SELECTING THE MOST EFFECTIVE ITS APPLICATION FOR PEDESTRIAN SAFETY IN FLORIDA

PROBLEM STATEMENT

Every year, nearly 70,000 pedestrians are injured and over 4,700 are killed in traffic crashes in the United States. According to the 2004 Florida Crash Facts report, 7,551 pedestrians were injured and 504 killed in Florida alone this past year. Recent developments in Intelligent Transportation Systems (ITS) show great promise for helping to reduce the number of injuries and fatalities on Florida's highway system. However, the Florida Department of Transportation and other agencies must be careful to select the proper ITS devices in order to have the greatest benefit.

RESEARCH OBJECTIVES

The goal of this research effort is to consolidate pertinent information on ITS applications related to pedestrian safety. Relevant applications will be summarized and evaluated in terms of their effectiveness.

FINDINGS AND CONCLUSIONS

In the area of ITS applications targeted at pedestrian safety, five specific areas of ITS treatment have been identified:

- Increased motorist awareness
- Feedback to the waiting pedestrian
- Feedback to the crossing pedestrian
- Pedestrian detection
- Visual impairment issues

Increased motorist awareness: One of the most recent developments for increasing motorist awareness of an active pedestrian crossing area is the use of in-pavement lighting. This treatment involves imbedding small light-emitting diode (LED) assemblies along the edge of the crosswalk. The lights are activated either by a pedestrian pushing the button to initiate the crossing or by a passive detection system. The LEDs then flash to alert the motorist that there are pedestrians in the crosswalk area.

Feedback to waiting pedestrians: In some locations, improved pedestrian buttons are being used to confirm to the pedestrian that their activation of the button has been recognized. This feedback can take the form of an LED in the button or some audible tone or tactile click.

<u>Feedback to the crossing pedestrian</u>: Two areas examined for providing improved pedestrian are the animated eyes display and the pedestrian countdown displays. Both show a great deal of potential to enhance pedestrian safety.

<u>Pedestrian detection</u>: A recent area of interest is passive detection of pedestrians – whereby pedestrians are detected automatically. Microwave and infrared systems are the most common passive detection types.

<u>Visual impairment issues</u>: A great deal of research and debate continues in the area of properly accommodating visually impaired pedestrians. In most cases in Florida, the local signal maintaining agencies will install audible pedestrian signals when requested by local blind advocacy groups in response to a recognized need. These systems typically use either a series of bird chirping sounds, clicks, or verbal spoken text.

BENEFITS

The use of countdown displays and in-pavement lighting typically are very well received by the public. The usefulness and benefit of the countdown display is largely due to the fact that is easier for pedestrians to understand (in contrast, pedestrians do not understand the flashing hand as well). The countdown display allows the pedestrian to determine how much time is left to cross the street. Studies have shown that in-pavement lighting tends to reduce vehicular speeds in the crossing area, making it much safer for the crossing pedestrian.

This project has identified the most common pedestrian ITS devices currently in use. Additionally, the research team prepared a CD of pedestrian resources featuring a host of research reports, summaries, and other tools to assist the District and local pedestrian coordinators in developing their pedestrian safety programs.