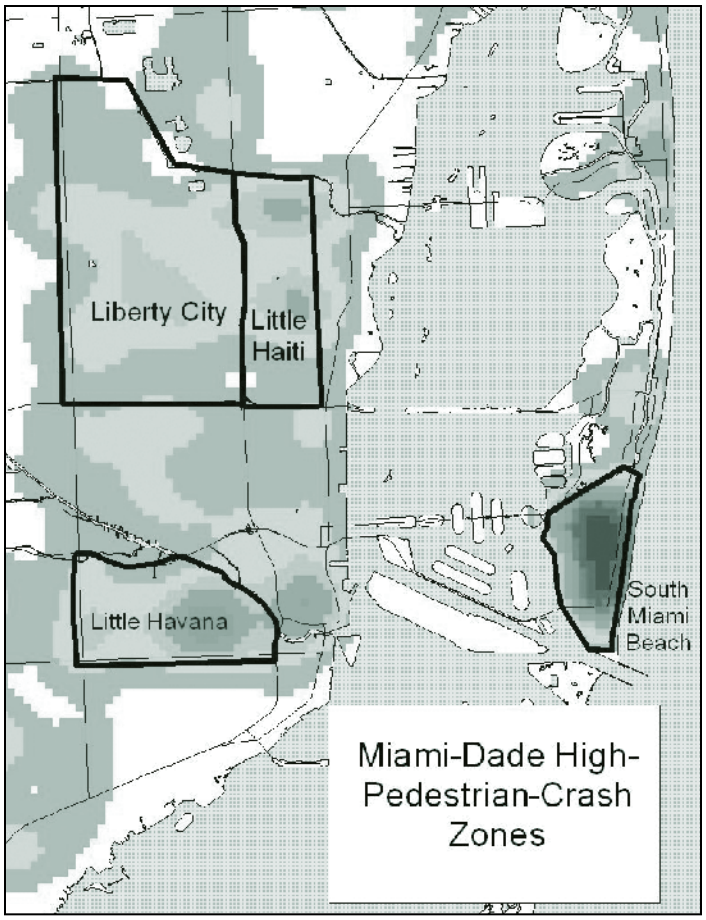
Traffic Safety Facts
Traffic Tech – Technology Transfer Series
NHTSA
www.nhtsa.gov
Number 361
February 2009

Evaluation of the Miami-Dade Pedestrian Safety Demonstration Project

The number of pedestrians killed in United States traffic crashes has declined over 40 percent since peaking in the late 1970s and early 1980s. Still, in 2006 there were 4,784 recorded pedestrian fatalities, representing 11 percent of all U.S. traffic deaths (NHTSA, 2007). In urban areas where pedestrian activity and traffic volumes are greater compared to rural areas, pedestrians often comprise 25 percent or more of the traffic deaths.

There has been a considerable amount of research since the early 1970s to identify causal factors of crashes involving pedestrians and appropriate countermeasures. During the late 1990s, NHTSA also developed the concept of pedestrian safety zones in order to focus on improvements where the problem is greatest. By concentrating efforts where the majority of the problem or the target audience exists, funds are used more efficiently and activities that would be prohibitively expensive if applied to an entire community can be applied for greatest benefit on a smaller scale.

The purpose of this study was to reduce deaths and injuries to pedestrians in a large, urban environment by targeting countermeasures toward specific high-crash locations and zones. Miami-Dade County, Florida, was chosen as the focus of this study because of its large pedestrian-involved crash problem (1,700 to 1,800 crashes involving pedestrians per year), its age and ethnic diversity, as well as the willingness of State and county officials to participate in the study and elevate pedestrian safety to a higher priority. Using pedestrian-involved crash data from 1996 to 2001, four zones were identified in Miami-Dade County that were found to have high pedestrian-involved crash patterns. These high-crash zones are illustrated in the figure at right.



A total of 16 different pedestrian treatments were targeted to areas in the county, and particularly in the four selected zones (Liberty City, Little Haiti, Little Havana, and South Beach). These 16 different treatments included education, enforcement, and engineering measures, based primarily on previous NHTSA and FHWA research. Specific countermeasures were targeted to locations and zones based on the ages of pedestrians, ethnicity of the zones, types of crash problems, etc. The benefits of the pedestrian safety program were evaluated countywide using three years of "after" data (2002 to 2004).

Overall Findings

Study findings indicated that, overall, the Miami-Dade pedestrian safety program was associated with a significant reduction in pedestrian-involved crashes countywide, and particularly among adult and child pedestrians within certain targeted zones. A time series analysis for the year 2003 revealed that Miami-Dade County experienced reductions in pedestrian-involved crashes of 8.5 percent when compared to six

adjacent counties or to all other counties in the State. When compared to neighboring Broward County a pedestrian-involved crash reduction of 13.3 percent was obtained. Further reductions were not found in 2004; however, for 2003 and 2004 combined the time series analysis indicated that there were approximately 360 fewer pedestrian-involved crashes associated with program implementation. In addition, the countywide analysis indicated significant differences were obtained in Miami-Dade compared to all three controls for pedestrians age 14 to 64, males, and the time periods 10 a.m. to 2 p.m. and 2 p.m. to 6 p.m.

Pedestrian Safety Zone Findings

After the pedestrian safety program implementation, crashes involving child pedestrians decreased by 32.6 percent in the four targeted zones combined, and decreased by 22.1 percent countywide. These 20- to 30-percent reductions are consistent with other evaluations of educational programs targeting child pedestrians during the 1980s and 1990s — "Willy Whistle" and "And Keep on Looking."

Additionally, the process of targeting countermeasures to specific ages and ethnic groups appears to have been particularly successful in Liberty City, with a substantial reduction of 25.6 percent in pedestrian-involved crashes. Liberty City was the zone that received the most intense pedestrian safety education programs in all of its elementary schools, and crashes involving child pedestrians experienced greater absolute crash reductions compared to other zones and proportionally higher than countywide.

Of the four zones targeted for specific countermeasures, South Beach was the recipient of the most intense amount of countermeasures, including selective police enforcement, a variety of education and media messages, as well as a few engineering treatments. The findings indicated that South Beach experienced a 22-percent pre- to post- decrease in pedestrian-involved crashes.

However, not all of the countermeasures were successful in reducing targeted crash types in all of the identified high-crash zones. Most notably, a variety of education countermeasures (in English and Spanish) were implemented in Little Havana, where there had been a high prevalence of crashes involving older, Spanish-speaking pedestrians. Countermeasures included the distribution of education material at senior centers, safety education meetings, television and radio messages, and other education measures. In spite of these efforts, there was no significant reduction in crashes involving older pedestrians or involving pedestrians in general in Little Havana as a result of the countermeasures implemented there. The reasons for the lack of success of the program in Little Havana are not known. It may have been due to the salience of the messages developed and used, the intensity of the campaign, or other factors. Likewise, no significant reductions in crashes involving older pedestrian were obtained in Little Haiti.

The greater reductions reported in pedestrian-involved crashes in Liberty City and South Beach are consistent with similar findings from previous crash zone evaluations. In other words, the greatest reduction in pedestrian-involved crashes occurred in the zones where countermeasure implementation was most extensive. On the other hand, crash reductions in Phoenix, Arizona, where the entire focus was on older pedestrians, were found in all zones, whereas they were found in only half of the zones in the present study. Clearly more work is needed to determine the combination of factors that can lead to a reduction in crashes involving older pedestrians when they are not the exclusive countermeasure focus.

The project also achieved its secondary objective of institutionalizing a greater emphasis on pedestrian safety in Miami-Dade County. The pedestrian safety program has been retained together with full-time personnel, and ongoing and future countermeasure efforts appear likely.

Additional lessons learned include the importance of quality geographic information system data in identifying problem locations and sub-populations, quantifying specific problem types, evaluating results, and communicating the issues of pedestrian safety to enlist the support of relevant agencies; the importance of interagency relationships; and the benefits of developing, implementing, and institutionalizing a comprehensive pedestrian safety program.

How to Order

To order *Evaluation of the Miami-Dade Pedestrian Safety Demonstration Project*, prepared by the University of North Carolina Highway Safety Research Center and Dunlap and Associates, Inc., write to the Office of Behavioral Research, NHTSA, NTI-130, 1200 New Jersey Avenue SE., Washington, DC, 20590, fax 202-366-7394, or download from www.nhtsa.dot.gov. Marvin Levy, Ph.D., was the contract manager.

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