STATEMENT OF HON. JAMES M. INHOFE,
U.S. SENATOR FROM THE STATE OF OKLAHOMA**

Senator INHOFE. Thank you, Mr. Chairman.

I have a rather lengthy opening statement that I would submit for the record.

Senator WARNER. Without objection, your prepared statement will appear in the record.

[The prepared statement of Senator Inhofe follows:]

PREPARED STATEMENT OF HON. JAMES INHOFE, U.S. SENATOR FROM THE
STATE OF OKLAHOMA

Thank you, Mr. Chairman for holding this hearing on the environmental programs, namely CMAQ, under ISTEA and NEXTEA. I look forward to hearing from the Administration as well as the states, organizations and interest groups that will be directly affected by these new proposals.

I have heard different opinions about the CMAQ program. It appears that some State and local governments find it useful to finance projects that help them to reach nonattainment status for ozone and carbon dioxide under the Clean Air Act. However, I understand that there are certain strict requirements that these competing projects must meet to be eligible for CMAQ set-asides. This calls into question its effectiveness of assisting the projects that most need it as well as the need for there to be a set-aside at all. Personally, I have trouble with mandatory set-asides since they can sometimes stifle flexibility and the most efficient usage of funds. This not to say however, that we should eliminate the CMAQ program altogether. It should just be less restrictive and more flexible.

As Chairman of the Clean Air Subcommittee under EPW I have been keeping a close eye on how the Administration plans to handle the possibility of EPA's proposed ambient air quality standards for ozone and particulate matter with relation to the transportation industry and the NEXTEA. I have a couple of concerns so bear with me. Under current law, ozone nonattainment areas are classified in terms of severity by rating them on a scale of marginal to extreme and then assigned a weighted formula for the distribution of CMAQ dollars. The new air standards proposed by EPA eliminate the marginal-extreme weighting system for ozone, thus skewing the initial equality of areas already in nonattainment compared to areas that will come into nonattainment should the new regulations be promulgated. I feel this needs to be clarified.

Another concern is with the small rural counties that will find themselves in non-compliance under a PM_{2.5} standard. CMAQ funds are distributed mainly to urban areas, however even under EPA's conservative estimates there will be a multitude of rural areas that will all of a sudden find themselves in nonattainment. This concerns me because it is these small counties that do not have the need for HOV lanes and transit that urban areas have so they will have a more difficult time having projects that qualify for CMAQ dollars.

Under the new NAAQS proposal, hundreds of more counties will be thrown into nonattainment stretching the CMAQ funds even tighter, while the Administration proposes a "hold-harmless" provision, the use of that provision will take money directly from the STP fund. Even with the \$300 million dollars the Administration proposes adding to CMAQ, I think they will have to rob the STP funds to a far greater extent than they are admitting. The proposed NAAQS standards are an unfunded mandate and I am concerned that under a court challenge that the EPA and the affected counties will expect the funding for these costly mandates to come from the CMAQ fund which will in turn exhaust the STP funds.

In short, environmental programs are meant to play a role in our transportation system of today. My hometown of Tulsa has made enormous strides toward cleaner air and remained in compliance with air quality standards. However, CMAQ has been unfair in the past, cities which have bordered on nonattainment have not qualified for sufficient funding levels to enact measures which keep them in attainment. Tulsa already receives fewer CMAQ dollars than other cities, although they have had to spend enormous time and resources maintaining their current attainment status. If the goal posts move with the promulgation of these new EPA regs Tulsa will have even more competition for CMAQ money.

We need to be cautious about mandatory set-asides and where the money is actually going. I look forward to hearing from the witnesses.

**OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR
FROM THE STATE OF NEVADA**

Senator REID. If my friend would yield, I would ask unanimous consent that my opening statement be made a part of the record.

Senator WARNER. Without objection, your prepared statement will appear in the record.

[The prepared statement of Senator Reid follows:]

PREPARED STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE
STATE OF NEVADA

Mr. Chairman, For many years and in each of our recent hearings in this subcommittee, I have repeated my belief that transportation represents a truly national concern. We all have a stake in a national transportation system that is second to none, one that meets the present and future needs of the American people.

Moving people and goods quickly and efficiently throughout the Nation is one of the most important things we can do to keep our economy strong over the long haul. Far too much time and productivity is lost waiting in traffic.

However, our transportation system does not operate in a vacuum. Transportation is one of the biggest contributors to environmental problems in this country. Half or more of the emissions of nitrogen oxides and carbon monoxide in the U.S. come from cars and trucks. In my home State of Nevada, we are making good progress in overcoming these problems despite the dramatic growth in our urban areas over the last decade.

However, a national transportation system that does not address environmental issues is one that would not be living up to the expectations of the American people. If we are serious about wanting to clean up the environment, we need to be serious in our transportation program about providing some resources to the states to assist them in implementing a program that is consists of both sound infrastructure and is environmentally sound.

Therefore, I have not only been supportive of the Congestion Mitigation and Air Quality Improvement Program and the Transportation Enhancements Program, but also other programs such as the Intelligent Transportation Systems program that also has a positive impact on the environment.

These and many other ISTEA "experiments" work together to make the core highway and transit programs work better, smarter, and cleaner.

The people of Nevada have taken advantage of CMAQ and enhancement money under ISTEA to fund a variety of very popular projects. Las Vegas has improved interchanges, built a pedestrian overpass at one of the city's busiest intersections, and partially funded a cutting-edge regional traffic signal system. We still have a lot of traffic problems in Las Vegas, but without the Las Vegas Area Computer Traffic Signal System, they would be immeasurably worse.

In Reno we have been able to purchase \$5 million worth of newer, cleaner buses and to expand and improve our paratransit system. Elsewhere in the State we have been able to rehabilitate rails stations and have beautified several highway corridors.

Senator Chafee is conducting a field hearing with my assistance in Las Vegas on March 28. I would like to invite all of you out to Nevada to see first hand how we are trying to build a 21st century transportation infrastructure for the Nevada of the 21st century. Witness after witness will describe how communities in Nevada and elsewhere are merging the traditional highway and transit programs with advanced, environmentally sound, concepts and technology to build the intermodal system all of us on this committee are dedicated to.

Yes, Senator Chafee, we will even have a witness discussing Maglev.

A word of caution. I have stated that these programs are widely popular in Nevada, as I suspect they are in many communities across the nation. Unlike many Federal projects, these are small and discrete and have a visible, positive day-to-day impact on people and the communities where they live. They are appealing and popular for good reasons.

However, they are popular in the same way cable TV is popular. Cable TV is a nice addition to a home as long as you aren't paying for it with money you should be using for the electric bill. It is very hard to justify an expansion of these programs, however successful or well-intentioned they are, when the overall funding of the Administration's bill falls far short of meeting the critical transportation needs of most states.

I will not dwell on this point. My State department of transportation will be delighted to continue developing projects to enhance Nevada's transportation system with CMAQ and the Transportation Enhancement dollars if the overall funding is acceptable. Rails to Trails is terrific, but I do not want it to become someone's only option for getting to work because the rest of the system is so vastly under funded.

The fuel taxes paid into the highway trust fund each year will support significantly higher spending on transportation and that is what we should be doing with the money.

As you know, I introduced legislation last month to take the Highway Trust Fund off-budget to ensure that the American taxpayers are getting what they pay for when the gas tax is collected. This is simply a matter of living up to the public trust.

Perhaps, Ms. Garvey, you will today become the first Administration witness to come right out and say that more money is at least part of the answer.

Thank you, Mr. Chairman.

Senator INHOFE. Mr. Gardiner, I am the chairman of the Clean Air Subcommittee. On February 12, we had Administrator Browner in and talked for some time about the effect of the proposed changes. I want to elaborate a little bit on what Senator Thomas was talking about.

She testified that the proposed changes for ozone would have the effect of increasing the population of people living in non-attainment areas up to somewhere between 74 million and 122 million people, or about a 65 percent increase.

Do you agree with that estimate?

Mr. GARDINER. I think that is correct, yes.

Senator INHOFE. Subsequent to that, we have gone back and felt that that estimate was very conservative, but I wouldn't ask you to elaborate on that. I think it is going to be closer to 100 percent.

Ms. Garvey, the amount of CMAQ funding is increased over the 1991 authorization by about 30 percent?

Ms. GARVEY. Yes, that is correct, Senator.

Senator INHOFE. And I understand there is a hold-harmless, which will ensure that we would be guaranteed the same amount as we were under the authorization of 1991. Is that correct?

Ms. GARVEY. If you are referring to if an area moves into non-attainment because of a new standard, that is correct, Senator.

Senator INHOFE. Then I would have to ask the question. You are talking about 30 percent versus my 100 percent increase or the Administrator's 66 percent. Isn't that going to come from the surface transportation system? Where else will it come from?

Ms. GARVEY. It would, Senator. It would come off the top of the Surface Transportation program, yes.

Senator INHOFE. Which is primarily roads, such as you find in Oklahoma, Wyoming, Nevada, and Montana. Is there any other place it could come from?

Ms. GARVEY. Other than the core program, no, it could not.

Senator INHOFE. That is really substantial. I don't think we have talked about that quite enough, Mr. Chairman, because we have had two hearings here and we had a field hearing in Oklahoma where 11 States were represented. Everyone came in with their own estimates. This is a great concern out in the States that have what used to be referred to as secondary road systems.

Back to your chart up here, Mr. Gardiner, are those years that are the black dots? In other words, you have 1990, then these dots that come down finally to 2000.

Mr. GARDINER. That is correct.

Senator INHOFE. So we are right now at about half-way down. That is based on the current standards. Nitrogen oxide is a precursor to ozone.

Mr. GARDINER. That is correct, but the standards that we are about to set for particulate matter and for ozone are for ambient. It tells the public that this is the level that is safe to breathe. These standards refer to the actual emissions standards that we would apply to automobiles.

Senator INHOFE. Emission standards based on the current standards?

Mr. GARDINER. Yes, under the 1990 amendments to the Clean Air Act.

Senator INHOFE. Not under the proposed changes?

Mr. GARDINER. Well, I want to be clear that the proposed changes will not affect, for example, how clean a car is that the automobile manufacturers have to produce. There are two different kinds of standards that we set. We set a standard, which is the one under consideration today that is for ambient air quality, which is—basically the question posed when setting an ambient air quality standard is, How clean should the air that we breathe be?

We also set emissions standards. Emissions standards tell an automobile company how clean the emissions that come out of a car should be, or how clean the emissions from a factory or a power plant should be. Those would be emissions standards.

To get these kinds of calculations, these show the combination of emissions standards for automobiles required under the Clean Air Act. In certain parts of the country we have now clean air regulations for reformulated gasoline. That is in effect an emissions standard. This shows that when you add all those things up, and you calculate in also how much people will drive and other factors like that, what we expect to see from the overall on-road vehicles, the vehicles that will actually be on the roads.

Senator INHOFE. You would say, then, that this chart demonstrates a successful program, wouldn't you?

Mr. GARDINER. In the short-term, it demonstrates that technology will have a substantial positive effect for cleaning up the air. In the long-term, when you look at it about 2005, it shows that the amount of vehicle miles traveled—how much we are driving—we are increasing the amount we are driving so much that emissions from the vehicles on the road will begin to increase in the year 2005 according to these projections. The basic message of this chart is that you cannot rely simply on technology—or at least the technology that we currently require automobile companies and others to produce—to continue to produce clean air.

Senator INHOFE. You are going to have to explain—and you won't be able to do it in this meeting—to me that curve as it starts to curve back up. To me, it has been a successful program. What we have contended is that what we are doing right now is working. What we are doing right now is cleaning up the air, not confining it just to this chart.

Mr. GARDINER. I understand.

Senator INHOFE. Quite frankly, I think we are doing enough.

Thank you, Mr. Chairman.

Senator WARNER. Thank you.

Our distinguished cosponsor of Step 21, the distinguished former Governor of Florida, Senator Graham.

**OPENING STATEMENT OF HON. BOB GRAHAM, U.S. SENATOR
FROM THE STATE OF FLORIDA**

Senator GRAHAM. You gave me a lousy introduction.

[Laughter.]

Senator GRAHAM. Thank you, Mr. Chairman, and thank you for your kind remarks.

I'm going to start by restating what I think is a truth and then some observations on that as the context for the question.

The truth is that America's surface transportation system has degraded over the last 6 years since the passage of ISTEA, and there is every expectation that it will continue to degrade. The fundamental reason for that is that whereas according to the estimates of the former secretary of DOT, Mr. Pena, we should be investing about \$50 billion a year in order to maintain the system at its current state, we have been investing about 60 percent of that. We are paying the price for that year after year disinvestment in our transportation system. That is the truth.

The observation is that there are three basic ways to deal with that problem. First, is to provide more funds through the traditional methods we have used to finance transportation. Second, is to restructure the Federal funds in such a way that they will serve as a magnet to encourage non-traditional funds into transportation. Third, is to use the funds that we have available from whatever source more efficiently than we have in the past or some combination of those three techniques.

Having said that, I would like to ask Mr. Gardiner: What are the standards that you look to to determine whether our surface transportation congestion is becoming more serious, being ameliorated, or in a steady state?

Mr. GARDINER. I think from our standpoint—it is possible that Ms. Garvey may have a better answer specifically on congestion—we at the Environmental Protection Agency are simply interested in whether we are making progress toward meeting the goal of air quality standards around the country. Is a community moving in that direction? So under the Clean Air Act communities are developing clean air plans. The purpose of the CMAQ funding is to try to provide some funding for some of the efforts that local communities may make to do transportation alternatives. Similarly, in the remainder of funds we have a test to make sure that the transportation plan and the clean air plan conform with each other, that they in effect mesh.

Senator GRAHAM. What are the Department's standards for congestion?

Ms. GARVEY. Speaking as a former State DOT official, we often would look at levels of service and grade levels of service, obviously wanting to move toward level of Service A.

From the Department's perspective, our thrust has really been to try to give States as many tools as we can to deal with the congestion.

Senator GRAHAM. I am interested in performance standards. Using those standards that you referred to that have an alphabet-

ical listing, what is the result of applying those standards to the surface transportation in 1991 and 1997? Are more States in the higher alphabetical?

Ms. GARVEY. Congestion is worse. I think your point earlier is well taken.

I will say that there is some hope, though, in the last conditions and performance report. We are seeing that States are, in many cases, much more strategic in where they are putting their dollars. I think there is hope in that.

When you look at the pavement conditions, those are stabilizing. In some cases, it is getting a little better. But the number of choke points, the number areas where congestion is a real problem, is not decreasing.

Senator GRAHAM. Could you quantify that? How many States are in a lower alphabetical position today than they were in 1991?

Ms. GARVEY. I would like to submit that for the record, Senator, if I could, to be more specific and to be accurate.

Senator GRAHAM. Then applying the consequences of NEXTEA, what would be your projection as to where we were 6 years from today? Will we continue to degrade or will we see some stabilization?

Ms. GARVEY. I certainly hope that we will see more than stabilization. I think if we provide the kind of alternatives you have pointed out—we have to be smarter, we have to figure out alternative ways to fund infrastructure projects. Our emphasis on operation and maintenance I think is a very key component. Often—again as a former State official, we approach solutions through figuring out how much money we can devote to capital investment. But I think we are learning more and more that it has to be operations and maintenance as well.

I hope it will be better.

Senator GRAHAM. What within NEXTEA are the initiatives that give you the most hope that we will be spending our money smarter as it relates to ameliorating traffic congestion?

Ms. GARVEY. I think not having funding decisions so modal driven and allowing States and localities the flexibility to choose among alternatives is one way. I think the emphasis on the planning process that brings in—

Senator GRAHAM. On that point, in what ways is NEXTEA different than ISTEA in terms of that range of choice?

Ms. GARVEY. For example, the STP program increases what is eligible. It includes, for example, Amtrak capital. It includes publicly sponsored freight rail. So again, if a State says that they want to put their dollars into freight rail because they think that is going to help our national highway system by getting some movement of goods onto rail, that is a good alternative for them.

Senator GRAHAM. I would like to get a followup. First, looking back, what has been the effect of our ISTEA program in terms of traffic congestion? What are the numerical or alphabetical measurements of that change?

Second, looking forward, what are the alterations in NEXTEA that in which we are going to invest our confidence that they are going to improve the system over the next 6 years? And some quan-

tification of how much we are looking to that particular tactic to contribute to the reduction of traffic congestion.

Ms. GARVEY. We will do that, Senator. But in summation, I do think increased funding levels, increased eligibility, and increased financing strategies—multiple strategies—are three areas that will give States more tools to reduce congestion.

Senator WARNER. Thank you, Senator, very much. I am quite anxious to proceed to the next panel because the Senate will have two back-to-back votes beginning at 11:30. But that should leave adequate time to hear from a very important series of witnesses.

Before you depart, Ms. Garvey, let me say—and I think I speak for most on this committee—we wish you luck. You may be returning in the near future. I think it would be smooth sailing, and I hereby announce my vote yea.

Ms. GARVEY. Thank you very much, Mr. Chairman. I appreciate that.

Senator WARNER. Good luck. Go for it.

[Laughter.]

Ms. GARVEY. Mr. Chairman, may I just say that I always report back to the Secretary. If you don't mind, I will report that last comment back.

[Laughter.]

Senator WARNER. You bet. Thank you.

Senator WARNER. We will now have the next panel.

We will hear from Mr. Thomas Walker, executive director, Wisconsin Road Builders Association, on behalf of the American Road and Transportation Builders Association; Mr. Hal Hiemstra, vice president of national policy, Rails to Trails; Ms. Meg Maguire, president, Scenic America; Mr. Hank Dittmar, executive director, Surface Transportation Policy Project; and Mr. Leon S. Kenison, commissioner, Department of Transportation, State of New Hampshire.

We will have Mr. Walker to lead off.

**STATEMENT OF THOMAS WALKER, EXECUTIVE DIRECTOR,
WISCONSIN ROAD BUILDERS ASSOCIATION, ON BEHALF OF
THE AMERICAN ROAD AND TRANSPORTATION BUILDERS AS-
SOCIATION**

Mr. WALKER. Thank you very much, Mr. Chairman.

I am very pleased to be here with you this morning. My name is Tom Walker. I am the executive director of the Wisconsin Road Builders Association, an affiliated chapter of the American Road and Transportation Builders Association.

Senator WARNER. I am going to interrupt to say that we will have to ask each witness to limit their remarks to 5 minutes. All statements will be placed in the record in their entirety.

Thank you.

Mr. WALKER. Prior to joining the Wisconsin Road Builders last summer, I was employed for almost 10 years in the Wisconsin Department of Transportation where I played a major role in developing Wisconsin's Clean Air Act compliance strategy, oversaw the development of Wisconsin's first multimodal transportation plan, and also served as the administrator of the division of planning.

I would like to begin by strongly endorsing ISTEA's emphasis on State and metropolitan planning. By improving the planning process as you did in 1991, I think we can have a much more intelligent discussion today about what works and what doesn't work in terms of transportation options. As a result of my own experience, I would like to share with the committee some of the things that I learned and use those to help substantiate some of the proposals to improve the planning process and how the linkage between the environment and transportation should work.

The first point I would like to emphasize is how limited the real potential is for meaningful modal shift from highway use to alternatives to highways. In my written statement, I explain how the variety of rail and transit proposals and plans in Wisconsin barely reduce forecasted auto travel growth. While very important for improved mobility and travel choice, they cannot substitute for feasible highway improvements.

You recall from the chart that EPA brought before you this morning the nice slope of highway travel growth they projected. I would suspect that if you took all the State-wide plans produced under ISTEA and all the MPO plans, and we successfully implemented them over the next 20 years, and we were able to actually get all the forecasted rail and transit ridership that those plans assume—which is a pretty optimistic statement—that the slope of that chart in terms of forecasted auto travel will not move substantially.

The challenge, as Senator Graham said earlier: What are we going to do to solve congestion? Yes, you need a multi-faceted approach, but absolutely you cannot do it without improvements to highway capacity.

Is Wisconsin unique? At the department, we looked at MPO plans around the country, especially those containing major commitments to transit system development. Even in metropolitan areas like Portland and San Diego, for example, where plans call for a very ambitious doubling of transit trips within the plan horizon, modal shift will in fact be minimal. For each new forecasted transit trip, those plans recognize that there will be 10 to 15 new automobile trips during the same planning period. In short, the highway-transit tradeoff assumed in much of ISTEA is probably not there in most cases.

Investments in alternatives to highways are important. They should continue. We encourage the committee to include them in NEXTEA. But they cannot substitute or come at the expense of continued investment in highways.

For these reasons, we strongly recommend the removal from any Federal planning requirements of bias against highway capacity projects. States and MPOs should have the full flexibility to plan for highway mobility solutions and transit mobility solutions. Whatever works, they should have the flexibility to choose.

We have several specific suggestions. First, the MPO financial feasibility requirement should be repealed. Limiting plans to current revenues precludes good planning. MPOs should be free to develop multimodal plans that require expanded investment levels. Then use the benefits in the plan to persuade all levels of government to respond with appropriate resources. I don't know of any

elected official in my State of Wisconsin who is prepared to vote for increased fees or taxes for highways or transit without having in place first a plan that says how in fact those dollars should be invested.

If the committee believes that some limit is appropriate, then we suggest that a requirement for State and MPO endorsement of the plan's financial element should suffice. If these public agencies are willing to endorse the revenues, why should Federal rules prevent them from taking that leadership role?

I also would like to suggest that the committee take a hard look at restructuring the urban planning process to be a joint partnership between the State and the MPO. Without question, in every metropolitan area in this country there needs to be a partnership with the State representing the interregional mobility needs and the commercial mobility needs with the MPO focusing on the urban mobility needs of a region. Putting those together and requiring both the Governor on behalf of the State and the MPO on behalf of the urbanized area to endorse those plans seems to be a positive step forward.

When Congress passed the Clean Air Act amendments in 1990, it included requirements for TCM evaluation and inclusion in SIPs. ISTEA funded those TCMs with the CMAQ program. The basic assumption we have heard over and over this morning was that reduction in auto usage would be a critical element in air quality attainment and maintenance.

In my written testimony, I recount our experiences in Wisconsin. These indicate that CMAQ investments do not contribute significantly to air quality attainment. In the last 6 years, technological changes produced a reduction of almost 90 tons of VOCs daily, despite VMT growth in southeastern Wisconsin. CMAQ projects contributed one-twentieth of one ton. That is .005 of the total.

All research and experience I have seen seems to prove that travel growth is not and will not overwhelm the technological potential for improved automobiles and improved fuels. The chart that EPA brought before you this morning, Mr. Chairman, showed an upturn in NOX emissions. That is based on existing law. You have in this country a proposal for a 49-State car as an alternative cleaner car of the future. If the committee believes strongly that the mobile sector needs to do more than it is doing, we would certainly encourage a mandate for the earliest possible production and sale of that vehicle because that will change that curve. It will move out yet further a point in which an uptake occurs.

The cleaner cars get, the smaller the impact of any future potential uptake is. My guess is that—based upon what I know and what I have learned—in most non-attainment areas we can move that uptake based on existing technology out probably to 2015, 2020, and beyond. That chart was a chart covering the Nation as a whole. Clearly many non-attainment areas are doing better than that. In my area in southeastern Wisconsin, we believe that the emissions of VOCs, for example, by 2015 will be down to 20 tons per day or less, compared to 160 tons in 1990, if we can get the 49-State car implemented.

Obviously, the State of Wisconsin cannot control that.

Thank you very much, Mr. Chairman.

**STATEMENT OF HAL HIEMSTRA, VICE PRESIDENT OF
NATIONAL POLICY, RAILS TO TRAILS**

Mr. HIEMSTRA. Good morning, Mr. Chairman and members of the committee.

My name is Hal Hiemstra. I am the vice president of national policy at the Rails to Trails Conservancy. I also serve on the steering committee for the Surface Transportation Policy Project and the "Bikes Belong" campaign, and co-chair STPP's transportation Enhancements Committee. Thank you for the opportunity to address you this morning on issues relating to the reauthorization of the transportation enhancements program of ISTEA.

Since passage of ISTEA, the Rails to Trails Conservancy has maintained an ongoing dialog with the State departments of transportation and project sponsors about spending and implementation issues associated to the enhancements program. We track enhancement money programmed, money matched, money obligated, and money reimbursed. We also track projects funded and project spending by enhancements category.

Today, since I have 5 minutes, I have five main points that I would like to share with members of this committee.

First, transportation is about more than roads. True, we all need and benefit from highway infrastructure, however, bicyclists and pedestrians needs safe on-and off-road routes, sidewalks, and convenient access to transit stations and other intermodal transfer points as well. Investments in these types of facilities are exactly what the American people want. A new poll released in late February by the "Bikes Belong" campaign, a coalition of bicycle advocacy and industry groups, has found that a majority of Americans support the use of a portion of gas tax revenue for funding transportation enhancements.

The bipartisan poll conducted by the Lake Research Insurance Group, found that 64 percent of those polled favored using gas tax revenues for alternative transportation projects such as funding bike lanes, bike trails, and sidewalks. The response increase to 70 percent when respondents were asked whether they also favored using enhancements funds for related transportation purposes, including the renovation of historic transportation facilities, scenic road enhancements, and similar projects. And a whopping 79 percent of the respondents supported using gas tax dollars to build safe places for children to walk and bicycle.

According to the spokesperson for the Terrance Group, the same polling organization that Ronald Reagan used, the poll data shows that "the continued Federal support for alternative transportation projects is among the few topics upon which Americans can agree."

My second point is that the transportation enhancements program helps to stabilize and rebuild community infrastructure by improving the quality of life in communities lucky enough to have received enhancement funding since the program began, and by stimulating local economic development, both of which are goals associated with any type of transportation project.

The enhancements program also responds to local priorities. Since enhancements projects tend to be small projects—the average project is approximately \$289,000—local community leaders have been able to play an important role in helping to define and design

transportation enhancements projects. Because the program responds to local priorities, the transportation enhancements program, perhaps more than any other program created in ISTEA, builds new public support for transportation funding.

In addition to recruiting new supporters of transportation spending, the enhancements program is already bringing additional investment into the transportation sector by leveraging more than the required 20 percent local match. Nationally, the average local match for transportation enhancements projects is 27 percent, and some States—such as Virginia—have a local match that exceeds 50 percent.

My third point is that the enhancements program has and continues to be successfully implemented all across the country. As of February, 7,321 enhancements projects have been programmed for funding. But numbers and statistics are sterile.

What has the transportation enhancements really accomplished?

Children in Jackson Hole, WY now have a series of trails that converge upon their middle school, allowing them safe routes to bicycle, walk, or ski to school, enabling their moms and dads to leave the car at home for at least two trips a day.

Mr. Chairman, 1,000 Minnesotans a day now commute to work in Minneapolis on the Cedar Lake Park bikeway, which shares the corridor with the Burlington Northern mainline carrying coal from Montana to Chicago. By allowing this many people to arrive in Minneapolis through bicycling, walking, or in-line skating, the need for another parking lot was eliminated, preserving valuable green space in the central city.

In Great Falls, Montana, enhancement funds are being used to help build the 5.5-mile long River's Edge trail which will provide new off-road transportation choices for students and residents of adjacent neighborhoods and communities along the Missouri River.

And a project I am sure you are familiar with, Senator Warner, is the renovation of the Danville, VA depot.

Senator WARNER. You might well close on that one. You have strong support from the three of us here. I thought you might want to stop while you were ahead.

[Laughter.]

Mr. HIEMSTRA. I will take that as a wonderful hint.

Senator WARNER. Great. We will put it in the record. Really it is a marvelous thing for the country. I know it is a diversion of funds, but sometimes those things are necessary.

Mr. HIEMSTRA. Thank you very much, Mr. Chairman.

STATEMENT OF MEG MAGUIRE, PRESIDENT, SCENIC AMERICA

Ms. MAGUIRE. Thank you very much, Mr. Chairman.

I am Meg Maguire, president of Scenic America. Our mission is to preserve and enhance the scenic character of America's communities and countryside. We have seven affiliates. We are one of the founding members of the STPP coalition and we are very pleased to be here today.

ISTEA presents a great opportunity to continue a program that works. I can tell you that our constituents feel very different about transportation now that we have had ISTEA for 6 years. They have

been able to come to the table and gain from that, makes a difference in their communities.

We all agree that the transportation enhancements program has had great benefits. I will only second the feelings about that and call your attention to this report which we prepared last year which highlights 25 of the most outstanding of the transportation enhancements projects.

Let me focus on another program that works very well, and that is the national scenic byways program. This program was a bit slow getting off the ground, but now it is really taking root in the States. The exciting thing for Scenic America is that we are working on the ground in four States with private funds. Foundations are putting money into the scenic byways programs to get programs started in their States because they see this as a great conservation opportunity.

We are working in Ohio, Pennsylvania, we just started working in Virginia. Our most interesting partnership at this point is with the State of Georgia. We have a formal partnership with the Georgia DOT, the Georgia Trust for Historic Preservation, and Scenic America to a State-wide program of scenic byways. Mr. Chairman, 20 communities have expressed great interest in scenic byways and there are many more. We are working through the whole rural development infrastructure in Georgia to help train people about what scenic byways can do and to get this program off the ground.

As you know, the first set of national scenic byways were designated this year. This is a great program, so we urge that you continue it.

ISTEA is also a great opportunity to fix something that doesn't work. Mr. Chairman and members of the committee, the Highway Beautification Act is broken and the people need your help to fix this Act. The time to fix it is now. Scenic America, over the last 2 years, has been conducting quite a bit of research. What do we know about billboards?

We have done a study which will be released in the next few weeks, a survey of 46 States that have billboards. We are trying to find out what the States are doing to control billboards, to implement the Highway Beautification Act. We have found that billboards are proliferating rapidly. When the Highway Beautification Act was enacted in 1965, there were only 330,000 billboards estimated nationwide. Today there are 500,000 on Federal-aid primary and interstate highways alone.

We know that billboards are going up rapidly in unzoned rural areas. Often sham businesses are going up, and then that becomes the commercial activity around which the billboards then go up. I have a March 9 clipping from the St. Louis Post Dispatch that details this in the State of Missouri. We know that this is a problem with sham businesses in Florida, Georgia, Missouri, and many other States.

The States are also losing money. We know that it is costing them between \$6 million and \$10 million per year just to administer this program.

They are not collecting any road user taxes, tolls, or fees from the billboard industry. This is the only industry that is not paying its fair share to use the American roads. If you turn a billboard

away from the road it has absolutely no value at all. It doesn't clothe, feed, house, or educate anyone. Its entire value is derived from the road. Right now, it is paying nothing.

We know that people in this country who have been professionally surveyed know that enough is enough. We find great dissatisfaction in Missouri, Florida, Rhode Island, and New Hampshire where the recent surveys have been conducted.

We don't have any good safety information. Here is an industry that spends a great deal of creativity and ingenuity in billboard messaging and we really don't have any good safety information.

We ask that you fix the Highway Beautification Act and propose these five measures: put real controls on the number of billboards on our Nation's highways; protect rural States from billboard blight; protect America's roadside trees—we know a lot of trees are going down.

Senator WARNER. Let's close on that one.

Are you familiar with what happened in the Virginia General Assembly this year?

Ms. MAGUIRE. Sir, we were very pleased to work with the garden clubs and others.

Senator WARNER. For those who don't know about it, a bill was passed to cut down trees, and all of a sudden your organization went to work and got it pretty well reversed, didn't you?

Ms. MAGUIRE. Yes, we did.

Senator WARNER. There is power.

Ms. MAGUIRE. Yes, there is power.

**STATEMENT OF HANK DITTMAR, EXECUTIVE DIRECTOR,
SURFACE TRANSPORTATION POLICY PROJECT**

Mr. DITTMAR. Thank you, Mr. Chairman, for your kind invitation to join you today. I am Hank Dittmar, the executive director of the Surface Transportation Policy Project, a national coalition. Among our members are the Environmental Defense Fund, Friends of the Earth, the Sierra Club, the National Resources Defense Council, and the National Wildlife Federation.

Today I want to focus on transportation and the environment, particularly on the congestion mitigation and air quality program. The reauthorization of the ISTEA legislation may well be the most important environmental legislation to be passed by the Congress in 1997. Federal investment in transportation is as critical to environmental quality and quality of life as it is to economic competitiveness. We have learned that American people want a clean environment and a good transportation system. ISTEA began the process of bringing those goals together. We believe the committee should build on that solid foundation in 1997 by preserving and enhancing ISTEA's environmental provisions, particularly the congestion mitigation and air quality program.

I want to make two over-arching points and then leave you with a few recommendations. First, transportation investment affects environmental quality in many ways. Second, we need new alternatives to relieve traffic congestion.

Federal transportation investment affects environmental quality in a number of ways. The most documented may be the Nation's air pollution problems: cars and trucks to emit 65 percent of carbon

monoxide emissions, 47 percent of nitrogen oxide emissions. Evidence increasingly points to small particulates in exhaust, particularly diesel exhaust, as a prime cause of respiratory problems in children.

With respect to energy usage, almost two-thirds of the oil we use goes into cars and trucks. A decade ago, most of that oil was produced domestically. From 1980 to 1995, the amount of our Nation's oil we imported grew from 27 percent to over 50 percent. Other environmental implications of the transportation program include global climate change, water quality loss due to run-off, the loss of farmland and open space, and impacts to biodiversity.

For the environmental community, ISTEA has brought us to the table as partners. It has shown us it is possible to invest in transportation projects which actually improve the environment. So we have been happy, Mr. Chairman, to support your call to the Budget Committee for increased spending in transportation programs because we believe that if the funding is provided for ISTEA programs we can help mobility and the environment.

This leads to my second main point, which is that we simply are learning that we can't solely build our way out of congestion by adding new road capacity. An increasing body of evidence has demonstrated that it is not possible to build our way out of congestion by adding new roads and widening roads. Anthony Downs of the Brookings Institute concluded in his book "Stuck in Traffic" that "building new roads or expanding existing ones does not reduce the intensity of peak hour congestion to any extent, particularly in rapidly growing areas because commuters quickly shift their routes, timing, and mode of travel."

Congestion in our metropolitan areas is not only annoying to those trapped in traffic jams, it represents a huge drain on our economy. The Texas Transportation Institute estimates economic losses due to congestion at \$48 billion annually.

ISTEA in 1991 sought to address air quality and congestion by creating the CMAQ program to provide alternative ways of investing in transportation. Dedicating only about one-twentieth of our resources in 1997, the law has provided funding for alternatives to highway construction in a number of areas.

I would like to make four basic recommendations with respect to the CMAQ program, which we believe should be continued in the reauthorization.

First, we believe that the air quality benefits of CMAQ have been improving over time, that investment of these funds over time by the States has improved as the States have begun to do more rigorous air quality analyses and as they have begun to invest in a wider variety of projects. For instance, we have seen over the course of ISTEA about \$275 million in CMAQ funds being programmed or obligated for alternative fuel projects, either clean transit projects or clean fleet applications.

Clean transit is particularly promising as it provides a mobility solution, an air quality contribution, and helps to create a market for American clean technologies all at the same time. We don't believe the CMAQ program should be extended to include road-widening projects that can be funded under virtually every other

ISTEA category and should not be permissible under the CMAQ program.

Second, we believe the CMAQ program should address long-term benefits as well as short-term benefits.

Third, we believe that additional funding is needed for new areas coming into conflict with the standards in the future.

Fourth, we believe that administrative simplification of the CMAQ program is needed. Many smaller projects could be certified as meeting the requirements of title 23 without Federal review or oversight in advance. This action would advance the air quality and mobility goals of the program.

Mr. Chairman, I would like to introduce into the record a statement prepared by the Environmental Defense Fund and a letter by the Energy and Environmental Studies Institute, which has over 65 signatories in support of the CMAQ program. I have already provided it to the clerk.

If there is time in questions, I would like to talk about ways that we might be able to streamline the delivery of transportation projects in the future. I was very interested in questions members of the committee had asked.

Thank you.

Senator CHAFEE [reassuming the chair]. Thank you.

You have a blueprint for ISTEA reauthorization with the recommendations?

Mr. DITTMAR. Yes, Sir.

Senator CHAFEE. Have you presented that to us?

Mr. DITTMAR. We have mailed it to you. I would be happy to provide additional copies. I have some at this time.

Senator CHAFEE. As long as we have copies of that. I would like to see that.

That was very interesting testimony, on everybody's behalf.

We have one more witness, Mr. Kenison from the Department of Transportation in the State of New Hampshire.

STATEMENT OF LEON S. KENISON, COMMISSIONER, DEPARTMENT OF TRANSPORTATION, STATE OF NEW HAMPSHIRE

Mr. KENISON. Thank you, Mr. Chairman.

I am Leon Kenison, the commissioner of the New Hampshire Department of Transportation. I certainly appreciate the invitation of Senator Smith, Chairman Warner, and Senator Baucus to appear before you today to express our thoughts about the reauthorization of ISTEA, specifically in the area of environmental programs and planning.

Speaking on behalf of the State of New Hampshire, we believe ISTEA has worked as an effective successor to the interstate era, and successfully served the entire Nation. New Hampshire joins with several other States in supporting reaffirmation of ISTEA without significant changes. We believe the original aims of ISTEA are still the right way to go, placing more responsibility on State and local governments, providing greater flexibility, recognizing that transportation needs vary from State to State and within a State, improving regional transportation efforts, and giving equal consideration to all modes of transportation.

New Hampshire supports the maintaining of a strong Federal role in transportation, including funding for Federal clean air mandates through CMAQ. We support the need for long-term consistent Federal capital investment in transportation. That continued investment is needed to maintain and encourage economic growth.

While the objective of this hearing is to gather comment on the environmental programs and planning aspects of ISTEA, we feel it important to note that the goals of the National Environmental Protection Act, NEPA, was to achieve a balance between the impacts and mitigation of a project. But a fractured regulatory permit system sometimes requires an agency to unbalance or block actions that may greatly benefit the welfare of affected citizens.

We suggest stronger emphasis be placed on the need to achieve balanced resolutions by those Federal agencies assuming an advisory and regulatory role in the NEPA decisionmaking process.

I also have some suggestions for improving the transportation planning provisions of ISTEA.

By making optional many of the mandates, the States could conform to the spirit of ISTEA while tailoring a process that better meets the needs of the individual State's citizens. For example, eliminating the mandate for management systems has allowed different States to devise systems appropriate to support their decisionmaking. From the MPO side, the requirements for a 20-year project-specific, financially constrained plan should be changed. A 20-year plan should be more realistically based on goals and strategies to establish a direction for planning activities. Such a plan obviously cannot be financially constrained in the strict sense now required.

For the States and MPOs, the public process should be simplified. Instead of encouraging public involvement, we have driven people away with the number of meetings we hold. When compounded with the meetings we need for TIP and STIP amendments, we suppress public involvement.

We support the continuation of the transportation enhancement concept. However, we suggest that reauthorization enable States an option to process small projects—perhaps those under a certain threshold of, say, \$50,000—as grants, avoiding the disproportionate preparation and overhead costs current procedures create.

New Hampshire continues to support the environmental and planning goals of ISTEA, but we have identified problems associated with the process as it now exists. The idea of widespread public involvement in transportation planning is commendable.

Unfortunately, the process has become cumbersome and confusing to our citizens and legislators. Rules and interpretations have gotten us off track, stifling both public interest and participation. The results in many cases has been to drive away the very people who want to participate. Good intentions have been met with skepticism and a lack of support. An already complex area of environmental regulation is now more so. The existing approach has proven costly both in funds and in time when it comes to transportation projects. In some cases, it has added years to the development of projects and increased costs considerably. Ironically, in many cases it has caused more serious environmental impacts than were avoided.

In New Hampshire, I believe that ISTEPA has worked. We support the key notions of ISTEPA: partnering between the State and local entities; intermodal planning; and public participation in the planning, design, and construction of transportation projects. We support a continuation of at least existing funding levels in ISTEPA and oppose efforts to dramatically adjust the formula for allocating funds to the State.

Thank you again for allowing me to share my thoughts regarding reauthorization with you. Our agency would love to work with the staff in addressing the new law and certainly will welcome any questions.

Senator CHAFEE. Thank you very much, Mr. Kenison. Something has gone wrong when the very purposes encouraging public involvement works atypically to that, as you have pointed out. I don't quite understand it, but our folks will be talking with you on why that has occurred.

Mr. Hiemstra, I just want to say—and this would apply to you, Ms. Maguire—that although the programs that you feel are successful, and I am very supportive of, are wonderful and have significant support. On the receiving end, we don't get as much support—it doesn't come to us from those beneficiaries as occurs from those who are quite vociferous in opposing any non-highway spending from the funds. In other words, you folks aren't very loud. If you want to stir up your troops, it would be worthwhile.

Do you have any comment on that briefly, Ms. Maguire?

Ms. MAGUIRE. Our people are very desperate and they are very busy working on these programs. I am sorry to say that sometimes we don't say thank you enough and recognize from whence these programs came.

Senator CHAFEE. I am not seeking a thank you, although I am always glad to get one and rarely do.

[Laughter.]

Senator CHAFEE. I think apparently you were very vigorous in Virginia. But it seems to me that if you are supportive of these programs, I would let my Senator and Representative know.

The same goes for you. No one is arguing from Rails to Trails. It is a great idea and many, many people in my State are enjoying it tremendously. However, I am not sure they would take the trouble to let me know or the other members of the delegation.

Mr. HIEMSTRA. If I might say, Senator Chafee, your point is very well taken. In fact, individuals from around the country that have been involved in transportation enhancements projects are working with members of the committee and other Members of Congress throughout this spring to try to organize opportunities for those members to actually go out to projects that have been funded with enhancements funds and to see projects on the ground.

Senator CHAFEE. I think that is very important because we are clearly hearing from those who are opposed to the whole idea.

Senator Baucus.

Senator BAUCUS. Thank you, Mr. Chairman.

I want to thank all of you here because I think all these programs are good. They are worthwhile.

I particularly appreciate you, Mr. Hiemstra. I used this morning rails to trails. I jogged on the trail that used to be the old railroad

along the canal. It is now asphalt. Every time I jog there, I keep thinking that it used to be a railroad.

Mr. Chairman, as one who uses it, I benefit from it and I want to thank you very much for supporting it.

[Laughter.]

Senator CHAFEE. I want to sign you up. That is good news.

[Laughter.]

Senator BAUCUS. I would like to turn a little bit to the CMAQ. I support CMAQ. I think it is important. But various people have asked legitimate questions about the efficiency of CMAQ and how much it really does what it is supposed to do. For example, Mr. Walker asked a lot of pretty good questions. Basically, if the relative air quality benefits of behavior change strategies are minimal, should there be conformity requirements? Should conformity requirements only apply to urban areas? Does conformity make sense?

What is your answer to those questions?

Mr. DITTMAR. In fact, the conformity process, by and of itself, is not a tool for making the air better. It is really a check to make sure that the projects that we are proposing in our transportation plans are not contributing to making the air worse and that, in fact, we are on target.

The conformity requirement in ISTEA really asks that plans and programs need to respond to the schedule for attainment—in other words, that they do not move you from the schedule for attainment of the national air standards—and second that the funding is being used to implement the control measures that the State has committed to the EPA that it will build.

I think that is an absolutely essential part of the process because it ensures that as we invest some \$20 billion a year in highway projects and \$4 billion or \$5 billion in transit projects in this country that those projects are being done in a way that is consonant with the environmental program.

Senator BAUCUS. Why conformity for rural areas that really can't do much? They can't enact the transit provisions. It is very, very hard.

Mr. DITTMAR. In most rural areas, the non-attainment status is due to pollutants coming from some metropolitan area. So the CMAQ projects in the metropolitan areas often are the ones that are going to help lead to the attainment.

Senator BAUCUS. So why conformity for the rural, if that is true?

Mr. DITTMAR. Generally, the non-attainment area includes both rural and non-rural areas.

Senator BAUCUS. There is a lot of space between communities and towns in Montana. It is not the case, really.

Mr. DITTMAR. Conformity in rural areas really then just has to do with making sure that the State transportation improvement program, which fits those areas, is following through on their requirements in the State implementation plan. It doesn't involve an air quality modeling by a rural county. It involves an assurance at the State level that it works.

Senator BAUCUS. Mr. Walker, do you have a response to all this?

Mr. WALKER. Thank you, Senator.

We had a project in Wisconsin that I think might make a very good point about rural non-conformity. It crossed an area in moderate non-attainment status, a county that had about 15,000 in population, a very rural dairy type of county. The corner of the county that the State highway improvement project crossed was proposed to bypass a village. Because the length of the trip increased as you bypassed it instead of going straight through, there was obviously an increase in emissions if there was the same number of vehicles because they drove just a little bit longer.

We had a devil of a time getting that project through a conformity test because the project was air quality positive. It was air quality positive, but has zero impact whatever on the air quality in that county because—as Mr. Dittmar said earlier—all the emissions that were causing the air quality status were coming from some place else.

Senator BAUCUS. Right.

Mr. DITTMAR. I don't want to get into ping pong here, but there is a project underway at EPA with the Federal Highway Administration to look at the conformity requirements and try to find ways to make them less burdensome. That might be something that Mr. Gardiner can help you with.

Senator BAUCUS. Thank you, Mr. Chairman.

Senator CHAFEE. I want to thank everybody on the panel very much. We appreciate your coming here. That is splendid. You have been very helpful to us.

Senator CHAFEE. Now the final panel is Mr. Lawrence Dahms from the Metropolitan Transportation Commissioners, Mr. Michael Cook from Douglas County, CO, Mr. Vidal also from Colorado, and Mr. Timothy Stowe.

Senator Allard is here. Senator, it is my understanding that you will be introducing to us two of your home State constituents.

Senator ALLARD. Thank you, Mr. Chairman.

I appreciate you allowing me the opportunity to introduce a couple of people we have here from Colorado and to welcome to Washington, DC. It is a pleasure for me to introduce two of my constituents before your subcommittee, Commissioner Michael Cooke and Mr. Bill Vidal. Both have visited with my office about the importance of transportation at both the State level and the local level.

Mr. Vidal is the commissioner of the Colorado Department of Transportation. In this position, he is responsible for not only working with the State Legislature, but also with Colorado's congressional delegation, certainly a very donning task for anyone. Mr. Vidal understands the need for maintaining our current infrastructure while also recognizing that technological advances will mean that we may have to rethink some of the current structure we operate our transportation programs under. I think the committee will benefit from his views.

Also we have Michael Cooke on today's panel. Commissioner Cooke is a county commissioner from Douglas County, which is just south of Denver. Douglas County is one of the fastest growing counties in Colorado, if not the Nation. Ms. Cooke will testify with respect to metropolitan planning organizations and her view that they are not operating efficiently. Her testimony will provide this

subcommittee with a thoughtful look at how the planning process is working, particularly in areas like where she lives.

Once again, Mr. Chairman, thank you for fitting in these two good Coloradans in today's panel.

Senator CHAFEE. Thank you very much, Senator. We look forward to their testimonies.

Mr. Dahms, the executive director of the Metropolitan Transportation Commission, will be our first witness. We are delighted to hear from you.

Your whole statement will go in the record, but we would like to keep each of these statements to 5 minutes, if we could.

**STATEMENT OF LAWRENCE D. DAHMS, EXECUTIVE DIRECTOR,
METROPOLITAN TRANSPORTATION COMMISSION**

Mr. DAHMS. Thank you, Mr. Chairman.

I am Lawrence Dahms, the executive director of MTC, the MPO for the San Francisco Bay Area. The San Francisco Bay Area is diverse, a microcosm in many ways of the diversity of the Nation. We are urban, suburban, and rural. To serve our population of 6.5 million people, there are 26 transit operators, new and old highways, and world-class bridges in serious need of repair.

Let me preface my comments by telling you that we support reauthorization that preserves ISTEA's basic program structure. We urge your committee to build on the foundation so effectively established by ISTEA.

One of the great strengths of ISTEA is its flexibility to respond to the needs of each region. Over the past 6 years, we have financed over 500 projects with the \$500 million in flexible funds that have come to our region.

Though the projects financed by ISTEA are important, I would like to focus today on one aspect of ISTEA that gets little notice, though it has great value.

Who would believe that such phrases as "A State shall coordinate," "The metropolitan planning organization in cooperation with the State and affected transit operators shall develop," and "All projects shall be selected by the metropolitan planning organization in consultation with the State" could produce powerful results in the implementation of ISTEA. "To coordinate," and "to cooperate," and "to consult" all are ordinary terms that should be expected to characterize the civilized relationships of States and local governments. When combined with the delegation and flexible funding choices also embodied in ISTEA, however, these words did indeed produce perhaps unexpected results.

This over-arching thrust of ISTEA to encourage productive partnering by many who may not have worked well before came just in time. For it recognized that in today's pluralistic society, the State acting on its own is sometimes unable to deliver the projects or programs as it did just a decade or so ago. With the help of local officials, however, brought together in the form of metropolitan planning organizations, challenging but important programs can still be advanced.

To illustrate, consider just how the State of California Department of Transportation, CALTRANS, and sometimes the California

Highway Patrol have partnered with my organization in productive enterprises. I will cite a few examples.

MTC manages the freeway call box program placed on CALTRANS right of way with phones answered by CHP dispatchers. There are 3,000 phones and 600 calls answered a day.

MTC manages the freeway service patrol, which clears up incidents on CALTRANS freeways with the cooperation and assistance of CHP. There are 50 tow trucks patrolling 218 miles of freeway. An average of 370 incidents are responded to within an average of 8 minutes every working day.

MTC manages the traveler info program providing real-time information to any of the Bay Area's 3 million commuters who can dial 817-1717 at any time of the day. The control center is located in the CALTRANS District 4 office immediately adjacent to its traffic operations system center. MTC's contractor, Metro Traffic Control, enters 300 to 600 incidents per day in the auto call system, which in turn handles approximately 2,000 calls per day.

MTC has been instrumental as well in financing and administering the vital contracts required to implement the CALTRANS traffic operations system that I have just referred to.

MTC was required to intervene at two critical points in the design of the last Bay Area interstate link, I-80 heading northeast from the San Francisco Bay Bridge. Thanks to our assistance, this \$300 million construction project is now well advanced. When it is completed, it will offer one of the most effective exclusive bus and car pool services in the country.

In the most recent example, MTC has been asked to recommend the best design for the new east span of the San Francisco Bay Oakland Bridge. The State has determined that it is more prudent to construct a new span than retrofit the existing bridge to withstand the next major earthquake. While the State Legislature and Governor are still debating just how to finance the approximate \$2.5 billion cost, our process for design selection is moving ahead in full cooperation with CALTRANS and yet another State agency, the Bay Conservation and Development Commission.

As little as 10 years ago, such partnering with the State was unheard of. Now it is essential, welcomed, and productive.

I go on in the testimony to refer to some coordinating projects as well with our transit operators and with the 109 local governments. One in particular, I should note, is that the regional rail agreement was brokered by MTC in 1988 and it has two-thirds State and local funding. A large down payment of \$568 million of the Federal share was authorized in ISTEA and an additional authorization is needed in the next bill.

While not all of these initiatives are solely the result of ISTEA prodding, it has been a significant catalyst. The common thread running through all the projects cited has been the multi-agency cooperation essential. MTC took the lead in forming the Bay Area partnership with 30 leading transportation agencies in January 1992, immediately after ISTEA was signed by President Bush. We have made the task of nurturing the partnership our No. 1 priority ever since. And it is working.

We like ISTEA because of its several provisions that encourage—even require—such commitment. That is why we join even Jane in

her testimony this morning in urging you to tune and not toss ISTEA, a phrase I believe former Federal Highway Administrator Tom Larson first coined.

Senator CHAFEE. I think we have to wind up. I see your final paragraph there about coming up with helpful and constructive suggestions.

That is certainly a good plug for ISTEA and we appreciate that, Mr. Dahms.

Mr. DAHMS. Thank you, Mr. Chairman.

Senator CHAFEE. Next we will hear from Ms. Cooke from Colorado. We welcome you.

Is Pueblo in your area?

Ms. COOKE. It is south of the Douglas County area.

Senator CHAFEE. It is not in Douglas County?

Ms. COOKE. It is not.

Senator CHAFEE. Fine. Proceed, please, Ms. Cooke.

**STATEMENT OF M. MICHAEL COOKE, CHAIR, BOARD OF
COUNTY COMMISSIONERS, DOUGLAS COUNTY, CO**

Ms. COOKE. Thank you very much, Mr. Chairman. I am Michael Cooke, a commissioner on the Douglas County board of Commissioners in Colorado. I am here to testify before the committee today on the need for metropolitan planning organization system reform.

While ISTEA has provided certain benefits nationwide, some of the provisions have tended to paint all jurisdictions with one brush, which has in many ways been difficult for some local governments, particularly linkage communities like Douglas County.

Douglas County is the fastest growing county in the State of Colorado. According to the latest census, it has also been the fastest county in the United States for the first half of this decade and continues to be so today. Our highways are impacted not only by the growth in Douglas County, but by the growth in the Denver metropolitan area and the Colorado Springs metropolitan area which Douglas County links.

There is no doubt that transportation planning is an important element of any transportation program and that MPOs established to facilitate that planning have helped to coordinate planning in a regional context. ISTEA gave MPOs a much more extensive role, including the actual approval of transportation projects. That authority has caused some problems with the local makeup of the MPO.

While ISTEA intended to give more flexibility to local elected officials, it failed to give local governments the ability to choose whether they wanted to be a part of this federally imposed effort or not. Federal regulations require that in order to redesignate an MPO, a jurisdiction must accomplish the following: first, obtain the approval of the Governor of the State; second, obtain the approval of local officials representing 75 percent of the population of the entire metro region; and third, obtain the approval of local officials in the central city within the metropolitan planning area.

We believe that the national trend is to send more decisionmaking responsibility back to the local government level and that the MPO process is in great need of reform. To be more specific, the

population for the entire region at this time is approximately 2.1 million persons. This is based on DRCOG's 1996 estimate.

Douglas County's population represents about 5.27 percent of that total. However, the total amount of funding Douglas County has received for county-sponsored projects over the life of ISTEA is approximately \$250,000, compared to nearly \$20 million in county requests that have been denied. Mr. Chairman, we have included in our written testimony the more specific examples of those projects and our attempts to work within the MPO system.

We are here today to ask for your consideration on the following changes in the reauthorization of ISTEA.

We would first ask that you lower the barrier for jurisdiction withdrawal and redesignation from an MPO to the approval of local officials representing 50 percent of the population in the entire metropolitan area. Problems in suburban communities are certainly different from those in our central cities. If the MPO is not meeting the needs of those communities, then they should be allowed to withdraw and redesignate or join an adjacent MPO.

We would also ask that—assuming that is achieved—there is no justification for the official of the central city to have veto power. We would request that the central city veto authority be eliminated. Organizations held together in this way are really not as effective as those where the players have an equal voice.

Third, if a jurisdiction should satisfy the criteria I have outlined, it is again required by Federal law that they cooperate, consult, and coordinate with other MPOs in the metropolitan planning area. We would recommend that the language be modified to read only that the new MPO consult with other entities.

These proposed changes will help make the MPO process more responsive to local government transportation needs and will ensure that jurisdictions will be able to determine their transportation priorities and meet their needs equitably. Congressman Joel Hefley has introduced H.R. 477, a bill we call the Local Transportation Decisionmaking Empowerment Act, which incorporates many of the items I just outlined, and which is supported by a number of jurisdictions in the Denver region.

Finally, Mr. Chairman, I am pleased to see that the Administration is moving in the direction I have outlined in their version of ISTEA sent to Congress last week. There are two specific provisions in their proposal that are similar to ours. The first is decreasing the threshold for MPO designation to 51 percent from 75 percent. The second is to require coordination instead of cooperate, coordinate, and consult between MPOs.

Mr. Chairman, we believe this shows the strength of our cause. We hope you will strongly consider all the provisions in H.R. 477 for inclusion into your version of ISTEA. And we would like to submit for your record letters of support from all the counties surrounding the City of Denver, the Denver metro area counties who are part of the transportation planning region, as well as Colorado Counties, Incorporated, and a number of cities.

Thank you for the opportunity to testify, Mr. Chairman and members of the subcommittee.

Senator CHAFEE. Thank you. That was very constructive. As you point out, the Administration's bill does take some of your sugges-

tions and arrives at the same conclusion you do. I don't know whether they do it in all of them, but let me check. You have been very helpful.

Mr. Vidal, also of Colorado, the Department of Transportation, we are glad you are here.

**STATEMENT OF GUILLERMO VIDAL, EXECUTIVE DIRECTOR,
DEPARTMENT OF TRANSPORTATION, STATE OF COLORADO**

Mr. VIDAL. Thank you, Mr. Chairman. It is certainly an honor and a privilege to be here to address you today on these concerns.

As stated, my name is Guillermo Vidal and I am the executive director of the Colorado Department of Transportation. I am here to report on the great success Colorado has had in implementing ISTEA. And I want to emphasize that although I am certainly respectful of the comments made by Commissioner Cooke regarding the fine-tuning of the MPO process, the general principles of ISTEA have worked very well for us.

I should tell you that I am a Cuban immigrant and I came to this country many years ago. When I came here, my idea of the American west was what was presented by Clint Eastwood and John Wayne. I do think that perhaps many of the people who have never been to the West think of us in that way and were perhaps surprised when Governor Romer signed Colorado on to the ISTEA WORKS coalition and really talked about the emphasis for a balanced multimodal transportation system.

Some of the reaction we have received is one of surprise with people that felt that a multimodal transportation decision in Colorado was whether or not to use our four-wheel drive. I think that is something that we want to dispel today.

This is really why ISTEA has been so great for us, because it has allowed the people of Colorado to come together out of our concern for the environment and the growth in our State that may hamper our quality of life. It has allowed us to form together a great vision for our State. I have been with our department for 20 years and never in the history of my career has anything affected us as much as ISTEA.

I should also tell you at the same time ISTEA was implemented we were also converted into a department of transportation. So, we had to implement ISTEA and go from a department of highways to a department of transportation at the same time. I know that at that time we all thought it would be the end of civilization as we knew it. But, in fact, ISTEA has really helped us out.

We were able to develop a multimodal transportation plan with strong partnership development with our MPOs and other planning regions around the State. We were able to develop a specific 20-year vision for our State. By specific, I mean that we identified over 3,000 projects that we felt needed to be built over the next 20 years.

Never in our history have we had such a vision that has been so specific. I have to tell you that it is that vision that has become the very foundation of many of the things that we are trying to accomplish in transportation, whether raising revenues or prioritizing projects. Unfortunately, our needs have far surpassed our revenues.

But at least on a State basis we are united in what we think our priorities are and what it is we think we need.

These planning relationships are very important. It was a grass-roots effort. All regions of the State were represented. We had consistent planning information and process throughout. And we were able to set regional priorities as well as establish State-wide priorities. More importantly, we were able to develop a multimodal plan.

As a result of our work, Colorado finds itself trying to establish a transportation direction that focuses more on the movement of people and goods and information rather than the emphasis alone on the movement of cars. That is why we would like to see ISTEA reauthorized but with the following emphasis areas.

We would like to see more flexibility given to the States to move money between categories. We are committed to the program, but we need the flexibility to make sure that we can invest the dollars in the best transportation system that is available for any corridor.

We would like to streamline the Enhancement program to a State-administered grant program to allow the most effective use of the funds.

We would like to retain the MIS process. The reason for that is we feel that we need a tool by which we can consider all modes of transportation.

We would like to streamline the Federal approval process and we would like to consolidate the 23 planning factors that are now a little bit unmanageable in setting up the State-wide plan.

We would also like to continue the use of the innovative financing tools to enhance the possibilities of increasing the funds that we have.

I would like to conclude my remarks and once again state that ISTEA has worked for Colorado and we feel it should continue with the minor modifications I addressed. I appreciate the opportunity to come before you today. I thank you very much.

Senator WARNER [reassuming the chair]. Thank you very much. And last but not least, Mr. Stowe of Virginia.

STATEMENT OF TIMOTHY S. STOWE, VICE PRESIDENT, ANDERSON AND ASSOCIATES, INCORPORATED; ON BEHALF OF AMERICAN CONSULTING ENGINEERS COUNCIL

Mr. STOWE. Thank you, Mr. Chairman.

For the record, my name is Tim Stowe. I am employed by Anderson and Associates, a consulting engineering firm in Blacksburg, VA. Today I speak to you on behalf of the American Consulting Engineers Council, ACEC, which represents about 5,000 engineering firms across the country employing about 200,000 people.

Last year, Senator Warner, you issued a request that we look for ways to accelerate projects. We accepted that request and I am proud to report to you here this morning the findings we have come up with. Over the last 18 months we have had meetings across the country. We have met with our membership, looked for ways to identify the problems and what is causing delays in these projects, and developed solutions to overcome these problems.

We found through our membership that it has taken on average about 10 years from the time a project is conceived until the travel-

ing public can use the project to get from one location to another. We feel that this time can be cut by about 30 percent.

In order to identify some of the items that we found delay projects, we started at the very beginning of the planning process with the scoping meetings for environmental documents where all the agencies may not be represented. They might not even show up for the scoping meeting until 6 months later when they call and say that they are interested in the project and want to sit down and go over it. We then have to back up and start over again.

The potential delays continue all the way to the opposite end of the spectrum, when we try to obtain permits to actually go out and accomplish the construction after the environmental document has been approved. We have submitted with our testimony some of the examples that were cited earlier this morning where these types of delays have occurred and some of the tremendous costs that have been associated with those delays, paid for by the American taxpayers.

In order to overcome those types of delays, we have proposed in the planning and environmental arena three things. The first is the establishment of an interagency environmental unit in each State. These environmental units would be funded by transportation revenues and housed near the Federal and State DOT offices. Their sole purpose of existence would be to coordinate and provide a single issuance of an approval for an environmental document or a disapproval if it does not comply with the current NEPA laws or other environmental laws. We also feel that an incentive should be added for this agency to accomplish its work on time, on budget, and according to standards and laws that already exist.

Through a series of cooperative agreements between the State and Federal environmental agencies, the unit would be empowered to administer, review, and approve or disapprove environmental documents. Specific situations may require that the unit would directly contact the source agency to resolve a particular issue. Acting as a surrogate staff of the Agency, the environmental unit manager would know the detailed local situation, who to contact in a Federal agency, and be able to expeditiously provide followup on any activities that may be required.

We believe this management realignment alone could save a significant amount of the time required in environmental document preparation and approval.

Senator WARNER. Mr. Stowe, we have a situation in which Senator Chafee and I have about 6 minutes in which to vote. Either one or both of us are going to return, at which time you can complete your testimony, which is very important. And the panel will entertain such questions as members put forward.

We will take a short recess for the purpose of voting. I hasten to point out that we have two votes, which means at the completion of this one, we remain for a second vote.

[Recess.]

Senator CHAFEE [reassuming the chair]. Mr. Stowe, you were going through your testimony. Why don't you pick up from where you were.

Mr. STOWE. As we went through and reviewed with our membership some of the problems we have encountered with the planning

process and the environmental process that created delays in projects, we identified three key areas in which we felt improvements could be made.

The first would be an establishment of an interagency environmental unit in each State. As I mentioned, the role we envision for this unit is they would be a single point of approval for environmental documents or disapproval, as well as their role in coordinating all the Federal, State, and local environmental agencies.

Our proposal is not intended to change the goals set forth in NEPA or other related environmental laws. And we wholeheartedly support a strong environment. Our goal is to address the process issues, which end up adding substantial time and cost to transportation projects.

The second recommendation we are making in the planning process is an enhanced public involvement process. We currently have a stop and go system where a block of work is accomplished and we stop and invite the public in to look at a project. We get their comments, incorporate them or address their comments, then we do another block of work and the process goes on and on. We are advocating a more continuous flow of public involvement in the project process with a very strong public involvement component early on in the project when the cost to make changes is low and in some cases seek out public involvement from groups that may have a special interest in a particular project. We feel the internet can be used to help accomplish this and the information we receive in this process will better enable our planners and our engineers to plan their projects.

The third point we are suggesting is that there be an establishment of centralized digital mapping products with the U.S. Geological Survey. The quadrangle maps are a very good example of a mapping product that is used by our environmental scientists, our engineers, and our planners all across the country to help in the process of planning transportation projects. The USGS has these in paper form, but to have these in a digital form would be a great enhancement, especially if there were available on the internet and would allow us to expedite the development of projects rather than duplicate mapping products on various projects.

The national digital orthophotography program is currently in place with the USGS and we certainly encourage and support that program and ask that it be completed rapidly.

Senator CHAFEE. What is an orthophoto? That sounds like a medical term.

Mr. STOWE. Sir, that is a vertical image of an area that shows up on a computer screen. It is basically a photograph that has the same qualities as a map. You can measure off of it, distortions have been removed from the camera, from the terrain, and it has the same properties as a map.

Senator CHAFEE. Let's wind up here.

Mr. STOWE. There are other examples in our paper that we have provided with the testimony on where we see time can be saved in the design phase, in the right of way phase, and in the construction phase of projects. Those have been submitted for the record.

The American Consulting Engineers Council stands ready to help this committee in any way that we can with the reauthorization of ISTEA. I thank you for allowing me to testify this morning.

Senator CHAFEE. Thank you very much for that testimony.

Mr. Kenison, during the vote I saw Senator Smith who said that he had spoken with you. He was very sorry that he couldn't be here. We all have these dual hearings going on at the same time. He is in the Armed Services Committee, but he asked me to convey his best wishes to you. I think he had an opportunity to speak with you.

We have statements from Senators Smith and Boxer that I will put in the record now.

[The prepared statements of Senators Smith of New Hampshire and Boxer follow:]

PREPARED STATEMENT OF HON. BOB SMITH, U.S. SENATOR FROM THE STATE OF
NEW HAMPSHIRE

Thank you, Mr. Chairman. First, I want to welcome Mr. Leon Kenison, Commissioner of the New Hampshire Department of Transportation, to our committee today. And, second, I want to express my appreciation to the chairman and ranking member for inviting Mr. Kenison to testify at my request.

Mr. Kenison was appointed commissioner last year, after having served as assistant commissioner for 5 years. He is also one of the few people in his position who has an engineering background and has a total of 33 years of experience in the New Hampshire DOT—something that elicited strong praise from highway user groups, as well as the engineering, design and construction communities.

During this reauthorization process, I think it is extremely important that we hear from our State government partners, particularly the individuals like Commissioner Kenison who are directly involved in implementing the Federal program. I want to hear about the successes as well as the failures and problem areas so we can better determine where improvements or refinements are needed.

Thank you, Mr. Chairman, and I look forward to hearing from our witnesses.

PREPARED STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM THE
STATE OF CALIFORNIA

Thank you, Mr. Chairman.

I just have a few remarks about one of the subjects of today's hearing, the environment.

I do not believe that I am exaggerating when I suggest that when you look back on the environmental progress of the 20th Century, passage of ISTEA (the Intermodal Surface Transportation Efficiency Act) is a red letter date. ISTEA completed the historic link in our laws between transportation and the environment. ISTEA established that transportation capacity projects must meet air quality standards.

We cannot proceed with the reauthorization of our transportation programs without this linkage. We cannot look at the condition and performance of our highways, bridges and transit systems without looking at the condition of the environment. Before ISTEA, transportation was blind to its environmental consequences. We cannot put those blinders back on and then look at our children and say we did right by you.

This is the problem: 65 percent of carbon monoxide emissions and 47 percent of nitrogen oxide emissions come from cars and trucks. Carbon monoxide is repeatedly linked to increased hospital admissions for congestive heart failure. Nitrogen oxide, which helps form smog, is linked to respiratory illness, which has particular adverse effects on our children and elderly. Recent research suggests that fine particulate matter may be the worst pollutant of all and can cause a variety of harmful health effects.

Even though vehicle emissions are cleaner now than a few years ago, the Environmental Protection Agency is predicting that continued growth in the use of vehicles will wipe out any gains from cleaner fuel vehicles by the year 2005.

More than 43 million people in the United States live in areas that fail to meet EPA's air quality standards for carbon monoxide. We have 13 million people in non-attainment areas for nitrogen oxide. And, in my State of California, nearly 26 mil-

lion people live in a non-attainment area for one or more pollutants, out of a State of nearly 33 million people!

This is the tool we need: the Congestion Mitigation and Air Quality (CMAQ) program. This \$6 billion program under ISTEA has given our local governments the funding needed to try and meet the air quality standards. To enact the next transportation bill without CMAQ would leave our cities and counties with an unfunded Federal mandate, under the Clean Air Act, to clean up their air.

Our local governments have used CMAQ in a variety of ways based on their own situations. Some fund mass transit, or traffic management improvements, or disabled vehicle assistance, or purchasing clean fuel vehicle fleets. We need to provide more technical assistance to local governments so they will purchase and operate clean fuel fleets.

We also need to make provision for areas that improve air quality from non-attainment to maintenance status. I want to thank this committee for its support of my provision in the National Highway System Designation Act, which preserved CMAQ funding for these areas with improving air quality but still needing assistance. That "freeze" on CMAQ funding for such areas saved \$55 million for the San Francisco Bay Area, and kept a major transit project serving the Silicon Valley on track. In the next ISTEA, we need to provide a permanent fix that would allow continued CMAQ funding to air quality maintenance areas but at a lower level of funding. I am pleased the Administration plan closely tracks the program offered by the San Francisco Metropolitan Transportation Commission in this regard.

Now, we face the prospect of revised air standards that could nearly triple the number of non-attainment areas in the country. The next ISTEA must provide the additional CMAQ funding needed to cover these new areas without reducing funds for current non-attainment areas.

I will close with a couple of comments on another innovative program that has helped spur alternative transportation. That's the transportation enhancements program. This program sets aside 10 percent of the Surface Transportation Program for bike trails, scenic byways and historic preservation, among other uses. My State has been very aggressive in using this funding for projects to enhance its communities. The State and local communities choose how to spend these funds. About a third of California's projects involve bicycle or pedestrian paths. The extensive bike trail networks in the State serve not just recreation but in many cases become non-polluting, commuter lanes.

I am pleased to see the Administration's support for continuing this program.

I look forward to the testimony today. We have a real challenge to maintain this important link between transportation and the environment into the next century.

Senator CHAFEE. Mr. Stowe, let me ask you about a suggestion that came up previously when we were talking about innovative methods of financing and building our highways. One of them was what they call a design-build. What do you think about that?

As I understood the design-build, it would be that you go to some big outfit—let's say Bechtel—and you would say to them, "You design and you build this road for us." Obviously, you get into the so-called lowest bid problems. In our State we have legislation that it must go to the lowest bidder, so how do you do that?

But set that aside. It seemed to me that the idea of design-build had a lot of appeal to it. But then I began thinking that the American Consulting Engineers might not be too excited about that as far as approval goes.

What is your thought?

Mr. STOWE. Senator Chafee, we have addressed that in our paper and we have gone on record as supporting a two-step approach to design-build. Design-build is not for every project, but it is appropriate for some. We have advocated that an engineer be selected using a qualifications-based selection process early on and develop preliminary 30 percent designs that will establish the project concepts and that will allow a format for innovative thinking and for economical thinking early on in establishing the project concept, rather than having the whole thing awarded to a firm based on the

lowest price where innovation would not be encouraged and the only thing being encouraged would be to make money.

We also think that the design-build process is very expensive. It is very expensive to put together proposals and to submit proposals for these projects, which are usually large projects. Frequently, that will exclude smaller firms and maybe the most qualified firms for the project because of the large capital investment that is required on the front end of those projects.

Senator CHAFEE. You mean that because whoever is bidding has to come up with the design of the whole thing? That is the big expense?

Mr. STOWE. Yes, Sir, that is correct.

Senator CHAFEE. It seemed to me to have a lot of appeal because—and I may be wrong in this, so I will ask you. As I have sat here in this committee and we have dealt with waste treatment plants, highways, and whatever else there might be, I always worry whether we are as innovative as we might be. Let's say that I am a Governor or a mayor and we are going to build a waste treatment plant. "Don't go with something innovative, because it might not work out. Pick the safe way, which is clearly not innovative."

Yet this design-build concept seemed to me that the designers and the builders would work together so that it wouldn't be some designer over here prescribing a certain type of support or road surface or whatever it might be when that might not be the most efficient, most original, or most innovative.

What about that? In other words, how much coordination between the designers and the builders is there under the existing system?

Mr. STOWE. Under the existing system, there is very little. Under the design-build system what frequently happens is that the contractor is in the lead role. The engineer is working for the contractor. So even in that scenario he may not be afforded the freedom to be innovative. The contractor may have some specific equipment in place that would make it to his benefit to use a particular method that is already established rather than to develop something totally new for the sake of innovation. That is where the real benefit of the separation is where the engineers have the freedom to be innovative and to work on new ideas that can benefit the traveling public.

Senator CHAFEE. Mr. Dahms, your MTC is frequently cited as an exemplary organization. I suppose a suggestion that you wouldn't reject. Why has your situation worked out so well, outside of having outstanding leadership?

[Laughter.]

Senator CHAFEE. Give me a couple of the major challenges you have confronted over the past 6 years. Have you been there 6 years?

Mr. DAHMS. I have been there 19 years, a long time.

Senator CHAFEE. Did you have a metropolitan—

Mr. DAHMS. One of the advantages we had, Senator Chafee, was that we were well positioned when ISTEA passed. We were created by the State Legislature in 1970 and we had the requirement, in effect, to work with our partners and had a lot of practice working

with our partners. So when ISTEA came along, we had had enough experience that we were well positioned to take advantage of it. ISTEA did give us a lot of flexibility that we didn't have before, which in a sense presented some new challenges. Prior to that we would deal with the transit people over here and the highway people over there. The challenge of ISTEA was to bring them all together.

But because we had had a lot of experience with them in our 19 years before ISTEA, we had built up some trusting relationships that helped.

Senator CHAFEE. When you mentioned that you were going to build another Oakland bridge—that is pretty big stuff.

Mr. DAHMS. We are not going to build it. CALTRANS is going to build it. But what has happened is that—

Senator CHAFEE. But didn't you say that you were going to design it?

Mr. DAHMS. Not even that. My testimony maybe overstates the case.

The State will design it and the State will build it. The State has said that it is inappropriate to try to retrofit the east span of the bridge, that it would be better to build a new span as opposed to retrofitting the old one.

Once that question is raised, then the question arises: What is the scope going to be? What is it going to look like? So the Governor said to our legislative delegation that there was a basic bridge design that he would be willing to support, but if we want to add something for ascetics, for example, we must pay for it. The Governor is willing to support a box girder bridge, yet some people in the community would like to have a cable stay bridge, which may cost an extra \$200 million. The basic design doesn't have bike lanes on it, and some people may want bike lanes. So essentially the Governor is saying that the State will support the basic bridge, but if the region wants something more than that, then the region should be willing to pay for it. Thus the region needs to decide how much bridge it wants.

That is the kind of question that was posed to us.

Senator CHAFEE. Why do you have to build a new bridge? Your principal bridge going across the entrance there—how long has that been there?

Mr. DAHMS. It was completed in 1937. The bridge could be retrofitted. It is not to say that it couldn't. But it would cost almost as much to retrofit it as to build a new bridge.

Senator CHAFEE. Why does it have to be retrofitted?

Mr. DAHMS. It is not capable of withstanding the kind of earthquake forces we expect. This is the span that had one deck fall in our 1989 quake. That was repaired, but we have—on our highway structures—spent about \$2 billion in California retrofitting maybe 1,500 bridges. But these transbay bridges pose a much greater challenge and a much greater cost.

Senator CHAFEE. Ms. Cooke, you were very flattering to the ISTEA, and then you had your specific suggestions. I thought they were good suggestions and we will certainly bear those in mind. But my overall impression from these four witnesses is that ISTEA is doing all right.

Would you say that, Ms. Cooke? I know I have your suggestions here.

By the way, if you are the fastest growing county in the United States—faster than Dade County, obviously, if you are the fastest growing county—you have a lot of problems.

Ms. COOKE. A lot of challenges, Mr. Chairman.

Senator CHAFEE. A lot of opportunities.

Ms. COOKE. Opportunities as well.

Senator CHAFEE. These suggestions you gave us are good ones.

We thank you all very much very, very much for coming. We appreciate it.

That completes the hearing.

[Whereupon, at 1:40 p.m., the committee was adjourned to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

PREPARED STATEMENT OF JANE F. GARVEY, ACTING ADMINISTRATOR, FEDERAL
HIGHWAY ADMINISTRATION

ENVIRONMENTAL AND TRANSPORTATION PLANNING PROVISIONS IN NEXTEA

I. INTRODUCTION

Mr. Chairman, Senator Baucus, and members of the committee, thank you for the opportunity to discuss the Administration's proposals for reauthorization of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) in the areas of planning and the environment. My message is straightforward. ISTEA was a success that we would like to build on, improve, and fine tune. Congress and the Administration have many successes to their credit as a result of ISTEA. We seek to stay the course with ISTEA as a foundation for the proposal announced by the President, Vice President, and Secretary Slater last week, the National Economic Crossroads Transportation Efficiency Act of 1997 (NEXTEA).

ISTEA has transformed transportation decisionmaking and investment decisions to better serve our transportation needs in the next century. Key among these were funding flexibility and financial planning, enhanced public involvement, and multimodal decisionmaking, and crosscutting issues, such as air quality and transportation. In the years since the bill was enacted, the transportation community has debated how much has changed as a result of ISTEA, which ISTEA programs have been a success, and what needs more work. To sort out the rhetoric from the reality, the Department undertook a broad outreach effort and smaller focus group meetings across the country.

The central theme from our outreach, which almost all respondents echoed, was: "Stay the course of ISTEA." "Tune it, don't toss it!" Consistent with the Administration's effort to reinvent and enhance governmental performance, we are seeking to respond to our customers. The planning and environmental provisions of our reauthorization proposal reflect this customer perspective. ISTEA is about better choices, based on more accurate information, made by key officials better informed of public concerns. It has moved us from a single mode perspective, reflecting instead a comprehensive, problem solving orientation that has given State and local decisionmakers greater leeway and more effective tools to address significant and growing transportation needs. In our NEXTEA proposal, we have sought to build on the successes of ISTEA and make strategic revisions to reduce the burden on our partners and enhance their flexibility.

We do believe that some fine tuning is necessary to better address the needs of our customers and partners in the transportation arena.

II. PLANNING

Planning is the heart and soul of the transformation in transportation decisionmaking made by ISTEA. Under our NEXTEA proposal, ISTEA's key planning provisions would be continued with minor modifications. ISTEA firmly established the transportation planning process as the primary mechanism for transportation decisionmaking.

Because of ISTEA, transportation planning is a more meaningful activity based on realistic financial capability—not merely an unconstrained wish list. In particular, the requirement that Statewide and metropolitan transportation improvement programs and metropolitan plans be fiscally constrained is generally acknowledged as one of the most important, though difficult, of ISTEA's provisions. It has made financial planning a critical part of the analyses supporting prudent transportation decisionmaking and strategic investments. For instance, Washington State, in cooperation with its transportation partners, has built a financial estimating process that is providing MPOs with more reliable and accurate information for developing transportation plans. The Puget Sound Regional Council has developed a comprehensive system to estimate transportation costs faced by the region, which undoubtedly aided their recent successful transit initiative.

Because of ISTEA, transportation planning is more inclusive, bringing to the table traditional transportation representatives, rural interests, freight carriers, environmentalists, and many others. Examples of increased public involvement as a result of ISTEA are numerous. There are notable successes across the country, ranging from the adoption of citizen advisory committees in Cleveland, Ohio, to effective use of open house strategies in Kansas and Missouri. St. Louis officials, recognizing the critical need to address the mobility needs of its urban poor, has built an aggressive, joint jobs/transportation effort that has effectively involved this traditionally under-represented group in transportation decisionmaking.

Because of ISTEA, MPOs have become stronger and more effective. In my home town of Boston, we have witnessed the replacement of a decades-old decisionmaking structure with a new, more inclusive policy board that reflects the broader interests of local governments. This same MPO restructuring has occurred in other areas as well, including Wilmington, Delaware, and Seattle, Washington. The Metropolitan Transportation Commission in the San Francisco area has forged a new partnership with local business and government leaders to foster intermodalism with its Bay Area Partnerships program, and many other metropolitan areas are building on this example by instituting their own locally tailored models to promote cooperative decisionmaking.

As these examples illustrate, ISTEA's planning provisions have worked well. These efforts, and the comments we received at our outreach sessions, underscore the need to continue the best of ISTEA. We believe there are some areas where ISTEA can be strengthened. Our NEXTEA planning proposal would do just that.

- In order to streamline the planning process, we propose to transform the 23 Statewide and 16 metropolitan planning factors into 7 broad goals that States and metropolitan areas can use as appropriate to develop their own transportation objectives.

- To more fully consider a complete range of transportation options, including Intelligent Transportation Systems, and to support States' efforts to better manage our current transportation systems, our proposal emphasizes system management and operation in the development of transportation plans and programs.

- To strengthen the intermodal nature of transportation planning, our proposal adds freight shippers to the list of stakeholders afforded an opportunity to comment on transportation plans and programs.

- To enhance the options available to State and local policymakers for designating and redesignating MPOs, our proposal would reduce the population threshold factor.

- To further reinforce the importance of financial planning to cooperative transportation decisionmaking, our proposal includes a requirement for MPOs, States, and transit agencies to cooperate in the development of financial estimates that support plan and program development—bringing all partners together to address the critical topic of project financing.

III. ENVIRONMENTAL PROGRAMS

Under NEXTEA, the basic program structure of our environmental programs remains unchanged from ISTEA, and we propose to increase funding levels for major environmental programs—the Congestion Mitigation and Air Quality Improvement Program (CMAQ) and transportation enhancements. The changes we propose would enhance State and local decisionmakers' ability to consider the environmental impacts of their transportation investment decisions.

A. Congestion Mitigation and Air Quality Improvement Program

The CMAQ program has proven to be ISTEA's most flexible program, representing more than half of all flexible funds used for transit purposes (\$1.7 billion of \$3.0 billion). Other non-highway projects that assist areas in improving air quality are receiving an increasing share of CMAQ funds, as well. Through 1996, over \$500 million in CMAQ funds were used to establish or expand rideshare services, promote

demand management, and support bicycle and pedestrian travel through better routes, sidewalks, and improved security features such as bicycle racks and lockers. The CMAQ program has funded projects ranging from San Francisco's Incident Management Program, to the intermodal freight facilities in Portland, Oregon, and Auburn, Maine, to New York's Red Hook Barge intermodal project, to Glendale, California's, awardwinning parking management program, which helps employers reduce emissions by encouraging their employees to consider options to driving alone each day. As these projects demonstrate, CMAQ has brought new players to the table, including bicycle and pedestrian enthusiasts, intermodal freight interests, and demand management professionals, and has strengthened coordination between State and Federal transportation and air quality agencies.

CMAQ flexibility has allowed States to fund new efforts which go beyond traditional highway and transit infrastructure. Such innovation has been the hallmark of the CMAQ program. CMAQ supports vehicle emission inspection and maintenance programs. Over \$290 million in CMAQ funding has been used on alternative fuel conversions and refueling facilities and to purchase clean fueled buses and electric vehicles. CMAQ has also funded public education and outreach campaigns like Phoenix's Clean Air Campaign.

The congestion relief benefits of the CMAQ program have also been substantial. Houston's TranStar traffic management and control system uses cutting edge technology to manage over 300 miles of freeway and over 100 miles of high occupancy vehicle lanes. CMAQ has also funded many other congestion mitigation projects, including HOV lanes in Los Angeles, shared-ride services in Virginia and New Hampshire, and bicycle and pedestrian facilities in Montana. The benefits of promoting alternative travel options as envisioned by the Congress in ISTEA have clearly been realized through the CMAQ program.

In 1994, the Department, in cooperation with the Environmental Protection Agency (EPA), conducted a review of the first 3 years of CMAQ program activities to determine ways for us to administratively streamline this program. The review provided an opportunity for us to hear directly from the public. We held 70 meetings in 10 States, meeting with MPOs, State and local government representatives, State departments of transportation and air quality agencies, and public and private interest groups. Our program review revealed several specific challenges facing a few States in the obligation and programming of CMAQ funds. We issued revised guidance on the CMAQ program to address these challenges, providing for more extensive public outreach and education efforts, and encouraging funding of experimental projects and incentive programs promoting the use of transit, ridesharing, and other alternatives to the single-occupant vehicle. Most recently, we have initiated a new interagency effort with the EPA to reduce the oversight and coordination requirements of the CMAQ program at the Federal level. In all nine of our Federal regions, we now have memoranda of agreement to streamline the project review process, providing for only minimal necessary oversight and ensuring more timely Federal review.

Under NEXTEA, we will build on this success. As envisioned under ISTEA, the CMAQ program demonstrates that flexibility is a better approach to the funding of transportation projects and programs and that transportation can contribute to improved air quality. Now, some 5½ years later, the CMAQ program is no longer an experiment. The program's flexibility and innovation have been key to its success, and the Department proposes an increase in the CMAQ program funding authorization from \$1.029 billion annually to \$1.3 billion, an increase of 30 percent. We also propose to expand CMAQ funding eligibility to:

- Maintenance areas: We are proposing to provide funds on the basis of a State's maintenance, as well as nonattainment area, populations.
- PM areas: The original CMAQ provisions were silent on the use of funds in nonattainment areas for particulate matter (PM). The apportionment formula has been modified and eligibility made explicit to include PM areas.
- New nonattainment areas designated under the revised air quality standards: With EPA's proposal to revise the national ambient air quality standards, the Department recognizes the need to extend funding to any areas newly designated under the new standards. Therefore, we propose that CMAQ funds be available to these areas after a State has submitted its implementation plan addressing the new standards to EPA.

Another hallmark of the CMAQ program and flexible funding has been the equal treatment of eligible projects. Our reauthorization proposal for CMAQ would build on this.

- Operating Assistance: We propose to delete the specific provisions covering operating assistance on traffic management and control projects to provide the same 3-year period of funding eligibility for all projects requesting operating assistance.

Our proposed amendment would put traffic management and control projects on a level playing field with transit and other projects receiving operating assistance under the CMAQ program.

- **TCM Funding Flexibility:** ISTEA excludes from CMAQ funding two transportation control measures listed in the Clean Air Act—extreme cold starts and vehicle scrappage. Under the DOT proposal, programs to reduce extreme cold starts, where the majority of emissions are generated, would be eligible for CMAQ funds. Scrappage or “buy back” programs for high polluting vehicles would also be eligible. Rather than requiring States to use CMAQ funds for these two transportation control measures, our proposal simply gives States the added flexibility to fund them if they choose to.

B. Transportation Enhancements

States and localities have used transportation enhancement funds for projects in thousands of communities nationwide. As a result, today we look far more closely at the needs and concerns of localities, and the ways that transportation can, in fact, help make them better communities. We recognize that communities know best how to serve their own needs and must be actively involved in deciding how and where we invest Federal transportation funds. We are moving away from a focus on just getting people and goods from one place to another and toward an emphasis as well on the impacts of transportation projects on the communities they traverse.

In keeping with the goal of the ISTEA legislation to develop a more balanced transportation system, the Department has supported projects that enhance the use and safety of bicycling and walking as transportation, the development of recreational trails, and the recognition of scenic byways. In very visible and measurable ways, these typically modest and creative transportation investments dramatically improve the quality of peoples' lives.

ISTEA transportation enhancements therefore have become an important part of our commitment to the redevelopment and sustainment of communities through a variety of transportation related activities, from the renovation of historic rail depots, such as the Lafayette Depot in Lafayette, Indiana, (which became the centerpiece for a magnificent plaza serving as an economic catalyst and community focus area) to the rehabilitation of the historic Stone Arch Bridge in Minneapolis and funding for the Schuylkill River Park and Trail in Philadelphia.

After consulting with our partners on how we could maximize program delivery, we have put in place streamlined procedures that will allow States to use their own, less stringent contracting and procurement procedures to advance enhancements projects, and we have streamlined the rules for environmental clearance (section 4(f) impacts), property acquisition (voluntary transactions) and Federal oversight requirements. In addition, through the initiatives Congress included in the National Highway System Designation Act of 1995, we have adopted streamlining measures to allow States to use the value of donated funds, materials, and services as their non-Federal project match, we have provided advance payment options for cash-pressed localities, and we have set up streamlined procedures for environmental documentation and Federal review.

While bicycle and pedestrian projects can be funded under all of the major ISTEA funding programs, transportation enhancements funds have accounted for 75 percent of funding for pedestrian and bicycle projects. Our NEXTEA proposal continues the broad bicycle and pedestrian funding eligibility of ISTEA.

The public support for and success of these enhancement projects, along with thousands of others, convinced the Department to retain the current transportation enhancement provisions of ISTEA in our reauthorization proposal, including a provision to require all enhancements activities to be directly linked to transportation. Under our proposal, enhancements funding would increase by over 30 percent.

C. National Scenic Byways Program

The Department, responding to ISTEA, launched the National Scenic Byways Program to recognize roads that are outstanding examples of scenic, historic, recreational, cultural, archeological, and natural qualities by designating them as National Scenic Byways or All-American Roads. The first national program designations were made by former Secretary Pena in September 1996. States and local communities have made significant accomplishments under this program. We have awarded over \$74 million in grants to 37 States for over 550 projects. These funds serve as seed money for States and localities in their effort to help conserve the unique character of these scenic routes.

Our proposed legislation reauthorizes this program, with a number of changes designed to increase program flexibility. For example, our proposal would allow Fed-

eral land management agencies to provide the non-Federal share of project costs for scenic byways projects on Federal or Indian lands.

D. Recreational Trails Program

The Recreational Trails Program established under ISTEA provides States an opportunity to construct new recreational trails, restore and maintain existing trails, and construct trail-side and trail-head facilities for both motorized and non-motorized uses. With minimal Federal oversight, States select projects that meet the needs of their trail users.

The Recreational Trails Program has built significant new connections within communities, enhanced the environment, and provided youth training and employment. For example:

- In Richmond, Virginia, the Gilles Creek Park Foundation provided a trail between a housing area and a local park.
- In Rhode Island, the Appalachian Mountain Club, the Audubon Society, and the Nature Conservancy each used Recreational Trails funds to repair pedestrian trails designed to protect environmentally sensitive areas.
- In Colorado, a local youth ranch reconstructed a trail in the Rio Grande National Forest, providing work training experience for juvenile offenders. That trail is used by off-road vehicle users, mountain bicyclists, equestrians, and hikers for access to scenic public lands and for hunting and fishing opportunities.
- Connecticut has used all of its fiscal year 1993 trails funds, and most of its fiscal years 1996 and 1997 trails funds, to develop the Airline North State Park Trail. The Connecticut National Guard, with the support of the Governor, helped build the trail as part of a joint public improvement/military training exercise. The trail connects Putnam, Willimantic, and Manchester, with future connections planned to Hartford and to Providence, Rhode Island.

Our proposed reauthorization legislation would continue the Recreational Trails Program within the Department and would provide a consistent and reliable funding source (with contract authority). Our proposal maintains the current 50 percent Federal share, but would increase flexibility by allowing Federal agency project sponsors to provide a portion of the non-Federal match. Several program mandates would be deleted to provide greater State flexibility.

IV. CONCLUSION

In conclusion, the Administration's proposal is faithful to ISTEA and the message we heard in our outreach efforts: stay the course on the principles of ISTEA. We have, however, proposed refinements to reduce unproductive requirements, such as reshaping the planning factors, while at the same time giving State and local decisionmakers more flexibility and tools to make transportation decisions.

Recognizing that transportation can effectively support other public initiatives and improve their related effects in the community, we have sought to reinforce the linkage to other policy areas, such as economic development and brownfields. We hope to continue our role as a partner that provides leadership, resources, and tools to help make the kinds of decisions that will serve our transportation needs well into the next century.

Thank you for this opportunity to testify today. I would be pleased to answer any questions you may have.

RESPONSES OF DEPUTY ADMINISTRATOR JANE GARVEY TO ADDITIONAL QUESTIONS FROM SENATOR CHAFEE

Question 1. Critics of the Congestion Mitigation and Air Quality Improvement (CMAQ) program claim that it has done very little to clean the air.

Do you think the CMAQ program should be judged solely by the air quality benefits? What is your answer to such criticism?

Response. Some CMAQ projects yield considerable emissions reductions (such as the more than 1,000 KG, or 1 ton, per day reductions from inspection and maintenance programs). Taken as a whole, CMAQ projects implemented in 1997 will eliminate 52,000 tons of volatile organic compounds (VOCs) and 62,000 tons of nitrogen oxides, key components of smog, as well as 336,000 tons of carbon monoxide, annually, according to an Administration analysis.

CMAQ-funded projects also serve another important goal: helping nonattainment areas demonstrate conformity with State implementation plans for air quality (SIPs). The CMAQ program has also been helpful in multiple instances to ensure State funding for transportation control measures contained in their air quality implementation plans. CMAQ-funded projects can provide significant air quality im-

provements to help nonattainment and maintenance areas meet rate of progress and maintenance requirements. State and local officials have made clear the importance of the Federal Government participating in the effort to achieve cleaner air since the Federal Government places specific air quality requirements on State and local governments.

In addition, the benefits of CMAQ-funded projects should not be evaluated solely in terms of air quality improvements; they have other benefits. Transportation projects are often designed to meet multiple objectives, and this is true of CMAQ projects as well. In addition to air quality improvements, these projects have served such other purposes as congestion relief, economic development, and improving overall quality of life. These other factors have been important considerations for metropolitan planning organizations (MPOs) when using CMAQ funds.

The CMAQ program, even at the \$6 billion authorized under ISTEA, is small when considered in relation to funding for the entire surface transportation network, which is valued in the trillions of dollars. Projects funded under this or any other small program—only 4 percent of the Federal-aid highway program will only make incremental improvements to such a vast network, whether focused on air quality, congestion relief, or other national goals and objectives. The CMAQ program has also produced benefits directly related to many of the other goals of ISTEA. Examples include:

- **Funding Flexibility:** The CMAQ program has been ISTEA's most flexible program, accounting for 55 percent (\$1.3 billion) of all funds flexed to transit, despite its relatively low authorization levels. Another 500 million dollars of CMAQ funds have gone toward new shared ride services, bicycle and pedestrian projects, and demand management.

- **MPO Empowerment:** Empowering MPOs has been a primary goal of ISTEA. Again, the CMAQ program has been a leader in this area because CMAQ funds must be spent in nonattainment areas, making them local funds for which metropolitan areas exercise responsibility.

- **Increased participation in Planning:** CMAQ has improved communication between transportation and air quality agencies at the State and local levels and has opened the door for many new participants in the transportation planning process.

Question 2. Under NEXTEA, the CMAQ program would address areas newly designated in nonattainment for ozone and PM_{2.5}, if the EPA's proposed new air quality standards are adopted. Have you done an analysis on the additional funding level required to ensure that the CMAQ program can adequately fund these new areas in ozone and PM_{2.5} nonattainment?

Response. We attempted to analyze the impact on CMAQ apportionments (including new nonattainment areas resulting from the proposed new air quality standards). This analysis was completely dependent on the populations of these new areas, and since we did not have reliable estimates as to the areas that would be designated under these new standards (particularly for PM_{2.5}), or what their populations would be, the results of this analysis were preliminary. The analysis showed a small impact causing redistribution of CMAQ apportionments among 28 states, half of which would receive additional STP funding to maintain their funds for CMAQ projects at comparable levels. However, since the form of the new air quality standards as promulgated is different than the proposal, this analysis would need to be updated.

The impact of the new air quality standards on CMAQ apportionments would be felt in later years of NEXTEA at the earliest. The implementation plan published with the new standards states that EPA expects to designate ozone nonattainment areas under the new 8-hour standard in the year 2000. Some nonattainment areas would not submit an ozone SIP until 2003. The new areas would be eligible for CMAQ once they have submitted a SIP. Because new PM_{2.5} nonattainment areas are not expected to be designated until at least 2002, it is likely that designations will not be made until after the next surface transportation reauthorization period.

Question 3. NEXTEA continues to call for states to produce financially constrained transportation plans. Why is it appropriate to have transportation plans that are financially constrained?

It is good transportation planning practice to address financial reality in plans and programs. "Wish list" planning undermines the ability of the public and State and local officials to make well-informed decisions on how to best allocate available resources for competing transportation projects. Financially constrained planning results in realistic plans that can be effectively and fully implemented. Financial constraint also empowers MPOs by allowing them to set local priorities for projects.

NEXTEA continues the ISTEA requirements for financially constrained metropolitan transportation plans (20-year plans), financially constrained metropolitan transportation improvement programs (TIPs), and for projects to be included in statewide

transportation improvement programs (STIPs) only if funds are available for such projects. Both TIPs and STIPs are 3-year listings of projects expected to be implemented by a given metropolitan area or state. There is not a requirement for financially constrained statewide plans.

The air quality conformity regulations call for financially constrained plans in metropolitan nonattainment and maintenance areas, and NEXTEA does not change these air quality requirements. For the sake of consistency between statewide and metropolitan planning, the Federal Highway Administration and the Federal Transit Administration require all metropolitan plans, TIPs and STIPs to be financially constrained, regardless of the air quality of the areas included in these plans and programs. In addition, by regulation, statewide plans (which may be policy plans) are required to be financially constrained. It would be difficult to financially constrain a policy plan. But project-specific plans such as metropolitan plans can be more easily constrained because cost estimates can be prepared to the individual projects and those costs compared to available funds.

U.S. DEPARTMENT OF TRANSPORTATION,
Washington, DC, April 25, 1997.

Hon. CRAIG THOMAS,
U.S. Senate,
Washington, DC.

DEAR SENATOR THOMAS: During the March 19 hearing of the Committee on Environment and Public Works on reauthorization of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), I was pleased to testify regarding the Administration's proposed National Economic Crossroads Transportation Efficiency Act of 1997 (NEXTEA). At that hearing, you asked why a State could not use its safety set-aside funds from its Surface Transportation Program (STP) apportionment to install rumble strips on Interstate highways.

Under current law (23 U.S.C. §§ 130, 133, and 152), the State transportation departments can use their STP safety set-aside funds for highway safety projects on any public road other than Interstates. This is because a key aim of the STP safety set-aside is to target funds to roads where safety needs are the greatest, namely railroad-highway crossings and high hazard locations off the Interstate System. Other Federal-aid highway funds are available to the States for Interstate projects, including the installation of rumble strips on Interstate routes. For example, States can install rumble strips on Interstates using their apportionments for the National Highway System (NHS), the Interstate Maintenance (IM) program, and the STP (other than the set-asides for safety and transportation enhancement activities). These amounts are significantly larger than the STP funds set aside for safety. Wyoming, for instance, has received, on average, \$3,669,000 in safety-set aside funds for each of the 6 years of ISTEA and has received an average of \$25,777,000 in NHS, \$31,885,000 in IM and \$40,796,000 in STP apportionments for each of these same years.

The Administration's NEXTEA proposal would authorize a separate infrastructure safety program rather than continuing to fund important safety projects as an STP set-aside. We also propose to increase the authorization for this program above ISTEA levels and increase funding flexibility. However, in terms of funding eligibility, we believe the current safety program's focus on those roads with the highest fatality and fatal accident rates and nearly 77 percent of vehicle-miles traveled, i.e., the non-Interstates, is sound. We propose, therefore, to continue the same funding eligibility for hazard elimination projects and to expand grade crossing eligibility to include all public grade crossings and certain private crossings where sufficient public benefit has been identified. Under our proposal, States would still be able to fund rumble strips on Interstate routes from their National Highway System, Interstate Maintenance Program, and STP apportionments.

Thank you for the opportunity to respond to your question in writing. I look forward to continuing to work with you and the other members of the Senate Environment and Public Works Committee to build on the accomplishments of ISTEA in the reauthorization of our surface transportation programs.

Sincerely yours,

JANE F. GARVEY,
Acting Administrator.

U.S. DEPARTMENT OF TRANSPORTATION,
Washington, DC, April 25, 1997.

Hon. BOB GRAHAM,
U.S. Senate,
Washington, DC.

DEAR SENATOR GRAHAM: At the March 19 hearing of the Subcommittee on Transportation and Infrastructure of the Committee on Environment and Public Works, you asked a very thoughtful and valid question about present and future congestion on our Nation's highways.

Following the hearing, I asked FHWA staff to research how different States' congestion levels compare and what changes are expected in the future. They also looked closely at how congestion in Florida and its cities compares to other States and cities.

Enclosed is the resulting analysis, which I found enlightening. We will also send it directly to the subcommittee for inclusion in the hearing record. I hope it is responsive to your interest. If you need additional information, I would be pleased to provide it.

Sincerely yours,

JANE F. GARVEY,
Acting Administrator.

FLORIDA HIGHWAY TRAVEL DEMAND—CURRENT AND FUTURE

- Since 1989, nationwide we have added only 43,000 new lane-miles of nonlocal roads to meet our added highway demand requirements, a total increase of 1.6 percent. Over that same period, highway demand increased by 17 percent. Our increase in demand was over 10 times as great as our increase in capacity over that time period.
- As a result of this differential growth in demand vs. supply, the density of travel, that is, the average daily traffic lane, has increased on all highway systems. On the urban Interstate System, the most densely traveled of all our highways, densities increased from 12,000 vehicles per lane in 1989 to 13,100 vehicles per lane in 1995, about a 9.2 percent increase. [Figure 1]
- Congestion delay cost Americans at least \$1 billion annually in each of our largest urban areas.

FLORIDA CONGESTION INDICATORS

- FHWA publishes State estimates of peak-period traffic congestion and measures of travel density and congestion for all urbanized areas as part of the annual *Highway Statistics*.

• Tables 1 and 2 provide the 1995 volume/service flow for the major urban and rural highways by State. A value of >0.95 indicates severe peak-period congestion. Values of 0.80–0.95 indicate congested conditions.

Table 3 includes a column "AADT/lane" (average annual daily travel per lane), a measure of the density of daily highway usage. *Florida ranks 11th among all States in urban AADT/lane and 3rd among all States in rural AADT/lane.*

Table 4 shows selected demographic, system, and geographic parameters for all urbanized areas above 100,000 population, arrayed in descending order by population. Of these 260 urbanized areas, Florida contains 18. Nationwide, *of the 63 largest urbanized areas of greater than 500,000 population, 5 are in Florida. Of these 5 urbanized areas, 2 have AADT/freeway lane greater than the average of the top 63 urbanized areas.*

FUTURE HIGHWAY DEMAND

- Estimates of future congestion by State and urbanized area are a function of future travel demand; changes in land use and other local policies and initiatives that might impact travel demand; future capital and operating investment; application of ITS traffic management strategies; price of fuel; and related variables that will combine to influence rates of travel increase.

• Table 5 shows current (1995) and future (2015) daily vehicle miles of travel (DVMT) by State, with a percent growth rate. Among all of the States, *Florida ranks 32nd in expected DVMT growth through 2015*, with an increase of 48.5 percent, compared to a national average of 53.4 percent.

• Table 6 shows similar information for each of the Nation's urbanized areas of greater than 100,000 population, along with percent annual rates of change in high-

way travel demand. Nationally, the expected annual rate of travel growth for all urbanized areas, 1995–2015, is 2.0 percent.

Among Florida's 18 urbanized areas of greater than 100,000 population in 1995, 11 are expected to experience travel demand in excess of the national average through 2015 and two, Fort Myers-Cape Coral and Melbourne-Palm Bay, are expected to significantly exceed the national average, at 3.2 percent and 2.4 percent annually, respectively. Values for Tallahassee, Lakeland, Fort Pierce, Gainesville, Fort Walton Beach, Panama City, and Naples are not shown separately, since they are reported as grouped data, and can not be disaggregated. For purposes of comparison, the collective travel growth rate for these areas is expected to be 2.2 percent annually.

Impacts of Congestion/Mitigation Strategies:

- As congestion increases, both recurring (daily congestion points) and non-recurring delay (vehicle breakdowns, accidents, etc.) increase. Although the increase in recurring delay has a large impact on additional traveltime and vehicle operating costs, the increase in non-recurring delay has a more structural impact on U.S. firms' ability to compete because of additional pressures on costs of manufacturing, warehousing, and logistics.

- Many of the MPOs are developing aggressive strategies to help curb the growth of urban highway and the congestion associated with it. These strategies include the deployment of Intelligent Transportation Systems (ITS), providing timely information to travelers on alternate routes with less congestion, the use of higher levels of transit service, better coordination with land use planning and zoning decisions to reduce the reliance on single occupant vehicles, parking cash out programs, offering commuters a choice of parking support or vouchers for transit or other means of commuting, congestion pricing, and other innovative strategies that work well in combination. The MPOs in our larger metropolitan areas are programming large investments in transit over the next several years, in anticipation of transit growth in highly congested areas.

Progress will come through these, and other, public and private efforts (1) to offer greater options to travelers; (2) to provide better and more timely information to travelers; (3) to monitor changing conditions on our major NHS urban routes and help States and local decisionmakers design more effective strategies for dealing with congestion on these routes of greatest national and regional significance. Congestion can only be successfully addressed by a combination of demand reduction and supply enhancement, either through more efficient use of our existing system, or targeted efforts to add additional capacity.

Our NEXTEA reauthorization proposal addresses all of these elements.

PREPARED STATEMENT OF DAVID GARDINER, ASSISTANT ADMINISTRATOR FOR POLICY,
PLANNING AND EVALUATION, U.S. ENVIRONMENTAL PROTECTION AGENCY

I. INTRODUCTION

Good morning, Chairman Warner and members of the committee. I am David Gardiner, Assistant Administrator of Policy, Planning and Evaluation at the U.S. Environmental Protection Agency (EPA). I am pleased to be here today with Acting Administrator Jane Garvey of the Federal Highway Administration to offer EPA's perspective on the National Economic Crossroads Transportation Efficiency Act (NEXTEA).

Transportation gives form and function to our great country; it is an inherent factor in nearly every aspect of life. Our transportation network enables us to maximize our economic potential, provides us with unprecedented amounts of personal freedom, and gives us both a figurative and literal path to the things we want in life.

It also exacts a price upon the environment. These problems manifest themselves in many forms, including: local air pollution (such as smog and particulate matter), water pollution, habitat fragmentation, and contributions to climate change. Environmental costs are real, and they impact the economy.

NEXTEA is important to the EPA because sound transportation policy is sound environmental policy. Last week, the President echoed this sentiment when he said, "Make no mistake about it, [NEXTEA] is one of the most important pieces of environmental legislation that will be considered by the Congress in the next 2 years. And I think it should be thought of in that way."

The EPA strongly supports this statement and the position set forth in the Administration's bill, because it will help us fulfill our mission of providing clean air, and clean water, and protecting public health. In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) recognized that the transportation sector can

be used to improve public health, improve the quality of our environment, improve the economy, and improve the quality of life of our citizens. The continuation of the Congestion Mitigation and Air Quality Improvement and Transportation Enhancements Programs are important steps to ensuring that this happens.

Sound transportation policy is also sound economic and community policy. How and where we lay out our transportation network can have great impacts on whether downtowns and neighborhood communities prosper, whether we can safely walk across the street, or whether those without automobiles can shop, get to their place of work or to educational opportunities. EPA supports the Administration's philosophy of "local solutions to local problems". The public involvement requirement in ISTEA is one of the things that makes it so successful. It empowers the citizen to have an impact, and it needs to stay in the legislation.

ISTEA is good policy; NEXTEA preserves it. Today, I would like to talk with you about how transportation affects the environment, and then discuss how the Congestion Mitigation and Air Quality Improvement and Enhancements programs have helped improve environmental quality. I also will discuss why the flexibility and public participation opportunities created by ISTEA are so important for helping communities and EPA achieve their environmental goals.

2. ENVIRONMENTAL IMPACTS OF TRANSPORTATION

In 1991, ISTEA acknowledged the explicit Federal role in addressing the environmental impacts of transportation. I present these impacts in four categories: air quality, water and habitat quality, climate change, and solid waste.

a. Air Quality

Nationally, air quality has improved substantially, contemporaneously with strong economic growth, population growth, and increased vehicle miles traveled (VMT). EPA analysis shows that mobile source emissions, which contribute significantly to overall emissions, dropped substantially between 1986 and 1995:

- CO emissions declined 21 percent during that time period;
- NO_x emissions fell 2 percent;
- ozone precursors (hydrocarbons) fell 9 percent; and,
- PM₁₀ emissions declined by 17 percent

These national long-term air quality improvements translate to cleaner air on the local level. When the Clean Air Act was amended in 1990, there were 140 million citizens living in 98 ozone non-attainment areas. Progress in ozone mitigation led to the redesignation of 29 of those areas. Of the remaining 69 non-attainment areas, 40 had met the first qualification for redesignation; they had not had a violation of the standard for over 3 years. Nearly one third of the affected citizens now live in areas that meet the ozone standard. PM₁₀ non-attainment areas have decreased only slightly, from 83 to 81. However, 35 PM₁₀ non-attainment areas have been meeting the standard and have not yet been redesignated. In 1990, there were 42 CO nonattainment areas; in 1995, 34 were meeting the NAAQS for CO.

Americans continue to increase their travel activity, and this has important implications for air quality. In 1970, the Nation logged an estimated 1.1 trillion VMT. By the end of 1995, the VMT total had more than doubled to just over 2.4 trillion miles annually. Between 1983 and 1993, motorists increased their VMT more than 39 percent.

In addition to the national increase, it is evident that vehicle travel in some areas of the Nation has out paced others, with some seeing a doubling of VMT in 10 years or less. Generally, there has been a substantial and growing divergence between urban and rural VMT growth. This urban-rural gap has continued to widen over the last 20 years, largely because of continued metropolitan development incorporating both the expansion of urban boundaries and the rapid growth in suburb-to-suburb commuting. For the period described above—1983 to 1993—urban VMT increased nearly 49 percent, while corresponding rural VMT growth was less than 27 percent.

To date, ISTEA and the Clean Air Act has helped states and localities across the country make great strides in mitigating mobile source pollution. These reductions have been achieved by reducing emissions at the tailpipe through technological advances, cleaner fuels, and better inspection/maintenance facilities. But the critical question remains will environmental control technology be able to keep pace with increasing VMT. Based on current Clean Air Act requirements EPA models show that:

CO emissions from on-road vehicles are predicted to decline from 48,874 thousand short tons in 1996 to 44,525 thousand short tons in 2002. By 2010, CO emissions are predicted to increase to 46,749 thousand short tons. NO_x emissions from on-road vehicles are predicted to decline from 7,041 thousand short

tons in 1996 to 6,281 thousand short tons by 2005. By 2010, NO_x emissions are expected to increase to 6,495 thousand short tons. Volatile Organic Compound (VOC) emissions from on-road vehicles are predicted to decline from 5,147 thousand short tons in 1996 to 4,578 thousand short tons in 2005. By 2010, VOC emissions are expected to increase to 4,726 thousand short tons.

Technological improvements in vehicle technology and fuels have kept emission trends on a downward path for the past 25 years, and may continue to do so in the future. The Clean Air Act requires EPA to evaluate whether additional technology based programs will be necessary and feasible such as National Low Emission Vehicle program, and tighter Tier II emission standards. Methods for improving vehicle durability and maintenance requirements are also being evaluated. Strategies to reduce VMT would also help preserve our air quality improvements, and protect public health and the environment.

b. Water and Habitat Quality

Transportation also has great impacts upon our soils and lands, upon our water and wetlands, and upon our flora and fauna. Water quality is generally affected by transportation in three ways: run-off from new construction and existing highways, air deposition, and wetland loss.

Runoff

Runoff pollution is that associated with rainwater or melting snow that washes off highway pavements and bridge decks and other impervious surfaces. As it flows over these surfaces, the water picks up dust and dirt, rubber and metal deposits from tire and engine wear, oil and grease that has dripped onto the pavement, pesticides and fertilizers, antifreeze, and debris. These contaminants as well as those associated with highway construction and maintenance are washed from highways and bridges and carried into our lakes, rivers, streams, and oceans.

In the snowbelt, road salts can be a major pollutant in both urban and rural areas. Melting snow runoff containing deicing salts can produce high sodium and chloride concentrations in ponds, lakes, and bays causing fish kills and changes to water chemistry. Road salts can also contribute to damage roadside vegetation to cause erosion. Erosion produces sedimentation which can choke aquatic organisms in receiving waters.

Air Deposition

The transportation sector generates NO_x, which reacts in the atmosphere to become an acid, thus contributing to acidic deposition. EPA's Chesapeake Bay Program reports that acidic deposition from transportation accounts for approximately 9 percent of all nitrogen in the Bay. Nitrogen (and other pollutants) directly affect the vitality of the Bay.

Wetlands

Prior improvements to the nation's transportation infrastructure have contributed to the loss and degradation of wetlands and other habitats. Wetlands mitigation provisions within ISTEA have provided the resources and flexibility needed to offset wetlands losses resulting from transportation projects. For example, ISTEA has provided support for wetlands mitigation banking activities throughout the country. Mitigation banking increases the ecological benefits of wetlands compensatory mitigation efforts, while also facilitating the permitting of highway projects. Ensuring that ISTEA continues to provide the resources and flexibility needed to offset unavoidable impacts to wetlands will help us to achieve the Administration's interim goal of no overall net loss of the nation's remaining wetlands and the long-term goal of increasing the quality and quantity of the nation's wetlands resource base.

c. Climate Change

Transportation accounted for nearly one-third of all anthropogenic greenhouse gas emissions from the U.S. in 1990 and the transportation sector is expected to have the fastest growth in greenhouse gas emissions of any part of the U.S. economy during this decade. This growth is the result of two trends; the average fuel economy of the new personal vehicle fleet has decreased since 1988, and the number of miles driven by Americans continues to rise. The drop in fuel economy is largely a result of a shift toward larger vehicles, such as sport utility vehicles, that have lower gas mileage than cars. While some vehicle models may be getting better mileage over time, as a nation we are buying more of the less efficient models. The causes of the increase in number of miles driven are more complicated and include population shifts to urban fringes.

Global Climate Change has emerged as an important environmental concern. An international consortium of scientists has recently concluded that human-induced

climate change has begun. The 1996 report of the Intergovernmental Panel on Global Climate Change expressed a scientific consensus that man-made "greenhouse gases"—including carbon dioxide, chlorofluorocarbons, and methane—are building up in the Earth's atmosphere, and that the temperature of the atmosphere is increasing as a result. This rise in temperature is referred to as global climate change, global warming, or the greenhouse effect. Although the predicted increase in average global temperature may not seem like much—an increase between 1.8 and 6.3 degrees Fahrenheit is predicted—scientists believe that it will be enough to cause sea levels to rise, although the precise timing of when this might happen is unclear. Changes in temperature and rainfall in particular regions are more difficult to predict and the impact on different ecosystems remains uncertain. Nevertheless, agriculture, aquaculture, and plants and animals will have to adapt or move as the climates and habitats that support them change.

3. NEXTEA AND ENVIRONMENTAL PROTECTION

a. Congestion Mitigation Air Quality Improvement Program

Air quality control under ISTEA and the Clean Air Act have been an environmental success story. Pollution from vehicles has been substantially reduced. Many areas, however, still face substantial challenges, and will continue to need the type of flexible support provided by CMAQ. Funding under the CMAQ program, unlike many other Federal-aid highway programs, is not limited to traditional highway uses, and the program has funded many innovative projects such as I/M programs aimed at reducing emissions and other programs focusing on vehicles and fuels. One of CMAQ's successes has been to open up the transportation planning process to allow projects to compete on their air-quality merits, an important ISTEA goal. The program also has been successful at empowering Metropolitan Planning Organizations (MPOs) and furthering the ISTEA goal of allowing local decisionmakers to select projects. Finally, the CMAQ program has invited new players into the planning process.

Funding Under NEXTEA, new air quality nonattainment areas, resulting from the proposed PM and ozone NAAQS, would be eligible for money from the Congestion Mitigation and Air Quality Program upon submission of a SIP to EPA. The President's fiscal year 1998 budget would increase CMAQ funding to \$1.3 billion per year from \$1.0 billion in fiscal year 1997. Additional money will be transferred to CMAQ from the Surface Transportation Program when new nonattainment areas become eligible for CMAQ money, as necessary, to ensure no state will lose CMAQ funds.

Transit improvement projects have been the recipient of the largest share of CMAQ funding since the start of the program, accounting for approximately 47 percent of all obligations between 1992 and 1995. As of October 1995, more than \$1.7 billion had been transferred for transit-related air quality improvement projects. Highway traffic flow improvement projects, specifically identified as Traffic Control Measures (TCMs) in the CAA if they reduce emissions, have accounted for 31 percent of CMAQ resources. Transit and highway traffic flow improvements together continue to receive about 75 percent of available CMAQ funding. On a lesser scale, funding for pedestrian/bicycle, shared-ride, and other less traditional TCM-type projects generally ranges between 10 and 15 percent of CMAQ funding obligations.

Traffic Control Measures

Most of the emissions reductions achieved to date have been through the CM's long-term focus on reducing tailpipe and evaporative emissions, and clean fuels program. As increasingly stricter tailpipe standards have been put in place, automakers have responded by producing lower emission vehicles that can meet the standard. If VMT growth outpaces existing tailpipe controls, CMAQ can provide communities the flexibility to rely more on TCMs to help reduce VMT.

Although TCMs may not yield, in the short run, as large an air quality benefit as some of the more effective mobile source strategies, there are ample other reasons to fund them. Most notably, congestion continues to strangle many metropolitan areas and without TCMs to increase the supply of transportation alternatives and demand management strategies like pricing, these areas have few ways to address their growing congestion mitigation needs. Hence, programs like CMAQ are needed for a variety of reasons. The CMAQ program has been instrumental in furthering the empowerment of MPOs, a key goal of ISTEA. It also has invited local citizens and officials into the transportation planning process.

The effectiveness of TCMs is directly linked to the low-density development pattern prevalent throughout the United States, which virtually necessitates automobile ownership and use. TCMs that increase the supply of transportation alter-

natives must address the geographically diverse origins and destinations that low-density development fosters. A focus that has gained some acceptance within the transportation and air quality communities, is to increase the accessibility of alternative to automobiles such as transit, bicycling, or walking.

CMAQ Success Stories

The CMAQ program already has funded hundreds of innovative projects. These are examples of quality planning efforts that are environmentally friendly and contribute to the social and economic needs of the community. As I have said before, good environmental policy is good economic policy. Since economic development is of tantamount importance to most cities, I must point out some of the many cases where these programs have been successfully used.

Glendale Parking Management—In a public-private partnership with the Glendale Transportation Management Associates, Glendale, California, two private companies have implemented a 3-year demonstration program to reduce the number of employees driving to work alone. The companies reward employees who choose alternatives to driving alone—carpools, vanpools, walking, bicycling, and transit. The program combines a graduated parking charge for all employees with incentives such as prizes, awards, and one of the most valued incentives—the Guaranteed Ride Home Program. As evidence of its success, this project earned the Federal Highway’s 1995 Environmental Excellence Award in the CMAQ Program category.

Freeway Service Patrol—The Freeway Service Patrol, managed by the Metropolitan Transportation Commission (MTC), the FSP alleviates long delays caused by disabled vehicles that account for 50 percent of the traffic congestion in the San Francisco metropolitan area. A fleet of 52 FSP trucks patrols more than 200 miles of the Bay Area’s most congested freeways, clearing over 9,000 incidents every month. Aided by the latest communications technology, the FSP truck drivers rescue stranded motorists. By alleviating start-and-stop travel and vehicle idling due to traffic jams, the FSP also has decreased overall fuel consumption and helped reduce harmful air pollution from motor vehicles.

b. Enhancements Program

The Enhancements Program provides funding for activities that increase transportation options. Enhancements are designed to boost local economies, promote and increase multi-modal and overall non-motorized travel, and protect the environment. Enhancements funds may be used for ten different kinds of projects. They are: bicycle and pedestrian facilities; acquisition of scenic or historic sights; archaeological planning and research; scenic or historic highway programs, landscaping and scenic beautification; historic preservation; preservation of abandoned railway corridors; control and removal of outdoor advertising; mitigation of water pollution due to highway runoff; and rehabilitation and operation of historic transportation facilities. Nation-wide, \$2.4 billion was made available over the 6 year life of ISTEA (1992–1997) for the Enhancements Program.

Transportation Enhancements funding fills a vital role in mitigating the impacts of transportation and protecting the environment. Transportation is a significant source of air and water pollution, wetlands loss, habitat destruction and loss of open space. Historically, transportation planning focused more on the automobile, with less regard for alternative modes or the impacts on the community. The Enhancements Programs provides balance to those circumstances where wide roads and highways have cutoff communities from their neighbors, increased traffic noise, and discouraged bicycle and pedestrian travel.

Enhancements funding has provided states and communities with the opportunity to fix the problems that are caused by traditional transportation projects. State and local transportation officials say that many enhancements-like projects would never have been undertaken without the enhancements program. Projects such as rails-to-trails, greenways, and bicycle/pedestrian paths support non-motorized transportation, provide increased mobility, provide recreational opportunities, increase economic development, clean the air, reduce non-point source water pollution, and encourage multi-modal transportation. Landscaping and historic preservation projects are popular on the local level. They provide tangible benefits which enhance livability and provide a sense of community. Historic sites often increase tourism and can act to strengthen the local economy.

The Enhancement Program Expands Transportation Alternatives and Promotes Economic Development

The Katy Trail—This 235-mile Missouri trail traverses nine counties and adjoins 35 towns ranging in population from 60 to 60,000. These communities initially were opposed to the trail, fearing an increase in vandalism from the users of the trail. Instead, restaurants, bed-and-breakfasts, wineries, bicycle rental shops, antique

dealers, and campgrounds all opened to meet visitor needs. A user survey on the trail's western half showed that trail visitors generated an estimated \$3 million in local revenue.

Accommodating Pedestrians—Naples, FL, installed a network of sidewalks to make it quicker and safer to walk downtown. The city has a street system which did not originally include sidewalks. ISTEA Enhancement funds will pay for the design and construction of walking paths to link neighborhoods with recreation and the town center.

Enhanced Suburban Transit—The Minnesota Valley Transit Administration recently constructed a suburban transit hub designed to meet the varied demands of suburban commuters. The transit hub offers convenient access to high occupancy vehicle (HOV) lanes on regional highways and features retail and office space, a day care facility, senior housing, expanded parking, and a movie theater.

The Enhancement Program Reduces Highway Runoff

Highway runoff mitigation is one of the ten categories of activities specifically eligible to receive Transportation Enhancement funds. Since 1992, nearly 100 runoff projects with a combined cost of more than \$20 million have been funded by the Enhancements Program. In order to qualify as an enhancement, each of these projects must address issues which are beyond the scope of customary construction mitigation efforts, i.e., required runoff control measures cannot be funded by the Enhancements Program.

Cucumber Creek, Oklahoma, Pollution Mitigation—Mitigation efforts recently were completed in southeastern Oklahoma to correct the harmful effects of runoff from State Highway 259. Water quality in Cucumber Creek, which is located near the highway right-of-way, was degrading due to runoff from the roadway. This contamination threatened the viability of several rare species of plants and animals.

In order to remedy the runoff problems and preserve the integrity of Cucumber Creek, the state of Oklahoma used approximately \$65,000 in enhancement funds to regrade the land between the highway and stream and expand the Cucumber Creek Preserve by 400 acres. Because runoff is directed to less fragile areas, further pollution of habitat will be reduced. The regrading of the highway right-of-way also will prevent further erosion of the land on the sides of the roadway.

3. PARKING CASHOUT

NEXTEA includes important policy initiatives to reduce the threat of climate change. One of these, the change in the tax treatment of commuter benefits, clearly demonstrates that there are opportunities to align the sometimes competing objectives of environmental protection and transportation mobility. Free parking at work is today offered to 90 percent of the American work force. In part, this is because the Internal Revenue Code prevents employers from offering their employees a choice between tax-exempt parking, other tax-exempt commute benefits, or taxable cash. NEXTEA changes that. Employees who do not need or want their free parking spaces and would prefer to commute by some other means than driving, but accept them because they are often the only commute benefit offered, will be able to convert their parking spaces to taxable cash at no cost to their employer. Employers will cease to pay for parking their employees no longer use. Fewer automobile commuters means better air quality, fewer greenhouse gas emissions to the atmosphere, and less traffic congestion. This is smart policy that is good for transportation mobility and for the environment.

4. PUBLIC INVOLVEMENT

The Clean Air Act requires the evaluation of environmental concerns in transportation planning. NEXTEA continues to provide states with the tools to implement this requirement. In the past, citizens and local officials did not always have enough say in local transportation planning. ISTEA puts the citizens and local officials in the planning process. With the flexibility of ISTEA funding, the "community vision" can become the community reality.

ISTEA has provided the funds and the flexibility to more easily make transportation networks efficient and environmentally sound. ISTEA, by requiring public input on transportation planning, supports local citizens and officials make their own choices and have the funds to realize their community visions. Some states have created decentralized processes in which the state share some aspects of its traditional control helping to empower MPOs and local governments. This empowerment comes in the form of programming control over the spending of Federal funds in the MPO's planning area.

I'd like to mention a few examples of these decisions to show that increased public participation can result in good planning and better environmental outcomes.

Albany's New Visions—Through the "New Visions" initiative, the Albany, NY, MPO has started calculating and using the costs of traffic jams, environmental factors, and larger economic impacts in transportation projects. This comprehensive account is almost unprecedented, and includes costs and benefits not traditionally included in the transportation planning process.

Florida—Florida's state DOT has developed a close working relationship with MPOs, air quality agencies, and the public by involving these parties in making decisions about a variety of transportation investments. Florida's approach is partially attributable to the state's decentralized DOT structure. District offices of the state DOT work closely with local governments and MPOs, providing a good mix of local, state, and public input in the project selection process.

Bottom-up Planning—California and Washington state have created well-defined "bottom-up" approaches to the selection of ISTEA's enhancement funds. Selection criteria are set by the state and MPOs, and corresponding agencies in non-urbanized areas evaluate proposed projects in their jurisdiction and send a prioritized list to the state. Although in both states, primary decisionmaking authority remains at the state level, the states have largely honored the recommendations by the MPOs.

5. FLEXIBILITY

Transportation funding before ISTEA was generally more rigid allowing less flexibility and creativity for finding alternatives to transportation problems. ISTEA and NEXTEA differ in major ways from transportation policy of the past. Flexibility allows for the implementation of local solutions to local problems as determined by local citizens and officials. Flexible funding encourages creative solutions that promote sustainable transportation, clean air, economic development, and meet the mobility needs of local citizens. Funds previously earmarked solely for highway projects now can be used by state and local officials to pursue multiple options for making their transportation systems more effective and sustainable.

The following are a few examples of how state and local governments have taken advantage of flexible funding to support economically and environmentally sensible projects.

Bridge Preservation—In Vermont, most bridges were built after a 1927 flood, and they are now reaching the end of their useful life. Rather than replacing them all with a standard new bridge, the state has used ISTEA's new flexibility and funding provisions to rehabilitate or replace historic bridges on a case-by-case basis. Flexible funding permits investments that save money.

Train Station Revitalization—In Greensburg, PA, ISTEA Enhancements funds are being used to renovate a historic train station on Amtrak's Chicago-to-New York route. The redevelopment will help revitalize downtown Greensburg, and Amtrak predicts tripling ridership.

ISTEA Flexibility Encourages Innovation for Addressing Freight Emissions

Flexibility in ISTEA also allows us to grapple with emerging problems, such as emissions from freight transportation, in cheaper and smarter ways. Freight transportation moves the nation's commodities to U.S. markets, uses roughly a fifth of U.S. transportation energy, and produces roughly 30 percent of the mobile source sector's air emissions of NO_x, according to EPA estimates. The corresponding percentages for particulate matter specifically from freight are not available, but are known to be even larger. ISTEA began to emphasize the importance of freight transportation.

EPA recognizes and supports the steps already taken by the freight industry to promote and achieve industry productivity and environmental benefits:

- Partnerships between truck and rail companies are on the rise, as many trucking companies are finding it more profitable to facilitate long hauls rather than make the entire trip themselves;
- Truck-rail transfer stations have sprung up across the country, with truck companies serving the shipper and receiver and railroads providing long-distance movement to and from the transfer points; and,
- Warehouse siting strategies and freight distribution technology are decreasing fuel use and, therefore, costs.

Several successful examples of intermodal freight transfer projects merit particular attention. The City of Auburn, Maine, has used ISTEA CMAQ dollars to develop a state-of-the-art project that includes track improvements, new parking and container storage, and a weighing and freight control operations center. Auburn, an air quality nonattainment area, has the long-term goal of becoming a multi-modal

transportation center. The new facility reduces long-haul truck traffic on area highways, decreasing vehicle emissions both in the Auburn area and along regional highway routes.

Auburn's project, which is referred to as the "Intermodal Freight Transfer Facility," has provided an economic boost to the area. With the conversion of freight from long-haul trucking to rail, a multitude of short-haul trucking companies have moved to Auburn to serve short trips from rail facilities to other destinations. The increase in economic activity has led to added competition for local warehouse space. Auburn has also attracted producers of goods that require incoming raw and bulk goods and the outgoing freight capacity of the facility. A number of transportation-related businesses and thus jobs have grown along Auburn's main freight corridor. On-going plans for the Facility are to provide multi-user access and grant access to the terminal to other railroads.

New York State, New York City, and the Port Authorities of New York and New Jersey are using an innovative water freight service across the Hudson River to relieve congestion on area bridges and roads, reduce air pollution, and provide a more economic mode of transportation. With the Red Hook Barge, officials in the New York area have turned a potential congestion problem into a sustainable way to move goods.

EPA and DOT have made great strides in developing tools to aid local planners in integrating freight infrastructure and management practices with emissions control policy. Strategies for dealing with freight-related system enhancements and modal emissions rates include tradeoffs among such measures as changing terminal access or capacity, improved scheduling, and incentives for more rapid introduction of new technology or of alternative fueled vehicles, to name but a few. As these planning tools are disseminated through the funding of pilot projects and conducting of workshops in communities across the U.S., efficient and environmentally effective freight strategy options have been (and will be) implemented. The funding provided by CMAQ eases the transition to such implementation. Continued progress would be stymied without the CMAQ program.

ISTEA Flexibility Encourages Innovation for Addressing Border State Freight Transportation Issue

The issues that have arisen with freight border traffic between the United States and Mexico is of concern to EPA. NAFTA requires the harmonization of standards for truck, bus, and rail operations, and for the transportation of hazardous materials among Canada, the United States, and Mexico. Progress has been made, but EPA wishes to emphasize the environmental stake the United States has in resolving issues to ensure that there is no degradation of air or water quality and that land use, waste disposal, and other considerations are carefully taken into account.

Coordination of cargo transfers between Mexico and the United States to minimize cases where freight carriers making return trips empty of cargo, encouraging use of those border crossing points that are currently underutilized, and increasing hours of operation at border bridges are examples of measures that reduce congestion and lower peak emissions levels. Other measures that reduce congestion through construction of new infrastructure, such as expansion of facilities adjacent to border stations, connecting the Rio Grande Valley to the Interstate Highway System, and construction of limited access roads from Mexican factories to intermodal facilities in the United States should be viewed as opportunities to take transportation, energy, and environmental concerns into account.

ISTEA Flexibility Encourages Innovation for Addressing Brownfields

Brownfields are abandoned, idled, or under-used industrial and commercial properties where expansion or economic redevelopment is complicated by the threat of environmental contamination. While the full extent of the brownfields problem is unknown, the United States General Accounting Office estimates that approximately 450,000 brownfields sites exist in this country, affecting virtually every community in the nation. The Administration's Brownfields Initiative is directed toward empowering states, local governments, communities, and others to work together to assess, clean up, and sustainably redevelop these sites.

Transportation issues are critical to the sustainable redevelopment of brownfields. As DOT has testified in previous hearings before this committee, transportation empowers our neighborhoods by providing access to jobs, markets, education, and health care. Both highways and transit are vital to maintaining our metropolitan areas as viable commercial centers, especially for brownfields areas where we are trying to restore hope and vitality to blighted neighborhoods.

Environmental cleanup linked to transportation projects allows the reuse of urban land with existing infrastructure and provides the access to transportation that is

vital to successful community revitalization. EPA and the U.S. Department of Transportation are working together to coordinate brownfields projects with transportation policy. The importance of these efforts are reinforced by the recommendations of the President's Council on Sustainable Development that stress the links between transportation, the environment, and sustainable development.

Brownfields redevelopment benefits the national transportation system. Brownfields projects take advantage of existing infrastructure and can reduce project costs. Further, redevelopment of brownfields may reduce pressure on suburban transportation infrastructure. Finally, locating development on brownfields may reduce the need for new transportation infrastructure needed to service greenfield developments.

There are added environmental benefits from Brownfields redevelopment and infill, especially when they are located in central cities. These areas are generally more accessible via transit and non-motorized modes of transportation. Those who choose to drive to work at these locations generally will have shorter trips than when the same jobs are located at the urban fringe. Infill development, as opposed to new development on greenfield sites, can reduce total growth in VMT, reduce congestion, improve air quality, and reduce carbon emissions.

The benefits of linking brownfields redevelopment with transportation are demonstrated by transportation projects in cities such as Portland, Oregon, and Lawrence, Massachusetts. In Portland, Oregon, ISTEA funds were used to build a road through a brownfields area, connecting a port facility with an interstate highway. The transportation project was a primary factor in opening this blighted area to restoration and reuse. The Lawrence Gateway Project used ISTEA funds to revitalize the city by restoring its historic Canal Street bridge entrance and adding a new traffic interchange. Although the transportation costs were only \$5 million, over \$167 million has been leveraged in public and private funds to give the former mill capital of the United States a brighter future. Examples like these demonstrate the flexibility that would be continued under NEXTEA.

CLOSING REMARKS

The best way to sop pollution is to find alternatives to the activity creating it. In the case of mobile source air pollution, reducing fuel consumption and VMT is an important way to achieve results. EPA favors the continuation of the CMAQ and Enhancements programs, because they enable state and local governments to take diverse approaches to reducing air pollution, while also cleaning the water, preserving habitats, increasing system safety, improving the quality of life for their citizens, and encouraging local economic develop.

If judged solely on its ability to clean the air and enhance mobility, ISTEA is a success. When factoring in everything that ISTEA does for the environment, it is one of the most innovative and effective funding bills that has ever been passed. The CMAQ and Enhancements Programs permit multiple responsibilities to be met with one law. That is good policy. That is why they should be maintained.

ISTEA has planted the seeds of progress. NEXTEA has the potential to make those seeds bloom. EPA believes that the way to do this is to support programs that stress sustainability, environmental protection, economic development, and community involvement. The structure of ISTEA encourages planners and the "person on the street" to have vision, and provide them the tools to do something about it. The CMAQ and Enhancement programs are two of these tools.

Mr. Chairman and other members of the committee, thank you for your time this morning.

RESPONSES OF DAVID M. GARDINER TO ADDITIONAL QUESTIONS FROM SENATOR CHAFEE

Question 1. Your testimony¹ cites two trends, *the decrease in the fuel economy of the passenger cars on our Nation's roads and the continuing increase in vehicle miles traveled*, as the primary culprits of an alarming increase in greenhouse gas emissions in the U.S. And the steady rise in vehicle miles traveled is likely to contribute significantly to additional air pollution in the future. Under a transportation funding formula driven by gas tax contributions as has been proposed in the Administration's bill, States are discouraged from trying lower VMT rates and to increase fuel economy.

¹ Testimony was presented to the Subcommittee on Transportation and Infrastructure on March 19, 1997.

If the solution to improving air quality and reducing greenhouse gas emissions is encouraging better fuel economy and reducing vehicle miles traveled, doesn't the distribution formula proposed by the Administration that rewards gasoline use because it rewards contributions to the Highway Trust Fund, work against these goals? Was your agency consulted about the funding formula in the Administration's bill?

Response. The Department of Transportation (DOT) included Highway Trust Fund (HTF) contributions in their formulas as a proxy for highway use and need. It is true that allocation formulas, based primarily on HTF contributions, could theoretically provide a disincentive to improve air quality and reduce greenhouse gas emissions.

The DOT recognized this potential problem in developing its NEXTEA proposal, and EPA supported the inclusion of several provisions to mitigate against potential disincentives. Most importantly, the Administration's NEXTEA proposal increases the authorization for the Congestion Mitigation and Air Quality Improvement (CMAQ) and Transportation Enhancement programs, which are specifically designed to mitigate the transportation-related impacts on air quality and the environment. The DOT also continues an emphasis on ISTEA apportionments to States when determining current year NEXTEA apportionments. The DOT's approach may help reduce the effects of the new formulas by factoring into the equity adjustments the States' previous ISTEA apportionments, which weighed HTF contributions less heavily.

The structure of the NEXTEA equity adjustments, we believe, provides better protection against disincentives than many of the proposals we have reviewed, especially those that would allocate HTF funds based entirely on State contributions or reduce CMAQ or Enhancements funding. Those bills may create a much stronger disincentive for States to improve air quality and reduce greenhouse gas emissions.

Question 2. Some critics of the CMAQ program claim that the program has done little to improve the Nation's air quality. How do you respond to this criticism? What additional recommendations do you have for ensuring that CMAQ funds are spent on projects and programs that reduce air pollution for mobile sources?

Response. In response to your question, and a similar question from Senator Baucus, asked during the March 19, 1997 ISTEA reauthorization hearing before the Transportation and Infrastructure Subcommittee, EPA initiated an assessment of the pollution emission reductions from the CMAQ program. EPA analyzed the impact of the CMAQ program in reducing air pollutant emissions of volatile organic compounds (VOC), carbon monoxide (CO), and oxides of nitrogen (NO_x) under ISTEA and in the Administration's NEXTEA reauthorization proposal. Data used in this analysis came from estimates of emission benefits and funding obligations reported by the States to the Federal Highway Administration (FHWA) and published in FHWA's CMAQ Program Annual Report for fiscal year 1994. A complete copy of the assessment is enclosed. The key conclusions from the assessment are outlined below.

The CMAQ program under ISTEA, is projected to reduce VOC emissions by 52,135 tons per year, CO emissions by 336,349 tons per year, and NO_x by 62,406 tons per year. Under NEXTEA, annual CMAQ emission reductions could grow substantially to 165,151 tons per year of VOC, 856,166 tons of CO, and 275,837 tons of NO_x.

Under NEXTEA, the projected emission reductions from CMAQ could have a significant effect on improving urban air quality. For example, by 2005, CAA requirements for on-road vehicles will have reduced VOC emissions by approximately 888,000 tons per year, while CMAQ is projected to reduce VOC emissions by 104,200 to 165,151 tons per year. While NEXTEA ends in 2003, emission reductions are estimated to 2005 since this is when projects funded in 2003 are expected to produce results.

The CMAQ program may help keep emission trends moving downward even though VMT increases are projected—around the turn of the century—to reverse the downward emissions trends realized through vehicle emission controls, cleaner fuels, and existing ISTEA programs. Figure 2, in the enclosed report, illustrates EPA's different estimates of emission trends from on-road vehicles with and without CMAQ.

By 2005, CMAQ VOC emission reductions could equal 10 to 16 percent of total on-road vehicle emission reductions for the period 1995 to 2005 (Figure 3). For NO_x and CO, CMAQ would contribute 11 to 23 percent, and 8 to 10 percent, respectively of total emission reductions.

METROPOLITAN CMAQ EMISSION REDUCTIONS

EPA has also undertaken a study of the role CMAQ can play in helping individual metropolitan areas improve air quality and attain compliance with CAA requirements. The initial results from this study show the important contribution made by CMAQ funded traffic control measures: In the three serious ozone nonattainment areas in Texas (Houston-Galveston-Brazoria, Beaumont-Port Arthur, and El Paso), CMAQ VOC emission reductions from fiscal year 1995 projects equal 6 tons per day, or 15 percent of the 40 tons per day required by the State Implementation Plans (SIPs) for these areas. For California's six nonattainment areas, fiscal year 1995 CMAQ projects reduce VOC emissions by 13 tons per day, or 19 percent of the 69.5 tons per day required by the SIPs for these areas.

EPA has undertaken an effort to incorporate the emission reductions achieved in *voluntary* emission reduction programs, such as CMAQ funded TCMs, into the State Implementation Plan (SIP) process. We are just now beginning to fully understand the potential benefits of CMAQ projects, and therefore our ability to accurately predict and give credit for the emission reductions is in very early stages. Some reports are already available so that local governments can begin acting now. We have given grants to the California Air Resources Board and to the Washington-Baltimore Council of Governments in order to apply scientific methods to the quantification of emission reductions. These more rigorous studies will take place over the next year and will help us develop our policy principles and methodologies for estimating emission reductions so that States can apply them to their programs and claim credit in their SIPs.

EPA is also working with States Ad MPOs in an effort to streamline the process for incorporating traffic control measures, like those funded by CMAQ, into their SIPs. For example, Portland, Oregon and Boston, Massachusetts have included TCM substitution mechanisms in their SIPs, with the assistance of EPA Regional Offices. EPA will be releasing guidance by the end of 1997 that will assist States and cities in developing mechanisms to substitute TCMs in approved SIPs.

EMISSION REDUCTIONS FROM CMAQ PROJECTS

Individual CMAQ-funded programs also are estimated to have air quality benefits including reductions in volatile organic compounds (VOCs), oxides of nitrogen (NO_x), carbon monoxide (CO), and particulate matter (PM₁₀). The following table summarizes CMAQ's air quality benefits for fiscal year 1994.

Estimated Air Quality Benefits of CMAQ-funded Projects

Pollutant	Number of projects affecting given pollutant	Maximum impact of any one project (kg/day)
VOC	659	86,182
CO	374	36,986
NO _x	453	6,132
PM ₁₀	64	1,059

It is important to note that CMAQ project expenditures range from a few thousand dollars (for programs like installation of bicycle lockers) to millions of dollars (e.g., for rail transit improvements). Modest impacts per project do not represent low effectiveness. Instead, they represent allocation of funds to many small projects rather than a few expensive projects. Such allocations may be an efficient use of resources, especially if CMAQ funding is used to leverage funding from other sources. The high estimates of some projects suggest that there is potential for CMAQ funding to have significant impacts on a per-project basis.

A recent analysis of air quality benefits by the Federal Highway Administration (FHWA) showed that estimated emissions benefits of CMAQ projects vary little by project type.² This finding suggests that no single type of project is most effective in all cases. Enhanced inspection and maintenance programs, however, did show the greatest emissions benefits of all projects in recent years. Air quality benefits attributed to specific CMAQ projects are discussed below. The CMAQ project categories shown here are those used by FHWA in their analysis, and at least one example per category is provided below:

²Federal Highway Administration, *CMAQ Program Report for fiscal year 1994. December 17, 1995. P. 10.*

ENHANCED INSPECTION AND MAINTENANCE (I&M)

I&M programs reduce emissions by detecting and repairing vehicles that are serious emissions violators. It is estimated that of the cars on the road today, a disproportionately low percentage are responsible for 50–60 percent of the fleet's emissions. CMAQ funds have been used to update quality assurance software, construct diagnostic facilities that utilize a treadmill test rather than stationary test, purchase equipment, and develop mechanic training curricula. I&M programs have reported some of the largest air quality benefits of all CMAQ projects, including the following:

Enhanced implementation of an inspection and maintenance (I&M) program, including development of an upgraded computer system, by the New Jersey Division of Motor Vehicles was estimated to reduce VOC emissions by 86,182 kg/day. This was the highest estimated emissions reduction of any CMAQ program in fiscal year 1993 and 1994.

The Indiana Department of Environmental Management used CMAQ funds to aid implementation of enhanced I&M in four counties classified as ozone non-attainment areas. They estimated that enhanced I&M would reduce VOC emissions by 7,518 kg/day, CO emissions by 8,890 kg/day, and NO_x emissions by 4,800 kg/day.

In Delaware, enhanced I&M facilities in Wilmington and New Castle County were estimated to reduce VOC emissions by 1,978 kg/day, and an enhanced facility in Dover, Delaware was estimated to reduce VOC emissions by 1,288 kg/day.

TRANSIT IMPROVEMENTS

Transit improvements can enhance air quality by encouraging people to reduce vehicle travel. In addition to service expansion, another effective type of program has been the replacement of old transit buses with more modern, less polluting vehicles. In a number of cases, alternative fuels, such as methanol, compressed natural gas, liquefied natural gas, or electric vehicles have been used. For example:

Boise, ID used \$3.8 million in CMAQ funds to replace 28 of its outdated diesel buses with a fleet of small- and medium-sized buses powered by compressed natural gas (CNG). The new buses produce 9 percent less CO, resulting in a reduction of 84 kg/day, and reduce PM₁₀ by 10 kg/day.

TRAFFIC FLOW IMPROVEMENTS

Traffic flow improvements, such as signal coordination and retiming and incident management, can reduce congestion. These projects can be particularly effective at ameliorating CO "hot spots," locations with high levels of CO, which are often caused by vehicles idlings at congested bottlenecks. For example:

Major traffic signal system improvements and retiming in the Denver, CO region were estimated to reduce emissions of VOCs by 500 kg/day and CO by 5,500 kg/day.

SHARED RIDE SERVICES

Shared ride services include vanpool or carpool programs, parking areas for people using these services, and programs to match drivers and riders. An example of a successful program is:

In Nashville, TN, the "Ride Instead of Drive, It's Easy" (RIDE) program, makes it easy for solo drivers to join a carpool or vanpool. CMAQ funds were used for RIDE's outreach activities as well as to supplement the van fleet for the HOV corridor. The program was estimated to eliminate 102 kg/day of VOC emissions in 1994.

PEDESTRIAN AND BICYCLE PROGRAMS

Pedestrian and bicycle programs include the creation of trails and bicycle storage facilities, improved pedestrian walkways, and promotional activities designed to encourage these forms of transportation:

In Cleveland, OH, the Greater Cleveland Regional Transit Authority (RTA) built an elevated, climate-controlled walkway connecting Tower City Center, Cleveland's main transit station, to the new Gateway Sports and Entertainment Complex. By shielding fans from inclement weather and street traffic, the walkway encourages use of public transportation, while decreasing roadway congest-

tion. The project was estimated to reduce emissions of VOCs by 12 kg/day, CO by 74 kg/day, and NO_x by 18 kg/day.

PROJECT SELECTION

Your question also asks for our recommendations on how to help ensure that CMAQ funds are spent on projects and programs that reduce air pollution from mobile sources. There are three important changes proposed under NEXTEA that will help with this goal: First, NEXTEA would allow nonattainment areas under the newly proposed NAAQS to be eligible for CMAQ funds. Second, NEXTEA would amend the CMAQ provisions to encourage the selection of projects that produce long-term sustainable air quality benefits, as well as short-term air quality benefits. The proposed language is:

SEC. 1020 (b)(4) In selecting eligible projects for advancement, both the short-term effectiveness and the long term sustainability of air quality benefits should be considered, and priority must be given to implementing those projects and programs that are included in an approved State implementation or maintenance plan as a transportation control measure that will have air quality benefits.

Finally, NEXTEA would reduce the Federal cost-share for signalization and carpooling projects from 100 percent to 80 percent, making them compete on an equal basis with other CMAQ projects.

THE EMISSION REDUCTION POTENTIAL OF THE CONGESTION MITIGATION AND AIR QUALITY PROGRAM¹

OVERVIEW

The Congestion Mitigation and Air Quality Improvement Program (CMAQ) provides funds to states for projects designed to help attain and maintain the national ambient air quality standards (NAAQS) set under the Clean Air Act (CAA). CMAQ was created in 1991 by the Intermodal Surface Transportation Efficiency Act (ISTEA), and Congress is now considering reauthorization of ISTEA. This report analyzes the impact of the CMAQ program in reducing air pollutant emissions of volatile organic compounds (VOC), carbon monoxide (CO), and oxides of nitrogen (NO_x) under ISTEA and in the Administration's NEXTEA reauthorization proposal. Data used in this analysis came from estimates of emission benefits and funding obligations reported by the states to the Federal Highway Administration (FHWA) and published in FHWA's CMAQ Program Annual Report for fiscal year 1994.²

KEY CONCLUSIONS

- The CMAQ program, under ISTEA, is projected to reduce VOC emissions by 52,135 tons per year, CO emissions by 336,349 tons per year, and NO_x by 62,406 tons per year (Table 1 and Figures 1a-c)³ Under NEXTEA, annual CMAQ emission reductions could grow substantially to 165,151 tons per year of VOC, 856,166 tons of CO, and 275,837 tons of NO_x. These estimates represent the cumulative reductions from CMAQ projects funded through 1997 and 2003. Projects funded after 1997 are assumed to achieve improved effectiveness compared to projects funded prior to 1997.

- Under NEXTEA, the projected emission reductions from CMAQ could have a significant affect on improving urban air quality. For example, by 2005, CAA requirements for on-road vehicles will have reduced VOC emissions by approximately 888,000⁴ tons per year, while CMAQ is projected to reduce VOC emissions by 104,200 to 165,151 tons per year. While NEXTEA ends in 2003, emission reductions are estimated to 2005 since this is when projects funded in 2003 are expected to produce results.

- While increasing VMT threatens to reverse air quality gains made through ISTEA programs and through cleaner cars and cleaner fuels, Figure 2 suggests that

¹ For additional information concerning this report, please contact Ken Adler, U.S. EPA, 260-6925, or Camille Mittelholtz, U.S. DOT, 366-4861.

² Federal Highway Administration. "The Congestion Mitigation and Air Quality Improvement Program: A Summary of Third Year Activities (FY 1994)." December 1995. (As of the date of this analysis, the fiscal year 1995 report had not been released.)

³ These estimates are slightly higher than the estimates released by EPA and DOT on May 7, 1997 because of a correction in the amount of funds available for CMAQ.

⁴ U.S. EPA, National Air Pollution Emission Trends. EPA-454/R-95-0111. October 1995. These emission estimates reflect existing and projected regulatory requirements as of 1994.

CMAQ may help keep emission trends moving downward. Figure 2 illustrates EPA's different estimates of emission trends from on-road vehicles with and without CMAQ.

- By 2005, CMAQ VOC emission reductions could equal 10 to 16 percent of total on-road vehicle emission reductions for the period 1995 to 2005 (Figure 3). For NO_x and CO, CMAQ would contribute 11 to 23 percent, and 8 to 10 percent, respectively of total emission reductions.

- Estimates of emission benefits CMAQ program are sensitive to assumptions about the effectiveness of individual projects. There is a large range in the estimated effectiveness of CMAQ projects funded in fiscal year 1994. The balance of this report address these issues, and provide information to place the data in the proper context.

ESTIMATED POTENTIAL EMISSIONS EFFECT OF CMAQ

The report presents potential tons of pollutants reduced through the CMAQ program when it reaches its potential effectiveness. FHWA analysis shows that obligation rates have risen rapidly since the inception of the program. As states become more familiar with the CMAQ program and institutionalize procedures to select projects, the effectiveness of projects is expected to increase. This analysis assumes steady State conditions under which the program has ramped-up to potential effectiveness. To coincide with the ISTEA legislative cycle, the years 1997 and 2003 was selected for analysis, and CMAQ spending was assumed to be equal to the annual obligation levels for CMAQ. Emission estimates for ISTEA and NEXTEA, however, are reported for 1999 and 2005, respectively, because projects are assumed to take 2 years to reach their full effect. Emission estimates were derived by dividing deflated CMAQ expenditures by a range of effectiveness estimates for each project type. A more detailed description of our approach is provided in the Methodology section.

Lower and upper bound estimates are presented in the analysis for the 2000 to 2005 year estimates. The lower bound estimate assumes that the typical project funded will be as effective as the median or 50th percentile project in 1994. For the upper bound estimate we assume that project effectiveness increases moderately, beginning in 1998, as states and metropolitan areas learn more about the administration and impact of CMAQ projects. For the upper bound we assume that the typical project will be as effective as the 60th percentile project in 1994. (The 60-percentile project is more effective than 60 percent of projects, on a dollar per ton basis, and less effective than 40 percent.) Corresponding to the large range in effectiveness estimates, there is a large range in the estimated national emissions effect.

METHODOLOGY

This analysis involved estimating the potential effectiveness, by project type, of all CMAQ projects in fiscal year 1994 where CMAQ emission reductions and expenditures were reported by states. These effectiveness estimates were then used to develop a range of estimates for potential national emissions reductions associated with the CMAQ program to be expected in 1999 (ISTEA), and 2005 (NEXTEA).

The methodology for this analysis is detailed below:

1. Project effectiveness was calculated for each project and pollutant by dividing fiscal year 1994 CMAQ project expenditures by estimated tons of each pollutant reduced per year. Since The CMAQ data base presented emissions reductions in kilograms per day, daily reductions were multiplied by 240 days per year to calculate annual reductions, assuming most projects affect workweek travel. This assumption is conservative, i.e., tends to underestimate emissions reductions since many projects—such as enhanced inspection and maintenance (I&M) programs and traffic flow improvements—affect travel every day of the year.

2. The projects were then grouped into the six project categories according to classifications under the CMAQ Program guidance: traffic flow improvements, transit, shared ride, demand management, bicycle and pedestrian, and I&M and other.

3. For each project category, projects were then ranked by effectiveness in order from highest to lowest for each pollutant. Projects were ranked in separate analyses for each pollutant. Projects with no reported emissions reductions (including those with emissions increases) were excluded from these rankings.⁵ The projects at the

⁵It would be incorrect to assume no emissions reductions occur for projects that report no omissions benefits. For example, these projects may have been located in areas that were in attainment for the non-reported pollutant. Projects that resulted in increased emissions were

Continued

50th and 60th-percentile were selected. The project at the 50-percentile is the median project—half of all projects were less cost-effective and half were more cost-effective. The 60-percentile project is more cost effective than 60 percent of projects, and less cost-effective than 40 percent.

4. The average life of the projects was based on a methodology developed by California's Department of Transportation and the California Air Resources Board for estimating emissions effects of CMAQ projects. The average for the range was used in this analysis:

- Traffic flow improvements—12.5 years (average of 5–20 years)
- Transit—12 years (average of 5–12 years)⁶
- Shared ride—14 years (average of 8–20 years)
- Demand management—12.5 years (average of 5–20 years)
- Bicycle and Pedestrian—20 years
- I/M and Other—5 years (not estimated in the California methodology)

5. Total year 1997 and 2003 Federal CMAQ expenditures were calculated for each category of spending. According to the President's reauthorization proposal for ISTEA, \$1.3 billion would be authorized and \$1.047 billion would be obligated annually for CMAQ for fiscal year 1998–2003. The table below provides annual obligation rates. For the analysis, those dollar values were converted into 1994 dollars⁷ since the cost effectiveness estimates represent omissions reductions per 1994 dollar spent:

CMAQ Obligations (millions of dollars)

FY 1992- Actual	FY 1993- Actual	FY 1994- Actual	FY 1995- Actual	FY 1996- Actual	FY 1997- Estimate	FY 1998- Estimate	FY 1999- Estimate	FY 2000- Estimate	FY 2001- Estimate	FY 2002- Estimate	FY 2003- Estimate
340	601	815	950	939	878	1047	1047	1047	1047	1047	1047

6. The proportion of spending for each project type was assumed to be the same as in 1994:

- Traffic flow improvements—34.1 percent
- Transit—40.4 percent
- Shared ride—4.3 percent
- Demand management—4.6 percent
- Bicycle and Pedestrian—2.1 percent
- I&M and Other—5.5 percent

7. Annual CMAQ expenditures for each category of projects were divided by various effectiveness estimates (computed in steps 3 and 4), in dollars per ton, to estimate a range for the tons of pollutants reduced nationally.

CAVEATS

While this analysis provides an order-of-magnitude approximation of *potential* emissions benefits from CMAQ funding, it is important to note a few significant caveats for this analysis:

Accuracy of reported emissions estimates is uncertain.

Emissions estimates associated with CMAQ-spending are reported by individual states. Since Federal guidance imposes no uniform approach, each State performs air quality analyses using its own methods, and quality control and quality assurance mechanisms. Analyses may use different underlying assumptions, emissions estimation methodologies, and types of data. FHWA has noted that occasionally numbers were reported that appeared unreasonable and required extensive follow-up. In some cases, it was not possible to obtain better information, and these figures were deleted by FHWA from their data base. It is not clear to what extent, if at all, the states have taken into account the secondary effects of projects. For example, it is possible that traffic flow improvements that reduce travel times, and mass transit projects that reduce congestion levels could lead to induced travel that would

dropped from the analysis since negative cost-effectiveness values are not meaningful in this context.

⁶The mid-range estimate for transit projects appears low, given that many rail projects can last 25 to 35 years, so the upper bound estimate was chosen for transit.

⁷A GDP price deflator was used to convert the current-dollar CMAQ obligations for each year into constant 1994 dollars. The 1992–1995 GDP deflators were calculated from *Economic Report to the President, 1996*. The 1996–2003 GDP deflators were calculated from GDP price index growth rate projections reported in CBO's *The Economic and Budget Outlook: Fiscal Years 1998–2007* (January 1997, Table 1–1).

reduce emissions effectiveness. It is also possible that an interconnected bicycle path system could be much more effective than the sum of the individual bicycle paths.

This analysis deals with uncertainties in estimating CMAQ effects by performing statistical analysis using the entire data base of projects, rather than pre-selecting an individual project or case study for analysis, which may or may not be representative of most projects. This analysis also uses a range of estimates in order to deal with the uncertainty in individual estimates.

No emissions estimates are reported for a number of projects.

About 77 percent of all CMAQ projects reported quantified emissions reductions. Many of these projects reported emissions reductions for fewer than all four pollutants (VOC was the pollutant reported most often). Projects with no reported data for individual pollutants were dropped from the ranking of projects when selecting the 50- and 60-percentile projects within each category. Dropping these projects may have eliminated some projects with small impacts and lowered the effectiveness of the 50- and 60-percentile projects. However, it would not be appropriate to assume that no emissions reductions occur for projects that do not report emissions benefits. These projects may have been located in areas that were in attainment for the non-reported pollutant. Non-attainment areas would be expected to target funding to projects that help them reach attainment status.

Nine (9) percent of CMAQ funds were spent by states that did not have any non-attainment areas. This analysis uses the conservative assumption that CMAQ spending in states without any non-attainment areas does not result in emissions reductions. This assumption tends to underestimate CMAQ's effectiveness. Since states are expected to target CMAQ funds toward projects that help them meet attainment, emissions reductions would be proportionally larger in non-attainment and maintenance areas.

Timing of emission reductions

There is significant variation in the nature of benefits of CMAQ-projects. In particular, some projects may have multiple-year impacts, e.g., replacement of old transit buses with cleaner ones, development of bicycle facilities, and improvement of signalization, while others have one-time effects, e.g., operating costs for park-and-ride lots or vanpooling service. For some projects, it may take many years to reach full benefits while for others the effect may occur immediately. For analytic purposes we assumed that projects would need 2 years to reach effectiveness. The data base of CMAQ projects does not provide information on the duration of benefits or peak year for benefits. This analysis projects emissions estimates under steady-state conditions in which the CMAQ-program has 10 years to reach potential effectiveness.

FHWA guidance suggests that emission reductions for each project be estimated for the year when the implemented project is expected to realize its maximum benefits. Some projects may require multiple years in order to reach full impact, in which case there will be some interim years in which the emissions impact of spending is less than in subsequent years. For example, CMAQ funding has been used to help establish Transportation Management Organizations, which may not yield reported impacts for a number of years. In addition, 1994 projects that continue to produce benefits in 2005 may be on-average less effective than the 50- or 60-percentile projects. As a result, the total emissions benefits estimated using the assumption of multiple year impacts may overstate the total benefits that would occur in 1 year.

Assuming only 1-year effects for each project, rather than multiple-year effects, underestimates the total emissions reductions in 2005 since many projects from prior years will continue to have an emissions effect in 2005 (for example a park and ride lot funded in 1998 will produce benefits in 2005). To estimate cumulative/steady State emission reductions in 2005, this analysis sums emission reductions from all potential projects initiated between 1992 and 2003.

It is also important to note that some projects reported in the fiscal year 1994 DOT Annual CMAQ Report do not report the total CMAQ funds needed for the projects. This can occur when a project is funded over a 2- or 3-year period. If a large number of projects were funded over a multi-year period it would lead to an over-estimate of the emission reductions from CMAQ projects. To assess the magnitude of this problem we reviewed 3 years of CMAQ project data from Pennsylvania and California. While 9 percent of the Pennsylvania projects were multi-year projects, they only accounted for 2.7 percent of the emission reductions. California's multi-year projects only accounted for 2.5 percent of the state's emission reductions. To adjust for multi-year projects, we reduced total emission estimates by 2.5 percent.

EFFECTIVENESS OF CMAQ PROJECTS IN 2005

Predicting future effectiveness associated with transportation control measures (TCMs) in general is not certain. On the one hand, the effectiveness of a particular type of project may decrease in the future since each vehicle mile of travel (VMT) reduced will result in fewer grams of pollution reduced (since the average vehicle on the road will be cleaner, due to stricter emission regulations, and emit less pollution per mile traveled). On the other hand, each dollar spent may affect more vehicle miles since projected increases in travel and congestion nationwide may mean that a particular project, such as rideshare services, reduces more VMT. This analysis estimated the potential of the CMAQ program in 2005 using the effectiveness of the 50- and 60-percentile of projects in fiscal year 1994. Our upper bound assumption, supported by our analysis of the California and Pennsylvania data (see table below), is that as the program continues, States will become more effective at targeting CMAQ funding, and so projects are likely to have higher than the median 1994 cost effectiveness in future years.

Change in Cost Effectiveness

	5-year signal+hwy project life		10-year signal+hwy project life	
	1993	1996	1993	1996
VOC:				
California	\$15,630	\$9,121	\$11,301	\$7,437
Pennsylvania	72,734	28,181	44,076	19,848
NO _x :				
California	20,192	11,756	16,813	10,008
Pennsylvania	99,084	27,588	93,706	24,667

This analysis is also conservative in that it assumes spending will continue to be apportioned among the six categories of CMAQ projects in the same manner as in 1994. That is, this analysis does not assume that funding shifts to the more effective categories of projects, only to more effective projects within each category. The assumptions used on this issue tend to underestimate potential effectiveness.

Costs measured in this analysis only account for Federal expenditures on CMAQ.

For most CMAQ-funded projects, Federal CMAQ-funds are only a portion of total project costs. For our analysis the CMAQ portion of the project costs was used as an intermediate step to analyzing the potential effectiveness of CMAQ funding in the future. We were not attempting to assess the relative cost-effectiveness of different types of project. As a result, the effectiveness estimates should not be confused with cost-effectiveness estimates that include total costs. The analysis presented here assumes that the CMAQ program leverages other funds that would not have otherwise been spent on these projects. That is, if CMAQ-spending were reduced, the states would not spend money on these projects. CMAQ projects often have substantial State and other funding sources. For example, \$1.9 million in CMAQ funds contributed to total project costs of \$6.4 million for a Freeway Service Patrol (to clear highway incidents) in San Francisco. CMAQ contributed \$7.3 million out of \$13.7 million in total project costs to build an elevated pedestrian walkway connecting Tower City Center transit station to the Gateway Sports and Entertainment Complex in Cleveland. In some cases, CMAQ funds have been used to pay for most or all of project costs. For example, CMAQ provided \$1.7 million out of \$2.2 million for a transit operating assistance project in Ventura County, CA.⁸ Some TCMs have financial costs for the private sector as well.

Projects have different levels of effectiveness at reducing various pollutants.

This analysis estimated potential effectiveness based on individual analyses of the 50- and 60-percentile projects for each pollutant. In reality, a project that is near the top in effectiveness for one pollutant may be average or near the bottom in effectiveness for another pollutant, measured in terms of CMAQ expenditures per ton of emission reduction. Metropolitan areas would be expected to target funding priority to projects that help them meet attainment status. As a result, regions may select projects that most effectively reduce pollutants of their concern. However, at the national level, it may not be possible to achieve the full potential of CMAQ reported for all pollutants. Targeting projects that are highly effective in reducing one pollutant

⁸U.S. Department of Transportation. *CMAQ, Innovation in Transportation & Air Quality: Twelve Exemplary Projections* (FHWA-PD-016).

ant often results in less effectiveness at targeting the others. For example, 33 CMAQ-funded projects that reduce VOC and CO were expected to result in *increased* emissions of NO_x. This is true for a number of traffic flow improvement projects, since increasing travel speeds often reduces VOC and CO, but increases NO_x emissions. These findings stress the importance of examining CMAQ from a regional perspective—since regions can target funding to help implement their transportation/air quality plans—rather than solely from a national emissions inventory perspective.

Figure 1a. Estimated On-road Vehicle VOC Emission Reductions from CMAQ

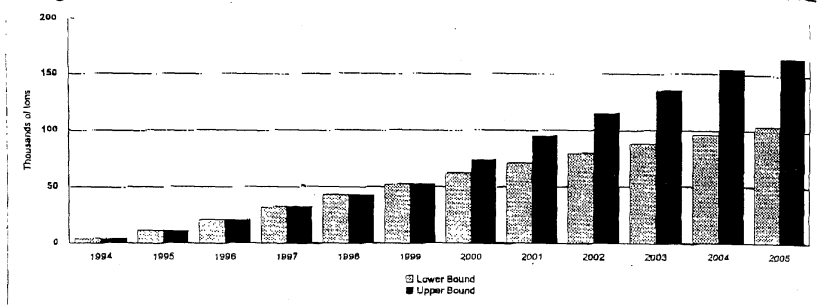


Figure 1b. Estimated On-road Vehicle CO Emission Reductions from CMAQ

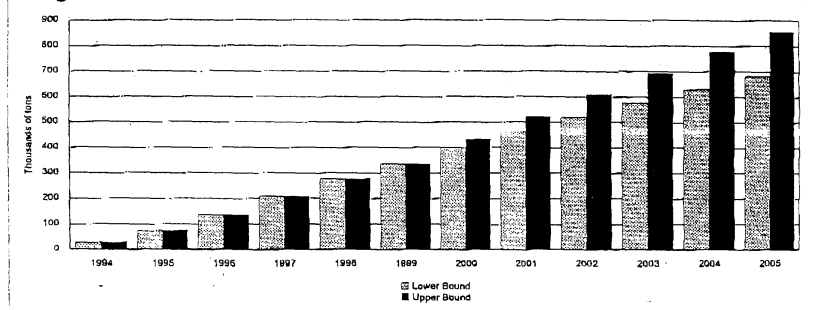


Figure 1c. Estimated On-road Vehicle NO_x Emission Reductions from CMAQ

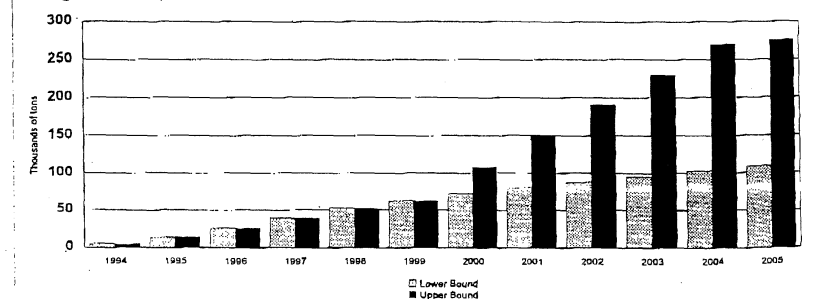
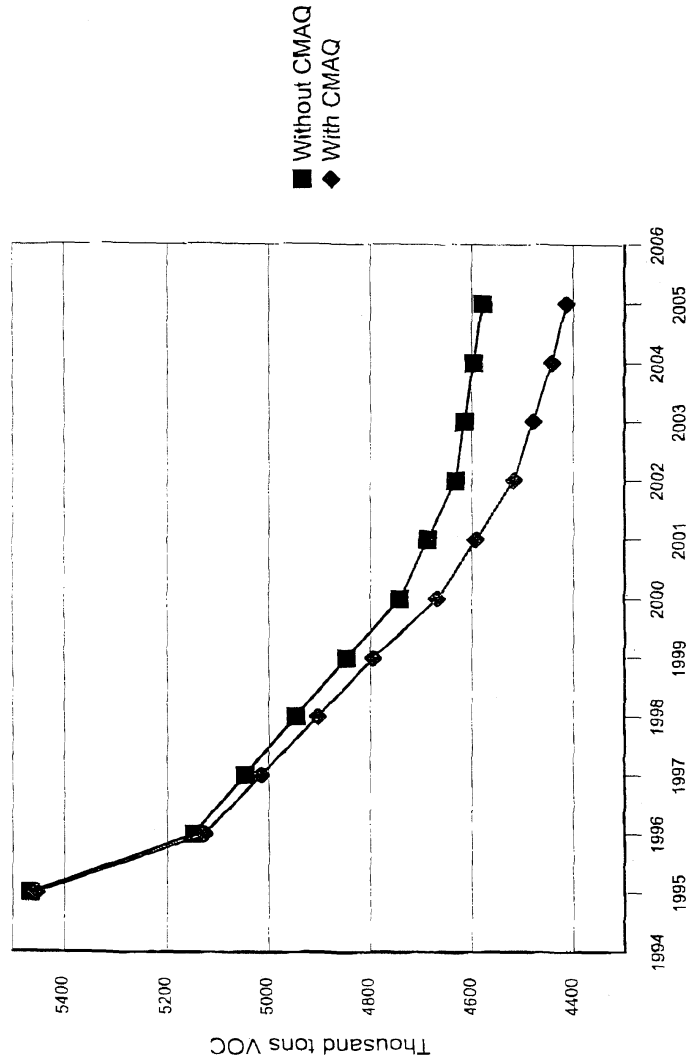


Table 1. Estimated On-road Vehicle Emissions Reductions from the CMAQ Program (tons reduced per year)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Volatile Organic Compounds (VOC)														
Lower Bound	0	0	4,263	11,607	21,338	32,438	43,284	52,135	62,061	71,209	79,796	88,180	96,485	104,200
Upper Bound	0	0	4,263	11,607	21,338	32,438	43,284	52,135	62,061	71,209	79,796	88,180	96,485	104,200
Carbon Monoxide (CO)														
Lower Bound	0	0	27,437	74,707	137,343	208,769	277,955	336,349	401,584	462,252	519,554	575,487	630,740	682,494
Upper Bound	0	0	27,437	74,707	137,343	208,769	277,955	336,349	401,584	462,252	519,554	575,487	630,740	682,494
Oxides of Nitrogen (NOx)														
Lower Bound	0	0	5,201	14,160	26,033	39,576	52,686	62,406	72,447	80,888	88,217	95,419	102,764	108,979
Upper Bound	0	0	5,201	14,160	26,033	39,576	52,686	62,406	72,447	80,888	88,217	95,419	102,764	108,979

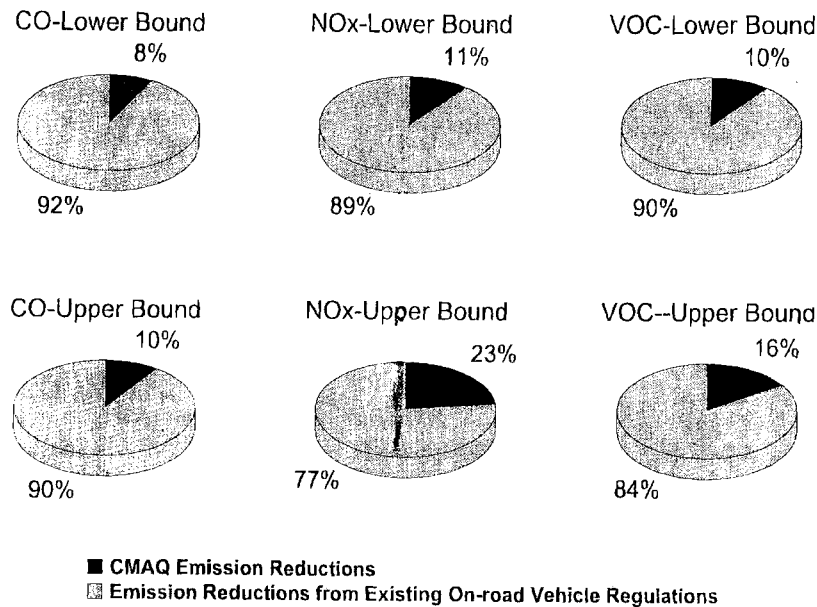
These estimates represent the cumulative reductions from existing CMAQ projects funded through each year. Emissions reductions were calculated based on the cost-effectiveness of the 50th percentile projects in FY 1994 for obligations in FY 1992 to FY 1997. The Lower Bound, projects obligated in FY 1998 to FY 2003 are assumed to remain as cost-effective as the 50th percentile FY 1994 projects. The Upper Bound, projects obligated in FY 1998 to FY 2003 are assumed to be as cost-effective as the 60th percentile FY 1994 projects. Please refer to memo for assumptions.

Figure 2. Estimated VOC Emission Trends from On-Road Vehicles



U.S. EPA. National Air Pollutant Emission Trends. EPA-454/R-95-011. October 1995. These estimates reflect existing and projected regulatory requirements, as of 1994.
U.S. EPA. Emission Reduction Potential of the CMAQ Program—Preliminary Assessment. May 1997.

Figure 3. Estimated Emission Reductions from On-road Vehicles--1995 to 2005



PREPARED STATEMENT OF THOMAS WALKER, EXECUTIVE DIRECTOR, WISCONSIN ROAD BUILDERS ASSOCIATION, ON BEHALF OF AMERICAN ROAD AND TRANSPORTATION BUILDERS ASSOCIATION

INTRODUCTION

I am pleased to be here with you this morning. My name is Thomas Walker. I am Executive Director of the Wisconsin Road Builders Association, a state affiliated chapter of the American Road and Transportation Builders Association.

The American Road and Transportation Builders Association (ARTBA) represents 4,000 member organizations in the nation's transportation construction industry, including construction contractors, professional engineering firms, heavy equipment manufacturers, and materials suppliers. Our member companies employ more than 500,000 people in the transportation construction industry in the United States.

Prior to joining WRBA last May, I was employed for almost 10 years in the Wisconsin Department of Transportation. For much of that time, I served as Executive Assistant to the Secretary, with responsibility for Departmental policy development and planning. In that capacity, I played a major role in developing Wisconsin's Clean Air Act compliance strategy, and oversaw the development of Wisconsin's first multimodal transportation plan, in response to ISTEA. I also served as the Administrator of the Division of Planning. I am currently a member of the Wisconsin Department of Natural Resources' Clean Air Task Force and the TRB Committee on Statewide Multimodal Planning.

Without question, the reauthorization of the Intermodal Surface Transportation Efficiency Act (ISTEA) is the single most important legislative issue this year for the transportation construction industry. The content of the new ISTEA will determine the future not only of our industry, but shape the nation's mobility and help determine the competitiveness and productivity of our national, state, and regional economies.

Within ISTEA, planning and environmental issues will be a major determiner of investment policy. We applaud the committee's interest in taking a close look at both the policy and process issues involved.

VALUE OF STATE AND LOCAL PLANNING

First, let me strongly endorse ISTEAs emphasis on state and metropolitan planning. By improving the planning process, we can find better solutions to the mobility challenges we as a nation face.

I would like to share with the committee a few key conclusions I reached in my work at Wisconsin DOT and use them to help amplify key ARTBA recommendations.

LIMITS TO MODAL SHIFT DOCUMENTED

The first point I would like to emphasize is how limited is the potential for modal shift from highways to passenger rail, urban transit, and other alternatives to driving.

Wisconsin's statewide multimodal passenger plan includes ambitious new intercity bus service as well as both conventional and high-speed rail passenger service. If implemented, these would clearly improve mobility and travel choice. But they will barely impact forecasted auto travel. Without these rail and transit improvements, intercity auto trips are forecasted to grow 22 percent. With them, auto trips will still grow 21.2 percent.

The corridor with the highest potential for high speed rail, between Milwaukee and Chicago, has been recently studied in depth. Currently, it is served by 6 daily round trip Amtrak trains, traveling at conventional speeds. One alternative studied included 14 round trips daily, offering virtual hourly service at high speed, cutting travel time by 50 percent. As a result, rail passenger ridership in the corridor would grow by 400 percent. However, that is still a very small percent of corridor travel. Motor vehicle travel on the adjacent 1-94 corridor would still grow by 56 percent, just slightly less than the 59 percent growth forecasted if there were no improvement at all in rail passenger service. And additional highway capacity in this critical corridor would still be required.

The conclusion we reached is that improvements in rail and transit service are important. They improve access, and add choice. But they cannot substitute for feasible highway improvements, because they produce remarkably small modal shifts. Highway travel growth in a single year will usually more than outpace the modal shift forecasted for the entire 20-year planning period.

The Southeastern Wisconsin Regional Planning Commission is the MPO for 7 southeastern Wisconsin counties, six of which comprise a severe ozone non-attainment area. Its updated 2010 plan, completed in 1994, called for a 70 percent increase in transit miles of service, comprising a 40 percent increase in transit service hours. This major investment will primarily improve job access, but is nevertheless forecasted to generate only 14 percent more transit trips and have virtually no impact on regional modal split. Consequently, the MPO plan also includes significant new investments in highway capacity, needed to avoid gridlock and keep the region economically competitive.

Is Wisconsin unique? Hardly! At the Department, we looked at MPO plans around the country, especially those containing major commitments to transit system development. Even in metro areas like Portland and San Diego, whose plans call for a very ambitious doubling of transit trips, modal shifts will be minimal. For each new transit trip, there will still be more than 10 new auto trips.

In short, the highway-transit tradeoff assumed in much of ISTEAs is simply not there in most cases. Investments in alternatives to highways are important, but cannot substitute for or come at the expense of continued highway investment.

For these reasons, ARTBA strongly encourages the removal from Federal planning requirements any bias against highway capacity projects. States and MPO's should have the full flexibility to plan for mobility solutions that work regardless of mode.

We also encourage the repeal of the MPO financial feasibility requirement. Limiting plans to current revenues precludes good planning. MPO's should be free to develop multimodal plans that require expanded investment levels, and then use those plans to persuade all levels of government to respond with appropriate resources. If the committee believes some limit is appropriate, then we suggest that a requirement for state and MPO endorsement of the plan's financial element should suffice. If these public agencies are willing to endorse new revenues, should Federal rules prevent them from taking that leadership role?

We also encourage the elimination of the Major Investment Study requirement in most cases. If an MPO determines through its comprehensive planning process that a highway or transit capacity solution is needed, and that selection is endorsed by both the state and transit operator, that should suffice. ISTEAs planning rules place

far too many hurdles in the way of highway capacity projects, through seemingly endless alternative analysis, wasting both time and financial resources.

TRANSPORTATION AND AIR QUALITY

Let me now turn to air quality issues.

When Congress passed the Clean Air Act Amendments of 1990, it included the requirement to evaluate and include Transportation Control Measures, or TCM's, in State Implementation Plans. ISTEA funded TCM's by creating the CMAQ program.

The basic assumption was that reduction in auto usage would be a critical element in air quality attainment and maintenance.

Since 1991, we have learned a great deal more about ozone formation, the effectiveness of various ways to reduce ozone precursors from the mobile sector, and the real potential to reduce vehicle travel growth.

I would like to recount our experience in Wisconsin. Our base 1990 VOC inventory included 160 tons of VOC's on hot summer days. Due to the combination of new tailpipe standards, Stage II vapor controls, enhanced inspection and maintenance and reformulated fuel, we have reduced mobile sector VOC's from 160 tons daily to about 66 tons today, with projections of a continuing decline to about 30 tons in 2007, despite VMT growth. That 81 percent reduction is due almost 100 percent to technology, not a modal shift.

Last year, the MPO and state Departments of Transportation and Natural Resources evaluated the full range of Transportation Demand Management strategies and concluded that full implementation of the regional transit plan and other strategies, would produce a year 2007 benefit of only 0.3 additional tons, beyond that which technology would otherwise produce.

By comparison, the year 2007 benefit of the 49-state car proposed by U.S. auto manufacturers would reduce mobile sector VOC's by another 10 tons daily, and VOC's would continue to decline through at least 2020.

What then, should we conclude?

First, how significant is the transportation conformity requirement to achieving ambient air quality standards attainment? If the potential for significant modal shift through transportation program choices is minimal and if the relative air quality benefits of behavior change strategies is minimal, should the requirement be continued at all? Should it be narrowed to apply only to very large urban areas, where there is some modal shift potential? Does rural conformity make any sense? How about in small metro areas?

SHOULD CMAQ CONTINUE?

Is the underlying premise for a CMAQ set-aside still valid? Will CMAQ investments contribute significantly to air quality attainment? In southeastern Wisconsin, our MPO has calculated that, of the 94 tons reduction in mobile sector VOC's, CMAQ funded projects contributed about 100-200 pounds (not tons!), or about one one-hundredth of 1 percent, per year, and at a very high cost per ton of VOC reduction. Might not the public be better served by redirecting CMAQ funding into highway and transit projects in all states, not just those with non-attainment areas? Should CMAQ be funded from the Highway Account at all?

If Congress believes that additional mobile sector emissions reductions are appropriate, then ARTBA is recommending that Congress mandate the production of the 49-state car, precisely because it would be extremely effective in reducing emissions that dwarf the air quality benefits of CMAQ.

REPEAL HIGHWAY FUNDING SANCTIONS

When the Clean Air Act Amendments of 1990 were passed, Congress included two types sanctions, stationary source offset requirements and withholding of highway funds, to compel states to comply with the Act's requirements. Highway funding sanctions are not only needed to reduce atmospheric pollutants from mobile sources, they are counter productive.

Loss of highway funding, ironically, can delay highway projects that improve traffic flow and reduce emissions. Thus, application of highway funding sanctions can exacerbate air pollution problems that the sanctions are intended to help solve.

Highway funding sanctions can be imposed for conditions over which non-Federal authorities have no control, such as ozone transport from other jurisdictions. And they can be imposed for Title V violations that have nothing to do with transportation.

We hope that Congress will reconsider this onerous provision, especially in light of the Environmental Protection Agency's recent proposals to tighten the nation's air quality standards for ozone and particulate matter. Depending on the standard ulti-

mately chosen by EPA in its final rule, the number of new nonattainment areas could double or triple. In fact, we believe that at least 800 counties across the Nation will be placed in nonattainment status for at least one of requirements proposed. And this estimate probably is low since many rural and smaller urban areas currently do not have ozone or PM monitors. Many of these presently unmonitored areas are likely to show violations of the new standards once monitoring begins. In addition to these new areas, existing nonattainment areas would find themselves facing even more difficult goals.

The fact of the matter is that the mobile sector has contributed most of the reductions in ozone precursor over the last decade. On a national scale, emissions from highway vehicles of carbon monoxide, VOCs and nitrogen oxides during the period 1986-1995 decreased 20 percent, 31.2 percent and 2.2 percent, respectively, despite a 32 percent increase in highway vehicle miles traveled during that period. Adoption of the 49-state car and its tightened tailpipe standards will assure that these trends continue, and at a cost far lower than any combination of TCM's.

Air pollutant reductions such as these have resulted in a concomitant increase in the quality of our air across the nation. The number of poor air quality days in the nation's 20 largest urban areas, for example, decreased by 60.7 percent from 1986 to 1995. Reductions in highway vehicle emissions during that timeframe accounted for 86 percent of the overall reduction in carbon monoxide and for all of the reduction in VOC concentrations.

Thus, empirical evidence indicates that mobile sources have made and continue to make remarkable progress. Our nation does not need the disruptions of highway funding sanctions and the obstacles of transportation conformity to make progress on clean air.

SINGLE OCCUPANCY VEHICLE LIMITATIONS

We recommend that Congress remove the requirement that projects which increase capacity for single-occupant vehicles in ozone and CO nonattainment areas be part of an approved congestion management plan. This requirement creates administrative burdens, increases cost and wastes time for no benefit. An MPO should have the flexibility to decide if and where highway capacity is needed, on its own authority, and include those improvements in its adopted plan.

REVISED MPO PLANNING PROCESS

Traditionally, and very appropriately, the MPO's primary focus has been on comprehensive urban mobility within the metro region. The state DOT's primary focus has been on intercity and inter-regional transportation through and between metro areas, including a major focus on commercial freight movement.

In each metro area, it is clearly in the national interest to encourage the close coordination of both objectives.

The metropolitan transportation plan must coordinate both objectives.

To assure this, I am suggesting that the committee consider re-defining the metropolitan planning process as a joint state-MPO process. The final adopted plan should require the endorsement of both entities.

In ISTEA, Congress appropriately required the approval of the Governor for MPO TIP's, to assure that both objectives are balanced in the project programming process. Since programs must derive from plans, ARTBA urges that the Governor's approval also be required for MPO plans as well, since these will shape the long-term program in each metro area.

INTELLIGENT TRANSPORTATION SYSTEMS

To help curb air pollution resulting from traffic congestion, ARTBA favors highway-related solutions like construction of additional capacity to the highway system where appropriate, development of Intelligent Transportation Systems (ITS), and implementation of traffic management solutions like ramp metering, increased real time signage, improved emergency road service, and better coordination of traffic signals.

OBSTACLES TO TIMELY PROJECT COMPLETION CONCERNS

There also are several other environmental and planning issues about which we have concerns. While they presently are not issues directly on point for ISTEA reauthorization, let me just mention a couple of them, because the ISTEA reauthorization process may provide us with opportunities to address them.

We find it unacceptable that it frequently takes 7 years or, in many cases much longer, to bring badly needed transportation projects on line. The environmental as-

assessment process embodied in the National Environmental Policy Act needs to be improved. Federal agencies with standing need to be required to participate in the NEPA process within reasonable timeframes and there needs to be a point for final resolution authority among competing public interests. The process also needs to be made more definitive, so that only legitimate issues are considered, rather than allowing the process to be used as a tool for stopping needed public projects by endless investigation and process-oriented litigation.

Let me relate a situation that occurred recently in Wisconsin that dramatically illustrates these points. In June 1995, the Federal Highway Administration issued a Record of Decision on a major new interstate bridge over the St. Croix River, which links Wisconsin and Minnesota. That ROD was based on more than 10 years of formal EIS investigation. Overall, the project was studied for 30 years.

Without warning, just several weeks before bids were to be advertised, the National Park Service decided that necessary permits should be denied because the new bridge would have unacceptable scenic impacts on the value of the river. Until then, the NPS had numerous opportunities to raise objections within the EIS process and to be a part of evaluating solutions, but instead chose to remain silent until the eleventh hour.

At this point, the project cannot proceed, despite the fact that the existing bridge is an aging two-lane drawbridge that carries 17,000 vehicles daily. With forecast demand rising to 40,000 vehicles daily by the year 2017, the failure of the NPS to participate constructively in the environmental assessment process is unconscionable. Yet the current provisions of NEPA allow such situations to occur.

Other Environmental Planning Statutes. Similar problems exist with the Endangered Species Act, the Clean Water Act, Section 7 of the Wild and Scenic Rivers Act, and several other environmental planning statutes. There are many reasonable modifications to these statutes that could be suggested to improve environmental planning processes. For example, the Endangered Species Act should require consideration of economic values in listing decisions, critical habitat designations and development of recovery plans, and it should require landowner compensation for diminished land values due to listing decisions. The Clean Water Act should clarify in law the definition of wetlands and require recognition of wetland functional values in delineation determinations and calculations of mitigation requirements. It should limit the timeframes available to the Corps of Engineers to process 404 permit applications and eliminate EPA's 404(c) veto authority over the Corps. And it should require landowner compensation for diminished land values due to Section 404.

Because this hearing is focused on the environmental aspects of ISTEA, I will not go into further depth regarding these matters. However, in light of the inability of Congress to address such issues in reauthorization of these other major environmental statutes, I believe the committee should consider addressing such issues during the ISTEA reauthorization process.

CONCLUSION

While I only have time to cover some of the changes we think need to be made in the ISTEA reauthorization process, I think you can see that this is a vitally important and very active area for us. Thank you for inviting me here today. I will be happy to respond to any questions you might have.

RESPONSE OF THOMAS WALKER TO ADDITIONAL QUESTIONS FROM SENATOR CHAFEE

Question 1. NEXTEA continues the requirement that transportation plans be financially constrained. You testified that this requirement precludes good planning. How does the financial constraint requirement adversely affect good planning?

Response. By virtually all accounts, the United States is severely underfunding its highway and transit systems. Continuing the current level of investment will predictably result in continued system deterioration and continued negative impacts on mobility and choice.

Therefore, any plan constrained to *current* funding will inevitably fail to meet current and emerging needs.

It may be quite useful and revealing for MPO's to document the damaging consequences of inadequate investment in highways and transit, to show the necessity of increased resources.

Good planning, however, should document a coordinated highway/transit strategy that adequately serves forecasted travel. This will require *increased* funding. If Federal law continues to constrain plans to available funding, then Federal law is vir-

tually dictating that the nation's metropolitan transportation systems should continue to deteriorate.

Good professional planning should inform Federal, state, and local political decisionmakers on the best mix of investments to handle emerging travel trends, based on land use and development plans. That information is critical to responsible decisionmaking at all levels of government.

Good planning can and will then reveal the financial investment level required to meet those emerging needs. By comparing that to current funding levels, then decisionmakers can readily decide whether to provide the necessary additional funds, or accept the negative consequences to mobility and choice.

Without a change in Federal law, it will be virtually impossible for MPO planners to include major investments in their plans, that require new funding. This restriction will be particularly onerous for transit, since many metro areas are dependent on unpredictable discretionary Federal capital grants for system development. These funding levels are not in their existing revenue inventories.

Question 2. Your testimony states that several environmental and planning issues present obstacles to timely project completion. What issue poses the most significant barrier and how could it be modified without adversely affecting the environment?

Response. I believe that the most significant barrier to timely project completion is the conflicts and delays that have stymied the original intent of the NEPA process.

Without a doubt, NEPA is sound public policy. It is extremely important for decisionmakers to understand the impacts of proposed projects before deciding to proceed, and if so, to use that information to shape the scope of the final project, so that it avoids or minimizes undesirable environmental impacts.

However, the evolution of subsequent legislation in other areas, court decisions, and general practice and Federal rulemaking have resulted in an extremely costly, time-consuming process that is used time and again by project opponents to interminably delay or block projects, no matter how much mitigation or avoidance is included.

Attached is a "not-so-simple" schematic of that process as it has evolved, published by the Transportation Development Association of Wisconsin. Very frankly, it is used by many Wisconsin legislators to point to as an example of overly invasive Federal law. Here are some suggestions for reform:

Clarify That NEPA Requires Disclosure, Not Outcomes. Too often, extensive, costly litigation occurs to prevent outcomes undesired by individuals or groups. Congress should clarify that NEPA does not prohibit a decision for a project to proceed, as long as adequate evaluation of the impacts occurs and appropriate tradeoffs to protect the environment are incorporated, and *balanced with mobility goals*.

Clarify strengthen the role of U.S. DOT. Federal law should give to U.S. DOT the final responsibility for project approval in all cases, after appropriate consultation with other agencies. Federal law should clarify that U.S. DOT's role is to advocate for mobility, just as other agencies have explicit missions. Independent project vetoes subsequently enacted and held by EPA, the Corps of Engineers, the National Park Service, etc. should be repealed, and replaced with a single mandate for a collaborative, consultative process. Federal agencies should be required to identify their issues early in the process. This should ensure that all issues are examined simultaneously and appropriate tradeoffs that serve the public interest are chosen.

Eliminate Opportunity for Agencies to "Blackmail" FHWA/FTA. The most critical problem today is that even with early involvement, "single-focus" agencies are often unwilling to compromise, allowing them to hold up or veto the project, or insist on extreme mitigation often unrelated to the project purpose, to "buy" approval. In these cases, project costs soar, through interminable studies and/or excessive mitigation. As long as multiple agencies have approval rights, the problem will not be solved.

One-stop Shopping. FHWA/FTA can and should be able to issue all Federal permits and a final record of decision, in effect creating a "one-stop shopping" mechanism for project approval.

State Certification Should Be Sufficient. Currently, there is far too much oversight/approval by multiple Federal agencies. Federal agencies are usually in no position to second-guess the project-level detailed decisions made by State agencies, under State laws and processes. It should be adequate to require State DOT's to certify that they are complying with Congressional mandates, with periodic process reviews by U.S. DOT.

Eliminate Redundant Requirements. A good example is Section 4f (Parklands). This prohibition was enacted prior to NEPA. The NEPA process should suffice to require a thorough examination of alternative locations.

Require Agencies to Develop Their Own Resource Inventories. A major problem is that far too often, resource agencies insist on a project paying to inventory and assess potentially impacted resources. This takes a great deal of time and funding. If these inventories are critical, Congress should provide funding and mandate their creation. Lack of inventories should not delay project approval.

Limit Secondary Land Use Impact Analyses. Increasingly, projects are being delayed by a requirement to assess (and mitigate/prevent) secondary land use impacts. First, Federal law should not be used to usurp State and local land use decision-making. And second, the methodology to assess secondary land use impacts is both highly controversial and very immature. In short, the science to do this kind of analysis is weak and inexact, yet critical projects are being delayed by a Federal process that is being used to pre-empt State and local land use decisionmaking. Predicting the secondary land use impacts of projects is not possible, and even if it were, should a State be prevented from deciding to proceed?

Develop a "Streamlined" Model EIS. Increasingly, EIS's have become virtually encyclopedias, so long that practically no one ever reads them. Is this useful? Cost-effective?

Congress should require FHWA/FTA to develop a more streamlined model EIS, that can customarily be completed in less than a year, and at a cost not to exceed, say, 2 percent of projected project costs.

Courts should be required to consider both time and cost in evaluating requests for additional analysis.

Question 3. On page three of your testimony, you refer to a bias against highway projects. Could you please elaborate what you mean?

Response. My point is that ISTEA seems to set up hurdle after hurdle that highway capacity projects must get over, before they can proceed. The same kind of barriers do not seem to be present for other modes.

Some examples include:

- Requiring that highway capacity projects in non-attainment areas can only proceed if part of an approved congestion management plan. All that should be required is that the project be included in a conforming plan and TIP. A good MPO plan will include all appropriate highway, transit, and demand management tools needed to handle forecasted congestion. The requirement is redundant.
- The MIS requirement for all urban capacity projects over a mile in length is patently absurd. The opportunity for modal tradeoffs occurs only in major corridors. This is simply a mechanism that wastes time and money.
- Rural conformity for highway capacity projects is a very cumbersome, senseless requirement. In virtually all cases, there is no transit alternative. The VMT projected will occur, with or without the project. The only impacts are marginal changes in speed or distance, none of which are likely to impact ambient air quality, given that violations are usually caused by transport.

Increasingly, due to these kinds of delays, the public sector is failing to keep up with market forces and the pace of economic change. In short, State and local agencies are no longer able to be proactive and timely in providing needed facilities.

As America deals with the productivity challenges posed by a global economy and accepts the increased penetration of "just-in-time" shipping to do that, the consequences of delay to projects that are needed to meet the demands of reliability and predictability could be devastating.

Highways are a big part of the economic development equation; making highway improvements happen, including capacity projects, is a goal Congress should expedite, not burden with regulatory hoops.

Question 4. Page five of your testimony questions whether the CMAQ program should even be funded by the highway account. According to EPA, highways account for 62 percent of the Carbon Monoxide emissions, 32 percent of NO_x emissions, and 27 percent of VOC emissions. Why is it not appropriate that the Highway Trust Fund pay for a trust fund that tries to mitigate these impacts?

Response. As I indicated in my testimony, all research I have seen to date shows that TCM's are very expensive tools to reduce auto-related emissions.

The issue is whether emission reduction benefits of CMAQ projects are cost-justified, from an air quality perspective. Yes, they do reduce emissions, but a what cost per ton? And how do CMAQ projects compare to alternative ways to reduce mobile-sector emissions, also in terms of cost per ton?

CMAQ seems to be the most expensive, least effective way to reduce mobile sector emissions. Mandating the 49-state car, improving the emissions content of reformulated fuels, developing electronic catalytic converters, and implementing other technology solutions have been repeatedly shown to be more effective, and far less costly than strategies that try to change travel behavior. That's why Congress repealed the ECO mandate.

I am convinced that current and emerging technology can and will ensure the continuing decline of mobile sector emissions through at least 2010, and in most urban areas, 2020. Forecasted VMT growth is projected to slow significantly by then.

If CMAQ effectively reduced highway emissions, then highway funding might make sense. The problem is that CMAQ does not. Fortunately, other strategies do.

Given this conclusion, it seems clear to me that competing highway priorities, where the benefits are clear, should take precedence for limited highway funding over CMAQ.

Question 5. Your testimony questions the success of the CMAQ program, because you claim it is not a cost effective way to reduce emissions. This appears to be an unfair comparison because it judges the success of the entire program based only on one of the benefits. CMAQ program benefits are not limited solely to emissions reductions. Would it also be fair to judge a new highway solely by safety benefits, excluding all other safety benefits? Your response is appreciated.

Response. This is an excellent question!

Certainly, like other highway and transit programs, CMAQ has multiple benefits, most of which outweigh its air quality impacts.

The problem is that CMAQ is a set-aside, strictly allocated only to current and prior non-attainment areas, and using a formula based on the severity of that area's non-attainment status.

CMAQ redistributes funds from 35 states, to 15 states, based SOLELY on the assumption that meeting air quality goals justifies this transfer. Obviously, this assumption is not warranted by the facts.

I believe that CMAQ has funded a number of worthwhile projects, primarily transit, but for other than air quality reasons.

The key policy question is whether those benefits should be denied to a community because it complies with air quality standards, and provided to another community, in the same state, because it violates those standards. The test MUST be whether CMAQ as a set-aside is justified on the basis of air quality, and nothing else. Highway funding goes to all states and to all communities.

In Wisconsin, the largest city, Milwaukee, receives CMAQ funding because it violates the NAAQS. Our second largest city, Madison, does not. Would not both communities benefit equally from the innovative program ideas developed under CMAQ?

As an alternative to a CMAQ set-aside, it seems quite logical for Congress to repeal CMAQ in its entirety, enhance both STP and transit funding equitably to all states, and expand the flexible use of those programs to projects currently eligible for CMAQ funding, at the discretion of states and local governments.

PREPARED STATEMENT OF HAL HIEMSTRA, VICE PRESIDENT FOR NATIONAL POLICY,
RAILS-TO-TRAILS CONSERVANCY

Good morning, Mr. Chairman and members of the committee, my name is Hal Hiemstra. I am the Vice President for National Policy at the Rails-to-Trails Conservancy, a national non-profit trails, bicycling and transportation reform organization with approximately 100,000 members and supporters. I also serve on Steering Committees for the Surface Transportation Policy Project and Bikes Belong! Campaign, and co-chair STPP's Transportation Enhancements Committee which includes among many others representatives of the National Trust for Historic Preservation, Scenic America, League of American Bicyclists, American Planning Association, and the American Institute of Architects. I want to thank you for the opportunity to address you this morning on issues relating to the reauthorization of the Transportation Enhancement provisions (TEP) of ISTEA.

Since the passage of ISTEA, Rails-to-Trails Conservancy (RTC) has maintained an ongoing dialog with State Departments of Transportation and projects sponsors about spending and implementation issues associated with the TEP. We track Enhancement money programmed, money matched, money obligated and money reimbursed. We also track projects funded and project spending by Transportation Enhancements Activity (TEA) category. Twice a year, RTC compiles the spending information into a comprehensive Enhancements funding report which details programmed as well as obligated and reimbursed funds by TEA category, and also documents the amount of local matching funds spent on transportation enhancement projects.

While I could speak at length about the successes nationally of the Transportation Enhancements Program, in the interest of time, today I want to share five main points with members of the committee.

(1) *First, transportation is about more than roads.* True, we all need and benefit from highway infrastructure, however bicyclists and pedestrians need safe on and off-road routes, sidewalks and convenient access to transit stations and other inter-modal transfer points as well.

An important eligible funding category of the TEP which speaks directly to the broader goals of ISTEA is the renovation of historic transportation facilities. Renovated transportation facilities have the potential to become focal points for new transit riders, increased Amtrak users and related commercial development.

Clearly, local community leaders want transportation-related projects that help to offset the strains that are sometimes imposed by highway infrastructure development. The Intermodal Surface Transportation Efficiency Act calls for public investment in a variety of transportation modes and types of transportation facilities. The Transportation Enhancements Program is helping to meet these broader transportation goals by directing just 1.7 percent of ISTEA's funds to projects which are helping to build diverse transportation infrastructure. (see Appendix A)

Investments in these types of facilities are what the American people want.

A new poll released in late February by the Bikes Belong! Campaign, a coalition of bicycle advocacy and industry groups, has found that a majority of Americans support the use of a portion of gas tax revenue for funding transportation enhancements. The bipartisan poll, conducted by Lake Research and the Terrance Group, found 64 percent of those polled favored using gas tax revenues for alternative transportation projects such as funding bike lanes, bike trails and sidewalks. The response increased to 70 percent when respondents were asked whether they also favored using Enhancement funds for related transportation purposes including renovation of historic train depots, scenic road enhancements and similar projects. And, a whopping 79 percent of the respondents supported using gas tax dollars to build safe places for children to walk and bicycle. According to a spokesperson for the Terrance Group, the poll data shows "that continued Federal support for alternative transportation projects is among the few topics upon which most Americans can agree.

(2) *Second, the Transportation Enhancements Program helps to stabilize and rebuild community infrastructure* by improving the quality of life in communities lucky enough to have received enhancement funding since 1991, and stimulating local economic development—both of which are goals associated with any type of transportation project. And, unlike many other types of transportation projects, Transportation Enhancement projects are actually very popular.

The Enhancements Program also responds to local priorities. Since enhancement projects tend to be small projects (the average Federal share is \$289,000), local community leaders have been able to play an important role in helping to define and design transportation enhancement projects. Because the program responds to local priorities, the Transportation Enhancement Program—perhaps more than any other new program created by ISTEA—builds new public support for transportation funding. In fact, the TEP has attracted more new players than any other program or provision of ISTEA. While enhancement opponents may see this phenomenon as a bothersome consequence of the program, these same individuals and groups are often the first to complain that there are not enough dollars for needed transportation investments. But, any increase in transportation spending is hard to imagine without broad—and growing—public support.

In addition to recruiting new supporters of transportation spending, the Enhancement Program is already bringing additional investments into the transportation sector by leveraging more than the required 20 percent local match. Nationally, the average local match for Transportation Enhancement projects is 27 percent—that's a 7 percent overmatch. Typically, the sources of funding for the overmatch come from non-traditional transportation partners including local governments, private foundations, or state agencies other than the DOT. This type of local hyper-investment speaks volumes about the level of commitment these communities and the local elected officials making tough spending decisions have for the Transportation Enhancements Program.

(3) *Third, the TEP has and continues to be successfully implemented all across the country.* Nationally, as of February this year, approximately 7,321 Enhancement Projects had been programmed for funding. Funds committed to these projects total some 80.6 percent of available money. For a variety of reasons TEP obligation rates are 53 percent and reimbursement rates fall to a disappointing 26 percent. Later in this testimony I will offer suggestions on ways to streamline the TEP in an effort to improve these obligation and reimbursement rates.

The attached pie chart (Appendix B) illustrates that just over 52 percent of funded projects are either bicycle/pedestrian or trail projects, and another 16.7 percent

are for projects which rehabilitate historic (and often in use) transportation facilities.

But numbers and statistics are sterile. What has the Transportation Enhancements Program really accomplished?

- Children in Jackson Hole, Wyoming now have a series of trails that converge upon their middle school allowing them safe routes to bicycle, walk or ski to school, and enabling their moms or dads to leave the car at home for at least two trips a day.

- One thousand Minnesotans a day now commute to work in Minneapolis on the Cedar Lake Park Bikeway which shares the corridor with a Burlington Northern mainline carrying coal from Montana to Chicago. By allowing this many people to arrive in Minneapolis through bicycling, walking or in-line skating, the need for another parking lot was eliminated preserving valuable greenspace in the central city.

- In heavily congested downtown business district of Indianapolis, Indiana enhancement funds were used for major infrastructure reconstruction involving curbs, sidewalks, streets, and landscaping. Without compromising traffic flow or the historic integrity of this National Road corridor, a "pedestrian friendly" downtown has been created for the more than 100,000 pedestrians visiting downtown hotels, restaurants, office buildings and retail shops on a daily basis.

- In Great Falls, Montana enhancement funds are helping to build the 5½-mile long Rivers Edge Trail which will provide new off-road transportation choices for students and residents of adjacent neighborhoods and communities along the Missouri River.

- The renovated rail depot in Danville, Virginia not only provides an inviting Amtrak station for today's passengers, but it has also anchored a deteriorating neighborhood and gives promise of restoring the city's downtown life.

- And, in San Francisco, enhancement funds are helping to redesign and construct the central passenger concourse of the National Landmark Ferry Building. By improving the intermodal connection between water and land based transportation options for commuters using the long-neglected Ferry Building, initial daily passenger numbers are projected to increase from 8,500 to 12,500.

But, the Transportation Enhancements approach has just begun to tap community needs for the kind of projects it funds. In fact, for every project programmed, nationally literally thousands of other eligible enhancements projects remain unfunded.

The Transportation Enhancement Program has not, however, glided effortlessly to its successes. Despite early reactions of bewilderment and denial by many of the 50 states, thanks to the efforts of FHWA staff, dedicated state DOT officials and enthusiastic private sector stakeholders, by mid-1993 every state had a TEP program up and running. To clarify a variety of implementation issues including concerns about project linkages to the transportation system, FHWA has issues or referenced 16 Enhancement guidance documents since 1991. (Appendix C) And, this committee enacted several implementation streamlining amendments in last year's NHS bill.

Despite these clarifying and streamlining steps however, the Transportation Enhancement Program has and continues to come under criticism as being too burdensome or for funding some projects which have less than obvious transportation linkages. When considering these criticisms, it is important to understand that (1) states were given tremendous latitude over the ways in which they could design their enhancements programs and their project selection process; (2) it is the state DOT or Transportation Commission which makes the final decision about which projects get funded; (3) it is important to separate the individual project from the overall TEP program; and (4) under current law, states are free to withhold obligation authority (OA) from TEP projects when OA levels are below state apportionments and many states do so using the Enhancements Program disproportionately to make up budgetary shortfalls. If complaints are being lodged about particular projects, the problem, if any, rests with the state designed project selection process, and does not reflect any structural problem with the Transportation Enhancements Provision.

(4) *Changes which could be made to strengthen and continue streamlining the TEP.* These recommendations are offered as the product of the STPP Transportation Enhancements Committee and have the endorsement of this broad coalition of partners. (See Appendix D for a more detailed outline.)

1. Make Enhancements a non-reimbursement program (i.e. a grant program at the request of the states);

2. Continue the innovative financing and soft match provisions enacted in the NHS legislation;

3. Explicitly allow TE program funds to be spent on overhead and staffing charges;

4. Require proportionate use of obligation authority;
5. Encourage the creation of State TEP Advisory Committees made up of TEA stakeholders;
6. Allow sole-source contracting with non-traditional partners in certain situations; and
7. Add a clear statement of policy about this important program.

If these changes were adopted as part of ISTEA II, effective implementation of the Transportation Enhancement Program would be accelerated, obligation rates would increase significantly, and issues of reimbursement could become moot in states choosing to take advantage of the advance payments option.

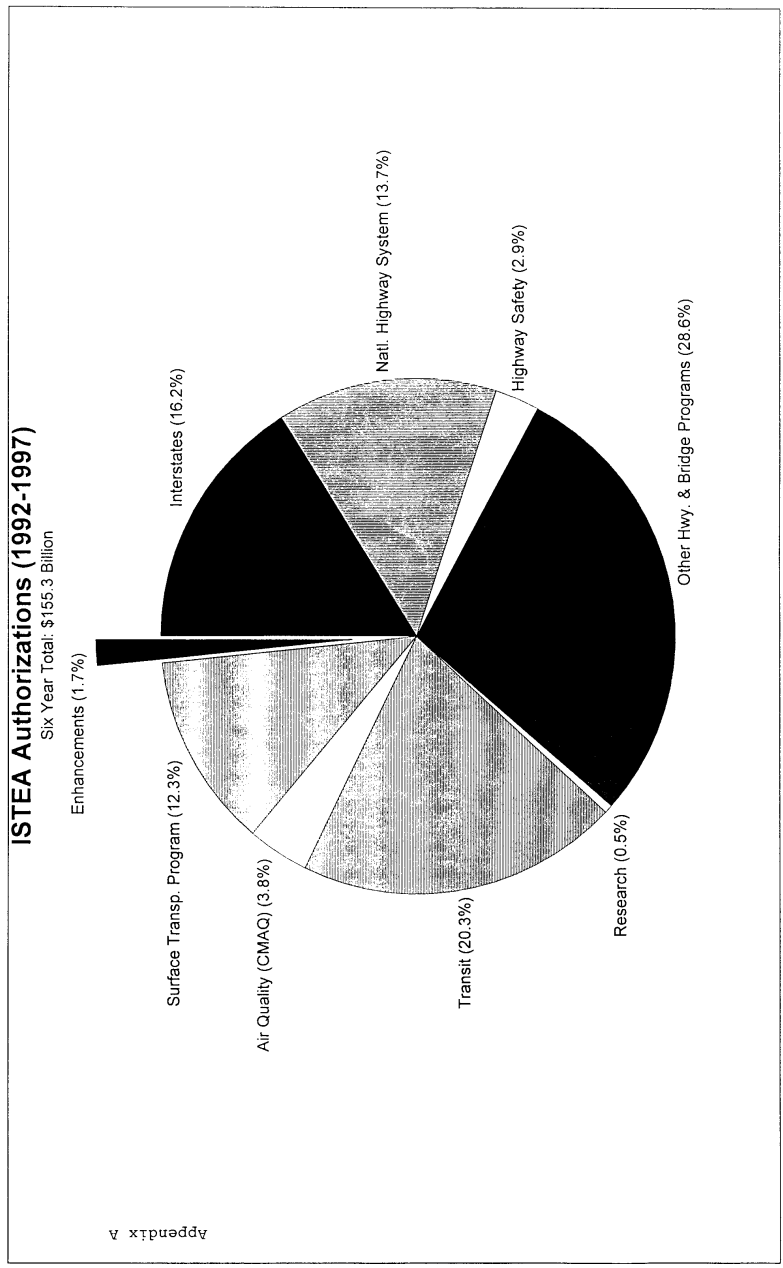
(5) *Fifth, and finally, we want to urge the committee in the strongest possible terms, to reauthorize ISTEA's Transportation Enhancement program as a dedicated program with assured levels of funding.* It is certainly my hope, and the desire of groups like Rails-to-Trails Conservancy and the Surface Transportation Policy Project that eventually we will not need a separate set-aside for the Transportation Enhancements Program. However, experience with the state DOTs across the country leaves us with little illusions about the program's future if it becomes simply "eligible" or is made "flexible." In most cases, the program would be gone within a year, 3 years at most.

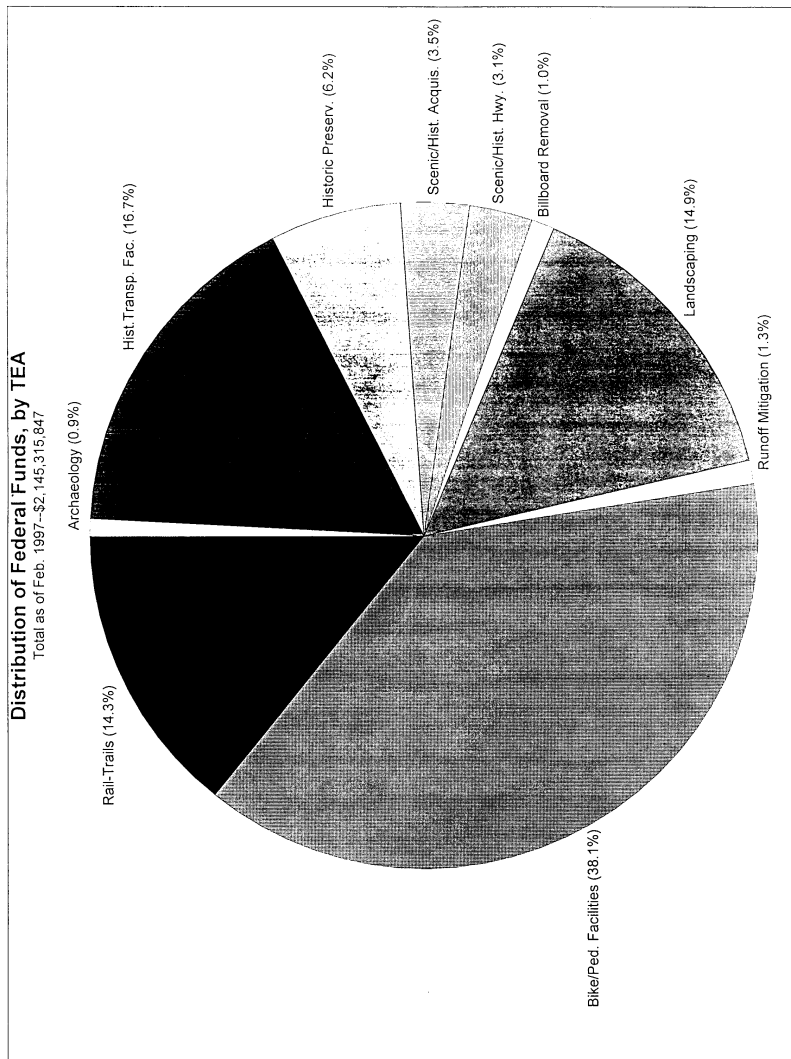
We are not alone in this surmise. At last summer's National Transportation Enhancements Conference sponsored by FHWA, AASHTO, the mid-Atlantic State DOT's, and various STPP partners, participants from 42 states signaled by a vote of 300 to 11 that their state DOT's led by those traditionally focused on building roads and highways would abolish enhancements if given the chance. The conference audience was comprised of approximately one-third local project sponsors, one-third private citizens, and one-third mid-level state and Federal DOT officials.

A GAO report on the status of Transportation Enhancements released in July 1996 further confirmed the urgency of maintaining dedicated funding for the program. All of the State transportation officials interviewed in the report acknowledged that the set-aside would have to be retained to ensure that enhancement projects would be implemented.

One final comment on the various ISTEA II bills now being considered by this committee. We are pleased that most of the bills include a dedicated Transportation Enhancement Program. While funding levels and program structure vary among the proposals (with the Administration's proposal significantly strengthening the TEP by providing a 29 percent increase in funding) enhancement supporters are gratified to see that many members of this committee recognize that 6 years of ISTEA has not been enough time for institutional transportation thinking to embrace an Enhancements philosophy. Clearly, Federal leadership is still needed and we support you in your efforts to provide it.

Thank you. I look forward to working with the committee to identify ways to make this already strong program even better.





FHwA Guidance for the
Transportation Enhancements Provisions
of ISTEA

1. Programmatic Agreement, Enhancements Historic Preservation Draft	Sep. 17, 1996
2. TE Procurement Comp. Bidding/ Common Rule	Nov. 12, 1996
3. Uniform Act and Trans. Enhancements Clarification "Voluntary Acq."	Nov. 01, 1996
4. NEPA Requirements for TE Categorical Exclusion Clarification	Oct. 28, 1996
5. NHSDA Sec.322 Donation of Funds, Mat. or Services (Match)	May 17, 1996
6. Advance Payment Option NHSDA Sec. 316	May 31, 1996
7. Uniform Act- Implementation Guidance NHSDA Sec. 315	Feb. 20, 1996
8. Historic Preservation- Eligibility for TE Funding	Jun. 06, 1995
9. Alternative Share for TE	Apr. 11, 1995
10. Applying Section 4(f)	Aug. 22, 1994
11. Davis-Bacon and TE	Jul. 28, 1994
12. Use of TE Funding for Active RR ROW- Pena Letter	Feb. 28, 1994
13. In-Kind Contributions & Soft Match for STP Enhancements	Nov. 17, 1992
14. TE Activities	Apr. 24, 1992
15. Procedures for Bike/ Pedestrian Projects	Aug. 07, 1991
16. Categorical Exclusions	Mar. 30, 1989

APPENDIX D

Proposed Changes to the Transportation Enhancements program in ISTEA II:
 1. *Making enhancements a non-reimbursement program.* We propose requiring DOT to advance funds to the states on a quarterly basis for this program so long as the state commits to following all relevant Federal requirements, and agrees to

an end-of year audit if USDOT feels one is necessary. This would make the program less of a burden for state DOTs to run, and would reduce the delays experienced by project sponsors trying to get their projects through the pipeline.

2. *Continuing innovative financing and soft match provisions.* Guidance issued by FHWA in 1995 to test innovative finance techniques has really helped the enhancements program. It has made the process of determining what expenditures can count as non-Federal match much more flexible, and this has allowed projects to move forward with less red tape. We propose that this authority be continued.

3. *Increasing allowable overhead charges.* Long-standing FHWA rules determine which costs state DOTs can charge against Federal funds. In general, any work or overhead that can directly be attributed to a federally funded project or a Federal funding program can be reimbursed on an 80/20 basis. However, as far as we can tell these requirements have been interpreted differently in different states. Because enhancement projects tend to be small (average size \$300,000) overhead costs make up a larger share of total funding than in other programs. Making it clear that states can charge these costs to the enhancements program (including up to 100 percent of the cost of employees who run the program consistent with the soft-match provisions described in 2 above,) would make it possible for states to allocate the staff resources necessary to get projects through the pipeline. This would be particularly helpful in states where state gas taxes can only be spent on road projects. This has been interpreted to mean that state funds cannot pay even the non-Federal share of flu salary of the people to run the program.

4. *Requiring proportionate use of obligation authority.* For the first 5 years of ISTEA, (FY92-96), enhancements funds were obligated at a 63 percent rate. This is in contrast to an average rate of obligation for all programs of 92 percent. Some (but by no means all) of this gap is due to delay in getting the program going in the first few years. To make matters worse, it looks as if the gap between authorized funding and obligation limitations may grow to several billion per year or more in the next few years. In this environment, it seems certain that many states would allocate this shortfall disproportionately to enhancements or other programs they have less than full enthusiasm for, like safety, CMAQ, IM and even Bridge. The obligation rate for enhancements could fall to near zero in such an environment. We are recommending that obligation authority be tied more closely to apportionments for all programs, but this is particularly necessary for enhancements. We propose that states be asked to maintain equal obligation rates over a 3-year average.

5. *State advisory committees.* Our review of the implementation of the enhancements program shows that, in most cases, the states with the best run, most popular and most effective programs are those that established broad-based advisory committees to help the state run the program. Although there are states without such committees that have good programs (i.e. Michigan) and states with them that have mediocre program (i.e. Ohio), in general the pattern holds true. We recommend that Congress ask those states that have not yet established such committees to do so.

6. *Allowing sole-source contracting with non-profits in certain situations.* The enhancements programs has brought new players into the process of suggesting projects for funding, but Federal contracting requirements make their formal participation difficult. We propose that in specific circumstances, non-profit community organizations that have played a unique role in suggesting a project for enhancement funding be eligible for sole-source contracts to advise the state on design, community participation or other aspects of the project for which they have unique status.

7. *Adding a statement of policy.* To give the program a greater feeling of legitimacy and sense of purpose without actually making it a full-fledge program, it might be useful to enact a clear goal statement.

PREPARED STATEMENT OF MEG MAGUIRE, PRESIDENT, SCENIC AMERICA

Thank you, Mr. Chairman and members of the committee, for the opportunity to present Scenic America's views on the reauthorization of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). As a founding member of the Surface Transportation Policy Project, Scenic America speaks today on behalf of a broad coalition of environmental, preservation, community, and other organizations.

Scenic America's mission is to preserve and enhance the scenic character of America's communities and countryside. Since our founding in 1982, Scenic America has worked to establish scenic conservation as an integral part of the transportation decisionmaking process. With a committed national membership and affiliates in

seven states, Scenic America is empowering communities to identify, preserve, and enhance their distinctive character and appearance.

We believe that while growth is inevitable, ugliness is not. An enlightened Federal policy toward transportation—which we trust ISTEA II will continue—is fundamental to any vision for conserving scenic beauty.

ISTEA created a new approach, making transportation the servant, rather than the master, of our communities. ISTEA brought new players to the table and offered citizens a meaningful role in planning interconnected transportation that helps communities work well.

ISTEA has also done much to conserve and enhance America's scenic heritage. Its innovative programs have helped to make hundreds of American communities more attractive and more livable. But there is still more to be done. Today I want to talk briefly about two programs in ISTEA that have succeeded even beyond their advocates' hopes—and an old program, the Highway Beautification Act, that, after more than 30 years has proven to be a dreadful failure badly in need of reform.

THE SUCCESS OF ISTEA

Scenic America supports the continuation of ISTEA's overall structure. Mr. Chairman, it is imperative that ISTEA's many positive programs be extended—and that ordinary Americans continue to have the chance to participate in transportation planning.

I would like to highlight especially ISTEA's transportation enhancements program and the National Scenic Byways Program—innovative measures that are making a big difference in America's communities.

I know that you have heard from many groups in favor of retaining a designated share of funding for transportation enhancements. We believe—and the evidence demonstrates—that this program has had significant transportation, economic, environmental, and community livability benefits. From rail-trail conversions to scenic byway conservation to preserving historic railroad stations, the transportation enhancements funds have done much to provide Americans with new transportation options, to protect scenic and environmental resources, and to improve the ways in which our roads and other transportation facilities serve communities.

Last June, as part of the National Transportation Enhancements Conference, Scenic America compiled a book on 25 of America's best enhancement projects. We were overwhelmed by the more than 85 exceptional projects nominated—projects that have made cities, towns and rural areas more livable, more attractive, and more prosperous.

The National Scenic Byways Program, another ISTEA innovation, is the first ever Federal effort to identify, preserve, and promote America's most scenic roads. A careful balance between locally based, locally driven conservation and economic development is at the heart of this program.

The scenic byways program is funded at just \$80 million over the 6-year life of ISTEA but yields far greater benefits. It provides citizens with a new tool to identify what is special in their communities and to take steps to preserve and profit from their distinctive character. The program recognizes some of America's most outstanding scenic roads, such as the Pacific Coast Highway. But it also recognizes roads with critical historic, cultural, and environmental qualities. For example, the Selma to Montgomery March Byway in Alabama commemorates the fabled civil rights march. And the Seaway Trail combines scenic vistas with the history of much of upstate New York.

Scenic America has worked actively with local and state groups to help make the byways program a success. For example, we are in a creative, privately funded partnership with the Georgia Department of Transportation and the Georgia Trust for Historic Preservation to establish a conservation-minded scenic byway program in that state. The program's advisory committee includes more than 40 state and local organizations, ranging from the Garden Clubs to the Southeast Travel and Tourism Society. More than 20 local groups have come forward seeking byway designation for roads they cherish.

Scenic America has also worked closely with state and local organizations in many other states, including Ohio and Pennsylvania. In both states—and in the many states that have received funds through the National Scenic Byways Program—local activists have found the scenic byways program to be a powerful tool that brings community stakeholders, who are often on opposite sides of debate, together to develop a common vision for their community and to take steps to attain that vision. Demand for funding is high. Last year, states applied for three times more money than was available.

Several times in recent years, the billboard lobby has urged Congress to change the existing program and to allow new billboards to be constructed on designated scenic byways. As the Senate has wisely recognized, the provision which bans new billboards on designated scenic roads is a small but significant, common-sense measure to keep our byways scenic. It is widely supported and it is working.

The 20 new National Scenic Byways and All American Roads are a valuable addition to the roster of national programs that identify our nation's rich scenic, historic, and environmental heritage. These roads will prove to be popular with tourists, foreign and domestic alike.

These two great success programs should continue in the reauthorized ISTEA.

FIXING THE HIGHWAY BEAUTIFICATION ACT

But on another issue that has a critical impact on our communities and countryside—billboards—we have been notably unsuccessful. Mr. Chairman, the Highway Beautification Act, meant to control billboards, is completely broken and must be reformed. America the Beautiful is disappearing bit by bit, day by day. And one of the biggest reasons is uncontrolled billboard proliferation. We can afford no further delay in putting the beauty back in the Beautification Act.

Currently, under the Beautification Act, an estimated 500,000 billboards line our Federal aid Interstate and primary highways. Five to 15,000 new ones go up each year—proliferation that could continue almost endlessly. Tens of thousands of trees on public land are clearcut to improve billboard visibility. And the states are losing millions of dollars administering the program.

We can quite literally see the problems with the Highway Beautification Act. Our roadsides have been called "tubes of the hideous," "interminable wastelands," and "like television, violent and tawdry." And a big culprit in the degradation of our scenic heritage is the Highway Beautification Act.

Americans intuitively know that, as a nation, we can have the growth and economic development we need without degrading the scenic resources we treasure. The places we cherish—where we'd most like to live, work, and visit—are also those places that have been very intentional about protecting their distinctive scenic character. It's no coincidence that Alaska, Hawaii, Maine, and Vermont are all renowned for their scenic splendor, and all four are billboard-free.

With each passing day, advancing technology provides new methods of communicating. Low-tech methods such as logo signs and tourist-oriented directional signs transmit vital traveler information without the visual pollution of billboards. Now, high tech tools like the Internet, in-car information systems, and emerging ITS technology will enable advertisers and consumers to communicate directly, cheaply, and efficiently, while preserving scenic vistas.

What do Americans think about billboards? Professional surveys conducted since 1990 make clear that Americans believe that enough is enough. For example:

- Sixty-three percent of Missouri residents favor a constitutional amendment to cap the number of billboards;
- Ninety percent of Florida residents believe that no new billboards should be built in their state;
- By a 2-1 margin, Rhode Islanders favored banning new billboards;
- By a three to one margin, New Hampshire residents opposed billboard advertising, and by a 2-1 margin favored outlawing billboards on state highways completely;
- In Houston, TX, 79 percent support the city's current law banning billboards; and
- Americans overwhelmingly oppose tree cutting for billboard visibility: 80-11 percent in New Hampshire, 75-25 percent in Florida, 80-17 percent in Missouri.

In addition, more than 200 communities annually fight to control billboards because they know that preserving and enhancing their unique character boosts their local economy and improve their quality of life.

Yet in spite of all the activism and concern, too often the message is not heard. The billboard lobby has, in fact, nearly perfected the art of fighting meaningful regulation. Listen to just two voices:

• A comment in the Mobile (AL) Register: "I managed for a large billboard company for 31 years . . . They are the poorest of corporate citizens. They have a massive local, state, and Federal lobby."

• From the U.S. General Accounting Office: ". . . states have expressed a feeling that, even if they were to pursue a strict policy in sign acquisition and control, FHWA would provide little support against a strong industry."

Even the regulators, it appears, can't be counted on to implement this program.

What can we do to fix the Highway Beautification Act? We ask Congress to do five things:

First put real controls on the number of billboards. Perhaps the biggest problem with the HBA is that it provides the illusion that billboards are controlled without actually controlling them. The HBA standards allow 106 billboard structures per mile on urban primary highways, 35 per mile on rural primary highways, and 21 per mile on rural Interstates—with no national maximum number of billboards.

This unlimited billboard proliferation is not beautification.

A 1996 Scenic America study of the 46 states that permit billboards, which we will release in early April, demonstrates that in most states the number of billboards is either rising or stable, and that nationally the number of billboards is rising by a minimum of 5,000 per year. An earlier study by the Congressional Research Service estimates the number at 15,000 per year.

In 1965, there were fewer than 330,000 standard billboards in all of America (The New Republic, April 23, 1966). Today, there are 500,000—50 percent more—just on the roads controlled by the HBA. And the number is still going up. Let's put a lid on billboard proliferation.

Second, protect rural areas from billboard blight. Under the Highway Beautification Act, thousands of billboards are already in rural areas; and more go up each year. In fact, since just a single business in an unzoned rural area means that new billboards can go up, billboard operators in Missouri, Montana, and elsewhere actually build sham businesses like unattended storage facilities just to get billboard permits.

Recently, the St. Louis Post-Dispatch found that the construction of sham businesses by billboard operators is common. What's more, while the billboard lobby publicly decries this abuse of the law, it has actively and vigorously opposed any and all attempts to make the state's law work.

In our survey, we found that over 85 percent of the states allow new billboards to be constructed in unzoned rural areas under this loophole—with tens of thousands of billboards already in place.

Third, protect America's roadside trees. Under the Highway Beautification Act, tens of thousands of roadside trees on public land are clearcut each year to improve the visibility of billboards. The billboard industry calls this "vegetation management." But, as the Rochester Democrat and Chronicle noted, "Having advertisers 'manage' our vegetation seems a bit like having the fox guard the henhouse . . . Not a good idea."

Despite the obvious conflict with the public interest, trees are destroyed under the HBA in more than 1,500 locations in over 20 states each year. Industry lobbyists have sought more permissive tree cutting regulations in New York, New Hampshire, Virginia, Kentucky, and Georgia in just the last 18 months.

Scenic conservation advocates have held the line in those states, but the fact is that ordinary citizens have a hard time being heard over the din of an organized, professionally run interest group like the billboard lobby.

Fourth, make billboard operators pay their fair share to use America's highways. Billboards are fundamentally users of our roads—turn a billboard around facing away from the road, and it's worthless. Yet, unlike other Americans, billboard operators pay no road user taxes, tolls, or fees for the privilege. What's more, the permit fees the states do charge fail even to approach covering state costs of controlling billboards. In our study, we found the states are running a \$6–10 million deficit each year in this program.

The cost of that deficit goes beyond simple dollars and cents. Without adequate funding, many states lack staff to administer the program. And without staff, control becomes lax. It is well known that without adequate funding many state DOTs pay only lip service to billboard control, resulting in spotty and ineffective enforcement of the HBA. As the General Accounting Office has noted, many states turn a blind eye even to known violations because the program has no teeth, and no one really cracks down on violators.

And twice in recent months, state DOT officials have told me that their states allow known illegal billboards to remain in place rather than incur the wrath of billboard operators.

Fifth, allow local communities to opt out of participation in the Highway Beautification Act. It is abundantly clear that the controls of the HBA are little more than a sham, standards that are little better than no standards at all.

We encourage the Congress to allow communities to decide not to participate in the Highway Beautification Act—to opt out, in effect. This would allow incorporated municipalities to determine for themselves what course of action they would take on billboard control. Strict or lax, it would allow local leaders to make the decisions

for local communities. But it would also allow communities to remain under the HBA, if they so choose.

Some communities might pursue a course stricter than the HBA, for example, amortizing nonconforming billboards. Others might allow more billboards than permissible under the HBA. But in either case, local leaders would make local decisions.

Sixth, ensure that policymakers and citizens have adequate information about the billboard issue. We learned in our survey that existing information is often fragmentary and hard to obtain. As a result, making good decisions about the HBA is inordinately difficult.

We call for two types of information to be made available: first, the Federal Highway Administration should develop and distribute a comprehensive annual billboard inventory. This inventory should include the full numbers of legal, illegal, and nonconforming billboards on Federal-aid highways. Such an inventory could draw a much clearer picture of the failures and successes of the Highway Beautification Act. Second, we urge the Department of Transportation to undertake a study of the effects of billboards and other roadside distracters on traffic safety. The majority of reputable studies on this topic have found that roadside blight distracts drivers and compromises traffic safety. But no such study has been undertaken in this country in nearly 20 years. Clearly, with new technologies available, it is time to develop conclusive information about this important issue.

Mr. Chairman, it is clear that the Highway Beautification Act does little to beautify our nation's highways. The industry points out that under the Beautification Act the states may enact more restrictive controls, and this is true. But, quite frankly, a Highway Beautification Act that allows virtually unlimited billboard blight and whose only redeeming quality is that it allows the states to enact real billboard control is not a Highway Beautification Act worth keeping.

We believe that there remains a strong national interest in protecting natural beauty and our communities from billboard blight. We therefore support an effective Highway Beautification Act.

Senator James Jeffords has introduced S. 401, the Scenic Highway Protection Act, to close many of the loopholes in the HBA and once again make beauty the cornerstone of the Beautification Act.

His bill is fair yet effective, and we urge you to include its major provisions in ISTEA. It would place a cap on the number of billboards on our Federal aid highway system, protect unzoned areas from new billboard blight, end tree cutting for billboard visibility, and place a gross revenue tax on billboards so that billboard operators, like the rest of us, will pay their fair share to use our national highway system.

America's beauty is one of its greatest assets. Thomas Jefferson wanted communities to be designed to foster maximum beauty in our daily lives. Our incomparable scenic beauty—urban and rural alike—has inspired artists, authors, and composers; it has shaped our values and our heritage. But beauty, like other precious resources, is fragile. Everyday beauty is no longer an everyday pleasure. More and more, scenic beauty is primarily for the privileged—a value we find only if we travel to distant places.

Mr. Chairman, the Congress has a great opportunity in ISTEA II to make a profound difference in the appearance of this country. Maintaining funds for enhancements, protecting scenic roads, and enacting real billboard controls will be significant steps toward conserving the Beautiful America we cherish. Thank you.

PREPARED STATEMENT OF HANK DITTMAR, EXECUTIVE DIRECTOR, SURFACE
TRANSPORTATION POLICY PROJECT

Mr. Chairman and members of the committee, thank you for the invitation to join you today to discuss transportation and environmental issues, particularly the Congestion Mitigation and Air Quality funding program. I am Hank Dittmar and I am Executive Director of the Surface Transportation Policy Project, a non-profit coalition of over two hundred national and local groups whose mission is to ensure that transportation policy and investments support the economy, the environment and people and communities. Among the environmental groups represented on our Steering Committee are the Environmental Defense Fund, Friends of the Earth, the Natural Resources Defense Council, the National Wildlife Federation and the Sierra Club. Two other coalition members are testifying today to discuss scenic and enhancement programs—Meg McGuire of Scenic America and Hal Hiemstra of Rails to Trails Conservancy.

The reauthorization of the Intermodal Surface Transportation Efficiency Act (ISTEA) may well be the most important piece of environmental legislation to be passed by the Congress in 1997. Federal investment in transportation is as critical

to environmental quality and quality of life as it is to economic competitiveness—and the American people want all three goals to be met. The ISTEA legislation crafted by this committee on a bipartisan basis in 1991 sought to meet the challenge of improving mobility and accessibility while protecting and improving the environment. The committee should build upon that solid foundation in 1997 by preserving and enhancing ISTEA's environmental provisions, especially the successful Congestion Mitigation and Air Quality program.

TRANSPORTATION AND THE ENVIRONMENT

Federal transportation investment affects environmental quality in many ways. The contribution of the transportation system to our nation's air pollution problem may be the most well documented of these environmental impacts. Although the country has made considerable progress through the Clean Air Act in decreasing the amount of pollution automobiles emit per mile, the continuing growth in driving is threatening to wipe out these gains. Cars and trucks emit 65 percent of carbon monoxide emissions and 47 percent of nitrogen oxide emissions. A study of 500,000 adults in 15 cities found that residents of regions with the most polluted air were 15 to 17 percent more likely to die prematurely than residents of cities with cleaner air. And evidence increasingly points to small particulates in exhaust, particularly diesel exhaust, as a prime cause of children's respiratory problems.

With respect to energy usage, almost two-thirds of the oils we use goes into cars and trucks. A decade ago, most of this oil was produced domestically. From 1980 to 1995, the amount of our nation's oil we imported rose from 27 percent to over 50 percent. Americans consume five times as much fuel as the average Japanese citizen and three times as much as the average European. Our consumption of foreign oil is the single largest component of our trade deficit.

Other environmental implications of the transportation program include global climate change—a problem drawing increasing international attention. In 1994, fully a third of all carbon dioxide emissions in the United States came from our transportation system. Road construction has direct environmental impacts as well—on water quality due to runoff, on the loss of farmland and open space, habitat and biodiversity. Truly Federal transportation policy is a critical component of national environmental policy. In creating a performance based planning process that incorporated environmental concerns and in dedicating funding to transportation environmental programs, ISTEA began the dual process of protecting the environment and improving mobility and environmental quality. This reflected a change in perspective and a recognition that citizens wanted both a good transportation system and a clean environment. ISTEA sought to fulfill both goals.

WE CAN'T BUILD OUR WAY OUT OF CONGESTION

The 1991 law recognized another fact—that an increasing body of evidence demonstrated that it was not possible to build our way out of congestion by adding new roads or widening roads. As Anthony Downs of the Brookings Institution concluded in his book *Stuck in Traffic*, “. . . building new roads or expanding existing ones does not reduce the intensity of peak hour congestion to any extent, particularly in rapidly growing areas, because commuters will quickly shift their routes, timing and mode of travel.” A recent national study in Great Britain supported Mr. Downs' conclusion. New evidence from researchers at the University of California concludes that adding road capacity may in fact induce new trips on the entire road network, finding that for each 1 percent increase in road mileage, there is a .9 percent increase in travel on the entire network. These studies are disturbing, as congestion in our metropolitan areas is not only annoying to those trapped in traffic jams, it represents a huge drain on our economy. The Texas Transportation Institute estimates economic losses due to congestion at \$48 billion annually.

If road construction is prescribed neither for improving air quality or reducing congestion, then it becomes imperative for the Nation to invest in alternative solutions. 1991's ISTEA law sought to do just that—by allowing the flexible use of highway funds and by dedicating \$1 billion per year into a new program, the Congestion Mitigation and Air Quality program (CMAQ). This program was designed to provide resources to states and localities who were working to meet the challenges of the 1990 Clean Air Act, thus funding a Federal mandate. The funding could be used to implement programs and projects which helped bring non-attainment areas into compliance with Federal air standards. Such programs included transit, alternative fuel programs, demand management and ridesharing programs, traffic management, Intelligent Transportation System activities and other transportation control measures under the Clean Air Act. The Congestion Mitigation and Air Quality program

has succeeded in helping our nonattainment areas meet clean air challenges and it should be preserved and strengthened in this year's reauthorization.

AIR QUALITY BENEFITS OF CMAQ

Early on in the program's implementation, we at STPP were critical of the progress of some states in funding CMAQ programs and concerned that many of the projects would have minimal or even negative effects on air quality. Many of these problems have been addressed as states have learned to work with the new program and as the Federal Highway Administration has refined its program guidance. In fiscal year 1995, for example, about 90 percent of CMAQ funds were obligated by the states, compared to 42 percent in fiscal year 1992. Similarly, the number of projects subjected to an analysis of their air quality benefits has increased dramatically since the inception of the program, according to a joint FTA/FHWA program review published in December 1996.

CMAQ funds have been invested in a wide variety of beneficial projects which provide air quality benefits while providing alternatives to added capacity on the road network. Over 40 percent of CMAQ funds have gone to transit projects. According to the Department of Energy's Clean Cities program, over \$275 million of CMAQ funds has been programmed or obligated for alternative fuel projects, either clean transit projects or clean fleet applications. The clean transit investments are particularly promising, as they provide a mobility solution, an air quality contribution, and help to create a market for clean technologies all at the same time. In Boise, Idaho, for example, the city 22 new clean buses equipped with bicycle racks. Other funded projects include bicycle and pedestrian facilities, ridesharing and reverse commute programs, and projects to encourage pedestrian oriented development around transit facilities.

We remain concerned that an inordinate amount of funding has gone into traffic flow improvements. Although these activities are clearly eligible as Transportation Control Measures under the Clean Air Act, signal timing projects offer at best a short term air quality enhancement. Evidence increasingly indicates that traffic flow improvements may even worsen air quality at higher speeds. With so much of air pollution coming from the starting of the car, projects which seek to relieve congestion by smoothing traffic rather than by replacing trips tend to be less effective than many had hoped. STPP is also concerned that some projects which actually worsen air quality have been approved by states. In North Carolina, for example, it appears that \$23 million of CMAQ funds was used to build an outer loop highway in the Charlotte area, clearly an ineligible activity. Road widening projects can be funded under virtually every other ISTEA category. They should not be permissible under the CMAQ program.

ASSURING LONG TERM BENEFITS

Even as too much CMAQ funding in the early years was focused on short term improvements that may in the long run lead to worsened air quality, it appears that the focus on demonstrating short-term benefits may bias evaluation against projects which have longer term benefits. Transit projects which make higher density and mixed use development economically feasible do not score well when analyzed over a three or 5 year timeframe. Studies do indicate, however, that vehicle miles of travel decrease by 25 to 30 percent when residential density is doubled—a finding with dramatic potential for improving air quality. A reauthorized CMAQ program should clearly state that programs and projects should balance both short and long term objectives.

ADDITIONAL FUNDING NEEDED FOR NEW AREAS

Reauthorization of the CMAQ program should also recognize that areas which have done a good job cleaning their air continue to have a need for CMAQ funding. Areas which have been redesignated from non-attainment status to maintenance status continue to have an obligation to stay in attainment, and this will require continued CMAQ resources. Maintenance areas should continue to be eligible for CMAQ funding and they should be included in allocation formulas and factors at a lower level than non-attainment areas. CMAQ funds should also be extended to areas which may be affected by the new air quality standards proposed by the Administration. Newly reclassified non-attainment areas—both for ozone and particulates—should be eligible for funds and existing areas should continue to receive existing funding levels. Thus CMAQ funding should be increased, both now and at the time when the new standards come into effect. STPP supports the Administration's recommendation for an increase in CMAQ funding to \$1.3 billion per year.

ADMINISTRATIVE SIMPLIFICATION IS NEEDED

A final suggestion for improvement in the program relates to program administration. It is our observation that many promising air quality strategies are not being pursued in non-attainment areas because the task of getting approval for either nontraditional projects or small projects is so daunting. CMAQ funding is thus focused upon large capital projects with small air quality benefits or on traffic flow improvements with at best short term gains. As a result, CMAQ funds are concentrated into projects which transportation agencies have traditionally funded, resulting in the criticism that the program has small air quality benefits. The joint FWH/FTA program review of the CMAQ program recommended that legislative relief was needed to ensure that these transportation control measures not be subjected to the same Federal requirements as large capital projects receive (design review, contracting oversight, etc.). Congress should permit smaller, non construction projects to be certified by the state as meeting requirements of Title 23 without Federal review or oversight in advance.

The Congestion Mitigation and Air Quality program has proven its worth. It is highly flexible, popular among those who have used it in non-attainment areas, and provides funds to localities to implement a Federal mandate. The program should be continued, its funding increased and various provisions enhanced and streamlined. Many other aspects of ISTEA also benefit the environment—the focus on improved decision processes and enhanced local control, the emphasis on consideration of social and environmental issues and the dedication of resources to rehabilitating the existing system and funding alternatives to the single occupant vehicle.

ISTEA recognized that it is possible to have a healthy transportation system and a healthy environment. In hopes that we can continue to make progress toward that goal, the STPP coalition has released A Blueprint for ISTEA Reauthorization, which includes 25 recommendations for keeping what's good in ISTEA and improving it. We've also documented 110 ISTEA success stories in our book Five Years of Progress. Both of these documents have been provided to you by mail, but we have additional copies today.

Again, thank you for the opportunity to join you today. I would be happy to answer any questions that you might have.

PREPARED STATEMENT OF LEON S. KENISON, NEW HAMPSHIRE
TRANSPORTATION COMMISSIONER

Good morning, Mr. Chairman and members of the Senate Transportation and Infrastructure Subcommittee.

I am Leon Kenison, Commissioner of the New Hampshire Department of Transportation.

I appreciate the invitation by Senator Smith, Chairman Warner and Senator Baucus to appear before you today to express my thoughts on the very important issue of reauthorizing the Intermodal Surface Transportation Efficiency Act (ISTEA) . . . specifically in the areas of environmental programs and planning.

Speaking on behalf of the State of New Hampshire . . . we believe that ISTEA *has* worked as an effective successor to the Interstate Era . . . and successfully has served the entire nation. New Hampshire joins with several other States in supporting reaffirmation of ISTEA without significant changes.

We believe that the original aims of ISTEA are still the right way to go. . . . placing more responsibility on State and local governments . . . providing greater flexibility . . . recognizing that transportation needs vary from State to State and within a State. . . . improving regional planning efforts . . . and giving equal consideration to all modes of transportation.

New Hampshire supports the maintaining of a strong Federal role in transportation . . . including funding for Federal clean air mandates through the Congestion Mitigation Air Quality Program (CMAQ).

We support the need for long-term, consistent Federal capital investment in transportation, that continued investment is needed to maintain and encourage economic growth.

While the objective of this hearing is to gather comment on the environmental programs and planning aspects of ISTEA . . . we feel it is important to note the goal of the National Environmental Policy Act (NEPA) was to achieve a balance between the impacts and mitigation of a project. But a fractured regulatory permit system sometimes requires an agency to unbalance or block actions that may greatly benefit the welfare of affected citizens.

We suggest stronger emphasis be placed on the need to achieve balanced resolutions by those Federal agencies assuming an advisory and regulatory role in the

NEPA decisionmaking process. Some suggestions for improving the transportation planning provisions of ISTEA. . . .

By making optional many of the mandates . . . the States could conform to the spirit of ISTEA while tailoring a process that better meets the needs of the individual state's citizens. For example . . . eliminating the mandate for management systems has allowed different States to devise systems appropriate to support their decisionmaking. For the Metropolitan Planning Organizations (MPOs) . . . the requirements for a 20-year project-specific, financially constrained plan should be changed. A 20-year plan should be more realistically based on goals and strategies to establish a direction for planning activities. Such a plan obviously cannot be financially constrained in the strict sense now required.

For the States and MPOs . . . the public process should be simplified. Instead of encouraging public involvement . . . we have driven people away with the number of meetings we hold. When compounded with the meetings we need for TIP and STIP amendments . . . we suppress public involvement.

We support continuance of the transportation enhancement concept. We suggest, however, that reauthorization enable States an option to process small projects (e.g. under a value of \$50,000) as grants . . . thereby avoiding the disproportionate preparation and overhead costs current procedures create.

New Hampshire continues to support the environmental and planning goals of ISTEA . . . but we have identified problems associated with the process as it now exists.

The idea of widespread public involvement in transportation planning is commendable. Unfortunately the process has become cumbersome and often confusing to citizens.

Rules and interpretations have gotten us off track . . . stifling both public interest and participation. The result, in many cases, has been to drive away the very people who wanted to participate. Good intentions have been met with skepticism and a lack of support.

An already complex arena of environmental regulation is now more so. The existing approach has proven costly both in funds and in time when it comes to transportation projects.

In some cases . . . it has added years to the development of projects and increased costs considerably. Ironically, in many cases it has caused more serious environmental impacts than were avoided.

On the issue of funding ISTEA . . . the need to maintain at least the current funding level is great. There are currently more than 95-thousand bridges classified as deficient in the United States.

New Hampshire is not a stranger to harsh weather conditions . . . and despite our best efforts, more than 600 State and municipal bridges are designated as "Red List" bridges, meaning that due to known deficiencies they have to be inspected twice a year.

Americans are traveling almost twice as much as they did in 1973 . . . and the number of vehicles on the nation's roads has increased by more than 50 percent. That jump, along with a working population in New Hampshire that often commutes long distances, has put increasing pressure on our highway system . . . and emphasized the need to maintain it at higher levels of standards to ensure safe and efficient mobility.

Motorists are traveling more but paying relatively less for fuel and fuel taxes. In 1979, Federal/State motor fuel taxes accounted for 6.7 percent of the cost of owning and operating a vehicle. By 1993, the fuel tax share of motor vehicle costs was 4.4 percent—a 60 percent drop over 15 years.

Although highway investments increased substantially in the last decade . . . the investment must continue increasing to keep up with our needs. Any delays in preserving highway investments or in meeting the needs brought on by traffic growth could quickly reverse the repairs and the gains achieved over the past few years.

When adjusted for inflation, U.S. highway investments per mile of travel have dropped 40 percent since 1973. When adjusted for inflation, U.S. capital highway investments are up just 10 percent since 1973.

The future of American jobs and economic development depends on increased transportation funding. Current funding levels are inadequate for the nation's transportation needs . . . yet a portion of user taxes (4.3 cents) is still going to non-transportation purposes.

New Hampshire supports a return of the 4.3 cents per gallon fuel tax . . . currently diverted to the general fund for deficit reduction . . . to the highway trust fund. Those funds should be distributed for their intended purposes. . . . to maintain and improve the condition and safety of the nation's highway, bridge, and transit system.

To enable the full investment of the highway user taxes without being detrimental to the laudable efforts of general fund reduction . . . we suggest either removal of the trust fund from the general budget category . . . or pursuit of the revenue constrained fund . . . as proposed by Senators Chafee and Bond and co-sponsored by Senator Smith.

Using highway user revenue to mask other spending unnecessarily limits infrastructure investment and associated economic opportunity . . . and breaks the trust placed in the trust fund concept by the paying public.

Failure to adequately fund the transportation system could cripple the nation's mobility and economy.

Surveys have shown that highway accessibility is the No. 1 selection factor considered by businesses when deciding where to locate.

Again, New Hampshire believes *ISTEA* has worked. We support the key notions of *ISTEA* . . . partnering between State and local entities . . . intermodal planning . . . and public participation in the planning, design, and construction of transportation projects.

We support a continuation of at least the existing funding levels in *ISTEA* . . . and oppose efforts to dramatically adjust the formula for allocating funds to the states.

Thank you again for allowing me to share my thoughts regarding the reauthorization of *ISTEA* with you.

My agency would welcome the opportunity to work with your staff to address any of these issues.

I welcome any questions you may have.

RESPONSES OF LEON KENISON TO ADDITIONAL QUESTIONS FROM SENATOR CHAFEE

Question 1. Your testimony indicates that the requirement for a financially constrained 20 years transportation plan should be changed. How would changing this requirement help New Hampshire?

Response. A 20-year transportation plan should be focused on identifying transportation deficiencies and transportation strategies to provide solutions to those problems. The current *ISTEA* Metropolitan Planning regulations for developing a 20-year transportation plan have very detailed requirements for estimating the amounts and sources of revenue available and forecasting programs for a 20-year period. Metropolitan Planning Organizations (MPOs) have been asked to concentrate on future economic conditions rather than establishing goals and strategies for this transportation future timeframe.

New Hampshire STIP/TIP development process, as well as the State's Ten-Year Transportation Improvement Plan process, currently provide detailed financial constraints and realistic project expectations over a 10-year horizon. The removal of the requirement for the 20-year financially constrained plan, would offer New Hampshire's MPOs the flexibility to better consider the direction of transportation, rather than directing their energies to costing out the details. In their Plan development, cost should be a factor but not the overriding issue.

Question 2. In your testimony you propose that Transportation Enhancement projects under \$50,000 be administered as grants. Can you expound on this idea and indicate the benefits that would result?

Response. The Transportation Enhancement Program has been very successful in New Hampshire. Local community and regional planning agencies have worked well with our State's Transportation Enhancement Advisory Committee to propose, deliberate, and select a wide variety of projects throughout our State.

The major problem of this process is, unfortunately, in the details. Despite the low dollar cost of these projects they are each treated as any other Federal aid project. As projects, they must be designed, estimated, reviewed, tracked, managed, advertised for bids, and the construction supervised. This process results in an administration burden out of scale with the type of projects selected.

By regarding all Transportation Enhancement Projects under \$50,000 as grant projects the situation changes. Grant recipients will provide many project services and administration with appropriate oversight by the Department of Transportation. The Department of Transportation will supply guidelines and support rather than assuming full responsibilities for these lower cost projects. By issuing grants to the successful sponsors, control as well as responsibility, will return to the local level which should result in increased ownership of the proposal, as well as the product.

Projects costing more than \$50,000 would continue to be developed and managed, as before, by the Department of Transportation. The scopes and costs of these projects make this protocol more appropriate.

Question 3. "Page two of your testimony states that widespread public involvement in transportation planning, while commendable, is cumbersome and confusing to citizens. How can this problem be alleviated?"

Response. New Hampshire fully supports public participation in the planning, design, and construction of transportation projects. This tracks well with the intent of ISTEA to provide a process which engages the public in the planning process, increases understanding, and results in informal decisionmaking. If the current process supported this vision, all would be well.

However, those who chose to participate were faced with discussions which centered less on the major issues, but rather dealt with the details of overlapping jurisdictions, and requirements based on: planning agency boundaries, MPO boundaries, urban/rural boundaries, air quality attainment classification boundaries, highway classifications, and funding category eligibility as they attempted to reach consensus on their Transportation Improvement Plan.

They were then informed that their TIP had to fit seamlessly with those of other MPO's, meet statewide financial constraints, and be contained identically by project description, funding category, and project phase within the State Transportation Improvement Program (STIP). Each step in the development of the TIP and STIP was supported by a technical committee review, public committee review, public hearing, and official acceptance.

A change in project timing, scope, cost, or funding category, could require an Amendment to the TIP or STIP which requires the same review and approval process, as the original adoption. Of the original public who chose to participate in the process, some made it as far as the first two TIP/STIP amendments. Most left when the Amendment process began to overlap (but not to be entwined with) the biennial TIP/STIP update. The public described the process as "cumbersome and confusing".

The solution to the problem is flexibility. By eliminating the requirement for TIPs and STIPs to be identical, the process would be streamlined with less need for repetitive amendments. By removing the multitude of dedicated funding categories, financial constraint would be more easily understood and accomplished. In order for transportation decisions to be as inclusive as possible, the process must be understandable and public friendly. Flexibility would help accomplish this.

PREPARED STATEMENT OF LAWRENCE D. DAHMS EXECUTIVE DIRECTOR,
METROPOLITAN TRANSPORTATION COMMISSION (MTC) SAN FRANCISCO BAY AREA

Good Morning, Chairman Warner, Senator Baucus, Senator Boxer and members of the committee. I am Lawrence Dahms, executive director of the Metropolitan Transportation Commission (MTC), the metropolitan planning organization for the nine-county San Francisco Bay Area. I appreciate the opportunity to review our experience and views on reauthorization of the Intermodal Surface Transportation Efficiency Act, or ISTEA.

The nine-county San Francisco Bay Area is a diverse region, a microcosm in many ways of the diversity of this nation. We are urban, suburban and rural. We have intermodal facilities, a population of 6½ million people, clean air challenges and an active disability community that continues to seek implementation of the ADA. We have 26 transit operators, new and old highways and world-class bridges in serious need of repair. Recognizing that the Federal Government has an interest in keeping one of the strongest economies in the Nation moving, how can one Federal law address this range of challenges? ISTEA has been about as close as you can get.

Let me preface my comments by telling you that MTC supports a reauthorization that preserves ISTEA's basic program structure. MTC's resolution guiding our reauthorization advocacy is attached. Many local jurisdictions and partners in our region including business and environmental groups have adopted similar resolutions. We urge your committee to build on the foundation so effectively established by ISTEA.

One of the great strengths of ISTEA is its flexibility to respond to the needs of each region. Through the flexibility of ISTEA's Surface Transportation Program (STIP), the Congestion Mitigation and Air Quality Improvement Program (CMAQ) and the Transportation Enhancements Program, MTC has been able to put together a program of projects that is reflective of the region's needs. Over the past 6 years, working with our local and regional partners, we have programmed over 500 projects with the \$500 million in flexible funds that have come to our region—everything from a joint intermodal terminal at the Port of Oakland and BART rail car

rehabilitations to expansion of MTC's popular freeway service patrol tow trucks and various highway and local street improvements throughout the region.

Though the projects financed by ISTEA are important, I'd like to focus today on one aspect of ISTEA that gets little notice through it has great value.

Who would believe that such phrases as:

"A State shall coordinate. . ."

"The metropolitan planning organization in cooperation with the State and affected transit operators shall develop. . ."

"All projects . . . shall be selected by the metropolitan planning organization in consultation with the State. . ."

could produce powerful results in the implementation of ISTEA? To coordinate, to cooperate, to consult—all are ordinary terms that should be expected to characterize the civilized relationships of States and local governments. When combined with the delegation and flexible funding choices also embodied in ISTEA, however, these words did indeed produce perhaps unexpected results.

This overarching thrust of ISTEA, to encourage productive partnering by many who may not have worked well together before, came just in time. For it recognized that in today's pluralistic society the State acting on its own is unable to deliver some projects or programs as it could just a decade or two ago. With the help of local officials, however, brought together in the form of metropolitan planning organizations (MPOs), challenging but important programs can still be advanced. To illustrate, consider just how the State of California Department of Transportation (Caltrans) and sometimes the California Highway Patrol (CHP) have partnered with the Metropolitan Transportation Commission (MTC) in productive enterprises.

- MTC manages the freeway call box program, placed on Caltrans' right-of-way, with the phones answered by CHP dispatchers. There are 3,000 phones and 600 calls answered per day.

- MTC manages the freeway service patrol (FSP), which clears up incidents on Caltrans' freeways, with the cooperation and assistance of the CHP. There are 50 tow trucks patrolling 218 miles of freeway. An average of 370 incidents are responded to within an average of eight (8) minutes every work day.

- MTC manages the TravInfo program, providing real-time traffic information to any of the Bay Area's three (3) million commuters who can dial 817-1717 at any time of the day. The TravInfo control center is located in the Caltrans District 4 office, immediately adjacent to its Traffic Operations System center. MTC's contractor—Metro Traffic Control—enters 300 to 600 incidents per day into its auto call system, which in turn handles approximately 2,000 calls per day.

- MTC has been instrumental in financing and in administering vital contracts required to implement the Caltrans Traffic Operations System referred to above.

- MTC was required to intervene at two critical points in the design of the last Bay Area Interstate link—1-80 heading north east from the San Francisco-Oakland Bay Bridge. Thanks to MTC's assistance, this \$300 million construction project is now well advanced. When complete, it will offer one of the most effective exclusive bus and carpool services in the country.

- In the most recent example, MTC has been asked to recommend the best design for the new east span of the San Francisco-Oakland Bay Bridge. The State has determined that it is more prudent to construct a new span than retrofit the existing bridge to withstand the next major earthquake. While the State Legislature and Governor are still debating just how to share the approximate \$2 to \$2.5 billion cost of the full Transbay earthquake retrofit package, MTC's process for design selection is moving ahead in full cooperation with Caltrans and another State agency—the Bay Conservation and Development Commission (BCDC).

As little as 10 years ago such partnering with the State was unheard of. Now it is essential, welcomed, and productive.

Vital coordination and cooperation extends to our Bay Area transit operators as well. It was MTC that brokered the regional rail agreement in 1988. The \$3.7 billion program is 2/3 funded by State and local revenues. A large down payment of \$568.5 million of the Federal share was authorized in ISTEA. An additional authorization is needed in the next bill. While the Santa Clara Valley Transportation Authority (SCVTA) and the Bay Area Rapid Transit District (BART) have the lead responsibility for delivering the two rail extensions vying for Federal funds, it is MTC that has had the challenge of sustaining the broad State and regional commitment that has now endured for 9 years.

In another transit agency collaboration, MTC and ten (10) of the regions 26 transit operators are developing TransLink, a regional transit pass that will provide access to any of their systems. Here again, MTC has the lead in designing and delivering the system.

Flexible ISTEA funding has been vital to MTC's partnership with the 100 cities and nine counties in the region. For example, \$65 million has been invested in upgrading and synchronizing the signals at 2,700 major intersections in the region. A small part of this investment paid for the four traffic engineer consulting firms MTC has retained to assist our smaller cities in implementing this program. MTC's parallel program, the pavement management system (PMS), is the tool used to optimize maintenance expenditures by $\frac{2}{3}$ of our 109 local governments. In a unique partnership, we have joined with the State of Oregon's Association of Counties, making our PMS system available to them in return for a computer program upgrade they were able to do for us.

While not all of these initiatives are solely the result of ISTEA prodding, it has been a significant catalyst. The common thread running through all of the projects cited above has been the multi-agency cooperation that is essential. MTC took the lead in forming the Bay Area Partnership of the 30 leading transportation agencies in January 1992, immediately after ISTEA was signed by President Bush. We have made the task of nurturing that partnership our No. 1 priority ever since. And, it is working.

We like ISTEA because of its several provisions that encourage, even require, such commitment. That is why we are here urging you to tune—not toss—ISTEA, a phrase I believe former FHWA Administrator Tom Larson first coined.

Last year, House Transportation and Infrastructure Committee Chairman Bud Shuster visited the San Francisco Bay Area and challenged us to offer suggestions regarding how to strengthen metropolitan planning organizations in their partnerships with the 50 States and others across the country to assure Federal transportation investments produce the desired results. A copy of our response is attached for your consideration as you evaluate ways to improve the planning process.

I will be happy to answer your questions and to elaborate on any of my examples.

METROPOLITAN TRANSPORTATION COMMISSION,
January 7, 1997.

Hon. BUD SHUSTER, *Chairman,*
Transportation and Infrastructure Committee,
U.S. House of Representatives,
Washington, DC.

DEAR CHAIRMAN SHUSTER: We remember well your hard-working tour of the San Francisco Bay Area and its major transportation facilities last June. We were pleased to demonstrate, among other things, the central role the Metropolitan Transportation Commission (MTC) plays in coordinating the activities of the region's transportation partners. This prompted you to ask for suggestions regarding how to strengthen metropolitan planning organizations (MPOs) in their partnership with the 50 states and others across the country to assure Federal transportation investments produce the desired results.

First, however, there must be sufficient Federal revenues to invest. We thank you for beginning to build the foundation for the budget debate in 1996 when you secured a strong vote by the House in support of directing trust fund revenues to transportation investments. We understand that your leadership will be tested again as the budget battle continues in 1997, and that you must be able to win that battle. If not, some of our suggestions regarding program structure will become insignificant. Thus, we will work with the California Congressional delegation to support you in those efforts.

Presuming a significant revenue package, how can MPOs be encouraged to live up to their responsibilities? The key probably lies in most states discovering, as I believe California already has, that strong MPOs can work to their advantage. A strong MPO will organize local input, and in so doing, provide a positive context within which essential state and regional transportation decisions can be made and carried out. An MPO is not relevant, however, without authority. ISTEA defined shared state/MPO relationships that can be improved upon, first in allocating program revenues, and second in defining planning objectives. In the following paragraphs we offer three suggested changes designed to encourage MPOs to hold up their end of the bargain in these critical partnerships with the states.

1. *Require Equitable Allocation of ISTEA Program Revenues.* Each state should be given the authority and responsibility to adopt, in cooperation with its MPOs, a formula for the distribution of all transportation revenues to each MPO area.

Current ISTEA law requires that the Governor and MPO jointly approve the Transportation Improvement Program (TIP). By establishing a formula distribution, a budget would be established thus making these joint decisions more relevant and

equitable. A county minimum provision that has been a part of California law for almost two decades demonstrates that this is a workable approach. (The California Transportation Commission (CTC) is responsible for assuring that over the course of each 4-year period at least 70 percent of State Highway Funds are distributed to each county based on population and lane miles.)

2. *Focus on Transportation Systems.* We urge reinforcement of the current ISTEA planning provisions that require State and MPOs to "identify transportation facilities . . . that should function as an integrated (metropolitan/state) transportation system, giving emphasis to those facilities that serve important national and regional transportation functions." During the interstate-era there was a system focus that pulled the Nation together in support of a national transportation program. Now the loss of system focus risks relegating the Federal role as simply a tax collector. Returning revenues to their sources becomes the loudest objective, whereas delivering on the Federal interest in *effective transportation systems* gets lost in the noise.

Section 103 (b)(1) of Title 23 defines the purpose of the national highway system. However, Section 133 establishing the surface transportation program lacks a purpose statement. A parallel statement defining the purpose of metropolitan transportation systems and their integration with the national highway system should send a strong message to states and MPOs alike.

We suggest the following legislative language: The purpose of the surface transportation program is to provide a flexible funding source for operating, improving and integrating the metropolitan transportation system identified pursuant to subsection (g) of Section 134, the state transportation system identified pursuant to subsection (a) of Section 135, and the National Highway System designated pursuant to subsection (b) of Section 103.

3. *Make a direct connection of the Federal interest to planning guidelines.* The 16 planning factors required of MPOs and 21 factors required of states in current ISTEA are admirable, but of limited usefulness. The number of factors is so large that they tend to be used as passive checklists rather than as the driving criteria to be used in deciding how best to invest. We propose legislative language that links planning to a more limited set of clearly defined Federal interests. Legislative language we would suggest as a replacement for the planning factors is attached.

Further, the state and MPO planning activities should reinforce one another. As it now stands, ISTEA requires each MPO to prepare and update long-range plans and each state to do so as well, essentially covering the metropolitan area twice. The MPO plan should cover its geography. The State plan should insure the inter-regional linkages between metropolitan areas. As partners, each should assist the other wherever relevant. As a practical matter, this duplication has not occurred in California because the MPO plan is project specific and the State plan is limited to policy and strategy statements. But, an opportunity has been lost. States and MPOs would be encouraged to take their partnership more seriously if required to anticipate in their plans essential interregional linkages.

To conclude, under Tom Larson's leadership, the Federal Highway Administration helped Caltrans and MTC establish a working Bay Area Partnership. It is our mechanism to make sure the full range of interested agencies have a voice in transportation decisions. Perhaps ISTEA II can encourage the replication of our partnership model in other parts of the country.

The ideas above are sure to have detractors, partly because many states appear not to recognize that strong MPOs can work to their advantage. Paradoxically, some large city mayors and transit operators believe their MPO's to be dominated by state, suburban or rural interests. These mayors and transit operators may even ask Congress to mandate their representation on MPO boards. Yet, there is little evidence that they have attempted to remedy the problems at home. The MPO governance question brings to mind Churchill's quip about democracy being the worst form of government except for all the rest!

Thank you again for the time you and your staff have given to our transportation projects. Again, we will work in support of your efforts to increase transportation revenues in order to deliver a healthy ISTEA II, and look forward to working with you and your committee in that interest.

Sincerely,

LAWRENCE D. DAHMS,
Executive Director.

ATTACHMENT: LANGUAGE PROPOSED TO REPLACE THE EXISTING TITLE 23, SECTION 134(F) AND 135(C) DISCUSSION OF "FACTORS TO BE CONSIDERED"

PERFORMANCE-BASED CONSIDERATIONS

In developing transportation plans and programs pursuant to this section, each state and each metropolitan planning organization shall incorporate performance-based consideration of the direct and indirect effects of transportation actions, including effects in the following identified areas of national interest. It is expected that considerations appropriate to the state level and those appropriate at the metropolitan level will differ, but will complement each other. The identified areas of national interest are:

- National Transportation Linkages—It is in the national interest to ensure that safe, adequate and effective transportation linkages be provided within metropolitan areas; between metropolitan areas surrounding rural areas; between various metropolitan areas within the same state; between states; and around international destinations as part of a multimodal national transportation system.
- Strong Economics and Strong Communities—It is in the national interest that states and metropolitan transportation systems support healthy regional economies to serve as the economic building blocks of the nation, and that the development and transportation activity supported by such economies be consistent with state, regional and community land use and development plans. It is also in the national interest that state and metropolitan transportation systems support safe access to jobs, housing, education, recreation and other important social and economic activities and that state and metropolitan transportation systems contribute to addressing the unique economic and community needs of central cities, other older urban areas, suburban areas and rural communities.
- Environmental Quality—It is in the national interest that state and metropolitan transportation systems help achieve national environmental objects and maintain and improve overall environmental quality.
- Resource Management—It is in the national interest that state and metropolitan transportation systems make effective and efficient use of resources through preservation of existing facilities and promotion of modes of transportation and forms of development that are fiscally sound and efficient in the use of natural resources when considered over the life of the investment.

 RE: REAUTHORIZATION OF THE INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT

METROPOLITAN TRANSPORTATION COMMISSION—RESOLUTION NO. 2954

Whereas, the Intermodal Surface Transportation Efficiency Act expires September 30, 1997 and the 105th Congress must reauthorize Federal surface transportation programs and;

Whereas, ISTEA made major progress in moving decisionmaking closer to people affected by transportation spending with almost \$500 million in flexible ISTEA funds allocated to 500 projects throughout the Bay Area and;

Whereas, ISTEA marked a shift from the end of the Interstate era to a new era emphasizing highway and transit system preservation, increasing the efficiency of existing networks, and improved intermodal integration, now therefore, be it

Resolved, that the Metropolitan Transportation Commission endorses the following principles to guide the reauthorization of ISTEA.

1. Support a continued Federal role in transportation and oppose efforts to repeal or reduce the Federal gas tax;
2. Support ISTEA's basic program structure, such as the Surface Transportation Program, the Congestion Mitigation and Air Quality Improvement Program and the Transportation Enhancements Program, and oppose block grants or revenue sharing;
3. Focus Federal-aid funding on integrating and managing the various public and private elements of the transportation system;
4. Maximize Federal investment by dedicating transportation taxes for transportation purposes and encouraging greater private sector investment;
5. Fully fund implementation of the Americans with Disabilities Act with additional Federal resources that protect existing transportation funds; and, be it further

Resolved, that the Executive Director shall forward a copy of this resolution to our representatives in Congress and the United States Secretary of Transportation.

METROPOLITAN TRANSPORTATION COMMISSION
James P. Spering,
Chair.

This resolution was entered into by the Metropolitan Transportation Commission at a regular meeting of the Commission held in Oakland, California on February 26, 1997.

PREPARED STATEMENT OF M. MICHAEL COOKE, COMMISSIONER,
DOUGLAS COUNTY, CO

Mr. Chairman, my name is Michael Cooke, and I am a Commissioner on the Douglas County Board of Commissioners in Colorado. I am here to testify today before your subcommittee on the need for reform of the Metropolitan Planning Organizations (MPO's) whose duties and responsibilities were enhanced significantly with the passage of ISTEA. The Federal transportation funding process has fundamentally changed under ISTEA, which has provided certain benefits nationwide. However, the provisions of ISTEA have tended to treat all jurisdictions in the same manner; this system has not been advantageous for some local governments, particularly linkage communities like Douglas County. Although the intent of returning more power over the purse and decisionmaking on transportation priorities to local areas was admirable, its practical impact in areas such as Douglas County has in many ways created an unfair system for the citizens of Douglas County and, at the same time, has created a system that is difficult to modify or escape.

BACKGROUND ON DOUGLAS COUNTY

Douglas County, Colorado, is the fastest growing county in the State of Colorado and in the United States. As of January, 1997, the County's population is 123,000 persons. The latest census figures indicate that the County has been the fastest growing county in the United States for the first half of this decade and remains so today.

Douglas County's population has doubled since 1990, putting significant pressure on public services, from the need for more schools to expanding the transportation infrastructure to keep up with increased traffic. This growth particularly impacts us because approximately 72 percent of our total population resides in the unincorporated areas of the County and depend upon the County government for the provision of essential services. While the majority of the population lives in the northern tier of the County, rapid growth has been experienced all along the Interstate 25 corridor, linking Denver and Colorado Springs.

Our situation in Douglas County is not unique. We have an expanding population, and with that expansion comes a need to accommodate growth with the necessary public infrastructure, including adequate highway and transit capacity. We would contend that the MPO decisionmaking process for the approval of transportation funding is inadequate; it is subject to extensive bureaucratic inertia that protects the status quo and has created a system protected by Federal mandates.

Before I go any further, let me say for the record that Douglas County has not come before your subcommittee today without doing everything within its power to work cooperatively within the system and with our MPO, the Denver Regional Council of Governments (DRCOG). We will document the extensive number of times that we have tried to pursue project funding or project enhancements and have run into real or perceived roadblocks. The reason we are here today is because the current system makes real local decisionmaking illusory and the prospect for improving the system locally all but impossible without some sort of Federal assistance.

THE NEED FOR MPO REFORM: NATIONAL ISSUES

There is no doubt that transportation planning is an essential element of any transportation program. MPO's were established to facilitate that planning and to help coordinate planning in a regional context, but in most cases the role of the MPO was strictly advisory and generally voluntary. However, in ISTEA MPO's theoretically took on a much more extensive role, including the actual approval of specific Federal transportation funding projects and in some cases taking that direct authority away from local governmental entities who are responsible for providing services to citizens.

With the authority to approve specific transportation projects and to set priorities for overall transportation projects in a particular region have come problems with the local makeup of the MPO and whether one area dominates the other. This issue

is at the very root of the problems that have been experienced in Douglas County and which I will describe in greater detail later in my testimony.

ISTEA gave allegedly more “flexibility” and “greater local decisionmaking” to local elected officials, but it failed to give local governments the ability to choose whether they wanted to be part of this federally imposed effort or not. Federal regulations require that in order to redesignate an MPO in a metropolitan area a jurisdiction must accomplish the following:

1. Obtain the approval of the Governor of the state;
2. Obtain the approval of local officials representing 75 percent of the population in the entire metropolitan planning area; and
3. Obtain the approval of the local officials in the central city within the metropolitan planning area.¹

Even if a jurisdiction were able to accomplish all of those Federal requirements, the law goes on to say that if there is a redesignation of an MPO, this new MPO would still be required to cooperate, consult and coordinate with the State and other MPO's in the metropolitan planning area.²

Therefore, if a local government believes that the MPO and its decisionmaking process is unfair and wants to have more control over its own future, the Federal Government makes it virtually impossible for the local government to make its own decisions. We believe that the national trend is to send more decisionmaking and responsibility for the allocation and management of resources back to the local government level. The MPO Federal mandate tends to inhibit local decisionmaking and has resulted in a heavy handed bureaucracy that is in many ways worse than the process was before ISTEA. We believe the MPO process is in great need of reform.

DOUGLAS COUNTY'S CASE FOR MPO REFORM

The Federal planning process has become extremely complicated and archaic, resulting in local transportation decisions being dictated by the planning bureaucracy. Federal regulations governing this process have become so burdensome that no one outside the planning professionals understands them, and the local elected decisionmakers simply do not have the time to read all the regulations that are now on the books. Further, every time Douglas County staff meets with DRCOG staff, we seem to get different and contradictory information about how the transportation funding process works.

When MPO's served in an advisory role such a situation was tolerable. However, now that MPO's, in some cases, have taken on the role of allocating scarce Federal transportation resources, the bureaucracy has become problematic. In the case of Douglas County and in its capacity as a fast growing, transitional community, the decisions of the local MPO could have disastrous short and long-term effects.

To the point, the population for the entire DRCOG region is approximately 2.1 million persons, based on DRCOG's 1996 estimate. Douglas County is about 5.27 percent of that total. However, projects in Douglas County have received only .35 percent of DRCOG transportation funding in the fiscal year 1993–1995 Transportation Improvement Program (TIP) cycle, only 1.2 percent of the fiscal year 1995–1997 TIP funding cycle and only .4 percent of the fiscal year 1997–1999 TIP funding cycle. In fact, the total amount of funding Douglas County has received for county-sponsored projects over the life of ISTEA is \$250,000, compared with approximately \$20 million in County requests that have been denied. This funding inequity and the unlikelihood of any real potential for change under the current MPO structure are the main reasons why we are here today.

The reasons for such funding inequities are complex. However, one clear factor that inhibits areas like Douglas County from obtaining a fair share of the funding is that there are no provisions in the funding process which address growth. Highways in Douglas County are impacted not only by the County's increased population, but also by the growth rate of the entire Denver and Colorado Springs areas, based on our linkage position between these two regions. This growth has significant effects on roadway safety and capacity, as well as air quality. However, the current funding process tends to favor core city projects, with extremely high costs and minimal improvements to roadway safety or air quality improvements, to the detriment of high-growth communities. The result is that the metropolitan region's infrastructure is not able to keep pace with growth, and impacted communities like Douglas County are not able to meet the transportation needs of their residents, nor the needs of the region. Trends indicate that future growth will continue to take

¹ 23 CFR Sec. 450.306(g)

² 23 U.S.C. See 134(d)(l) and (c); 23 CFR Sec. 450.312(e)

place in suburban areas, and current and future needs in these communities must be addressed in the Federal transportation funding process.

For the record, we would like to document for the subcommittee the major issues that have arisen between the County and the MPO since the enactment of ISTEA that we hope will show the County's frustration with the current system:

- During the preparation of the first DRCOG TIP under ISTEA in 1993, Douglas County applied for funding to complete a four lane section of Lincoln Avenue, the County's most heavily traveled road. The engineering was totally funded by Douglas County, and the project was in the final design phase. Nearly all of the right-of-way had been obtained, and the County had the local match identified. DRCOG denied funding for the project, declaring the project a "capacity enhancement." The reality is that the project simply would have widened a 2.5 mile, two lane section of road that was already four lanes on either end—a project designed to improve the safety of the roadway;

- Also in 1993, the County applied for funding for a bicycle project that was originally planned to add a shoulder to 22 miles of Highway 105 under the County's jurisdiction. This project was intended to mitigate a significant safety issue by separating automobile traffic from bicycle traffic. The cost of the proposed safety project was \$5 million. DRCOG unilaterally and drastically modified the scope of the project and narrowed the project to a 2-3 mile section of a roadway that was under the State's jurisdiction, not the County's. We were requested to pay a local funding match on a section of roadway we did not own. Therefore, the project that was dictated to the County by the MPO did not meet our stated needs and was rejected by the County;

- DRCOG was not initially supportive and, in fact, was often an obstacle in Douglas County's efforts to have additional mileage on Highway 85 added to the proposed National Highway System in 1995. Douglas County approached DRCOG in July 1995 and was told that adding mileage to Colorado's request "was not possible", and, in fact, if such mileage were added it would mean deletion of other routes in Colorado. Obviously this was simply not factual.

Despite DRCOG staff reservations and with the much needed support of Congressman Joel Hefley, the DRCOG Board on September 20, 1995 gave direction to the staff to send a letter to the Federal Highway Administration (FHWA) in support of the project. However, it was then determined by DRCOG staff that DRCOG's Transportation Committee must ratify the request. Ultimately, 10 weeks after the County made the request, a formal letter was sent by DRCOG on September 27, 1995 to the FHWA, only 2 days before the decisive action was taken on the NHS bill in the U.S. House of Representatives. Despite DRCOG's actions, the FHWA approved the new NHS with the Highway 85 section added;

- As further evidence of DRCOG's opposition to equitable highway funding, especially regarding the Highway 85 project in Douglas County, the County attempted to apply for NHS funds for a dangerous intersection at Titan Road and Highway 85. The County was not allowed to apply for funding due to the fact that DRCOG had set a deadline for applying for NHS funds of January 5, 1996. This application deadline was less than 20 days after the FHWA had allocated funds to the State and a little over 35 days since the NHS had been enacted into law. While we understand the need for deadlines, we consider this timeframe to have been unreasonable;

- On another safety-related issue, in early 1996 the Colorado Department of Transportation (CDOT) submitted a request to DRCOG for \$30 million to widen northbound and southbound I-25 from Lincoln Avenue to Castle Pines Parkway, in an area that has experienced a high level of fatalities and injuries from truck related accidents, including an 82-car pileup on February 6 of this year. DRCOG attempted to reallocate the construction funding requested to another project outside of Douglas County, without the knowledge of CDOT, and recommended instead that \$300,000 be allocated for the roadway to be studied in 1999. When this action by DRCOG was discovered, CDOT and the County protested the action and requested that funding for the project be restored.

I am pleased to say that \$7.5 million was placed back into the budget for that much-needed highway improvement, but it is still only 25 percent of what is needed. Since Douglas County has made attempts to strive for MPO reform and has begun to work closely with CDOT on this project, DRCOG appears to have become more responsive to the safety needs on this Section of I-25. However, DRCOG has also made it clear that no funding from the MPO will be available for a proposed truck safety lane to meet immediate safety needs.

These are specific examples, including the denial of over \$20 million in project requests, of how we have tried to work through the system and cooperate with DRCOG. At nearly every turn, our efforts are frustrated, and we have reluctantly

reached the conclusion that the system is not a democratic decisionmaking process and that change within DRCOG is nearly impossible.

The size and complexity of DRCOG also hampers our efforts to proceed with necessary infrastructure projects. DRCOG is made up of 39 municipalities and 8 counties, with the City and County of Denver, our central city, having a seat on the board for each category. This structure makes it particularly difficult for county governments because of the control of the municipalities. It is extremely problematic for Douglas County due to the percentage of our population which resides in unincorporated areas of the County.

While DRCOG maintains that local government elected officials make transportation decisions and that DRCOG is responsive to local government needs, Douglas County and other jurisdictions have not had such positive experiences with the MPO process. In fact, as noted above, DRCOG staff has hindered Douglas County's ability to obtain support for transportation priorities. Further, municipalities, which represent over 80 percent of the local governments in the MPO, have a stronger voice than suburban counties, like Douglas, in regional planning efforts.

This inequity is even more extreme regarding the role of the central city, Denver; because it is a city and county, Denver receives two votes on the DRCOG Board. DRCOG's weighted voting system, which has never been invoked, provides even more power to the central city. Douglas County is not alone in its frustration; other jurisdictions have also expressed concerns with the current MPO process and have indicated support for the legislative reform that we are advocating today.

State departments of transportation provide a consistency that MPOs cannot, as MPOs vary from region to region and State to State. In Colorado, MPOs do not design, engineer or construct projects. Why then, should they be responsible for the selection of those projects? As an elected official, I am accountable to the citizens I represent. As an organization, DRCOG is not. It is clear that DRCOG is a federally mandated and protected local decisionmaker that is staff driven. We do not believe that was the intent of ISTEA, and for that reason we believe national reform is needed.

RECOMMENDATIONS FOR NATIONAL MPO REFORM

For the reasons specified above, we would ask this subcommittee to consider the following reforms for MPO's in the reauthorization of ISTEA:

1. Lower the unreasonable barrier for a jurisdiction's withdrawal and redesignation from an MPO to the approval of local officials representing 50 percent of the population in the entire metropolitan area outside of the central city. Problems in suburban communities are drastically different from the central cities, and if their colleagues agree that further involvement with that MPO is not meeting the needs of those communities, they should be allowed to withdraw, be redesignated, or join an adjacent MPO;

2. Assuming that the above criteria are achieved, there is no justification for the official of the central city having a veto power over that decision. If this is allowed to continue, why are other local officials surrounding the central city not given the same veto power over a proposal by the central city? This central city veto authority should be eliminated;

3. If a jurisdiction seeking to determine its own transportation planning future should satisfy the above criteria, it is again required, by Federal law, "to cooperate, consult and coordinate with the State and other MPO's in the metropolitan planning area." In our judgment, this would completely negate whatever effort there would be to make one's own decisions. We would recommend that this language be modified to read only that the new MPO "consult" with the other entities; and

4. Because State departments of transportation have the knowledge, experience, and expertise to assure project selection based on sound data and engineering analysis, the authority for project selection should be returned to those entities. MPOs should have an expanded role in research and development that focuses on problems and technology transfer and that answers back to State and local governments responsible for solving problems.

5. As long as the Federal Government is going to be involved in the planning process and assuming that the intent is truly to foster greater local decisionmaking, there should be a requirement that an MPO must have a process in place for equitable, agreed upon local decisionmaking and that the process should be utilized. If it can be shown that a democratic *locally accepted* voting process is not being utilized, such an inequitable voting process would be a basis for the MPO's Federal certification not to be renewed.

Again, these proposed changes will help make the MPO process more responsive to local government transportation needs, as we believe is the intent of ISTEA. We

are proposing these changes today not as an attempt to circumvent the current process, but to ensure that all jurisdictions will be able to determine transportation priorities and meet local needs equitably. Congressman Joel Hefley has introduced H.R. 477, a bill we call the "Local Transportation Decision-making Empowerment Act," which incorporates many of the items we just mentioned.

Finally, Mr. Chairman, I am pleased to see that the Administration is moving in the proper direction on these issues. The Administration's version of ISTEA, that was sent to the Congress last week, includes the following recommendations:

- (1) Decreasing the threshold for MPO redesignation to 51 percent from 75 percent;
- (2) Having local officials acting through the MPO and the Secretary determine whether redesignation is possible instead of having the authority rest solely with the Governor; and
- (3) Require "coordination" instead of "cooperate, coordinate and consult" between two MPO's.

Overall, Mr. Chairman this is a positive direction, and we believe this shows the strength of our cause. Washington simply cannot dictate local decisionmaking any longer, and we hope you will strongly consider all the provisions in H.R. 477 for inclusion into your version of ISTEA.

Mr. Chairman, thank you for this opportunity to present our views and I would be glad to try to answer any questions that you may have.

DOUGLAS COUNTY,
Castle Rock, CO, March 17, 1997.

Hon. A. WAYNE ALLARD,
*U.S. Senate,
Washington, DC.*

DEAR SENATOR ALLARD: Thank you for inviting Douglas County to appear before the Senate Committee on Environment and Public Works, Subcommittee on Transportation and Infrastructure, regarding our transportation concerns.

As you know, Douglas County is anxious to pursue reform for the Metropolitan Planning Organization (MPO) system as a part of the reauthorization of ISTEA. We have attempted and will continue to attempt to work cooperatively with local jurisdictions to meet our transportation needs. However, to date we have had minimal success. We are now looking forward to pursuing Congressman Joel Hefley's legislation, H.R. 477, to help us meet the growing needs of our community.

This bill would allow more local government flexibility in the area of MPO's by allowing local jurisdictions to withdraw, redesignate, or join an adjacent MPO which might better meet the needs of the local jurisdiction. We are requesting your support for the provisions of H.R. 477, and further request that you consider introducing similar legislation in the U.S. Senate.

Attached please find letters of support from Colorado Counties, Inc., as well as from counties and cities within the DRCOG region. Thank you for your consideration of this critical issue.

Sincerely,

M. MICHAEL COOKE,
Commissioner.

COLORADO COUNTIES, INC.,
Denver, CO, February 26, 1997.

Hon. A. WAYNE ALLARD,
*U.S. Senate,
Washington, DC.*

DEAR SENATOR ALLARD: Colorado Counties, Inc. (CCI) is a nonprofit, statewide organization of Colorado's county commissioners. We have a vital interest in all Federal and State transportation policies. CCI's focus is to ensure that the local government perspective is represented on Federal transportation policy and related issues.

CCI endorses the provisions of H.R. 477, "To amend titles 23 and 49, United States Code, relating to metropolitan planning", sponsored by Congressman Joel Hefley. H.R. 477 amends Federal law regarding criteria for designating metropolitan planning organizations (MPO's) for urbanized areas under the highway and mass transit programs. CCI strongly believes this legislation will give local governments the flexibility to establish and join MPO's that best fit their needs at the local level.

Congressman Hefley's bill amends sections 134(b) and 134(e) of title 23 and sections 5303(c) and 5303(e) of title 49, United States Code, concerning the designation of MPO's under highway and transit programs. The proposed amendments would accomplish the following:

- Allow a jurisdiction to withdraw from an MPO with the approval of local officials representing 50 percent of the population in the entire metropolitan area. Under existing law, jurisdictions must receive approval from 75 percent of the population in the entire metropolitan area. This provision will grant governments the ability to withdraw from currently required MPO's and join other organizations that may provide a better fit, based on the local governments' needs.
- Eliminate the current provision that the central city must approve of a jurisdiction's withdrawal from an MPO. This revision, therefore, eliminates the central city's ability to block the withdrawal of a local jurisdiction from an MPO.
- Enhance local government flexibility by requiring that a withdrawn jurisdiction and existing MPO's only consult with neighboring MPO's in transportation planning. This revision maintains that the State should provide oversight in areas with multiple MPO's. Therefore, local jurisdictions, while consulting with other MPO's and the state, would have the authority and autonomy to develop plans and programs that meet local needs.

CCI encourages support of this legislation, which grants flexibility to local governments in the designation of metropolitan planning organizations. The benefits achieved by MPO's will be enhanced and furthered with the passage of H.R. 477, which removes obstacles and limits imposed in current Federal law.

CCI respectfully requests your support for H.R. 477. Thank you for your consideration of this important issue.

Sincerely,

CYNTHIA ERKER,
*County Commissioner, Morgan County,
Chair, CCI Transportation Steering Committee.*

M. MICHAEL COOKE,
*County Commissioner, Douglas County,
Vice Chair, CCI Transportation Steering Committee.*

ARAPAHOE COUNTY COLORADO,
Littleton, CO, March 18, 1997.

Hon. A. WAYNE ALLARD,
*U.S. Senate,
Washington, DC.*

DEAR SENATOR ALLARD: On behalf of the Arapahoe County Board of County Commissioners, I am writing to express Arapahoe County's support for metropolitan planning organization (MPO) reform. Specifically, our County supports H.R. 477, introduced by Congressman Hefley.

This legislation would provide local governments the flexibility to determine and meet their transportation needs, as we believe is the intent of ISTEA. H.R. 477 would accomplish the following:

- Allow a jurisdiction to withdraw from an MPO with the approval of local officials representing 50 percent of the population in the entire metropolitan area. Under existing law, jurisdictions must receive approval from 75 percent of the population in the entire metropolitan area;
- Eliminate the central city's ability to block the withdrawal of a jurisdiction;
- Require that the withdrawn jurisdiction and existing MPO's only consult with neighboring MPO's in transportation planning issues;
- Make it the responsibility of the state to provide oversight in the areas with multiple MPO's.

Such legislation would allow more local government flexibility in the area of MPO's by allowing local jurisdictions to withdraw, redesignate, or join an adjacent MPO, while maintaining the need for intergovernmental cooperation. Therefore, we respectfully request that you support H.R. 477 and consider introducing similar legislation in the U.S. Senate. Thank you for your consideration of this important matter.

Sincerely,

POLLY PAGE,
Chairman, Board of County Commissioners.

ADAMS COUNTY, BOARD OF COUNTY COMMISSIONERS,
Brighton, CO, March 17, 1997.

Hon. A. WAYNE ALLARD,
U.S. Senate,
Washington, DC.

DEAR SENATOR ALLARD: On behalf of the Adams County Board of Commissioners, I am writing to express Adams County's support for metropolitan planning organization (MPO) reform. Specifically, we support H.R. 477, introduced by Congressman Hefley.

This legislation would provide local governments the flexibility to determine and meet their transportation needs, as we believe is the intent of ISTEA. H.R. 477 would accomplish the following:

- Allow a jurisdiction to withdraw from an MPO with the approval of local officials representing 50 percent of the population in the entire metropolitan area. Under existing law, jurisdictions must receive approval from 75 percent of the population in the entire metropolitan area. Under existing law, jurisdictions must receive approval from 75 percent of the population in the entire metropolitan area;
- Eliminate the central city's ability to block the withdrawal of a jurisdiction;
- Require that the withdrawn jurisdiction and existing MPO's only consult with neighboring MPO's in transportation planning issues;
- Make it the responsibility of the state, to provide oversight in the areas with multiple MPO's.

Such legislation would allow more local government flexibility in the area of MPO's by allowing local jurisdictions to withdraw, redesignate, or join an adjacent MPO, while maintaining the need for Intergovernmental cooperation. Therefore, we respectfully request that you support H.R. 477 and consider introducing similar legislation in the U.S. Senate. Thank you for your consideration of this important issue.

Sincerely,

MARTIN J. FLAUM,
Chairman, Board of County Commissioners.

BOULDER COUNTY, BOARD OF COUNTY COMMISSIONERS,
Boulder, CO, March 14, 1997.

Hon. WAYNE ALLARD,
U.S. Senate,
Washington, DC.

DEAR SENATOR ALLARD: We are writing to indicate our support of H.R. 477, concerning Metropolitan Planning Organizations under the Federal Highway Program, sponsored by Congressman Joel Hefley; and to ask for your assistance with this legislation in the U.S. Senate.

Congressman Hefley introduced this legislation on behalf of Douglas County and other local jurisdictions who need more flexibility in their own regional planning for the use of limited Federal transportation resources. Boulder County, like Douglas County on the fringes of the Denver Metropolitan Area, needs this additional flexibility.

We, too, are one of the fastest growing counties in Colorado and the country. Our population is now over 260,000, and has two distinct employment centers of over 50,000—the City of Boulder and the City of Longmont. We, therefore, qualify as a separate metropolitan statistical area (SMSA) under Federal census guidelines. We have important regional relationships among the 11 incorporated municipalities in the county and a county regional organization, the Boulder County Consortium of Cities, which recently has formed a Regional Transportation Task Force to coordinate among the cities and towns and the county to plan for and address our many transportation needs. Additionally, we have strong regional relationships with Northeastern Colorado, and receive most of our Colorado Department of Transportation planning and funding through Engineering Region Four, located in Greeley.

There is widespread acceptance of the fact within Boulder County that Federal and State transportation resources will never meet our current and future transportation needs. We believe it is likely that many areas in the United States, like Boulder and Douglas Counties, need additional flexibility in planning and allocation of Federal transportation dollars within this environment of scarce resources. We strongly support Congressman Hefley's bill as a way of addressing this issue.

Additionally, we feel that any separately identified metropolitan area (SMSA) within the country should have the ability to withdraw from a combined metropoli-

tan statistical area, without the need for any authorizing vote from that combined area. We plan to request that Congressman David Skaggs, representing our Congressional District, seek an amendment regarding this issue; and would hope to have your assistance with this, as well.

Thank you in advance for your support and your assistance on this legislation.

Sincerely,

RON STEWART,
Chair, Boulder County Commissioners.

PAUL D. DANISH,
Boulder County Commissioner.

JANA MENDEZ,
Vice Chair, Boulder County Commissioners.

JEFFERSON COUNTY, BOARD OF COUNTY COMMISSIONERS,
Golden, CO, March 17, 1997.

Hon. A. WAYNE ALLARD,
U.S. Senate,
Washington, DC.

DEAR SENATOR ALLARD: We are writing to express Jefferson County's support for metropolitan planning organization (MPO) reform. Specifically, we support H.R. 477, introduced by Congressman Hefley.

This legislation would provide local governments the flexibility to determine and meet their transportation needs, as we believe is the intent of ISTEIA. H.R. 477 would accomplish the following:

- Allow a jurisdiction to withdraw from an MPO with the approval of local officials representing 50 percent of the population in the entire metropolitan area. Under existing law, jurisdictions must receive approval from 75 percent of the population in the entire metropolitan area.
- Eliminate the central city's ability to block the withdrawal of a jurisdiction.
- Require that the withdrawn jurisdiction and existing MPO's only consult with neighboring MPO's in transportation planning issues.
- Make it the responsibility of the State to provide oversight in the areas with multiple MPO's.

Such legislation would allow more local government flexibility in the area of MPO's by allowing local jurisdictions to withdraw, redesignate, or join an adjacent MPO, while maintaining the need for intergovernmental cooperation. Therefore, we respectfully request that you support H.R. 477 and consider introducing similar legislation in the U.S. Senate. Thank you for your consideration of this important matter.

Sincerely,

JOHN P. STONE,
Chairman, Board of County Commissioners.

MICHELLE LAWRENCE,
Board of County Commissioners.

PATRICIA B. HOLLOWAY,
Board of County Commissioners.

CITY OF AURORA,
Aurora, CO, March 14, 1997.

Hon. A. WAYNE ALLARD,
U.S. Senate,
Washington, DC.

DEAR SENATOR ALLARD: I am writing to express my support for metropolitan planning organization (MPO) reform. Specifically, I support H.R. 477, introduced by Congressman Hefley.

This legislation would provide local governments the flexibility to determine and meet their transportation needs, as I believe is the intent of ISTEIA. H.R. 477 would accomplish the following:

- Allow a jurisdiction to withdraw from an MPO with the approval of local officials representing 50 percent of the population in the entire metropolitan area. Under existing law, jurisdictions must receive approval from 75 percent of the population in the entire metropolitan area;

- Eliminate the central city's ability to block the withdrawal of a jurisdiction;
- Require that the withdrawn jurisdiction and existing MPO's only consult with neighboring MPO's in transportation planning issues;
- Make it the responsibility of the State to provide oversight in the areas with multiple MPO's.

Such legislation would allow more local government flexibility in the area of MPO's by allowing local jurisdictions to withdraw, redesignate, or join an adjacent MPO, while maintaining the need for intergovernmental cooperation. Therefore, I respectfully request that you support H.R. 477 and consider introducing similar legislation in the U.S. Senate. Thank you for your consideration of this important matter.

Sincerely

PAUL E. TAUER,
Mayor.

TOWN OF CASTLE ROCK,
Castle Rock, CO, March 17, 1997.

Hon. A. WAYNE ALLARD,
U.S. Senate,
Washington, DC.

DEAR SENATOR ALLARD: On behalf of the Castle Rock Town Council, I am writing to express support for changes in the nature of Metropolitan Planning Organizations (MPO).

We support some of the intent of H.R. 477 introduced by Congressman Heffley, but feel that one must consider the economic and geographic realities of each area. While the current focus is on transportation issues, other related issues such as air and water quality must be recognized as well in any move to create realigned MPO's.

We believe that the ability of the central city to block the withdrawal of a jurisdiction in the current law should be changed. In our metropolitan area, it is likely that Denver represents a smaller proportion of population than either Jefferson or Arapahoe counties. I suspect this is true in many areas of the country. An organization held together by force is not likely to be as effective as one created by equals working together.

We appreciate your consideration of these potential changes to improve the effectiveness of MPO's.

Sincerely,

DONALD K. JONES,
Mayor, Town of Castle Rock.

CITY OF LONE TREE,
March 14, 1997.

Hon. A. WAYNE ALLARD,
U.S. Senate,
Washington, DC.

DEAR SENATOR ALLARD: On behalf of the Council, I am writing to express the support of the City of Lone Tree for Metropolitan Planning Organization (MPO) reform. Specifically, we support H.R. 477, introduced by Congressman Heffley.

This legislation would provide local governments the flexibility to determine and meet their transportation needs, as we believe is the intent of ISTEA. H.R. 477 would accomplish the following:

- Allow a jurisdiction to withdraw from an MPO with the approval of local officials representing 50 percent of the population in the entire metropolitan area instead of 75 percent as required by existing law;
- Eliminate the central city's ability to block the withdrawal of a jurisdiction;
- Require that the withdrawn jurisdiction and existing MPO's only consult with neighboring MPO's in transportation planning issues;
- Make it the responsibility of the State to provide oversight in the areas with multiple MPO's.

Such legislation would allow more local government flexibility in the area of MPO's by allowing local jurisdictions to withdraw, redesignate, or join an adjacent MPO, while maintaining the need for intergovernmental cooperation. Therefore, we respectfully request that you support H.R. 477 and consider introducing similar legislation in the U.S. Senate.

Thank you for your consideration of this important matter.
Sincerely,

JOHN R. O'BOYLE,
Mayor.

TOWN OF PARKER,
Parker, CO, March 17, 1997.

Hon. A. WAYNE ALLARD,
*U.S. Senate,
Washington, DC.*

DEAR SENATOR ALLARD: On behalf of the Council, I am writing to express the Town of Parker's support for metropolitan planning organization (MPO) reform. Specifically, we support H.R. 477, introduced by Congressman Hefley.

This legislation would provide local governments the flexibility to determine and meet their transportation needs, as we believe is the intent of ISTEA. H.R. 477 would accomplish the following:

- Allow a jurisdiction to withdraw from an MPO with the approval of local officials representing 50 percent of the population in the entire metropolitan area. Under existing law, jurisdictions must receive approval from 75 percent of the population in the entire metropolitan area;
- Eliminate the central city's ability to block the withdrawal of a jurisdiction;
- Require that the withdrawn jurisdiction end existing MPO's only consult with neighboring MPO's in transportation planning issues;
- Make it the responsibility of the State to provide oversight in the areas with multiple MPO's.

Such legislation would allow more local government flexibility in the area of MPO's by allowing local jurisdictions to withdraw, redesignate, or join an adjacent MPO, while maintaining the need for intergovernmental cooperation. Therefore, we respectfully request that you support H.R. 477 and consider introducing similar legislation in the U.S. Senate. Thank you for your consideration of this important matter.

Sincerely,

GARY LASATER,
Mayor.

DENVER REGIONAL COUNCIL OF GOVERNMENTS,
Denver, CO, April 10, 1997.

Hon. JOHN H. CHAFEE, *Chairman,
Committee on Environment and Public Works,
Washington, DC.*

DEAR CHAIRMAN CHAFEE: We have reviewed Commissioner Michael Cooke's March 19, 1997 testimony on behalf of Douglas County before the committee on Environment and Public Works regarding metropolitan planning organization (MPO) reform. We respectfully request this letter and the attachment be made part of the committee hearing record.

While the county is entitled to take its own position on such issues, we are concerned with its portrayal of the MPO transportation planning process before the subcommittee. We are particularly concerned with the examples of the county's frustration with the current MPO system. The presentation is incomplete and in some cases is factually incorrect. Attached you will find a detailed discussion and response to each of the county's examples of issues with the MPO. While there is always room for improvement, the MPO decisionmaking process in our region basically works well and represents a coordinated, regional approach to determining transportation investments in the metropolitan area as intended under the Intermodal Surface Transportation Efficiency Act (ISTEA).

As the Metropolitan Planning Organization (MPO) for the Denver region, the Denver Regional Council of Governments (DRCOG) has the prime responsibility for developing the long-range Regional Transportation Plan (RTP) and its short-range priorities through the Transportation Improvement Program (TIP). It is important to note that the MPO, as structured at DRCOG, brings together the key partners in transportation planning, ensures that the region's transportation plans and projects are compatible with local land use decisions, and addresses air quality issues as prescribed in ISTEA. The process includes policy representatives from the

Colorado Department of Transportation (CDOT), the Regional Transportation District (RTD), and the DRCOG Board of Directors—local elected officials.

With all due respect, we simply do not agree with Douglas County's view of the MPO process in our region. Rather than being a process that "makes real local decisionmaking illusory," the MPO process in the Denver region is driven by the projects identified by local governments, the Colorado Department of Transportation and the Regional Transportation District. Moreover, it is local governments represented by elected officials on the DRCOG Board of Directors, that make the decisions on the criteria for project evaluation and on the projects to be included in the TIP.

Douglas County's testimony states that under ISTEA, the MPO role has shifted from advisory to "actual approval of specific Federal transportation funding projects . . . taking that direct authority away from local governmental entities." In fact, ISTEA marked a new era in transportation planning—one that emphasized local discretion and control of investment decisions. Prior to ISTEA, transportation project decisions were made solely by the states. The significance of the MPO role is in providing a cooperative forum for local government interests, in partnership with state and other interests, to determine and to act on the transportation needs of the region. The MPO must consider these needs within a fiscally constrained context. Thus, only the projects with the highest priority which collectively meet air quality standards, are considered in the TIP.

Commissioner Cooke states that the MPO process "tends to inhibit local decision-making and has resulted in a heavy-handed bureaucracy that is in many ways worse than the process was before ISTEA." On the contrary, the significance of ISTEA is that for the first time local elected officials, acting through their metropolitan organizations, were given the responsibility and authority, cooperatively with the states, to set priorities for use of Federal transportation funds. Pursuant to this responsibility and authority, DRCOG has established plans and programs which respond to Federal statutory and regulatory requirements and ensure a fair and equitable distribution of Federal transportation funds throughout the region.

As with any process which allocates limited resources, there will always be winners and losers; however, during the ISTEA authorization period, the distribution of dollars through DRCOG's process has been responsive to Federal requirements, has given all eligible local governments an equal opportunity and has been fair and equitable. We have diligently sought to maintain a level playing field for all of our member cities and counties.

The starting point for DRCOG's project priority determinations is in fact local decisionmaking. Our process begins with an open solicitation of projects. Only the projects received through this solicitation are prioritized and considered for inclusion in the TIP. In response to this solicitation for the 1997–2002 TIP, Douglas County did not submit any projects for consideration. During solicitation for the 1995–2000 TIP, the county only submitted two enhancement project proposals—both for trails. For the 1993–1995 TIP, the county also only submitted two projects. Both of these were selected and included in the TIP. See the attachment for a discussion of these projects—Lincoln Avenue and Highway 105. Without project submittals to evaluate, DRCOG has no basis for including Douglas County projects in the TIP.

With respect to the issue of equity, I would respectfully point out that for the 1992–97 ISTEA authorization period, DRCOG allocated 4.4 percent of the funds over which it has primary authority to projects located in Douglas County. Those funds within the Colorado Department of Transportation's purview amounted to 2.3 percent of the regional total for an overall share of 2.6 percent. The county's average population share of the region between 1992–96 was 4.5 percent.

Douglas County raises an issue regarding the size and complexity of DRCOG as hampering their efforts to proceed with infrastructure projects. The focus of their concern is the relationship between the municipalities and the counties within the DRCOG structure as well as the perceived role of the City and County of Denver. If Douglas County and other jurisdictions have concerns regarding their role and participation within the DRCOG structure, that is an issue that must be addressed locally, not by Congress. DRCOG is a voluntary association of cities and counties which is organized and operates by the consent of its member governments. To date, Douglas County has not raised these concerns directly within the organization. Let me assure you that as Chairman of the Board of Directors, if Douglas County or any other member has concerns about DRCOG's structure, we are prepared to address those concerns among the membership. To do this we would urge the county to work with its colleagues at DRCOG to address such issues locally rather than continuing to pursue national legislation.

Appropriately, MPOs nationally have been given significant responsibilities to ensure that ISTEA works as Congress intended. They have performed very well, in-

cluding throughout the Denver metropolitan area. Diminishing the MPO's role and breaking-up the metropolitan areas that they serve will not enhance the operation or perspective sought by ISTEA.

Sincerely,

MARGARET W. CARPENTER,
Chairman.

ATTACHMENT

RESPONSE TO ISSUES IDENTIFIED IN DOUGLAS COUNTY TESTIMONY BEFORE THE U.S.
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS—MARCH 19, 1997

Lincoln Avenue—Page 3 of testimony

The statement is made that DRCOG denied funding for the Lincoln Avenue project because we identified it as a "capacity enhancement" project. While Lincoln Avenue was a capacity enhancement project, it was not denied funding for that reason. In 1993, Lincoln Avenue existed as primarily a two-lane road from 1-25 on the west to Parker Road/SH-83 on the east, with short sections of four lane in the vicinity of 1-25 and just west of Jordan Road. As mostly a two-lane roadway, it provided two-lane capacity. By adding the additional two lanes, the capacity would indeed be increased to that of a continuous four-lane highway. It should be noted that this roadway parallels, at approximately one mile distance, the E-470 tollway, which is a freeway providing two lanes in each direction. With both the four lanes on E-470 and the two lanes on Lincoln Avenue, the near term capacity needs of the corridor were not an issue. The project was originally selected for Federal funding in the 1993-98 Transportation Improvement Program (TIP). However, in order to find conformity between the TIP and the State Implementation Plan (SIP) for Air Quality pursuant to section 176(c) of the Clean Air Act as amended, it was necessary to constrain the TIP time period to 1993-95 such that the transportation improvements which actually would be constructed within that timeframe could show attainment of the SIP requirements in 1995. Consequently, capacity adding projects which could not show that they had completed all environmental clearances, such that they could be constructed by 1995, had to be excluded from the 1993-95 TIP. As Lincoln Avenue had not completed required environmental clearances necessary for the use of Federal funds, it was unable to be constructed within that time period. Thus, in order for DRCOG, as the Metropolitan Planning Organization (MPO), to respond to Federal law and regulation—both transportation and environmental—the Lincoln Avenue project ultimately could not be included in the 1993-95 TIP. The project could have been included in the next TIP; however, the county proceeded to complete the project using its own funds.

SH-105—Page 3 of testimony

It is stated that "in 1993, the County applied for funding for a bicycle project that was originally planned to add a shoulder to 22 miles of Highway 105 under the County's jurisdiction." It is then alleged that "DRCOG unilaterally and drastically modified the scope of the project and narrowed the project to a 2-3 mile section of roadway under the State's jurisdiction, not the County's." And, as a result, the county rejected the project. This is simply not the case. The 1993-95 TIP allocated \$445,000 for this project as requested by Douglas County. The project boundaries as selected by the county were from the El Paso County line to Red Rock Drive. This length contains a long segment of county road and a short segment of state highway. The project description, as identified on page 29 of the adopted TIP, is exactly as stated in the Douglas County application. Subsequent to the project's inclusion in the TIP, the Colorado Department of Transportation (CDOT) indicated that per Federal regulation shoulders could not be added to the road to accommodate bicyclists unless the entire roadway was reconstructed to Federal standards. The \$445,000 requested by Douglas County was clearly insufficient to fund construction to Federal standards for 22 miles of roadway. In an attempt to salvage the project, DRCOG did photolog it and, using this video, discussed the project with CDOT Region 1 staff and Douglas County staff in the summer of 1993. Discussed were ways to modify the project scope and reduce the project length to the most critical sections to fit within available funding. On September 28, 1993 a field inspection was conducted regarding Douglas County's proposed shortened improvement from Sedalia to Wolfensberger Road with state, county and DRCOG staff attending. At the meeting, CDOT Region 1, indicated that the construction requested would cost about \$2 million due to roadway drop offs, vertical curves and a substandard bridge. Douglas County agreed to pursue an option involving adding four-foot shoulders on either

side of the road including planned bridge improvements. They would pursue a roadway standard variance with the Federal Highway Administration (FHWA). As the state was not prepared to provide the matching funds, the degree to which the county would financially participate was a key determinate as to the project proceeding. The project was deleted from the 1993-95 TIP at the request of Douglas County, the county stated that the local match was unavailable.

SH-85—Page 3 and 4 of testimony

It is alleged that DRCOG was “often an obstacle in Douglas County’s efforts to have additional mileage on Highway 85 added to the proposed National Highway System in 1995.” It is true that DRCOG’s first reaction was that it was “not possible” to add to the NHS mileage. Until Congress later saw fit to change the situation, it had established a specific mileage limitation on the NHS. FHWA rules implementing the Congressional action had set specific NHS roadway mileage quotas by state for roadways, both rural and urban. However, the principal reason that SH-85 was not considered for NHS mileage was that it had not been functionally classified as a principal arterial roadway. Only roads officially classified by CDOT as urban or rural principal arterials or freeways were eligible for classification as NHS routes. Within rural areas, the state evaluated principal arterial roadways for NHS designation on the basis of interstate connections, connections between major urban areas, cross-state connections, and vehicle miles of travel within a very limited federally prescribed amount of available rural principal arterial mileage. With the exception of a two mile segment of SH-85 in Castle Rock, SH-85 south of C-470 and SH-86 were classified as minor rural arterials and, consequently, could not be evaluated under FHWA criteria for NHS designation. Within these constraints, DRCOG’s role was to simply provide advice to CDOT. The state concurred and did not include SH-85. As a result, SH-85 was not considered for NHS designation. Once Congress opened the door for additional mileage through the political process, irrespective of designation criteria, DRCOG did support the addition of the SH-85 mileage to the system. Our concern has always been that open and objective criteria be used to select roadways in the region for whatever reason to assure fair and equitable treatment to all of DRCOG’s member jurisdictions and to avoid inappropriate political pressure within the Board.

Further, it is alleged that DRCOG is opposed to equitable highway funding as it thwarted the county’s attempt to apply for NHS funds for a dangerous intersection on Titan Road near SH-85 as the “application deadline [for submittal of projects for the 1997-2002 TIP] was less than 20 days after the FHWA had allocated funds to the State and a little over 35 days since the NHS had been enacted into law.” The fact that the NHS had just been enacted into law has nothing to do with applying for funding to address a dangerous intersection on this roadway. Indeed, the 1993-95 TIP contained a project to “address operational improvements” along the entire stretch of SH-85 from C-470 to Castle Rock, which includes this intersection. Further, as is clear in Federal law, Congressional adoption of the NHS did not make any more funds available than had previously been allocated to the states for the NHS. While the recent NHS designation may have made this section of SH-85 eligible for NHS funds, this project, had it been submitted on time, would have had to compete with other major projects from throughout the region for extremely limited funds. Apparently, the state did not see the SH-85/Titan Road project as of high priority. CDOT Region 1, which is the responsible agency for this portion of SH-85, did not submit an application for funding the SH-85/Titan Road project. Instead, the SH-85 project it did submit was for a demonstration project that would allow the state to implement strategies to maintain improvement options until such time as additional construction funding is available. Clearly, the application deadline for TIP project submittals had nothing to do with submitting this project as improvements on SH-85 it could have been funded with other funds besides NHS dollars. While the time available between NHS adoption and TIP application deadline was short, the data to be submitted in the project application is not overwhelming, especially if the project is of such high priority. It should be noted that the DRCOG Board of Directors turned down late submittals of other projects with compelling arguments for consideration because they believed that in order to assure equitable funding opportunities, all applicants needed to abide by the rules so that the TIP process was as fair as possible.

The timeliness of the submittal of the project, however, would not appear to be the issue at hand. In April 1994, CDOT completed an environmental assessment (EA) of SH-85 from C-470 to Castle Rock. This EA was adopted by the Federal Highway Administration in June 1994. The EA states that while widening of the intersection with Titan Road will be included in the SH-85 widening project, “the expansion of Titan Road to a four-lane and the railroad grade separation will be

Douglas County's responsibility" (p. 15). Only SH-85 is on the National Highway System and DRCOG's 2015 Interim Regional Transportation Plan. Titan Road is not. Consequently, this portion of the project would appear not to be eligible for use of Federal funds even if it had been submitted on time.

I-25—Page 4 of testimony

It is alleged that DRCOG attempted to stand in the way of a widening of I-25 by reallocating the construction funding requested to another project outside of Douglas County without the knowledge of CDOT, and recommended, instead, that \$300,000 be allocated for the roadway to be studied in 1999. Again, here are the facts. The original project application submitted to DRCOG by CDOT Region 1 called for \$300,000 to be allocated in year 3 (FY 1999) to conduct a major investment study and the necessary environmental assessment, as required by Federal law and regulation. Such studies identify what needs to be done, how much it will cost, and how to address environmental impacts. The application also showed \$30 million for design, right-of-way, and construction at some "future" date. In the first draft of the 1997-2002 TIP, staff included only the \$300,000 in FY99 as it was uncertain as to what "future" meant, and since CDOT had no idea of exact costs until the studies were completed. On the basis of this draft, subsequent discussions were held with CDOT Region 1. The state then modified its submittal to show \$7.5 million in the second 3 years of the program (FY 2000 through fiscal year 2002), but the remainder of the dollars (\$22.5 million) were to be needed sometime beyond 2002. Because the state still needs to complete the necessary studies, it is still uncertain as to whether the \$30 million is an appropriate estimate for needed construction. It assumes that the \$7.5 million can at least be used for upgrading sub-standard interchanges in this area. We believe it is indeed prudent of an MPO to ask questions with respect to large expenditures of dollars when the application is not well defined and when funding for the region is constrained. Most emphatically, the \$30 million of design, right-of-way and construction proposed by the state was not reallocated to any other roadway in the region. DRCOG's long-range plan calls for widening of I-25 in Douglas County and we are supportive of this project. DRCOG has been working with the state and the adjacent MPO to expedite necessary studies to more accurately define the south I-25 corridor needs and costs and, hopefully, to expedite necessary improvements.

PREPARED STATEMENT OF GUILLERMO V. VIDAL, EXECUTIVE DIRECTOR, COLORADO
DEPARTMENT OF TRANSPORTATION

Chairman Warner, Senator Baucus, members of the committee, thank you very much for the opportunity to speak before you today. My name is Guillermo V. Vidal and I am Executive Director of the Colorado Department of Transportation (CDOT). It is with great respect that I come before you today to talk about Colorado's success in implementing the policy direction set forth in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991.

I have been with CDOT for over 20 years. In that time, I can tell you that the adoption of ISTEA has had the most significant influence on the operation of my organization. I should also note that in 1991, my organization was converted by our state legislature from a Department of Highways to a Department of Transportation. This new CDOT legislation also embraced the long range, multi-modal planning process put forth in ISTEA. Our transportation success in Colorado is evidence that ISTEA works!

Although, when we first began we thought implementing ISTEA was going to be the end of civilization as we knew it, I am proud to be here today to advocate that ISTEA works and only minor modifications to the Act are necessary. As you may already be aware, Colorado Governor Roy Romer is part of the ISTEA WORKS coalition initiated by the Northeastern states. However, he has not endorsed any particular piece of legislation. It may seem unusual that a Rocky Mountain state would have any transportation commonality with the northeastern states, but in fact, we believe that the principles put forth by that group of states best meets Colorado's policy objectives in the reauthorization of ISTEA. For your convenience, I have attached a copy of Colorado's ISTEA Reauthorization Principles and the ISTEA WORKS Reauthorization Principles.

Colorado's ISTEA Reauthorization Principles are a representation of input from various interests in Colorado ranging from our modal, environmental, business and local planning partners. Because of the rapid growth in our state and our concern for the impact this growth will have on our environment and quality of life, all of these interests were anxious to work together. Our ability to develop a statement

representing such broad interests is largely due to the communications and relationships built through the development of our 20-Year Statewide Transportation Plan.

I am personally very proud of Colorado's Statewide Plan. It took us 5 years and a great deal of work for the plan to be developed, but it was well worth the pain. Colorado's Statewide Plan is multi-modal, policy-oriented and project specific. It is the reason why today our state legislature has the confidence to invest state general fund surplus revenues in transportation to meet our ever increasing transportation needs (\$830M over 5 Years with 20 percent allocated to our MIS corridors). It is also one of the reasons why our business community in Colorado is pursuing a tax initiative this November to further meet our mobility needs and address our funding shortfall. Colorado's 20-Year Priority Plan totals \$27.3 billion. With anticipated revenues of \$19 billion, our funding shortfall is approximately \$8 billion. But you didn't ask me here to talk about money.

COLORADO'S STATEWIDE TRANSPORTATION PLAN

Although our success in developing a statewide plan may not be unique, our experience was. I'm a strong believer in consensus building. I believe in bringing people to the table, talking about our needs and working together to determine the best transportation solutions for Colorado. And then, working together to get those solutions funded and built. As I stated before, in 1991 our state legislature embraced the policy direction established by ISTEA and further created a State Transportation Advisory Committee and 15 transportation planning regions. Together with CDOT, this group of representatives partnered to create our statewide plan. Colorado's Statewide Planning Process included the following:

- Grassroots based process—broad public participation
- 15 Transportation Planning Regions (TPRs) made up of local elected officials, planners, environmental, economic development interests and modal representatives
- Consistent planning process and planning information provided to each TPR
- Flexible to account for regional diversity
- Regional "Preferred Plans" and "Constrained Plans"
- Regional Plan priorities developed through criteria-based consensus process
- Statewide Plan created to reflect regional needs and regional priorities
- Statewide Plan strived to balance quality of life issues regarding mobility, environment, and economic development
- Statewide Plan incorporated State Significant System project priorities

The Plan that resulted from this process has two components: policy and projects. The Policy Plan includes policy direction, issues of statewide significance, and our transportation investment strategy. The Project Plan includes over 3,000 projects from regional transportation plans and establishes priorities among the projects

Public participation, fiscal constraint, modal integration, joint decisionmaking, major investment studies, conformity and enhancements are all part of what makes our plan successful. It is not to say however, that the process is perfect.

We in Colorado would like to see the following modifications made to ISTEA:

- More flexibility given to the states to move money between categories. We are committed to the program but need flexibility to invest the dollars in the project areas prioritized through the planning process (i.e., ITS eligibility, funding available to all modal applications, etc.).
- Streamline the Enhancement Program to a state administered grant program to allow for the most effective use of the funds and not dilute the programs objectives with administrative costs and Title 23 requirements.
- Retain the MIS process with a more defined relationship with NEPA. We see the MIS process as a great tool in helping us determine what the best transportation modal investment should be in Colorado. We are committed to this process and encourage your support for its continuation. Colorado has gone further and established Corridor Investment Studies to address selected corridors outside the metropolitan areas.
- Streamline the Federal approval process to allow for program approvals on an annual or semi-annual basis rather than project-by-project.
- Consolidate the 23 planning factors to a more manageable number as proposed by the Administration.
- Continue the use of Innovative Financing tools that allow the states to creatively pursue mechanisms to leverage existing revenue streams.

I would like to conclude my remarks by once again stating that ISTEA WORKS for Colorado. I admire your leadership in addressing the nations transportation challenges and I hope the experiences I have shared with you today help you better understand the impact this legislation has on our state and our communities. I ap-

preciate the opportunity to come before you today. I can answer any questions that you may have for me.

COLORADO ISTE A REAUTHORIZATION PRINCIPLES

1. The policy direction initiated by the Intermodal Surface Transportation Efficiency Act (ISTEA) should continue with minor modification.

Colorado supports continued evolution of the policy concepts initiated in ISTEA specifically in the areas of public participation, partnership, state and local decision-making, environmental/air quality sensitivity and multi-modal long range planning. Colorado recognizes the value of increased coordination and cooperation with all levels of government and the private sector and the benefit each provides to the overall transportation system.

- Colorado is committed to continuing a strong public participation process as part of our statewide planning process.

- Colorado advocates joint decisionmaking with our Federal/state/regional and local partners.

- Colorado has demonstrated commitment to the policy direction initiated by ISTEA and believes, based on individual state priorities, that it should be a determination of the state as to what programs modified and continued.

2. Greater flexibility of Federal funding is essential to implement state and locally determined transportation solutions.

Colorado should have the authority to invest in any mode of transportation or technology deemed appropriate to accomplishing access, environmental/air quality and mobility goals and objectives. Colorado supports the concept of making Federal transportation funds more flexible for state and locally determined investment.

- *Definition of Flexible Funds*—Funds utilized to design, construct and preserve any transportation mode (as defined in 43-1-102(6), C.R.S. for highways, rail, transit, aviation, etc.) as determined through the statewide transportation planning process to most appropriately meet the transportation needs to move people, goods and information in the state.

- Colorado has invested heavily in developing our long-range multi-modal planning process. We are committed to continued investment in this approach in order to reach our goal of a sustaining a viable transportation system while maintaining quality of life for our citizens. This objective is attainable if Federal programs are simplified by allowing program funding to be flexible and project selection to be driven by locally identified needs.

- Colorado is committed to the continued use of major investment studies (MIS) as one means of determining the best modal solution within congested corridors.

- Colorado supports the continuation of the current programs under ISTEA. However, due to the varying conditions and problems from state-to-state and mode-to-mode, greater flexibility is needed between and within programs. Therefore, Colorado is opposed to any additional Federal categorical requirements, set-asides and suballocations that inhibit the flexibility of the state and MPO's to adequately invest funds. Colorado also supports the current fully flexible suballocation to the Transportation Management Areas (TMA's).

- Colorado supports the reduction in take downs and any other mechanisms used to decrease the total funding available to be distributed back to the states.

3. Eliminate mandates, sanctions, and restrictions.

Great strides were made through NHS to eliminate many onerous mandates that held no relationship to state's priorities or needs. Colorado supports the continued elimination of mandates and sanctions that limit the powers of the state to implement individual states needs Congress should either eliminate mandates and restrictions that show little cost effectiveness or fully fund remaining mandates that impact the funding of other transportation programs.

- All remaining unfunded mandates should be eliminated. Specifically the DUI zero-tolerance penalty, and the safety and congestion management system mandates.

- Federal programs should be geared more toward incentives for increased participation rather than sanctions.

- Federal restrictions, such as the ability to toll the interstate and privatize rest areas on Federal aid facilities, should be left to the discretion of the states.

- Simplify and reduce Federal regulations that often limit state flexibility and constrain already limited Federal dollars.

4. Reduce Federal DOT oversight and reporting requirements.

ISTEA emphasized an increase in efficiency of both programs and the administration of funds. Colorado believes a streamlining of the Federal administration of pro-

grams could significantly improve the overall efficiency and effective use of very limited Federal dollars. Wherever possible, Congress should provide for increased self-certification by the states and delegate current Federal regulatory oversight to the state and local agencies.

- Federal reporting requirements often require excessive staff resources that exceed the perceived Federal benefit. Relationships between Federal reporting and state compliance should be further clarified and simplified where possible.

- States should be allowed to certify compliance with Federal guidelines/objectives in order to simplify the process.

- Through ISTEA, Colorado has developed successful partnerships among players and brought about a unified transportation agenda. As such, Colorado favors a unified transportation budget and a surface transportation administration to support our continued success.

5. *Colorado advocates: Full funding of the Federal transportation program; returning the 4.3 cents gas tax from the general fund; spending down the Highway Trust Fund; and taking the trust funds off budget.*

ISTEA WORKS

ISTEA REAUTHORIZATION PRINCIPLES

1. Maintain the course set by ISTEA. It represented a revolutionary change from past transportation legislation and was the result of a truly bipartisan effort that recognized how interdependent the state's economies are and, thus, designed sound programs that benefit the Nation as a whole. The 40-year Interstate Highway construction era was shifted to a new era of highway and transit system preservation, increasing efficiency of existing networks, and improved intermodal integration to support efficiency and a sound economy.

2. Reauthorize ISTEA with simplification and refinement but without significant changes. While improvements can be made, its fundamental structure is sound and should be preserved. States, regional and local governments have invested heavily in making ISTEA work. This Investment should not be wasted.

3. Authorize the maximum level of Federal investment possible, over the next 5 years, in our nation's multi-modal transportation systems. All sources of revenue that currently fund transportation should be maintained and maximized. Recognize the crucial link between investments in transportation and our ability, as a nation, to compete globally. The return on these investments is unparalleled in government.

4. Allocate funds to states primarily based on needs. Adjustments to reflect system usage, system extent, level of effort, each state's overall balance of Federal payments, and historic distribution patterns should also be considered. In addition, discretionary funding programs should be continued in order to meet extraordinary and emergency needs.

5. Retain the Federal Government's role as a key transportation partner to help fund highway, bridge and transit projects and to assure that a national focus remains on mobility, connectivity, uniformity, integrity, safety and research. Our nation's transportation programs should also continue to support related national goals such as improved air quality, economic competitiveness, and improved quality of life.

6. Preserve and strengthen the partnerships among Federal, state and local governments and between the public and private sectors which were formed to implement ISTEA. Shared responsibility for national transportation interests, encouraging public participation in the planning process, building national coalitions, and the promotion of environmentally friendly intermodal transportation projects must be provided for. The current program for metropolitan areas with more than 200,000 population and the state role in the metropolitan planning process should also be retained.

7. Reauthorize ISTEA to continue current programs and refrain from creating any new funding categories or set-a-sides. Due to the varying conditions and problems from state-to-state and mode-to-mode, it should also allow greater flexibility between programs and eligibility within programs.

8. Minimize prescriptive Federal regulations to allow for a more efficient and effective transportation program and eliminate Federal/state duplication. Reauthorized ISTEA should continue to reduce time consuming Federal reviews, onerous mandates and sanctions, and allow self-certification at the state level.

9. Permit state and local jurisdictions to apply innovative financing solutions to address the growing transportation financing gap. States should be allowed to uti-

lize their unobligated balances to guarantee bonds, enhance credit and capitalize state infrastructure banks.

10. Continue to support research, development and deployment of ways to improve quality and efficiency. This should include new technology such as ITS, as well as new materials, designs and practices.

DEPARTMENT OF TRANSPORTATION,
Denver, CO, May 28, 1997.

Senator JOHN H. CHAFEE,
Committee on Environment and Public Works,
Washington, DC.

DEAR SENATOR: This letter is in response to questions in your March 28, 1997 letter.

The planning process in Colorado is patterned after and supports the intent we believe is embodied in ISTEA. Many of the "requirements and mandates" included in the Federal planning regulations were utilized in Colorado as opportunities and challenges to find a better way to establish agreement, and build partnerships in transportation. We viewed the programs and elements of the Federal planning process as flexible and not prescriptive, to be molded by Colorado into something that would fit our needs and be supportive of coalition building.

Many of the initiatives undertaken and successfully carried out in Colorado would not have been possible without the guidance and direction afforded by ISTEA. Building upon those ideas, CDOT crafted a process that was successful and meaningful to the State of Colorado. We and our partners are already planning for and looking forward to the update cycle beginning in July, 1998, because we are eager to build off of the progress and support generated by this effort.

You asked that I describe my experiences with respect to planning over the last 6 years that transformed my fears of ISTEA into a ringing endorsement. Below are a few of the key features of our process that enabled us to achieve success, establish credibility, and build partnerships for transportation in the state.

- The Colorado Department of Transportation began the planning process required by ISTEA and state law by directly and intensively involving local governments, interest groups and the public in the development of our process and plan. State law created ten additional Transportation Planning Regions (TPR) in addition to our five existing Metropolitan Planning Organizations (MPO). The TPRs were used as the foundation for developing regional and state transportation needs and CDOT gained statewide commitment and buy-in to the process, results, and the recommendations. We gained support for our efforts by applying public participation and involvement to all aspects of the planning process and not simply following the letter of the law.

- The formation of the Statewide Transportation Advisory Committee (STAC), which is required under state law but was supportive of the partnerships and involvement encouraged by ISTEA, has been a key link in the chain of credibility that we have forged. This committee, comprised of one representative from each Transportation Planning Region plus one representative from each of Colorado's two Indian Tribes, is ongoing and is advisory to the Department on transportation needs and policy issues relevant to the process. This group has been instrumental in helping to establish credibility of the Plan.

- The 15 regional plans were integrated into a statewide plan that truly had consensus. When the Transportation Commission approved the Plan in January, 1995, there was no opposition to the conclusions or recommendations in fact several diverse groups supported the Plan before the Commission prior to approval. This shows unparalleled consensus and support for an inaugural effort and unique approach to developing a transportation plan in Colorado.

- By allowing the Transportation Planning Regions, (including the associated local governments, interest groups, and the public), to participate in the development, prioritization and selection projects to be included in the Plans, we built coalitions for improvements that had never before existed. By applying the general concept of regional decisionmaking, required by ISTEA in metropolitan areas, to the other regions of the state, we gained meaningful involvement and interest in the process.

- We are using the Major Investment Study (MIS) approach to not only develop the best solution, but also to build consensus and public support for transportation alternatives in controversial corridors. The concept of evaluating major transportation investments in metropolitan areas has been utilized successfully in three corridors in the Denver metro area. CDOT has also embraced this concept for identify-

ing the best possible investment strategy in other areas of the state. Studies to evaluate potential major investments are underway, or proposed, in at least three additional corridors: I-70 west of Denver through the mountains, I-25 north of Denver to the Greeley/Fort Collins area, and I-25 south of Denver to Colorado Springs or Pueblo. This method of determining the best transportation solution in a complicated corridor has generally been endorsed in the state as a sound approach.

- Increased public involvement encouraged by ISTEAs has been seen as an opportunity rather than a mandate. We see the requirements as flexible and not prescriptive, and we have tailored our approach to fit our needs, resulting in a process that is responsive and inclusive. It has been a cornerstone in achieving consensus and buy-in to transportation needs in Colorado. This included a comprehensive statewide household survey on transportation needs, advisory committees, local and regionally based public participation, and outreach to under served populations.

- Because of the consensus, broad-based support, and the outreach/involvement that have characterized this effort, the Plan, its needs, its policies, and its projects are standing the tests of time. It has been reviewed, scrutinized, and supported by the business community and other groups interested in revenue increases. It has been quoted and relied upon by the environmental community to support its call for environmental awareness and project conformity, and it has been audited by the Legislature to ensure reasonableness and soundness.

In summary I would emphasize my strong support of this approach to planning because I have seen it accomplish wonderful things in Colorado; in short, it works. Certainly there have been some rough spots, and we still have our detractors, but we have put in place a grassroots, regionally based planning process that supports statewide policy and generates broad-based support. We intend to build on this philosophy and approach as we plan for the future. This is the basis for Colorado DOT's strong support for the continuation of ISTEAs programs in the Reauthorization.

Sincerely,

GUILLERMO V. VIDAL,
Executive Director.

PREPARED STATEMENT OF TIMOTHY STOWE, CHAIRMAN, ACEC'S TRANSPORTATION
SUBCOMMITTEE ON ISTEAs

Mr. Chairman and members of the subcommittee, thank you for the opportunity to be with you today to testify on the reauthorization of the Intermodal Surface Transportation Efficiency Act. My name is Tim Stowe and I am Vice President for Transportation Planning and Surveying with the consulting engineering firm of Anderson & Associates in Blacksburg, VA. Today however, I represent the American Consulting Engineers Council (ACEC).

ACEC is the largest trade organization of its kind, representing approximately 5,000 consulting engineering firms from across the country, employing some 200,000 people. Our members are consultants to public and private entities, and furnish professional services in planning, engineering, maintenance, and operation of our nation's transportation systems.

It has been said, Mr. Chairman, that the wealth of our nation did not build our transportation system, but rather, our transportation system created the wealth of our country. Consulting engineers understand and appreciate this basic relationship between infrastructure and industry. We have been involved with planning, designing, constructing, maintaining, and enhancing these infrastructure projects. We also planned and designed the projects that accompanied the massive economic development triggered by the resulting arteries of commerce and prosperity.

For years, our nation's transportation system has been the envy of leaders and businesses around the world. However, as each year passes in which we fail to maintain our infrastructure we are, in effect, withdrawing from our long-term investment and leaving a deficient transportation system for the next generation. In an era of scarce Federal resources to fund transportation projects, we simply must do better with the funding we have if our nation is to continue to prosper and grow in the 21st Century.

Last year, ACEC was asked and accepted your challenge to look at how we can accelerate the delivery of transportation projects. We believe we can improve the delivery of transportation projects at a reduced costs to the taxpayer while, at the same time, enhancing public input, achieving the environmental goals set forth under the National Environmental Policy Act and other laws, and improving quality. We accepted this challenge Mr. Chairman and I am pleased to present to you and the members of this distinguished committee, ACEC's vision for ISTEAs II.

ACEC's report is divided into four sections: Funding for the Future, Partnerships for Quality, Accelerating Project Delivery, and Quality Through Competition. I will limit my remarks to the recommendations contained in the Accelerating Project Delivery section of the report since these proposals focus directly on environment and planning issues. I encourage you to read the entire document which contains additional recommendations and I will be pleased to answer any questions that you may have on the other sections of the report.

I believe we can all agree that it is taking too long to deliver badly needed transportation projects to the American public. On average, it takes 10 years to plan, design and construct a major transportation project. We believe this time can be reduced by 30 percent.

Currently, there are delays in issuing permits after environmental documents have been certified. There are unnecessary, duplicative and burdensome regulations that impact the day-to-day work. Finally, there are numerous levels of government that are enmeshed in an institutional and organizational web where accountability is frequently unclear and where resources do not necessarily follow responsibilities. Mr. Chairman, we have included examples of these with our testimony but I suspect that you may have some of your own examples of projects that go on for years at tremendous cost to the taxpayer.

To improve the planning component of project delivery we propose to:

- *Establish inter-agency environmental units in each state*

In order to avoid delays associated with this bureaucratic quagmire, ACEC recommends that inter-agency environmental units be established in each state empowered to directly and expeditiously address environmental issues. These environmental units, that would be funded by transportation revenues and housed near Federal and State DOT offices, would focus their resources to issue a single approval. In addition, incentives should be provided for the State agency to accomplish its work on time, on budget, and according to standards.

Through a series of cooperative interagency agreements between State and Federal environmental agencies, this unit would be empowered to administer, review and approve environmental documents. Specific situations may require that the unit would directly contact a source agency to resolve a particular issue. Acting as a surrogate staff of the agency, the environmental unit manager would know the detailed local situation, who to contact in the Federal agency, and be able to expeditiously coordinate followup activities. We believe this management realignment alone could save a significant amount of the time required to prepare an environmental document.

Our proposal is not intended to change the goals set forth in the National Environmental Policy Act or other related environmental laws. We wholeheartedly support a strong environment. Our goal is to address the process issues which end up adding substantial time and cost to the transportation projects.

- *Enhance Public Involvement*

The current delays encountered in the existing stop-and-start process associated with public involvement are further exacerbated by the NEPA process. Milestone documents are required to be published and circulated with one—or two—month review times for the public. Subsequently, a written response must be prepared and documented for each concern or for similar concerns. While this occurs, the work on the project is all but halted. Often the environmental documents provided to the public for review are voluminous and complex, and describe the project in technical terms not easily understood by the general public. As a result, the documents are read and understood by only a limited number of people.

The public involvement process required by the existing regulations could be simplified and shortened if information were provided in smaller packages at more frequent intervals in an informal process. Smaller public meetings to focus on specific local issues would also enable planners to better address the well-defined needs of specific locations. Additionally, increased use of the Internet to disseminate information about a project should be encouraged. This low-cost method of providing information to a large number of people would benefit both the public and the planners by reducing or eliminating the existing stop-and-go process.

- *Centralize Digital Mapping Products*

Good base maps are the single most critical element of environmental infrastructure and land use planning. The U.S. Geological Survey's quadrangle maps are used by civil engineers, water resource scientists, environmentalists, geologists, and the general public to answer a myriad of questions. Many other Federal and State agencies possess paper and digital mapping products they have developed for their agency's use. Maps currently available to the public provide value far beyond the cost to produce them. The USGS maps have been in use for many years and are available in paper form from the U.S. Government.

ACEC supports acceleration of the National Digital Orthophoto Program (NDOP) to ensure completion of a nationwide inventory of high-resolution, accurate, digital imagery to supplement and update existing USGS topographic maps for transportation planning. The NDOP, which is administered by the U.S. Geological Survey's National Mapping Division, is a collaborative effort between government and the private sector.

The NDOP pools funds from several Federal agencies, and State governments, including some State transportation departments, and relies on private contractors, using the qualifications-based selection (QBS) process, to develop and maintain this critical layer of geospatial information for the Nation. Timely completion of this digital inventory would be a significant benefit to State and national efforts relative to transportation planning. By making available to transportation planners pre-existing standardized national digital mapping products developed by various government agencies, transportation planners can hit the ground running on a planning project rather than wait for months and spending thousands of dollars for new mapping to be developed.

There are other examples of how time may be saved in the development of planning transportation projects in the report attached to my testimony. Taken together, we believe our recommendations can reduce the time it takes to deliver transportation projects by as much as 30 percent while at the same time, protecting the environment, enhancing public participation, and designing high quality roads, bridges and transit systems for the American people.

These briefly stated suggestions summarize only a portion of our vision for the reauthorization of ISTEA. We commend this subcommittee for the hard work and dedication to this important task. Your efforts are apparent to all of us in the transportation industry. We stand ready to serve you, and the American people, in any capacity you deem necessary as you chart the course of our transportation system for the coming years.

Thank you Mr. Chairman for this opportunity to testify.

EXAMPLES OF PROJECT DELAYS

DELAYS IN ISSUING PERMITS AFTER ENVIRONMENTAL DOCUMENTS CERTIFIED

One of the primary sources of delay in the implementation of projects is the granting of permits by Federal environmental agencies after the environmental documents for a project are certified. This occurs even though the environmental agencies participate in the environmental review process. A good example is the project to extend the San Diego light rail from Old Town to Jack Murphy Stadium in Mission Valley. The environmental process began in January, 1990 and was completed with certification in 1992. The permits from the Corps of Engineers and the Wildlife Service were granted in 1995.

It took 3 years to obtain permits from agencies who had the opportunity to review the relevant material beginning in 1990 and had to sign-off on the environmental document in 1992. The analysis, the agreed upon mitigation strategy, and the award of the relevant permits should be completed at the time the environmental documents are certified. It cost the San Diego Metropolitan Transit Development Board, the project sponsor an additional \$500,000 in consultant services alone to negotiate for 3 years with the permitting agencies. (Source: January 6, 1997 testimony by Californians For Better Transportation to Senator Barbara Boxer)

UNNECESSARY AND BURDENSOME REGULATIONS THAT IMPACT THE DAY-TO-DAY WORK

Another example of troublesome regulations that delay project delivery times are those promulgated by the Environmental Protection Agency and administered by the U.S. Army Corps of Engineers. One current illustration of this problem is the Smith Creek Parkway in Wilmington, North Carolina. The construction plans were finally advertised for construction in August 1996 following months of unnecessary, and annoying delays. The final plans were ready for advertisement in Spring 1996.

The Army Corps of Engineers was involved and accordant with the North Carolina Department of Transportation from the early stages of project planning. At the final hour, however, the Corps could not issue the necessary permits for the project. The Corps then required the State of North Carolina to return back to square one by examining alternative alignments. Following several months of bureaucratic posturing and senseless delays, the permits were issued and the project was advertised for construction. (Source: September 26, 1996 testimony by ACEC before the House Transportation and Infrastructure Subcommittee on Surface Transportation.)

MINNESOTA BRIDGE BLOCKED BY PARK SERVICE

On December 27, 1996, The National Park Service issued a determination that no Federal permits be issued for construction of the bridge because it "would have direct and adverse effect on scenic and recreational values of the lower St. Croix National Scenic Riverway." The proposed bridge has been under study for 30 years, and more than \$14 million has been spent on property acquisition and design. (Source: AASHTO Journal, January 3, 1997.)

STATEMENT OF MICHAEL A. REPLOGLE, FEDERAL TRANSPORTATION DIRECTOR,
ENVIRONMENTAL DEFENSE FUND

I am testifying on behalf of the Environmental Defense Fund, a leading, national, NY-based nonprofit organization that represents over 300,000 members across America. EDF links science, economics, and law to create innovative, economically viable solutions to today's environmental problems. I am joined in these remarks by the Natural Resources Defense Council, representing another several hundred thousand Americans.

ISTEA Reauthorization: A Major Environmental Issue. In announcing his National Economic Crossroads Transportation Efficiency Act (NEXTEA) proposal last week, President Clinton correctly said, "Make no mistake about it, this is one of the most important environmental bills to be considered by this Congress." We would respectfully urge the members of the Environment and Public Works Committee to use the NEXTEA proposal as the framework for reauthorization of Federal transportation programs, for it addresses key environmental concerns—

- expanded funding for the Congestion Mitigation and Air Quality Improvement (CMAQ) program and Transportation Enhancements, with CMAQ eligibility extended to long-term maintenance of healthy air quality and new areas found to fail the CAA's health-based air quality standards. These provide the resources for local and state governments to meet Clean Air Act mandates for transportation and to fund important transportation innovations.
- continued requirements for fiscally constrained long-range state and metropolitan transportation planning, public involvement, and interagency consultation. These are vital to Clean Air Act implementation and cost-effective transportation investment and management.
- a stronger and more fairly representative role for local governments in state-wide and metropolitan planning with adequate resources subject to local government decisionmaking authority through both CMAQ and metropolitan suballocation of the Surface Transportation Program (STP).
- new flexibility for states, local governments, and the private sector to introduce market-based incentives, such as value pricing on roads and other transportation facilities, High Occupancy Toll (HOT) express lanes, and a level playing field for employer-provided commuter benefit programs. These voluntary strategies can reduce traffic congestion and air pollution equitably at a very low cost and can help leverage both private transportation investment and more efficient use of existing resources.

Environmental Progress or Peril? Historically, more efficient and effective transportation has been important for economic progress, but has often led to the degradation of environmental quality and threats to public health. Far-sighted Federal legislation over the past 25 years, however, has allowed us to dramatically expand our economy and travel while making environmental progress. However, if key environmental provisions are left out of ISTEA reauthorization, as some have proposed, we are likely to find ourselves as a nation slipping backward into a climate of environmental degradation and even sharper conflict over transportation policy.

- Thanks to mandates for cleaner vehicles and fuels in the Clean Air Act (CAA) starting in 1970 and continuing through the 1990 CAA Amendments, we have sharply reduced the amount of pollution per mile of vehicle travel.

- Thanks to the 1970 National Environmental Protection Act (NEPA) both experts and the public have gained a better appreciation of the environmental consequences of many transportation projects. As a result, some of these projects have been redesigned or rethought to reduce environmental harms.

- Thanks to the intertwined transportation conformity provisions of the 1990 Clean Air Act Amendments and the planning requirements of ISTEA, many of our metropolitan areas with unhealthy air quality have begun to develop, evaluate, and implement regional transportation strategies and investments that will significantly reduce the long-term growth of transportation-related air pollution and other environmental problems, supporting more sustainable and efficient economic development.

- Thanks to the \$1.0 billion a year CMAQ program, many local and state governments have had flexible resources that enabled them to make effective investments in pollution-reducing transportation strategies. These have been complemented by the Transportation Enhancements element of the Surface Transportation Program that has in the past 6 years done more to spur local improvements in pollution-free non-motorized transportation alternatives than any other Federal program.

The Transportation-Air Pollution-Public Health Connection. Despite great progress in cleaning up our air over the past 25 years, careful scientific study has shown us that the danger posed by air pollution to our health is more pervasive than we had ever thought. We know now that, for example, exposure to fine particles can be lethal to those with lung disease, and that hospital emergency admissions for respiratory problems soar on high ozone (smog) days. These health effects occur at levels of air pollution currently found in many of our cities.

In urban and many suburban areas, transportation plays a major role in the creation of air pollution. For both ozone (smog) and particulate matter pollution, the transportation sector, whether it be diesel trucks or gasoline powered vehicles, is a major source of pollution. Transportation is responsible for a variable, but significant portion of particulate matter, roughly 30 percent of nitrogen oxides, and 25–30 percent of volatile organic compounds, both of which can be precursors to ozone and fine particles. To achieve clean air, we must reduce the amount of pollution from the transportation sector.

Growth of vehicle use is far outpacing population and employment growth and poses an environmental challenge itself. While cleaner vehicles and fuels will help address environmental problems, these alone are not sufficient to solve the multiple challenges posed by transportation. Effective solutions require strategies to promote smart growth and transportation, to foster economic development that meets all our household and business needs but with less need to spend time and money traveling. There are no magic solutions. Instead, we must look at combining high and low technologies, market-oriented pricing reforms, and improved linkages between transportation and other aspects of community development to enhance value and choices for travelers and citizens.

National Health Standards, Regional Strategies, Local Solutions. We need a national response to our transportation-related environmental problems that sets the framework. Ever since the early versions of Clean Air Act, Congress and the American people have recognized that air pollution does not respect state boundaries, and that Federal action is needed to clean up the air. Now, we recognize that often the most effective Federal action can be setting up a framework, and then allowing localities to decide how best to implement the law. That is exactly what CMAQ does. Congress has a set of deadlines for Clean Air Act compliance that should require a set aside to ensure those deadlines are met. It is a daunting effort for many states to meet the requirements of the Clean Air Act. The CMAQ program is one way to help make the deadlines achievable.

CMAQ Is the Funding for Clean Air Act Mandates. If CMAQ is curtailed or eliminated, it potentially adds transportation-related clean air requirements to the list of unfunded Federal mandates. CMAQ is the key funding for transportation related clean air mandates. While CMAQ sets up the national framework, it allows for local control and local solutions to air pollution problems. The CMAQ program allows for a fair amount of latitude in implementation, not mandating any specific set of programs. It offers opportunity for development of local solutions that make sense from an air quality and community perspective.

Targeting Resources to Regions with Air Quality Challenges. Although all states are guaranteed a share of CMAQ funds, the program has been designed principally to benefit nonattainment areas, with funds allocated on a population-weighted basis and with a larger weight given to more severely polluted areas. The Surface Transportation Program of ISTEA, on the other hand, has been set up to fund projects anywhere, mostly at the state's discretion. CMAQ and the Enhancements program help fund small, non-traditional projects that are new, innovative, and effective. Against large traditional highway and transit projects, these face tough competition in the inertia-driven bureaucratic process.

The need for providing this type of direction is illustrated by the bridge repair program. Before ISTEA, many of our nation's bridges were in disrepair and were not successfully competing against other highway projects for dollars to pay for repairs. It was not until the bridge maintenance program in ISTEA dedicated money to the bridges did substantial repair work begin on the bridges. Nonattainment areas already are burdened with air pollution; CMAQ makes sure that some resources are available solely to address this problem, alleviating some of the competition with more well-established traditional transportation priorities that have spurred growth in travel and related air pollution.

CMAQ's Flexibility to Meet Local Opportunities. In establishing CMAQ in the 1991 ISTEA law, Congress recognized the need to dedicate a source of funds to help the many areas of the country that have not attained the National Ambient Air Quality Standards (NAAQS) reduce their transportation-related air pollution through innovative investment, system management, public outreach, and planning activities. CMAQ funds can be spent on a very wide variety of initiatives to help implement transportation control measures (TCMs) and programs designed to attain the NAAQS for carbon monoxide, ozone, and in some cases, small particle matter. CMAQ is designed to cut across traditional boundaries, encompassing projects and programs dealing with highways, transit, and non-traditional areas, such as vehicle emission and inspection and maintenance. CMAQ is not to be used for actions that will increase air pollution problems or delay attaining the NAAQS, such as expanding single-occupant vehicle highway capacity. CMAQ can be used to improve the quality of information and analysis systems to forecast travel behavior and environmental consequences of transportation plans and programs.

CMAQ Successes. Across the nation, CMAQ funds have been invested in a wide variety of projects that have improved air quality. Boise, Idaho, spent CMAQ dollars to replace some of its old diesel buses with new, cleaner buses powered by compressed natural gas and equipped with bicycle racks to allow users greater travel choice. CMAQ has been used to encourage pedestrian and transit oriented development, to improve conditions for walking and bicycling, to encourage ridesharing and reverse commute programs, and to improve access to public transportation. In San Francisco, the Freeway Service Patrol used CMAQ money to buy tow trucks to clear incidents and help stranded motorists, thus reducing congestion and delay. More than 40 percent of CMAQ spending has gone to support transit initiatives, with over \$275 million devoted to clean transit projects or clean fleets applications. Some communities used CMAQ funds to update their land use ordinances and urban design requirements to expand transportation options and choices and reduce traffic and pollution problems. Yet others have used CMAQ to fund planning, public education, and public involvement efforts to improve decisionmaking, cost-effectiveness of investments, and to build community consensus on transportation solutions.

CMAQ Eligibility Issues. Some states have devoted a large share of CMAQ funding to traffic flow improvements. While these are eligible under the terms of the Clean Air Act and CMAQ program, they generally produce at best short term reductions in air pollution. These traffic flow improvements often reduce short-term VOC emissions while boosting NO_x emissions in both the short and long-run. Such projects often also spur long-term growth in pollution-creating traffic and encourage greater sprawl development. Traffic signalization improvements in isolation often produce only short-term benefits, but when linked to public transportation priority treatment strategies and attention to pedestrian and bicyclists needs, these can produce long-term positive environmental benefits. Add-a-lane High Occupancy Vehicle (HOV) lane projects, on the other hand, rarely produce sustainable pollution reductions because of their effect in spurring sprawl and new travel demand and the NO_x emissions associated with higher speed traffic. Add-a-lane HOT projects can produce large positive or negative pollution effects depending on the nature of alternative travel options offered, potential for converting adjacent lanes to express HOT, and other factors. These uncertainties make it important for large CMAQ projects to be subject to continued evaluation for their effects on travel behavior and emissions.

In North Carolina, a major outer loop highway in the Charlotte area was built using CMAQ funds, although this was clearly an ineligible activity. In many other states, major conventional highway widening projects were converted to part-time High Occupancy Vehicle (HOV) lane projects that were then made eligible for CMAQ funding under ISTEA. Road expansion activities can be funded under every other major category of ISTEA. The use of CMAQ funds for road expansions of any sort should not be eligible, since such projects do not contribute to long-term reduction in pollution problems, but generally exacerbate such problems.

Congress should direct that programs and projects funded under CMAQ should focus not just on short term emission reductions, but should emphasize likely longer term effects on air quality and the growth of travel demand. Innovative projects that show reasonable promise of sustainable longer-term emission reductions through managing travel demand growth should be given priority access to CMAQ funds.

Administrative Simplification of CMAQ. Congress should permit smaller, non-construction projects to be certified by the state as meeting requirements of Title 23 without advance Federal review, providing administrative simplification. Some of the most effective uses of CMAQ funds are to provide small incentive grants to local governments for innovative actions. Small grants can help spur voluntary revision of obsolete and cumbersome street, site design, and zoning standards to bring these

into better accord with contemporary community values, for example using visual preference surveys and similar techniques. These approaches can enhance transportation choices, reduce automobile dependence, and foster healthier communities while reducing pollution.

Additional CMAQ Funding Needed for New Areas. CMAQ should be extended to maintenance areas, with a population-based weight lower than that of non-attainment areas. Areas subject to the new National Ambient Air Quality Standards (NAAQS) should become eligible for CMAQ funds. CMAQ funding should be increased both now and at the time when the new NAAQS come into effect so that communities have adequate resources to address these problems.

Some argue that gasoline taxes should only be used for roads, yet road users benefit from reduced congestion brought about by support for public transportation and other alternatives and programs that reduce air pollution from transportation. CMAQ uses Federal gasoline taxes to pay for transportation costs related to highway use. Federal gasoline taxes are properly considered user fees for highway construction and maintenance, because motor vehicles use highways. Vehicle use also results in important transportation related air pollution and congestion costs and CMAQ programs seek to address these.

Vital Importance of Promoting Market-Based Pricing Reform. NEXTEA proposes to remove Federal restrictions that bar states from experimenting with effective and successful market-based strategies, such as High Occupancy Toll (HOT) express lanes that are cutting traffic congestion and winning popular approval in southern California on I-15 and State Road 91. It would offer a pilot program for value pricing to encourage the more efficient use of roads with time-of-day pricing for those willing to pay extra for better rush-hour service, permitting the flexible use of revenues for transportation purposes. Section 7003 would provide a long-overdue correction to Federal law that would allow market-incentives to operate more freely in workplace commuting. The proposed change in NEXTEA would level the playing field for voluntary employer commuting benefit programs that now impose unfair tax consequences on those who choose to provide equal commuter benefits regardless of how an employee chooses to get to work. We believe all of these market-based strategies are potentially very beneficial for the environment and for sound transportation system management. They offer extremely high benefits relative to costs and offer greater flexibility and choice to businesses and travelers. We urge you to include NEXTEA's Section 1032 and 7003 language in your reauthorization bills.

Need for Improved Transportation Data and Decision-Support Systems. To meet Clean Air Act mandates, states and regions must evaluate the environmental consequences of transportation plans and programs and their alternatives. This requires information and management systems to monitor and evaluate transportation system and environmental performance. While major advances have been made in recent years in computer and information science, remote sensing, and other fields to support travel forecasting and traffic monitoring, many states and regions lag in adopting such systems.

The NEXTEA proposal for the Bureau of Transportation Statistics merits support. Development of an intermodal transportation data base is vital to national transportation, environmental, and public welfare interests. The Research and Development (R&D) grants program in Section 6002(g) is important to environmental progress and performance. However, the proposed Sec. 6002(l)(1) limit of \$0.5 million a year in these R&D grants is too low and should be increased to \$5 million to spur more rapid innovation in this important area. Many regional agencies continue to use obsolete methods that often poorly estimate travel behavior and emission effects of project and plan alternatives, although newer methods are available. This results in flawed decisionmaking for transportation and emissions planning. At least half these 6002(g) R&D funds should be dedicated to incentive grants for metropolitan planning organizations, state DOTs, and local governments to work with universities and non-profit organizations to accelerate the upgrading of transportation and emissions analysis tools to meet the standard of best available practice.

Conclusion. How we manage our transportation resources is critical to determining whether our future will be a more polluted one or not. Proposed surface transportation legislation will be judged by whether it offers more or less resources for environmental protection, whether it rolls back current requirements that tie transportation decisions to environmental consequences, and whether it offers prospects for greater use of innovative tools, like time-of-day congestion pricing.

Thank you for the opportunity to provide our views on these matters. I would be happy to answer any questions that you might have.

March 19, 1997.

DEAR SENATOR: The undersigned organizations strongly support dedicated and increased funding for the reauthorization of the Congestion Mitigation and Air Quality Improvement (CMAQ) program as part of the next surface transportation act.

CMAQ is an excellent example of the innovation and flexibility built into the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) to address the billions of dollars of costs associated with polluted air and traffic congestion. CMAQ directs funds mainly toward projects in Clean Air Act "non-attainment" areas for ozone, carbon monoxide and particulate matter, with a guarantee of funding to all states regardless of non-attainment status.

CMAQ is the Federal transportation program that most clearly serves the national goals of clean air, reduced congestion, intermodalism and energy efficiency. ISTEA's Declaration of Policy underscores the importance of the CMAQ program:

It is the policy of the United States to develop a National Intermodal Transportation system that is economically efficient and environmentally sound . . . will move people and goods in an energy efficient manner . . . shall consist of all forms of transportation in a unified, interconnected manner . . . to reduce energy consumption and air pollution.

Dedicated and separate funding for CMAQ will continue to be necessary. The CMAQ program is still new enough that it has not yet established equal standing with traditional highway programs. State and local government processes for project selection are fully institutionalized for traditional highway projects, but not for CMAQ projects. Dedicated funding will help ensure that CMAQ projects have an opportunity to be selected from a level playing field. In addition, CMAQ serves national goals such as reducing imported oil, greenhouse gases, and air pollution that crosses state lines. Since CMAQ uses Federal funds, these funds should be dedicated to serving these national goals while simultaneously serving state and local air pollution and congestion mitigation goals.

During the last 5 years CMAQ has proven its value in many ways:

CMAQ reduces unhealthy air pollution from transportation, and therefore, has helped state and local officials meet public health standards established in the Clean Air Act Amendments of 1990 (CAAA) which continues to enjoy broad popular support. Indeed, CMAQ prevents the CAAA from becoming a so-called "unfunded mandate." CMAQ addresses this issue in a non-regulatory manner by providing Federal funds to reduce air pollution from transportation. The transportation sector produces nearly one-third of all air pollution.

CMAQ is the most innovative ISTEA program. More new and creative projects have been funded through CMAQ than any other ISTEA program. Such projects include transit, bicycle and pedestrian, ridesharing, demand management, and the acquisition of clean natural gas and electric buses. And CMAQ has helped keep the "I" in ISTEA by funding innovative intermodal projects.

CMAQ is the most flexible ISTEA program. Over the past 5 years of ISTEA, state and local governments have transferred or "flexed" more CMAQ funds than any other ISTEA program funds. This unparalleled flexibility accommodates and responds to state and local priorities. While lawmakers anticipated that the Surface Transportation Program would be the most flexible, thereby fulfilling ISTEA's new flexible approach, it is the CMAQ program that has best served this objective.

The CMAQ program should receive dedicated funding above the currently authorized level in ISTEA in recognition of the proposed tighter Federal air quality standards and in recognition of the new evidence of the harmful effects of air pollution. More regions will likely be classified as non-attainment areas under the final U.S. Environmental Protection Agency (EPA) rule for ozone and particulate matter. CMAQ also is essential for states and regions to maintain their "attainment" status. Meanwhile transportation will continue to be a primary and growing source of both ozone and particulate matter air pollution.

Given the amount of transportation money spent on highways every year—\$20 billion in Federal money, and more than \$88 billion in public sector funds altogether—\$1 billion per year dedicated to CMAQ is insufficient. In fact, analysis illustrates that this amount of funding is inadequate to address state, local and national air quality needs. Studies funded by the Federal Highway Administration identify costs from transportation-related particulate matter alone to be anywhere from \$16-\$266 billion per year. By contrast, EPA research shows that for every \$1 spent on reducing air pollution, there has been a public health and environmental benefit of \$45. Even so, the vast majority of Federal transportation funds is dedicated to traditional highway programs.

We strongly urge your support for the continuation of the innovative CMAQ program with additional dedicated funding. We look forward to discussing this program with you in the coming months.

Sincerely,

American Council for an Energy-Efficient Economy, Washington, DC	Illinois Natural Gas Vehicle Coalition, Naperville, IL
American Planning Association, Washington, DC	Inland Northwest ALT-TRANS, Spokane, WA
American Public Transit Association, Washington, DC	League of American Bicyclists, Washington, DC
American Lung Association, Washington, DC	Lone Star Chapter of the Sierra Club, Austin, TX
American Lung Association of Metropolitan Chicago, Chicago, IL	Maryland Chapter of the Sierra Club, Rockville, MD
Amos W. Butler Audubon Society, Indianapolis, IN	National Parks and Conservation Association, Washington, DC
Association for Commuter Transportation, Washington, DC	Natural Resources Council of Maine, ME
Bicycle Federation of America, Washington, DC	Natural Resources Defense Council, New York, NY
Business & Professional People for the Public Interest, Chicago, IL	Natural Resources Defense Council, Washington, DC
California Natural Gas Vehicle Coalition, Sacramento, CA	Natural Gas Vehicle Coalition, Arlington, VA
Center for Neighborhood Technology, Chicago, IL	New Jersey Environmental Lobby, Trenton, NJ
Chesapeake Bay Foundation, Washington, DC	Northeast Alternative Vehicle Consortium, Boston, MA
Chicagoland Bicycle Federation, Chicago, IL	Northern Illinois Gas, Naperville, IL
Citizens League for Environmental Action & Recovery, Manville, RI	NYC Environmental Justice Alliance, New York, NY
Clean Air Network, Washington, DC	Oregon Environmental Council, Portland, OR
Coalition of Washington Communities, Seattle, WA	Peoples Gas Light and Coke Company, Chicago, IL
Connecticut Natural Gas Corporation, Hartford, CT	Peoples Natural Gas, Pittsburgh, PA
Consolidated Natural Gas Co., Pittsburgh, PA	Pierce Transit, Tacoma, WA
Conservation Law Foundation, Boston, MA	Public Citizen, Washington, DC
Earth Day Coalition, Cleveland, OH	Rails-to-Trails Conservancy, Washington, DC
East Ohio Gas, Cleveland, OH	San Diego County Bicycle Coalition, San Diego, CA
Environmental Defense Center, Santa Barbara, CA	Sierra Club Ohio, Columbus, OH
Environmental and Energy Study Institute, Washington, DC	Sierra Club—Virginia Chapter, VA
Environmental Law and Policy Center, Chicago, IL	Sierra Club, San Francisco, CA
Environmental Defense Fund, Washington, DC	Southern Consortium for Advanced Transportation, Inc., GA
Environmental Working Group, Washington, DC	Surface Transportation Policy Project, Washington, DC
Enveco of Texas Inc., Austin, TX	The Izaak Walton League, Gaithersburg, MD
Fleet Fuels Inc., Greenwich, CT	The U.S. Council of Mayors, Washington, DC
Gas Guzzler Campaign, Washington, DC	Union of Concerned Scientists, Berkely, CA
Friends of the Earth, Washington, DC	Union of Concerned Scientists, Washington, DC
	Urban Ecology, Inc., Oakland, CA
	Virginia Natural Gas, Norfolk, VA

THE CIVIL WAR TRUST,
Arlington, VA, April 2, 1997.

Hon. JOHN W. WARNER, *Chairman,*
Subcommittee on Transportation and Infrastructure,
Committee on Environment and Public Works,
Washington, DC.

DEAR SENATOR WARNER: On behalf of The Civil War Trust, I am pleased to provide for the subcommittee hearing record, testimony supporting retention of the transportation enhancement provisions of the Intermodal Surface Transportation Efficiency Act of 1991 currently before the Congress for reauthorization. These remarks demonstrate the positive impact that the enhancement provisions have had in the arena of Civil War heritage preservation and urge that they be retained in the reauthorizing legislation.

If we may provide additional information please do not hesitate to call on us. Thank you for your consideration of these views.

Sincerely,

EDGAR M. ANDREWS III,
President.

STATEMENT OF THE EDWARD M. ANDREWS III, ON BEHALF OF THE CIVIL WAR TRUST

I am pleased to provide testimony on behalf of The Civil War Trust relative to the reauthorization of the Intermodal Surface Transportation Efficiency Act of 1991. Specifically, I will demonstrate the positive impacts that the transportation enhancement provisions of that Act have had in the arena of Civil War heritage preservation and encourage retention of these important provisions.

The Civil War Trust is a 501(c)(3) non-profit organization of 28,000 members nationwide, that is dedicated to the preservation and protection of historic Civil War sites. Preservation of these irreplaceable sites enables us to teach to future generations, the lessons of this defining period in American history at the places where events actually occurred.

The Intermodal Surface Transportation Efficiency Act became law in 1991. With its passage, Congress recognized that road construction and highway improvements have the potential to damage the historic resources, environment and, in many ways, the quality of life in communities where construction is undertaken. To partially offset such damage, and to give communities a voice in planning for the expenditure of transportation dollars, Congress wisely mandated that each state set aside 10 percent of its Surface Transportation Funds for transportation enhancement activities. These set-asides amount to less than 2 percent of total funds authorized under the Act. Since enactment, \$1.3 billion has been provided by ISTEA for historic preservation, scenic easements, bike trails and a variety of cultural improvements.

Since 1991, ISTEA transportation enhancement funds have been the single greatest resource devoted to preservation of historic Civil War sites. In 12 states, \$23.6 million in enhancement funding has been matched by \$20.1 million raised by communities and organizations like the Trust to fund preservation activities. The resulting \$43.7 million has been committed to meet critical preservation needs at a time when Federal funding for such important efforts has been limited.

Maryland pioneered the practice of committing ISTEA enhancement funds to Civil War battlefield preservation. The state used \$7.8 million of enhancement funds to acquire land and easements at Civil War sites. In the process, Maryland acquired 3,000 acres at Antietam, 25 acres at South Mountain and 20 acres at Monocacy, either in fee or in the form of scenic easements. This foresight ensures that development radiating from Washington, DC along crowded transportation corridors will not envelop these historic places. Maryland's example is important not only because it saved vast acreage around the state's principal Civil War sites, but also because numerous other states used Maryland as an example and followed suit.

Virginia has committed \$6.2 million of enhancement funds for a broad range of programs designed to preserve its extensive network of historic Civil War resources, encourage heritage tourism and stimulate interpretation and education about this critical time in the state's experience. Programs have been funded for land and easement acquisition, upgrade and replacement of highway historical markers, construction of pedestrian wayside exhibits, and development of driving trails and pull-offs along the routes followed by competing armies during the War. These innovative programs were developed through the cooperative efforts of many individuals, orga-

nizations and communities who are now reaping benefits from increased tourism and rekindled pride in community resources.

There are similarly innovative programs underway in Alabama, Arkansas, the District of Columbia, Kansas, Kentucky, Mississippi, New Mexico, Oklahoma, Tennessee and West Virginia. Creation of hiking and biking trail networks to connect Civil War sites, improvements to roads that access historic places, construction of visitors centers, archaeological research at sites and along transportation corridors and restoration of decaying historic structures are examples of enhancement programs that have been funded through ISTEA in these states.

These examples show clearly that the availability of enhancement funding has mitigated the impact of transportation development on communities, the natural environment and historic venues near its path. It has fostered partnerships among communities, organizations, citizens and government agencies, and it has re-kindled interest in the preservation and interpretation of historic sites. It has greatly stimulated heritage tourism which has had a positive and powerful impact on the physical and economic well-being of many localities.

These demonstrated positive results have been accomplished at a relatively small cost. The Civil War Trust, its members and community preservation partners, therefore consider it vital that mandatory transportation enhancement set-asides be retained in the legislation to reauthorize ISTEA.

