

Successes In Stewardship

Celebrating 10 Years

September 2011

Promoting Sustainable and Livable Transportation along the Borders

In recent years, transportation professionals have increased their focus on implementing transportation projects and programs that reduce environmental impacts while improving air quality, public health, and wildlife and habitat connectivity—issues that extend beyond geographic boundaries. Recognizing that environmental and transportation planning should be conducted jointly in the Nation's border regions (areas within 100 miles of the borders) to ensure better environmental and quality of life outcomes, the Federal Highway Administration (FHWA) has developed a "Greening Transportation at the Border" initiative in partnership with Federal agencies from the United States, Canada, and Mexico. The initiative, which the [U.S./Mexico Joint Working Committee on Transportation Planning \(JWC\)](#) and the [U.S./Canada Transportation Border Working Group](#) lead, guides governments that are involved in border transportation planning, including those at the State and local levels, in advancing environmental stewardship in the border regions.

On February 23 and 24, 2011, FHWA and its Canadian and Mexican partners formally began the initiative by holding a workshop to discuss best practices in border transportation sustainability and new opportunities for green transportation projects and programs at the borders. Approximately 130 participants from government agencies, consulting firms, and non-profit organizations attended the conference in San Diego, CA. The workshop showcased green transportation projects, technologies, and concepts that have been or can be applied in the border regions. FHWA's [Greening Transportation at the Border](#) report documents the presentations and discussions at the workshop. The workshop included presentations in the following four topic areas:

- Sustainability and livability,
- Green financing and industry,
- Green technology, and
- Performance and reliability measures.



Vehicles queue up at the San Ysidro Land Port of Entry. (Courtesy of San Diego State University)

These areas are anticipated to form the framework for future green border action. This newsletter provides an overview of each of these topic areas.

Sustainability and Livability

A *sustainable* border region strikes a balance between reducing environmental impacts, promoting economic development, and supporting social equity. A *livable* border region is healthy, safe, and affordable for residents, freight carriers, and travelers crossing the border. Due to vehicle congestion and idling at ports of entry, employees, residents, and travelers can be exposed to very high levels of emissions, particulate matter, and other pollutants. To address these potential health risks, FHWA encourages green programs and technologies at the vehicle, roadway, and regional levels to reduce greenhouse gas (GHG) emissions, limit ecological impacts, and promote healthy communities. Some examples include bi-national planning initiatives, truck stop electrification (TSE) technology, reduced-idling policies, and the planting of native plant species along roadways within the border regions.

Another way to reduce GHG emissions during roadway construction and to conserve natural resources is to use recycled asphalt pavement, recycled asphalt shingles, warm-mix asphalt, or rubberized asphalt. California, for example, is paving many of its roads with rubberized asphalt made of recycled materials. Rubberized asphalt allows for reduced pavement

thickness and, therefore, fewer resources used, and its use results in fewer GHG emissions during construction. Separately or combined, these pavement technologies can be applied in the border regions to advance sustainability and livability goals.

Green Financing and Industry

Transportation officials and government agencies may have difficulty implementing green transportation improvements at the borders due to barriers to interagency coordination and conflicting funding structures for transportation projects and programs among the U.S., Mexico, and Canada. Some transportation and border protection agencies are turning to innovative financing to make investments in green transportation at the borders. Unconventional solutions for financing green transportation projects and programs include the use of public-private partnerships (PPP), the development of new financial instruments to promote investment, and the implementation of revenue-generating elements, such as renewable energy generation.

The Arizona Department of Transportation (ADOT) is developing a PPP to leverage funding for green transportation projects at the border between the U.S. and Mexico. As part of this program, ADOT is considering the use of solar energy infrastructure to power lighting, signals, and signage. Another FHWA-supported approach is the use of congestion pricing. Congestion pricing is a system of charging transportation network users fees during periods of peak demand to encourage users to travel during off-peak times, thereby reducing traffic congestion and generating revenue that could be used for green transportation projects. Two Federal and State agencies are considering the potential impact of implementing congestion pricing at the Otay Mesa Port of Entry near San Diego, CA.

Green Technology

Transportation officials at various ports of entry at U.S./Mexico and U.S./Canada borders are seeking ways to minimize emissions due to congestion, including strategies to reduce unnecessary idling such as batch vehicle processing and TSE technology. In addition, some ports of entry are using green building materials and practices to reduce the environmental impacts of transportation investments during construction and throughout the lifespans of transportation infrastructure.



The Peace Arch Port of Entry uses batch vehicle processing to reduce vehicle idling. (Courtesy of Washington State DOT)

Batch vehicle processing involves the installation of a series of traffic lights along port of entry approach roads that stop drivers from advancing until the queue at the processing point shortens. Drivers are encouraged to shut off their engines while they are stopped at traffic lights. Canadian officials recently implemented this strategy at the Peace Arch Port of Entry in Surrey, British Columbia. Transportation officials found that 83 percent of drivers turned their engines off while stopped at the lights, potentially reducing GHG emissions by over 800,000 pounds of carbon dioxide equivalent per year ([Greening Transportation at the Border](#), 2011). Transportation officials could implement this simple yet effective solution at many ports of entry for a relatively low cost, since the technology installed could be limited to new traffic signals.

TSE is another strategy some States use to reduce emissions from idling trucks at rest areas during driver layovers. When arriving at the truck stop, drivers shut off their engines and connect to an electricity source or a heating and cooling source, thereby reducing diesel emissions during their layover. This

technology, in conjunction with batch vehicle processing for freight vehicles, could be instituted at congested ports of entry where there are long wait times to process freight vehicles. Truck drivers would connect to a centralized power system instead of idling while they wait for border officials to signal them to advance for processing. Such a project, however, would be more expensive and require more land capacity than batch vehicle processing alone.

Performance and Reliability Measures

Performance and reliability measures provide data that transportation officials can use to diagnose problems and develop effective solutions. Transportation and border protection agencies are measuring wait times and air quality at and near ports of entry to understand the scope of the problems and to implement strategies to minimize and mitigate air quality impacts. For example, FHWA, the Texas Department of Transportation (TxDOT), and the Texas Transportation Institute are collaborating to implement wait-time measurement systems at ports of entry along the U.S./Mexico border in Texas and Arizona. Using radio-frequency identification technology, the team can determine the amount of time that selected vehicles need to enter and exit the port of entry and, in some cases, interim locations within the border crossing. TxDOT can share

this data with other State DOTs to help them make policy changes or investments that improve processing efficiency or that allow drivers to shift to ports of entry with shorter wait times, reducing delays and associated emissions due to unnecessary idling. Additionally, efforts to collect similar data at all ports of entry along the same border could be used to help prioritize investments at a broader scale.

Next Steps

The member agencies of the JWC and the Transportation Border Working Group are instituting policies to make the border regions more sustainable and livable, which include employing innovative methods for financing green transportation projects, utilizing new technologies and techniques to reduce GHG emissions, and measuring performance. These strategies will help agencies to understand and effectively address green border issues, resulting in borders that are more environmentally sustainable, livable, efficient, and safe.

With the “Greening Transportation at the Border” initiative underway, FHWA will continue to coordinate with Canada and Mexico on implementing border planning efforts that prioritize livability and sustainability. FHWA will work with its Canadian and Mexican partners to promote environmentally sustainable, efficient, safe, economical, and healthy cross-border transportation. In the near term, FHWA plans to build on the framework that the workshop established by further defining emphasis areas, gathering input from experts and the public, and developing a strategy to implement more detailed studies or create a multinational action plan. These activities will help transportation officials in the U.S., Mexico, and Canada promote livability and sustainability in the border regions.

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Look What's New!

- On August 22 at the International Conference on Ecology and Transportation, FHWA honored twelve recipients with Environmental Excellence Awards. The awards recognize partnerships, projects, and processes that go beyond environmental compliance to achieve environmental excellence. Visit the [Environmental Excellence Awards website](#) for information about the program and the 2011 winners.
- FHWA will host an *Eco-Logical* webinar titled “Mitigation Banking, Conservation Banking, and In-Lieu Fee Programs: Mitigation Options Using the Eco-Logical Approach” on Thursday, September 8 from 3:00 p.m. to 4:30 p.m. Eastern. [Click here](#) to register.
- The U.S. Environmental Protection Agency recently released a report titled [Guide to Sustainable Transportation Performance Measures](#). The report provides twelve metrics that agencies can use to measure sustainability in various phases of transportation decisionmaking.
- The American Association of State Highway and Transportation Officials announced the release of the National Cooperative Highway Research Program report titled [A Practitioner's Handbook: Optimizing Conservation and Improving Mitigation Through the Use of Progressive Approaches](#). The handbook discusses the ecosystem and the economic benefits and cost savings that State transportation agencies can realize from using progressive approaches to compensatory mitigation under the Clean Water Act and the Endangered Species Act.

Successes in Stewardship is a Federal Highway Administration newsletter highlighting current environmental streamlining and stewardship practices from around the country. To subscribe, visit http://environment.fhwa.dot.gov/sis_registration/Register.aspx or call 617-494-2092.