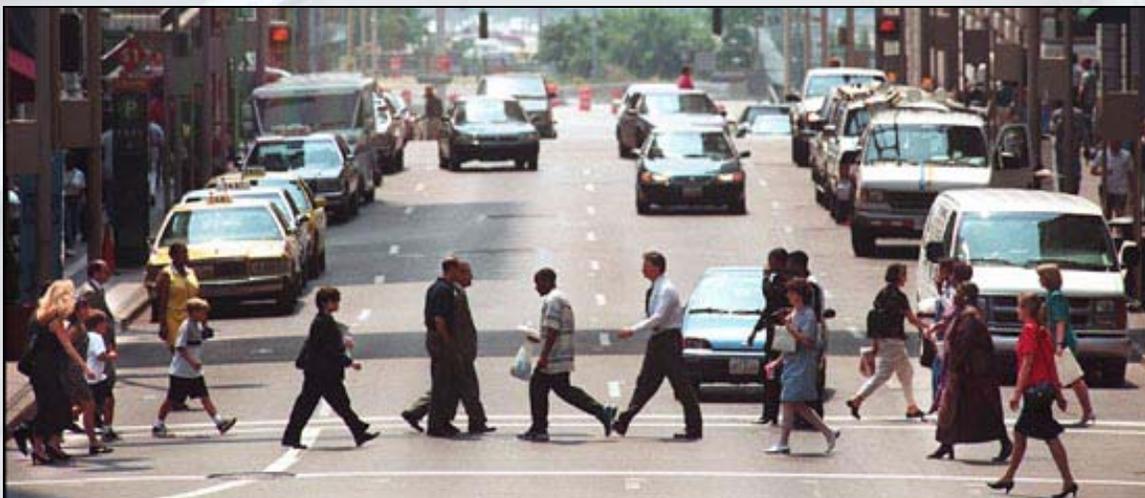


An Analysis of Pedestrian Safety Programs with Recommendations for Plan Development

Florida Planning and Development Lab
The Florida State University
Department of Urban and Regional Planning

Prepared for the Florida Department of Transportation Safety Office
December, 2005



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Florida Department of Transportation, Safety Office

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Executive Summary

The following report, prepared by the Florida Planning and Development Lab, offers an evaluation of the current pedestrian safety planning process for the State of Florida. This project was made possible through a Section 402 Grant from the Florida Department of Transportation (FDOT) Safety Office.

This report was completed using a variety of research techniques to evaluate the pedestrian safety planning process for the State of Florida. Specifically, five functional areas were targeted by the research team in regards to this plan evaluation. These five functional areas were: data collection, enforcement, education/encouragement, engineering/planning and implementation.

In order to better understand the practices currently in place in Florida, each researcher undertook a review of the current processes, programs and impediments attached to their specific functional area. This was accomplished in two parts. First, an extensive review of literature was conducted to assist in determining what questions should be asked in regards to this evaluation. Once the correct questions had been determined, the second part involved a series of interviews conducted to determine what exactly was occurring in Florida practice. Existing Florida conditions were thus documented and held for future comparative use.

Once Florida conditions had been documented, the plan evaluation moved to the second phase. In this second phase, Florida practice would be compared with the practices implemented in six case study states. For this case study research project, subject states were chosen where growth and population patterns converged with a higher rate of improvement in crash fatality statistics than had been seen in Florida. In the case study phase of this project the research method consisted again of a state literature survey and a series of personal interviews, but with a federal literature survey supplementing the data. Existing conditions in these case study states were then pooled for comparison with each other, and ultimately with Florida.

From these analyses, a series of comparison findings have been made in each of the five functional areas. These findings have been further synthesized to develop a discrete package of goals, objectives, and strategies for each functional area:

- **DATA COLLECTION** – The ultimate purpose behind recommendations in this functional area is to improve the ability of safety planners in Florida to effectively integrate crash data into their pedestrian planning process. To achieve this purpose it will be necessary to implement new procedures related to the collection, accessibility and utilization of data.

After studying Florida's data collection process and comparing it with the processes in the case study states, a set of nine findings have been identified and presented in this plan evaluation. From these findings it may be noted that:

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- Florida's process is similar to that of the majority of case study states in that at the state level Florida does not store GIS compatible location data, does not complete follow up data analysis, does not maintain auto-generated reports and does not perform detailed crash typing
- In two functional areas – time lag necessary to make data available and the level of government responsible for making planning decisions - there is no majority rule across the case study states.
- Florida's process seems to be more advanced than the majority of case study states because at the state level Florida has already upgraded its storage database and has initiated pilot programs for electronic filing of data
- Florida's process seems to be less advanced than the majority of case study states because at the state level Florida has a very restrictive policy on access to the collected data

As a result of the analysis documented in this plan evaluation, a set of recommended strategies has been generated to improve the Florida data collection and analysis process. The general objectives of these recommendations are:

- Improve efficiency and precision with which automobile-pedestrian crash location data is collected
 - Reduce the time between data collection and data availability for analysis, and provide a mechanism to improve ease of access to automobile-pedestrian crash location data
 - Increase use of automobile-pedestrian crash data by local decision makers so that all decision making agencies are using data as part of the safety planning process.
- ENFORCEMENT – The Florida Pedestrian Safety Plan (1992) consists of a law enforcement element with a series of recommendations. Three of the nine recommendations have not been accomplished, four have been accomplished, and two have been partially accomplished. There were two main obstacles identified as constraints in implementing some of these recommendations. First, the lack of staffing within the FDOT Safety Office was identified as a significant constraint towards implementation. Second, some of the recommendations would require initiation by interested parties outside of the Safety Office to seek legislative sponsors.

Through an interview with FDOT Safety Office Staff and review of funded projects, the general observation is that there has been substantial emphasis on educating enforcement officers. Through interviews with study states and review of respective state plans, other states are placing more emphasis on funding enforcement projects at identified pedestrian crash locations. One state in particular has had marked success in reducing pedestrian rates at known locations where there have been a substantial number of automobile-pedestrian crashes. Therefore, the most substantial recommendation is the State of Florida fund more enforcement projects at high automobile-pedestrian crash locales through the use of crash mapping data – in addition to continuing education of enforcement officers on pedestrian

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laws and auto-pedestrian crash investigations. The remaining recommendations were retained from the 1992 Pedestrian Safety Plan or have been retracted due to their implementation.

Review of pertinent literature on the area of enforcement, such as guidance from the Federal Highway Administration makes note of a variety of enforcement methods that could assist communities in developing a pedestrian safety action plan. Examples include radar speed trailers, pedestrian safety enforcement operations, among other activities. A potential venue for implementing these measures, in addition to the education that enforcement officers receive, is through funding such projects (like other states) through traffic safety funding. The combination of education and enforcement is supported by guidance from the Federal Highway Administration.

Research generally suggests that there is a tendency to blame the victim of automobile-pedestrian crashes and that motorists are generally allowed a certain degree of motorist error and misbehavior, which is largely considered a part of an acceptable transportation environment. Additionally, jaywalking is generally seen as an ineffective enforcement technique, however, literature suggests that continued enforcement activities towards drivers with reasonable fines is generally more effective than less frequent enforcement activities with higher fines. Also, literature suggests warnings and education for pedestrians – rather than fines – is viewed as more effective.

- **EDUCATION AND ENCOURAGEMENT** – For many years Florida has sought to implement pedestrian safety education programs statewide. The 1992 Florida Pedestrian Safety Plan identified fourteen recommendations for obtainment of the education goal. Florida has been successful in implementing programs such as Florida Traffic Bicycle Safety Education Program (FTBSEP) and the Florida School Crossing Guard Training Program (FSCGTP) which provide educational learning opportunities about pedestrian safety education and in working with various non-profit and for-profit organizations and local governments statewide in bringing awareness to and educating the general public about pedestrian safety issues. However, based on the recommendations from the 1992 plan Florida has not been able to introduce pedestrian safety education into the driver education arena nor on university campuses and has not succeeded in performing studies on pedestrian crashes.

Where Florida has had success in implementing the recommendations it has been due to effective use of Section 402 funds and FDOT Human Resource Funds, and partnerships with Florida Atlantic University (FAU), Florida State University (FSU), and University of Florida (UF). Where Florida has been unsuccessful at implementing the recommendations, on the other hand it is due to lack of staff manpower, funding, authority to mandate compliance with the recommendations, limited allowable uses of Section 402 funds, and lack of communication and coordination at the state and local level.

Florida strongly favors using educational countermeasures as a means to reducing pedestrian crash related injuries and fatalities as similar to the other case study states with the exception of Georgia and Texas. As it currently stands, Florida pedestrian safety educational programs

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are primarily geared toward elementary school aged children followed by middle school students which are the same for all of the case study states. Partners for the Safety Office in these efforts include FAU, FSU, and UF who assist in providing support for implementation of the various programs as well as creating opportunities for networking and expanding programs ideas. These case study states have similar relationships with their respective state universities, the exceptions being Georgia and Arizona.

Although Florida provides many safety education programs, similar to the other case study states, Florida does not evaluate its safety education programs in an effort to determine if the programs are successful in helping to reduce high rates of pedestrian crash injuries and fatalities. Both the FTBSEP and FSCGTP perform evaluations in which the degree of successful implementation is the measured objective. In addition Florida does not perform studies of pedestrian crash data for use in targeting specific safety education programs. Florida is not alone in its lack of evaluation. Presently North Carolina is the only state actively targeting specific safety education programs to high crash areas.

An analysis of the information examined shows that a number of educational campaigns are currently visible; however these campaigns are not fully reaching those targeted audiences in high crash pedestrian localities. The recommended goal statement is “reduce the rate of pedestrian fatalities and injuries by 20 percent over the next five years through the continuation of traffic safety education programs by delivering them to vulnerable target audiences living, working, and or schooling in high pedestrian crash localities.” FDOT should work to use crash mapping data in developing and implementing programs that target those who live in high pedestrian crash localities as well as increase the delivery of state-funded education and training programs to populations at risk.

- **ENGINEERING AND PLANNING**

The 1992 Florida Pedestrian Safety Plan was developed in response to the high number of pedestrian related crashes that resulted in injuries and fatalities in the state. The goal of Florida’s pedestrian engineering and planning efforts is “To provide a safe and pleasant walking environment in all urban locations in Florida by the year 2010.” The seven areas identified below are the focus areas for the engineering and planning element.

1. Sidewalks
2. Intersections
3. Parking and safe access to buildings and schools
4. Mid block crossings
5. Maintenance of pedestrian traffic through work zones
6. Planning facilities with pedestrian needs in mind
7. Most transportation and safety professionals are not trained in pedestrian planning, design, operations and maintenance.

In analyzing the recommendations set forth in the Engineering Element of the 1992 Florida Pedestrian Safety Plan, it was essential to review national standards and state manuals pertaining to each of the seven main issues within the plan and interview key informants

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from the Florida Department of Transportation, The Florida Safety Office and the State Bicycle and Pedestrian Coordinator. A summary matrix is contained in **Appendix A**.

- Of the eleven recommendations within the sidewalk issue five were not accomplished because they were not covered by standards, manuals or statutes, four recommendations were partially accomplished and the remain two issues were either not accomplished or the status could not be determined.
 - Of the eleven recommendations within the intersection issue four recommendations were either not accomplished or were partially accomplished, the remaining seven issues were either not accomplished or the status could not be determined.
 - Of the thirteen recommendations within the Parking and Safe Access to Buildings and Schools issue nine recommendations were either not accomplished or were partially accomplished the remain four issues were either not accomplished or the status could not be determined.
 - There are no actual recommendations made in the Midblock Crossing section.
 - Of the ten recommendations within the Maintenance of Traffic through Work Zone issue all are covered within the standards or manuals or through training provided by the FDOT.
 - The recommendations within the “Planning Facilities with Pedestrian Needs in Mind” issue are covered within the standards or manuals.
 - There are two recommendations within the “Most transportation and safety professionals are not trained in pedestrian planning, design, operations and maintenance” issue the first was accomplished and the second was partially accomplished.
- **IMPLEMENTATION** – The primary funding source for promoting the 1992 plan’s recommended countermeasures have been the federal highway safety formula grant programs, Section 402 and Section 163 grants.

Between the years of 1998-2006 the federal government has allocated a total of \$175,207,144 in total Highway Safety Funding to the State of Florida. Florida receives a relatively large total amount of federal highway safety grant money for safety improvement programs, predominantly Section 402. Only three other states, California, Texas, and New York receive more grant funding. (NHTSA, 2005)

Section 402 grants received from 1998-2006 a total of \$64,274,685, or 37 percent of the overall funding. (NHTSA website, 2005) Also, from 2000-2006 Florida received \$37,711,433 for Section 163 grants.

From 1998 to 2006, the State of Florida awarded approximately \$7,655,203 or 12 percent in Section 402 grants to bicycle and pedestrian uses. (Florida Highway Safety Plans – Bike/Pedestrian Grants 1993-2006) The percent of funding spent in Florida on pedestrian and bicycle safety programs was higher than any of the case study states reviewed in this

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report. Florida spent \$3,398,204, or nine percent of Section 163 funds on pedestrian and bicycle safety grants from 2000-2006. (Florida Highway Safety Plans – Bike/Pedestrian Grants 1993-2006) The only state with similar Section 163 funding practices was Texas, which in 2005 spent approximately 9% of its Section 163 funding on pedestrian and bicycle safety programs.

The two grant programs combined, from 1998-2006, received \$101,986,118 and have provided \$11,053,407 or 10.8% in funds for the pedestrian and bicycle category.

Throughout this report, the primary questions being asked were how much money was being received by the state and was being spent on pedestrian and bicycle programs, how was the money in the program area being spent, how were other states spending their funding, and was there anything that Florida should be doing differently? The questions were examined by reviewing the Florida highway safety performance plans produced for the Section 402 and Section 163 pedestrian and bicycle grant programs from 1997-2006. Interviews were conducted by key informants in identified case study states, and state documents were reviewed for present and past practices.

The primary findings were that while Florida has spent only 11% of their highway safety grants funding on pedestrian and bicycle programs, this seems to be equal to or better than the other states that were reviewed. The majority of Florida's funds were spent on education, which was not similar to other states and having a combined pedestrian and bicycle focus, they appear to be funding predominantly bike focused grants or more ambiguous mixed grants, of which it is unclear which set of constituents are most benefited. A large portion of funding, especially in later years has been spent state wide, versus on more locally focused programs.

This report is recommending that the agency annually develop a highway safety performance plan that enhances the state's ability to collect and analyze pedestrian crash data, to develop countermeasures based on that data, and implement those countermeasures among the states most vulnerable residents in the highest crash locations, and provide the state with measures of the effects of those counter measures once implemented.

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1.0 The Problem

In 2004, there were 8,054 auto-pedestrian crashes in the State of Florida. Of those crashes, 503 pedestrians were killed and 7,551 pedestrians were non-fatally injured (Department of Highway Safety and Motor Vehicles). The number of pedestrian fatalities represents 15.4 percent of all traffic related fatalities in the state. Florida ranked number two in the country for pedestrian fatalities. The exact causes underlying Florida's persistently high rates of pedestrian fatalities and injuries are unknown.

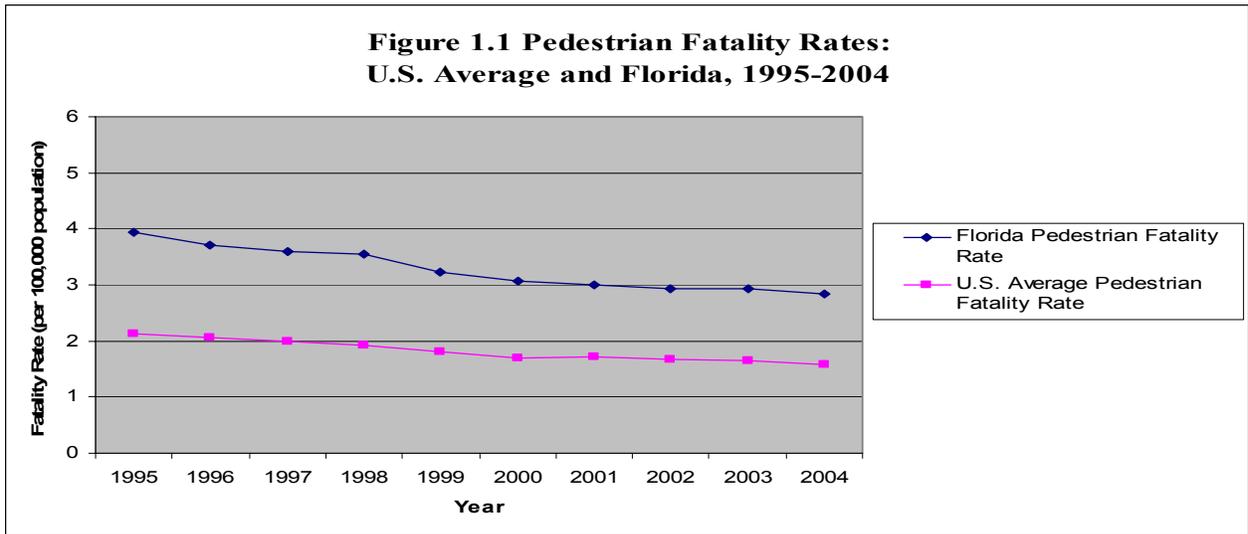
In 2004, for the fourth time in five years, Florida's rate of auto-pedestrian fatalities with a pedestrian fatality was the second highest among the fifty states, as shown in Table 1.1. While Florida's population did not exceed six percent of the national population during this time period, ten percent of all national pedestrian fatalities occurred within the state. For the last five years, Florida's rate of pedestrian fatalities has exceeded the national average by more than 80 percent. In Figure 1.1, the fatality rate trends for the years 1995 to 2004 are illustrated. Although Florida's pedestrian fatality rates are decreasing, these decreases are roughly in proportion to the decrease in fatalities nationally.

Table 1.1 Ranking of Florida Pedestrian Fatality Rates and U.S. Fatality Rates, 1995 - 2004

Year	Florida Rank	Florida Fatality Rate (per 100,000 pop.)	U.S. Fatality Rate (per 100,000 pop.)
1995	4	3.95	2.12
1996	3	3.72	2.05
1997	3	3.60	1.99
1998	1	3.56	1.93
1999	2	3.23	1.81
2000	2	3.07	1.69
2001	3	2.99	1.72
2002	2	2.92	1.68
2003	2	2.94	1.64
2004	2	2.83	1.58

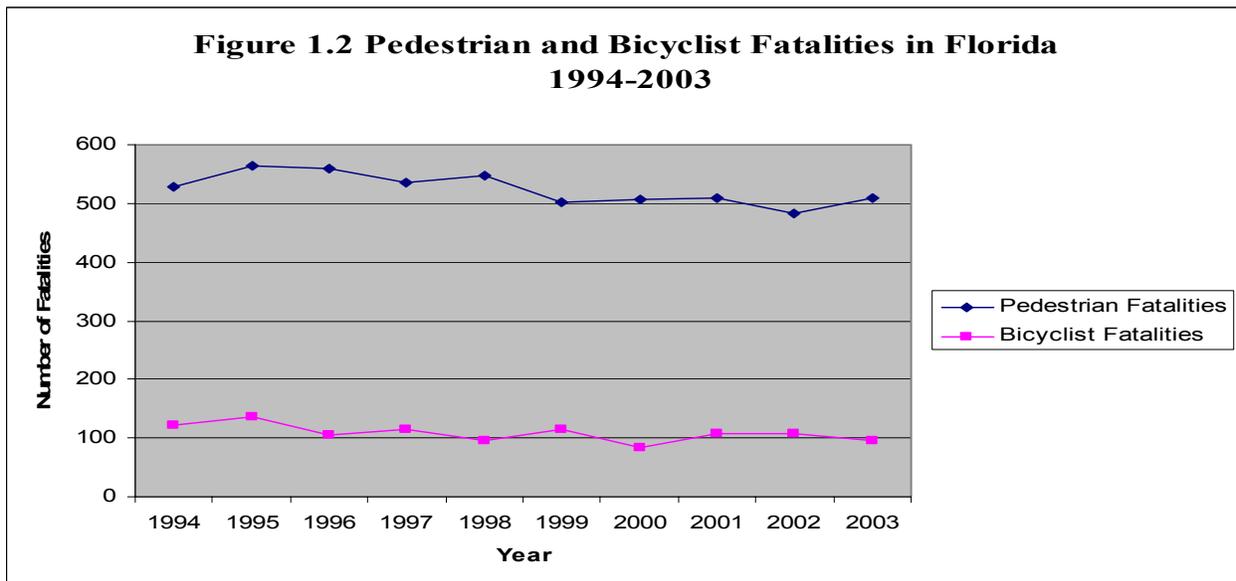
Source: NHSTA-FARS, 1995-2004

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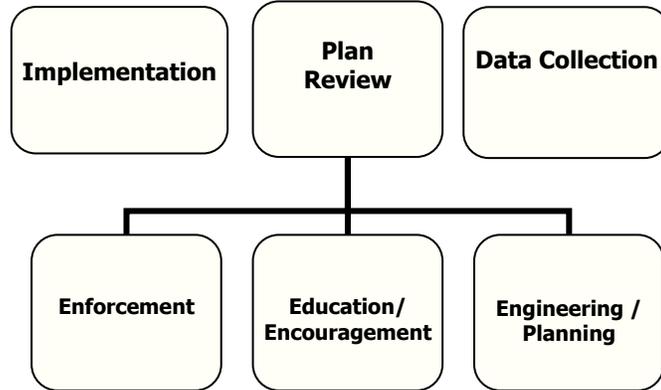
Source: NHSTA-FARS, 1995 - 2004

As part of understanding the Florida pedestrian fatality problem, it is also important to understand the degree to which pedestrian fatalities are occurring in comparison to bicyclist fatalities. Over a ten year span, pedestrian fatality rates dropped by an average of 0.8 percent per year, while bicycle fatality rates dropped an average of 2.3 percent per year. Figure 1.2 shows that in Florida the actual number of pedestrian fatalities is consistently between 4 and 5 times higher than the number of bicyclist fatalities.



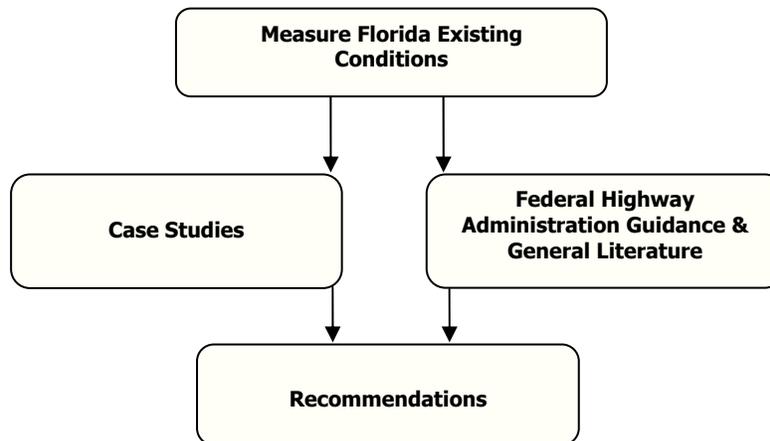
Source: Florida Highway Safety Plan, 2006

Figure 1.3– Functional Areas Covered In This Study



As part of the research process to better understand what efforts are being made within Florida with regard to pedestrian safety, the first step consists of measuring existing conditions within the state to understand programmatic activity relating to pedestrian safety. Five functional areas, as indicated in Figure 1.3, are part of the research process. These areas are data collection; education; engineering & planning; enforcement; implementation. Review of the existing Florida Pedestrian Safety Plan consists of the Education, Enforcement, and Engineering / Planning components.

Figure 1.4 – The Research Process



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Upon review of the existing conditions of Florida, a review of activities through plan review and interviews within case study states were conducted. Plan development guidance from the Federal Highway Administration and a review of general literature will be referenced to provide additional insight. All of the information gathered will lead to recommendations based on analysis of research findings. Figure 1.4 provides an overview of the steps taken for the development of recommendations towards the creation of an updated Strategic Pedestrian Plan for the State of Florida.

2.0 Florida Existing Conditions

2.1 Introduction

This chapter contains a survey of current Florida practices with regard to the five functional areas studied. At the end of this section, a list of Florida findings within each functional area is presented. How these processes could be improved will be examined in the following chapters.

2.2 Data Collection

2.2.1 Introduction

The 1992 Florida Pedestrian Safety Plan

In 1992, the Florida Department of Transportation (FDOT) generated a plan in response to the “alarming number of pedestrian injuries and deaths in the state of Florida -- *higher for the 1980’s decade than any other state*” (Florida Pedestrian Safety Plan, 1992, p. I-3). Funded by Federal Section 402 funds (a Federal funding program to reduce death and injury on the nation’s roads), the *Florida Pedestrian Safety Plan* was designed as a countermeasures guide to mitigate the then-growing problem of pedestrian injuries and deaths in Florida.

In the 1992 plan the authors noted that "a reliable central source of pedestrian crash data for enforcement agencies does not exist" (Florida Pedestrian Safety Plan, 1992, p. IV-5). Yet the plan manual contains only minimal policy direction regarding data collection, and locates it as part of the “enforcement” section (Florida Pedestrian Safety Plan, 1992, pp. IV-5 – IV-6). In the plan, crash data was seen primarily as a tool for law enforcement in processing the results of accidents, rather than in the prevention of such accidents.

The 1992 plan recommended two courses of action. One involved tracking the blood alcohol content of deceased pedestrians over the age of 10, which was then a statistic not tracked. The second recommendation was that there should be one central database to serve as a resource center for enforcement agencies. This recommendation was partially implemented, but overall the process is almost unchanged from where it was in 1992.

Purpose of the Following Report

Given the limited attention paid to crash data and collection in the 1992 plan, the following expands the topics covered in an attempt to develop an action plan regarding crash data collection and analysis. In addition to the course of the 1992 plan, the following analysis attempts to identify:

1. How is data collected in the field and stored?

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2. How is data accessed by those performing analysis?
3. How is data utilized as part of the decision making process?

Each of the above questions has important effects on how data is utilized by the end decision maker. The way data is collected in the field determines the accuracy and reliability of the overall state accident database and also will affect the timing of when data becomes available for analysis. Data access looks towards the ability of the end user to get to the data in a usable form in a timely manner. Finally, how data is utilized as part of the decision making process may be the most important part of this analysis; if the data is not to be utilized in the planning process, why is it being collected?

2.2.2 Federal Data Collection Requirements

The Federal government has established a minimal baseline on the amount and type of crash data to be collected by the states by setting collection and reporting standards as part of the Federal highway grants program. If a state is found to be out of compliance with collection or reporting requirements, the Federal government can reduce or cut off Federal funding of transportation programs until the state comes into compliance. There are currently two Federal data collection requirements in regard to the collection of crash data.

The first Federal requirement is the submission of roadway fatality data by all states for compilation within the Fatality Analysis Reporting System (FARS) database. This database tracks crash data from the fatal crash within 30 days of the accident. FARS data includes "approximately 130 coded data elements that characterize the crash, the vehicles, and the people involved" (DOT-NHTSA, 2003). This data is collected at the state level and is sent to the Federal Department of Transportation (DOT) who maintains the national FARS database. Originally, creation of the FARS database seems to have been instituted through a rulemaking procedure out of the Department of Transportation. More recently, the U.S. Congress has codified requirements that Federal highway funding is to be tied to compliance with FARS reporting requirements and other triggers based on FARS data. One example of such a codification is found in Title 23 USCS Section 410, which freezes grants for those states where FARS threshold values are not met.

SAFETEA-LU has an additional data collection requirement within the re-authorized Highway Safety Improvement Program (HSIP). To remain in compliance with HSIP, a state must have a Strategic Highway Safety Plan (SHSP) which "includes a crash data system that can perform problem identification and countermeasure analysis" (FHWA, 2005, p. 37) by October 1, 2007. Additionally, HSIP requires that the state "submit an annual report to the Secretary describing at least 5 percent of locations with the most severe safety needs, and an assessment of remedies, costs, and other impediments to solving the problems at each location" (FHWA, 2005, p. 37).

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2.2.3 Legal Limitations on the Collection and Storage of Data

By Florida statute, crash reports that reveal personal information concerning parties involved in a crash are confidential and exempt from public records inspection laws for a period of 60 days after the report is filed (Florida Statutes §119.07, 316.066(3)(c), 2005). For certain individuals (such as the parties and their insurance companies) and state agencies, general law may allow access to crash reports within this 60 day period. It is assumed that this 60 day exemption period (from public records inspection laws) also attaches to any databases generated by the holder of crash reports. Due to a recent U.S. Supreme Court decision on point, there is a great deal of uncertainty regarding the future availability of crash reports to the general public.

The case of concern is *Pierce County v. Guillen* (2003), which the U.S. Supreme Court accepted on appeal out of Washington State. This case dealt with whether or not Congress could exempt crash data collected by the states for Federal purposes (such as compliance with FARS) from state sunshine law (open records law) requirements. This exemption had been sought by several states, as they felt that the collection of such data might open them to attack on negligence tort claims from surviving family members. In *Guillen*, the U.S. Supreme Court upheld the U.S. Congress' exemption of these records (from state sunshine laws) under the Commerce Clause of the U.S. Constitution. It is currently unclear exactly how the *Guillen* decision will be applied by lower courts, and to what extent the exemption will apply to data collected by the state beyond the FARS requirement.

Note that Florida state courts have held that the state owes no duty to the public to ensure that information contained in state databases is correct. This decision was upheld most recently in the case of *Layton v. DHSMV* (1996).

2.2.4 Collecting Data for This Report

Research for this section was conducted primarily through a series of phone interviews with relevant personnel in the Florida Department of Transportation, the Florida Department of Highway Safety and Motor Vehicles, the University of Florida Mapping Center and the Miami Area Metropolitan Planning Organization. Where the interview subject was unavailable or unresponsive, research was conducted through public domain presentations and literature authored by that individual. Interview areas of expertise are shown below.

Key Respondents

Collection & Storage

- Department of Highway Safety and Motor Vehicles (DHSMV) Data Entry Staff
- DHSMV Management Research Staff
- University of Florida (UF) Mapping Project Coordinator

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- FDOT TraCS Coordinator (published papers only)
- FDOT TraCS Project Manager

Access & Use

- FDOT Bike/Ped Coordinator
- FDOT Data Coordinator
- FDOT Grants Coordinator
- Miami Area Metropolitan Planning Organization (MPO) Safety Engineering Staff
- FDOT Transportation Safety Engineer

2.2.5 The Current Florida Crash Data Collection Process

In Florida, the DHSMV is tasked with the collection of crash data and the maintenance of the state crash database. This includes the collection and delivery of fatal crash data to the Federal government to satisfy Florida's FARS reporting requirements.

When a crash occurs a sworn officer is dispatched to the crash scene (if no sworn officer arrives on scene, the crash will not be included in the state crash database maintained by DHSMV). The sworn officer will fill out a crash report form either electronically or manually. If the accident involves an injury or if the accident causes more than \$500 in property damage, the sworn officer will fill out the "long form." If these conditions are not met, then either the officer will fill out the "short form," or he may hand the parties involved a copy of the short form and instruct the parties on how to file the form themselves. If the parties involved are handed the short form but do not return it to municipal officials, the crash data will not appear in the DHSMV database.

Assuming that there is a form filed with the county/municipality, the form will be sent to DHSMV in Tallahassee for inclusion in the state crash database. Currently, the data entry for this database is contracted out to prison labor managed by Prison Rehabilitative Industries and Diversified Enterprises, and the database is known commonly as the PRIDE database (PRIDE). The DHSMV crash database is a separate module of the master PRIDE database. From this database, FARS data (covering fatal crashes only) is assembled and sent to the Federal government. Weekly updates of new crashes are provided to FDOT via CD-ROM, where FDOT georeferences the crashes according to the FDOT mile marker system and performs basic crash typing based on the 40 choices in the "First/Subsequent Harmful Events" space on the Florida crash form (while 40 choices may seem detailed, the actual difference between many of the choices is small – for example, 7 of the 40 choices are variations on "collision with motor vehicle in transport," 7 of the 40 choices are variations on "motor vehicle hit {something}," etc...). Rarely, FDOT will supplement this basic typing through the use of other information boxes on the crash form, or with the officer's notes on the crash form. FDOT then verifies all of DHSMV's data from the PRIDE database and then enters this data into its own Crash Analysis Reporting System (CARS) database. While CARS formerly included only crashes on Florida's

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state highway system, for the past two years all crashes entered into PRIDE have been replicated in CARS.

In Florida, the DHSMV is considered to be the “owner” of all crash data. The point cannot be overemphasized at this juncture, that the state crash database now completed is considered to be "owned" by DHSMV. By agreement, DHSMV and FDOT have historically tended to limit the access of outside agencies and individuals to crash data. While this may seem to run contra to the Florida statutory requirements mentioned earlier, FDOT explains that Florida (and some other states) interpret *Guillen* as changing the law regarding crash reports and public records laws. FDOT adds that the Florida policy on limiting access to crash data had evolved prior to *Guillen* out of similar concerns as those that led to the Congressional exemption of FARS data from state public records laws – that limited access to crash data helps to prevent crash victims from later implicating the state for negligence regarding known high accident rate locations.

Like many other states, Florida utilizes a two-tier system for safety planning (and the resulting allocation of money towards safety related initiatives). The first tier is state-led, with safety programs being chosen, funded and implemented by the state directly. The second tier is local in nature, with local government bodies competing against each other for Federal and state money. Much of this local safety planning is performed by Metropolitan Planning Organizations (MPO’s) covering the affected region, with a smaller amount of safety planning taking place at the local government level itself.

Historically, the reluctance of the state agencies to release copies of their databases to outside agencies and government bodies has led to local safety planning normally being performed based on two sources of crash data:

1. Yearly summary reports provided by the state which generally contain statistical information processed for the entire municipality. These reports are generally insufficient in the level of granularity to provide meaningful understanding of where crashes are actually occurring in the municipality.
2. Crash data based on the municipality’s own local database of crash statistics. Certain larger municipalities have kept their own databases of crash reports sent to DHSMV, however these municipal databases are often incomplete, do not contain enough information and do not allow a regional or inter-city view of the problem.

Note that FDOT has recently begun to allow MPO’s access to the CARS database to assist in the regional safety planning process. An MPO may now be able to receive CARS data if the MPO:

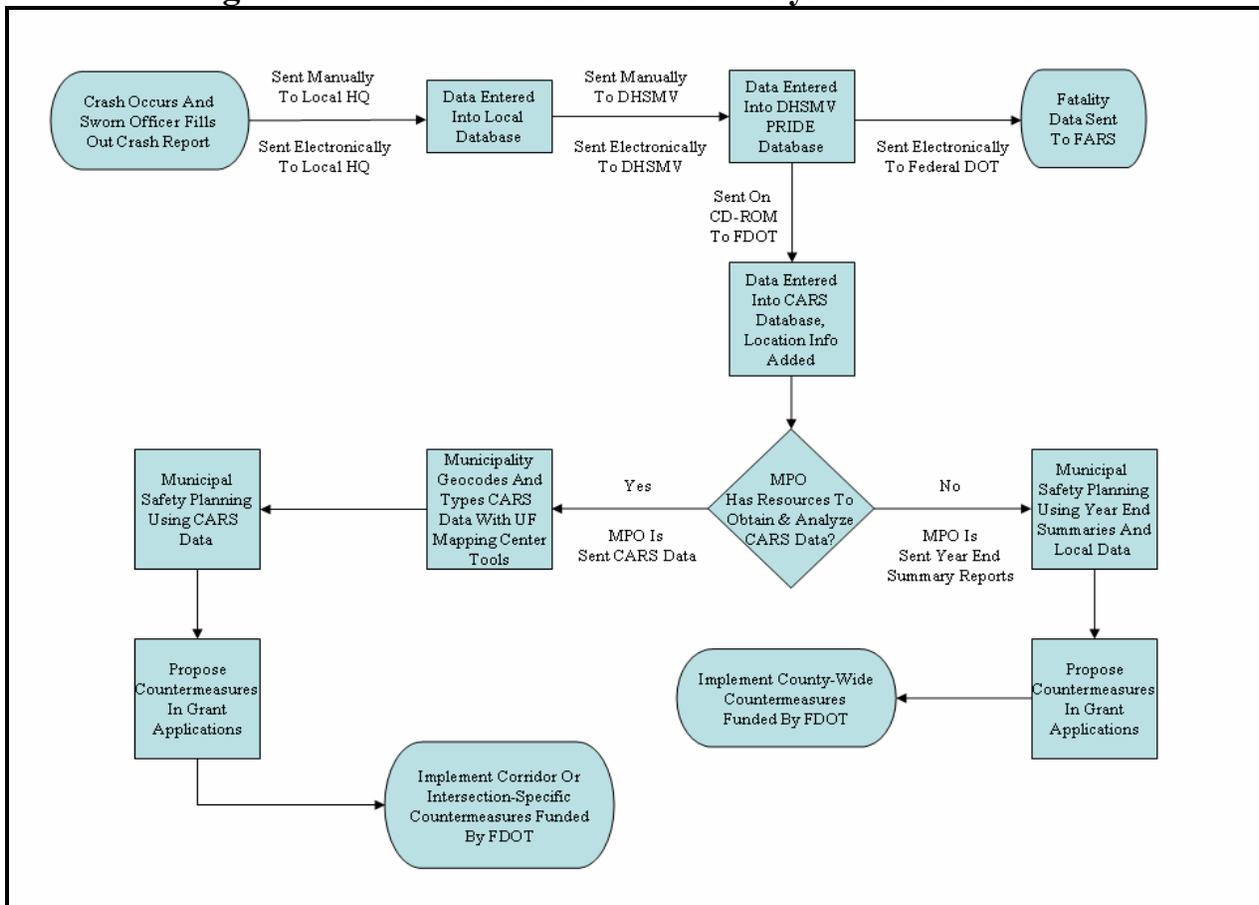
1. Signs a nondisclosure agreement on the data,
2. Attends special training on using the database, and
3. Pays fees for access time to database.

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One example of an MPO that received access to CARS data is the Miami-Dade MPO. When the Miami-Dade MPO was developing its pedestrian plan, the MPO received a copy of CARS pedestrian crash data across the entire MPO for a five year period. This data was geocoded under a grant from FHWA, and the resultant plan is a model cited in the FHWA manual on how to draft a pedestrian plan. While the steps outlined above do allow for MPO access to data, many MPO's have determined that the financial cost for the access either outweighs the benefit that will be achieved by adding the data to the safety planning process, or just does not have the budget to gain access to the data.

The general process for data flow in the Florida safety planning environment is shown in Figure 2.2.

Figure 2.2 – Data Collection and Analysis Process Flow



Source: Mr. Matt Mathalla and Mr. Patrick Brady, FDOT

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2.2.6 Florida Improvement Projects

Florida has recently implemented three projects designed to improve the data collection and analysis process. One project specifically deals with data collection in the field, one project deals with the storage of data and the final project deals with improving the analyst's ability to use the data.

Improvement Program #1 – TraCS

The first improvement program undertaken in Florida is called TraCS. TraCS is a software system developed at the University of Iowa through which data can be collected electronically by the officer at the crash scene and that data can be electronically transmitted to a central receiving point. In theory, there are several advantages to such a system. First, electronic capture of data at the crash scene allows for the collection of Global Positioning Systems (GPS) data that precisely identifies the crash location. Second, the system contains an electronic version of the long and short crash forms. This is designed to improve accuracy of data in that the officer will no longer produce illegible, incomplete or shorthand reports at the scene. This will produce more valid and reliable data by reducing errors later on in the transcription and data entry stage. Problems in data entry are reduced even further through use of the TraCS e-filing capability. With e-filing of data, little post-processing of forms is necessary, resulting in reduced requirements for data entry staffing, automatic notification of omitted data fields, and with the advent of wireless file transfers back to a state compatible database at the officer's base, virtually real time database update and crash data availability. Not all of these planned features are currently available, and not all available features have been fully implemented in TraCS equipped departments.

The TraCS program was first beta tested in Florida in 2003, with funding provided by Section 402 safety grants. Since 2003, the system software and training has been offered to all eligible sworn agencies in Florida at no cost. Federal grants also provided funding for minimal hardware to the original pilot program counties, but at present hardware is to be provided by the local agency implementing TraCS. According to Mr. Stanley Trimble, Florida TraCS Program Manager, as of November 2005, "68 police agencies have received TraCS software and training." Mr. Trimble notes that the goal is eventually "100% field use in agencies, with 100% use of electronic submission to DHSMV within about 8 years." (S. Trimble, personal communication, November 4, 2005). A significant hurdle to the eventual universal adoption of TraCS, however, is the recent decision by the Florida Highway Patrol (FHP) to spend \$9 million on a rival system – SMART COPS.

Improvement Program #2 - PRIDE Database

In reaction to the recommendation of the 1992 Plan, the PRIDE database was intended to eliminate the multiple databases present across agencies. PRIDE is currently a dual mode of entry database, designed to accept data in electronic format or by manual entry. This is important to the process, since as of mid 2005, (substantially) less than 50% of all crash reports were being

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filed with the state electronically. In early 2004 PRIDE was modified to allow storage of all TraCS captured data, and in mid 2004 capability went online to allow electronic linking in real time from local TraCS databases.

Unfortunately, PRIDE as implemented today sheds light on one of the problems inherent to the current system. Currently, data from PRIDE is sent to FL DOT on CD-ROM for inclusion in their CARS database. While this process was originally necessary as CARS was only mandated to store crash data from the state highway system, the mandate of CARS now extends to cover all crashes occurring in Florida. The two databases begin their life after data entry effectively as mirrors of each other, but then data manipulation occurs on one and not the other; the two databases begin to diverge as soon as FDOT receives the data and adds mile marker location information. This is exactly the situation that the 1992 recommendation was designed to eliminate. Additionally, the expanded implementation of local databases, like the database stored locally as part of TraCS, has led to additional divergent databases; this itself is contrary to the original goal of PRIDE which was to be the solitary traffic crash database for Florida.

Improvement Program #3 - UF Mapping Center

The third improvement program recently undertaken is the creation of the University of Florida Mapping Center in Gainesville. The original goal of the center was to provide accurate geocoding and crash-typing services to the ten counties with the highest pedestrian and bicycle crash rates in Florida. Unlike the previous two improvement programs, this program was designed specifically to improve accuracy of bike/ped related data, as opposed to all crash data. Another difference is that this program was designed to improve accuracy in the local safety planning process, when data is drawn from one of the locally kept databases described earlier (like a local TraCS database, or a municipality's local non-TraCS database of crash locations).

The essential problem is that existing data collection methods (i.e. - forms and databases) do not easily handle what the sworn officer believes to be a valid and accurate location of the crash scene. An example of this would be a location that indicates that the crash occurred "500 feet due west of the intersection of 1st and Main." Ignoring any possible issues with locating the intersection, the "500 feet west of..." does not lend itself towards accuracy in geocoding for GIS. As noted earlier, FDOT does locate all crashes in the state according to the state's mile marker location system. While this is an excellent reference system for use in police reports, such a system is not GIS compatible. The center was originally devised to help local safety planners in counties with high bike/ped crash rates take their locally stored data and convert it into a format that could be used in GIS mapping.

Note that Florida has been dealing with the issue of obtaining location data for crashes that is compatible with GIS for several years. To date, the controversy has always centered around the practical use of Global Positioning System (GPS) data to provide GIS compatible position coordinates in lieu of the mile marker system. According to Mr. Patrick Brady at FDOT, the reason why previous attempts at rolling out GPS based systems had failed is that the accuracy of

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GPS captured coordinate data was not sufficient for crash locating. FDOT testing in the late 1990's and early 2000's resulted in GPS position variations that could be as large as 50 yards for readings taken under different conditions such as time of day, number of GPS satellites captured, building reflection data, and so forth, at the same physical point in space. Recently, GPS location technology available commercially has been upgraded to where GPS systems now can link to a base map to improve accuracy of the reported coordinate (this is the same technology used in Onstar and Tom-Tom systems available in passenger vehicles). In Mr. Brady's opinion, the use of these new GPS systems would save time, effort and expense over the multi agency system that has evolved so that Florida planners can utilize GIS systems for mapping crash locations (P. Brady, personal communication, November 30, 2005). Mr. Matt Mathalla at FDOT noted similar feelings in that GPS units would save time and would not prevent the officer from collecting the node system location data that is collected today (M. Mathalla, personal communication, January 6, 2005). Although GPS has now arrived in some sworn officer's units, the geocoding function is still very important, as most cruisers do not have GPS capability at the present time. Even when the cruiser has GPS, the state still does not utilize field reported geodata unless the GPS is used in combination with e-filing through TraCS.

Although the center is still relatively new, in it's third fiscal year, its function has already morphed beyond the original purpose for which it was established. Now the center has two goals. The first goal is to provide a software tool that allows the end user to geocode crash data more accurately and also to train local personnel on that tool. To accomplish this goal, the center created a companion module to ESRI's Arcview software which allows for the residual "500 feet west of..." to be accounted for. The second goal of the center is to train local personnel in how to better use GIS systems in regards to analyzing crash data. The crash typing function of the center also still exists as part of the training program. Note that these two functions of the center are no longer limited to the highest crash rate counties; now the programs are now open to all jurisdictions in Florida. Also, the center will do the actual geocoding for municipalities, but there is a fee based on time required.

Summary of Existing Conditions

The data collection process historically used in Florida has been criticized primarily for access and timeliness reasons. Generally it has been recognized that the state is due for a technology upgrade in the data collection process. This is the purpose of implementing PRIDE and TraCS. This technology upgrade is certain to spin off residual benefits as well in terms of accuracy and precision. The following section will begin to point at whether these upgrades are enough to meet minimal standards of competence as set by the Federal government.

2.2.7 FHWA Draft Federal Guidelines

In August of 2005, US DOT released a draft manual through the FHWA entitled How to Develop a Pedestrian Safety Action Plan. While this manual is not binding on the states, and may

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not even be approved for general distribution at this time, it is worthwhile to see how the realities in Florida today compare with the FHWA recommendations in regards to collection and storage, access and integration of crash data.

FHWA Guidelines vs. Florida Reality - Collection and Storage

In regards to data collection and storage, the FHWA says that a good crash database should be inclusive of all crashes, timely, accurate, and computerized (FHWA, 2005, p. 24). In regards to complete inclusion, note that Florida's database is not inclusive of all crashes. This is due to the necessity that a sworn officer be present at the scene, but admittedly this is an issue that would plague virtually any state's database until intrusive auto monitoring (like GM's Onstar system) is allowed by the courts. Of greater concern to the inclusive of all crashes point, is the fact that sworn officers sometimes will hand the short form over to the participants in the crash, with instructions on how to return the form. It would be an interesting exercise to compare field notes with database records, to see exactly what percentage of these short forms are being returned.

In looking at timeliness, it is important to note that Florida currently does not make data available in real time. Data is batched together by year, which results in a lag time of at least ten months; more often the time lag to data availability is on the order of 12-18 months. This lag time is due primarily because of the data entry backlog created by the manual entry system currently in place, and also because the yearly batch file is what FARS reporting to the Federal government is based on.

Regarding accuracy, this is one area where Florida seems to be making improvements. The UF Mapping center was specifically designed to improve accuracy in mapping crash locations. Hopefully, TraCS with GPS and on-scene data input will also add to accuracy of data in reports. This point ties in closely with the final FHWA recommendation, that the system be computerized. As with accuracy, the state is getting better on this point, but there is still room to go.

FHWA Guidelines vs. Florida Reality – Access

The FHWA report contains no Federal guidance on access to data. For timeliness, ability to react to critical hazard situations and efficiency of the analyst's time that the state is paying for, it would seem to be to the advantage of all concerned that authorized end users of the data should have free and unfettered access to the data. This would seem to be doubly logical when the data is owned by one state agency (DHSMV), and the end user is another state governmental agency, like FDOT. However, in Florida data is held very tightly by DHSMV. Access is provided to pre-approved individuals and departments only, and even then access to the data may be rigidly controlled.

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FHWA Guidelines vs. Florida Reality – Utilization

Finally we must look at how data is utilized by decision makers. Regarding the utilization of crash data, the FHWA says that data should be used to identify high crash locations, areas and jurisdictions, data should be used proactively, and that data should be used in post implementation review. The first of these functions of data is only partially satisfied in Florida. Regarding using data to identify high crash locations areas and jurisdictions, Florida generally utilizes its data only on the jurisdictional level. DHSMV prepares summary crash data reports on a per county basis and distributes those to the various agencies that could utilize crash data. In rare instances, data might be supplied on a specific corridor level, such as I-10 in Leon County. This is additional evidence of how lack of access to data affects the ability of decision makers to do their jobs with as much information as possible.

Secondly, FHWA suggests that crash data should routinely be reviewed as part of proactive safety study; in other words, the data should be utilized as part of no other project, but merely to determine the exact location of accidents. Interviews with safety staff here in Florida tell a different story; that crash data is generally used as secondary input once a highway project has begun for some other reason. Only one to two percent of FDOT's construction budget is reserved for projects based out of a need to improve safety at a particular location. This program is known as the "Reactive Safety Program," and locations for treatment are chosen based on local input on dangerous locations. For the remainder of the 98 percent of construction funds, standard practice seems to be that safety analysis will be conducted only as part of an already funded improvement project. FHWA says that safety statistics should be enough to trigger a project of its own whenever warranted, not at such a low token rate.

Finally, FHWA suggests that crash data should be used as part of post-implementation project review. The analysis of pre and post improvement data is standard practice in most private sector projects, but does not seem to happen at all in Florida. Without such post-improvement analysis of data, it is impossible to determine what steps have been taken that should be repeated in other areas. While this is possibly due to the presence of a statutory scheme without penalties for non-compliance, the true reason may be more of a function of the untimely fashion of the data. If six months of post-improvement data is collected, then 18 months is required for the data to be processed (as per DHSMV's standard turnaround time), and then another few months is required for analysis... the result of what the project accomplished is coming some 27 to 30 months after the project completed. Budgeting is already 3 yearly cycles beyond where it was when the project was completed, and the results of the project are just becoming known. As a result of untimely data, the efficiency of undertaken projects is not being understood until several years after the project is completed, and as a result money is not being spent as effectively as it could be.

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2.2.8 Findings

Below are findings that have been noted once Florida's current data collection process has been compared with the three improvement programs already undertaken. These findings are not necessarily designed to editorialize on Florida's process; they are designed to merely document what exists at this time. In terms of specific findings, the following characteristics of Florida's data collection and analysis system were observed:

- Florida has upgraded its database with advanced query capability.
- Florida has initiated a pilot program allowing the e-filing of data.
- Florida does not collect and save location data in a GIS compatible form.
- Florida limits crash data access to both government agencies and the general public.
- Florida has a delay in data availability to decision-makers of greater than 6 months.
- Florida has no requirement that data be analyzed in a follow up format after improvement projects are completed.
- Florida does not have auto-generated reports or websites with statewide bike/ped crash statistics available.
- Florida makes planning decisions for bike/ped safety at the local government level primarily.
- Florida does not perform any detailed crash typing of bike/ped crashes below the "pedestrian with {something}" level.

From these observed findings, the following issues are apparent and should be considered when case study survey instruments are developed and utilized:

- The current process for collecting and distributing crash data is not timely enough so as to allow for the utilization of crash data in the safety planning process.
- Detailed data down to the corridor level is not routinely distributed to safety planning decision makers.
- While some steps have been taken to standardize the collection database and inflow of data, no clear process exists for the outflow of data.
- The decentralized system preferred for certain tasks such as crash typing, crash locating and competition for implementation grant money does not match up with the centralized system implemented for collection and storage of crash data.
- Since so little data has been seen by local decision makers to this point in time, it is unclear whether local decision makers would immediately be able to implement methods for effectively utilizing crash data in the safety planning process.

2.3 Enforcement

2.3.1 Introduction

The review of this plan element seeks to determine the degree to which any of the recommendations outlined within the Enforcement Element were implemented and to assess the

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progress that has been made to achieve the goal over the past 13 years. The goal of the Enforcement Element of the existing Florida Pedestrian Safety Plan is: “To improve the performance and safety of pedestrians through improved legislation and enforcement of laws (p. IV-2).”

2.3.2 Issues from Florida Pedestrian Safety Plan

Issue #1

In 1990, 38.5% of all pedestrian fatalities involved alcohol or drugs by the pedestrian [As of 2004, 35.32% of all pedestrians fatalities involved alcohol (Department of Highway Safety and Motor Vehicles)]. Currently there is no way to protect alcohol / drug impaired pedestrians. They cannot be physically removed from the roadway, because it is not illegal for them to be there. Detox centers fill up quickly and are often too far away for the officer to deliver them. Hospitals often won't take them, or it takes too long to get them admitted. Many are homeless and there is no place for them to be taken. Society needs to change the attitude of “The Drunk” to one of risk and a cost to the public at large. Florida needs to examine what other progressive states are doing with this issue (Florida Pedestrian Safety Plan, IV-2).

Plan Recommendation

The legislature should establish criminal traffic statutes governing intoxicated pedestrians accessing public highway right of ways (sidewalks, right of ways, public roadways and highways). The recommended statute would make it unlawful for a pedestrian to have a blood alcohol level of 0.10 or above. This statute is intended to regulate pedestrians impaired by alcohol and other drugs. Officers could then arrest drunken pedestrians and put them in jail (Florida Pedestrian Safety Plan, IV-2).

Status: Not Accomplished

Chapter 856.011, Florida Statutes, outlines laws within the State of Florida related to public drunkenness and does not mention authority of officers to arrest individuals above a specific blood alcohol level. See Appendix A4.

There is no law that exists at the present time that warrants law enforcement to arrest individuals if they are intoxicated above a certain blood alcohol level and are not endangering the life and safety of other individuals. However, a misdemeanor of the second degree could be charged against an individual who endangers the safety of another person or property while intoxicated (Corporal J. Wainwright, FSU Police, personal communication, October 14, 2005). Chapter 775.083, Florida Statutes, states that the penalty for being convicted of a misdemeanor of the second degree or a non-criminal violation could be \$500.00.

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According to FDOT staff, implementation of the recommendation has not been recognized as a priority (P. Pieratte, personal communication, November 14, 2005). Additionally, staff stated that an entity outside of the Florida Department of Transportation needs to find a sponsor to bring this issue forward to the legislature for consideration.

Issue #2

“As 35-50% of urban traffic fatalities are pedestrians, it is imperative that more attention be paid to this problem in recruit, in-service and specialized training for law enforcement officers” (Florida Pedestrian Safety Plan, IV-3).

Plan Recommendations

1. Work with FDLE Criminal Justice Standards and Training Commission, Bureau of Training, to modify the basic curriculum for law enforcement officers. Pedestrian matters should be included in the 520 hour law enforcement recruit curriculum that includes instruction on traffic matters affecting law enforcement. Officers need to receive more training in filling out accident reporting forms and in gathering evidence for pedestrian accident reconstruction such as the speed of the car, where the body hits the ground, environmental factors, etc.

2. FDOT, working with the Institute of Police Technology and Management, should develop the curriculum that can be taught through IPTM and other police training agencies throughout the state. Those who receive that training can then present in-service training in their local areas. If possible, Police Standards and Training Commission should modify existing law to offer additional advanced and specialized training for in-service police personnel on pedestrian/bicycle law enforcement. FDOT is working with the IPTM to develop the curriculum (Florida Pedestrian Safety Plan, IV-3).

Status: Modification of Basic Recruit Curriculum: Not Accomplished

Currently, state-certified criminal justice training schools and instructors provide training to law enforcement personnel and must meet standards set forth by the Florida Department of Law Enforcement, Criminal Justice Standards and Training Commission, as outlined within Chapter 11B, Florida Administrative Code (F.A.C.). The manager of the curriculum unit of the Florida Department of Law Enforcement’s Criminal Justice Professionalism Program verified that the laws of Florida (including pedestrian laws) are covered in various courses, however, there are have been no required courses specific to pedestrian law (D. Floyd, personal communication, October 14, 2005). Review of the latest version of Chapter 11B, Florida Administrative Code, which consists of the state rules for curriculum content, also indicates no courses specifically related to pedestrian safety.

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According to FDOT staff, this was not implemented because at the time of the plan proposal, the curriculum was full (P. Pieratte, personal communication, November 7, 2005).

Status: Development of Curriculum for Police Agencies: Accomplished

According to Florida Department of Transportation staff, a consultant other than the Institute of Police Technology and Management developed a two-day bicycle and pedestrian safety law enforcement workshop that includes practical enforcement operations. The course is currently offered several times a year through the Technology Transfer Center (T²) at the University of Florida (P. Pieratte, personal communication, October 14, 2005).

According to FDOT staff, the course focuses on disseminating knowledge about specific enforcement initiatives such as un-uniformed officers trying to cross the street. If drivers do not yield to an officer, a technique is to pull them over and give them a flyer that cites the law and how many pedestrians were killed or injured in that city or county in a given year. The course has been funded annually for about 5 to 6 years through a Section 402 grant (P. Pieratte, personal communication, November 7, 2005).

Regarding the effectiveness of the course, FDOT staff stated: “the University of Florida is talking about sending out an inquiry or postcards or e-mail, asking if they have found the course useful, or have done follow up enforcement based from it (P. Pieratte, personal communication, November 7, 2005).”

Issue #3

“Public information goes hand in hand with enforcement programs. Enforcement by itself will not be enough. 80% of any enforcement effort should be public information, and 20% issuance of citations” (Florida Pedestrian Safety Plan, IV-3).

Plan Recommendation

“FDOT shall compile/create, as necessary, Public Service Announcements, brochures, press releases and other materials for public information campaigns that address major pedestrian issues. These materials would then become resources for local selective enforcement programs” (Florida Pedestrian Safety Plan, IV-4).

Status: See Education Section Issue # 2.

While the plan recommendation is primarily related to education, FDOT Bicycle / Pedestrian staff identified a two-day law enforcement workshop as becoming a resource for local selective enforcement programs, as explained within Issue #2.

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Issue #4

“Law enforcement officers in community programming, such as crime prevention officers, school resource officers, etc., need to be provided with pedestrian accident information and countermeasures” (Florida Pedestrian Safety Plan, IV-4).

Plan Recommendation

A pedestrian safety curriculum addressing pedestrian problem areas and target group countermeasures, will be developed for outreach officers by the Department of Transportation, Attorney General’s Office, Division of Victim Services and Criminal Justice Programs. Some areas addressed will be age, causation factors, time of day, alcohol / drugs, school buses, etc. Appropriate teaching materials should be compiled or developed if necessary, to meet the above needs. These materials will be made available to the Attorney General’s Office, Division of Victim Services and Criminal Justice Programs; the Florida Police Standards and Training Commission, IPTM, and other college and university programs involved in traffic safety (Florida Pedestrian Safety Plan, IV-5).

Status: See Enforcement Section Issue #2.

FDOT staff identified a two-day law enforcement workshop as a curriculum for outreach officers, as explained within Issue #2.

Issue #5

“Currently, pedestrian safety is not adequately covered in driver improvement or preliminary licensing schools” (Florida Pedestrian Safety Plan, IV-5).

Plan Recommendation

Recommend that the Supreme Court and the DHSMV Driver’s License Division expand the curriculum in the driver violator schools to include pedestrian issues. The 4-hour preliminary licensing schools curriculum should also be expanded to address pedestrian issues.

Presently, materials could be handed out, and some material worked in, but changing the actual curriculum may require Supreme Court approval (Florida Pedestrian Safety Plan, IV-5).

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Status: Partially Accomplished

Review of the Chapter 15A-8 of the Florida Administrative Code (1991) to Chapter 15A-8 of the FAC (2005) shows there were no changes to the elements of the Basic or Advanced Driver Improvement courses to include pedestrian safety. The difference between Chapter 15A-8 in 1991 and 2005 is the addition of the Traffic Law & Substance Abuse Education (TLSAE) course in the 2005 version, which is primarily focused on substance abuse, however, does cover basic traffic laws of Florida relating to the operation of a motor vehicle. See Appendix A4 for the 2005 version of Chapter 15A-8.

According to Ms. Felicia Ford at the Department of Highway Safety and Motor Vehicles, Bureau of Driver Education & Driving Under the Influence Programs at the Department of Highway Safety and Motor Vehicles, all first-time drivers have to take the TLSAE, regardless of age. When asked whether the preliminary licensing schools still exist, DHSMV staff stated they do, however, they are one of many that offer courses, under the umbrella of TLSAE courses that are required of all new drivers, which are approved by the department (Personal communication, October 5, 2005).

According to FDOT Safety Office Staff, a Section 402 traffic safety grant was used to produce the 'Bike 'n Ped Driver Ed' materials which can be used either in Driver's Education classes for new drivers, or for Driver improvement classes, on a voluntary basis. The Technology Transfer Center is distributing the re-printed materials and many copies were given to the National Safety Council in Orlando, for distribution to their local councils around the state. According to FDOT Safety Office staff, they do not know the extent the materials are being used in the classes (P. Pieratte, personal communication October 14, 2005 and November 7, 2005).

Currently, state-certified driver improvement training schools and instructors provide courses to individuals and must be state certified, per provisions within Chapter 15A-1, F.A.C. According to staff at the DHSMV, driver improvement schools can put their own "twist" to the courses they teach, provided they are addressing the key elements that are required by the State of Florida (F. Ford, personal communication, October 5, 2005). The Department of Highway Safety and Motor Vehicles lists a variety of private driving schools in Florida on its web site that are qualified to either teach basic or advanced driver improvement courses and the Traffic Law and Substance Abuse Education course.

Issue #6

"A reliable, central source of pedestrian crash data for law enforcement agencies does not exist" (Florida Pedestrian Safety Plan, IV-5).

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Plan Recommendation

The Department of Transportation Safety Office of Safety, Pedestrian/Bicycle section, (or other agency, should serve as the central resource center for bicycle and pedestrian crash data to be utilized by law enforcement agencies seeking prevention and enforcement materials related to bicycle/pedestrian safety programs. The DOT should investigate the possible formation of an interagency committee to accomplish this desired goal.

The FDOT, or other mandated agency, should do a study to track the backgrounds and financial / homeless status and blood alcohol levels of all deceased pedestrians over the age of 10. They should use the accidental reporting form, traffic homicide report and hospital data. They should get information from the hospital EMS system on all pedestrian injuries (check for ages, sex, home base / homeless pedestrians) (Florida Pedestrian Safety Plan, IV-5).

Status: Central Center for Crash Data for Law Enforcement Officers: See Data Collection Section for Status

According to FDOT Safety Office staff, the FDOT gets crash data from DHSMV for the state road system and adds addresses to it to form a data base with more useful information (P. Pieratte, personal communication, October 14, 2005).

The FDOT Safety Office also stated that the University of Florida has been working on GIS crash mapping training. Also, they have been working with the top ten bicycle / pedestrian crash counties to help them develop their own GIS crash mapping systems. They are now working on a GIS crash mapping toolkit to make it easier for locals to do standard queries once they get their crashes mapped. They are also proposing to add to their website links to those communities

which have already done their crash mapping. FDOT staff stated this should be done this year, bringing the state closer to having a central location for people to check on pedestrian and bicycle crash problems in high crash counties (P. Pieratte, personal communication, October 14, 2005).

Status: Track history data of all deceased pedestrians over age 10: Not Implemented

According to the FDOT Safety Office, this has not been done on a statewide basis for all pedestrian fatalities, but has been done on a more limited basis with respect to alcohol involvement on specific roadways within the State of Florida (D. Kingsbury, personal communication, October 14, 2005).

Regarding why the proposed recommendation was not accomplished, Ms. Dwight Kingsbury stated: "If it meant to develop biographical information about each killed pedestrian (for

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example, information beyond “financial/homeless status”), that would be a fairly ambitious undertaking...” (D. Kingsbury, personal communication, October 14, 2005).

Issue #7

“It is dangerous for pedestrians to be on limited access highways” (Florida Pedestrian Safety Plan, p. IV-6).

Plan Recommendation

The legislature should strengthen Section 316.130 (18), Florida Statutes, to allow law enforcement officers to remove a pedestrian from a limited access facility or ramp connecting a limited access facility to any other street or highway. Such legislation should acknowledge that some limited access highways are crossed over or used by pedestrians due to a failure to address their crossing or access needs (Florida Pedestrian Safety Plan, p. IV-6).

Status: Statutes Strengthened

Review of Section 316.130 (18), Florida Statutes, State Uniform Traffic Control, does not show law enforcement officers have any more authority today than they did in 1992 to physically remove pedestrians from limited access facilities. See Appendix A4. However, pedestrian violations could be made against persons in violation of pedestrian laws.

Issue #8

“Florida law is not in full conformance with the Uniform Vehicle Code (UVC) concerning pedestrian laws and regulations” (Florida Pedestrian Safety Plan, p. IV-7).

Plan Recommendation

“FDOT should compare the Florida Statutes on pedestrians to see which do not comply with the UVC. The legislature should make the recommended changes as appropriate” (Florida Pedestrian Safety Plan, p. IV-7).

Status: Accomplished

The Uniform Vehicle Code is a model code maintained by the National Committee on Uniform Traffic Laws and Ordinances, which provides recommended language for states to use for their traffic safety laws (including pedestrian). The State of Florida did not review of its conformance with the Uniform Vehicle Code (UVC). The National Committee on Uniform Traffic Laws and

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Ordinances did so in 2000, but according to FDOT staff, this group has not been very active since then (D. Kingsbury, personal communication, October 11, 2005). Review of the UVC guidance provided by the National Committee on Uniform Traffic Laws confirms that the last update was in 2000.

According to Mr. Dwight Kingsbury of the FDOT Safety Office, some pedestrian safety advocates now question whether the UVC itself is deficient. Therefore, simply adopting the UVC wording would not necessarily be beneficial. For example, in recent years Oregon, New York, and Georgia have amended certain of their pedestrian laws in an effort to reduce or eliminate wording that were considered too subjective or difficult to enforce (D. Kingsbury, personal communication, October 11, 2005). For example, one law in which Florida follows the UVC but which may nevertheless be "deficient" with respect to enforceability is the following:

“When traffic control signals are not in place or in operation, the driver of a vehicle shall yield the right-of-way, slowing down or stopping if need be to so yield, to a pedestrian crossing the roadway within a crosswalk when the pedestrian is upon the half of the roadway upon which the vehicle is traveling or when the pedestrian is approaching so closely from the opposite half of the roadway as to be in danger” (Section 316.130 (7), Florida Statutes).

FDOT staff stated that the problem is that the point at which a pedestrian approaching from opposite half of the roadway “is in danger” is a matter of opinion. Therefore, Georgia, New York, and Oregon have revised their laws in various ways to make it more specific (D. Kingsbury, personal communication, October 11, 2005).

FDOT staff stated that most significant difference between the Florida Uniform Traffic Control Law and the UVC is that the current edition of the UVC contains a provision, § 11-509, to the effect that ‘the driver of a vehicle crossing a sidewalk shall yield the right of way to any pedestrian and all other traffic on the sidewalk’, but the corresponding law in the Florida

Uniform Traffic Control Law, which apparently came from an earlier version of the UVC, has a much more limited scope:

“The driver of a vehicle emerging from an alley, building, private road or driveway within a business or residence district shall stop the vehicle immediately prior to driving onto a sidewalk or onto the sidewalk area extending across the alley, building entrance, road or driveway, or in the event there is no sidewalk area, shall stop at the point nearest the street to be entered where the driver has a view of approaching traffic thereon and shall yield to all vehicles and pedestrians which are so close thereto as to constitute an immediate hazard” (D. Kingsbury, personal communication, October 11, 2005).

The question of who is supposed to yield to whom when a driver leaving a roadway crosses a sidewalk is simply not addressed in Chapter 316, Florida Statutes (D. Kingsbury, personal communication, October 11, 2005).

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The UVC also contains a “walking under the influence” pedestrian provision:

“A pedestrian who is under the influence of alcohol or any drug to a degree which renders such pedestrian a hazard shall not walk or be upon a highway except on a sidewalk” (§ 11-512)

Therefore, if there is no sidewalk, pedestrians under the influence are not supposed to be present. A third difference is that UVC provides that:

“Where neither a sidewalk nor a shoulder is available, any pedestrian walking along and upon a highway shall walk as near as practicable to an outside edge of the roadway, and if on a two-way roadway, shall walk only on the left side of the roadway” (§ 11-506).

Florida law says nothing about where pedestrian is supposed to walk in this situation (D. Kingsbury, personal communication, October 11, 2005).

2.3.3 Interview with Key Informants at FDOT Safety Office

In addition to a review of the status of recommendations within the Florida Pedestrian Safety Plan, informants at the Florida DOT Safety Office were asked the same basic questions as case study states, as seen in Appendix A1.2. The following are some responses to key questions.

FDOT Bicycle Pedestrian Staff Informants

- Mr. Dwight Kingsbury, Assistant Bicycle Pedestrian Coordinator, Florida Department of Transportation, Safety Office
- Ms. Pat Pieratte: Bicycle / Pedestrian Safety Specialist, Florida Department of Transportation, Safety Office

Insight from key informants was seen as a crucial part of the analysis of existing conditions. The informants were asked to characterize the relationship the Florida Department of Transportation Safety Office has with other state agencies that deal with issues related to pedestrian and enforcement, such as the Florida Department of Law Enforcement and the Department of Highway Safety and Motor Vehicles.

Staff stated that all applicable agencies should be on the recently formed Bicycle Pedestrian Advisory Committee (BPAC), however the Florida Department of Law Enforcement has not sent a representative; the Department of Highway Safety and Motor Vehicles sent someone to the first meeting from Florida Highway Patrol, but that person has not attended since. “Other than programs that we have established, there hasn’t been a whole lot of communication,” stated Pat Pieratte (Personal communication, November 7, 2005). According to Dwight Kingsbury, Assistant Bicycle and Pedestrian Coordinator for the State of Florida, “that committee is really

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just an advisory committee to the state coordinator, so all we can do is ask these other agencies to help out and participate. There is no Governor mandate or anything like that” (Personal communication, November 7, 2005).

With regard to funding, Section 402 grants are a source of funding for a variety of projects, including those enforcement-related. Informants were asked the degree to which the Safety Office has funded enforcement related projects for pedestrians. Ms. Pat Pieratte of FDOT stated: “Pretty much it has been the statewide bicycle pedestrian law enforcement course...”. She explained that many times law enforcement agencies are interested in education courses, however, they are encouraged to focus on enforcement because they are most knowledgeable about the subject area and can implement those course techniques within their own regions. Other groups, like the Florida Bicycle Association and the National Safety Council, are able to provide education courses on bicycle and pedestrian safety (P. Pieratte, personal communication, November 7, 2005).

Staff was asked what they felt were their greatest resources that allow them to work towards fulfilling its mission. Ms. Pieratte stated: “We are willing to work in a lot of different areas, we are passionate about it, we are willing to work weekends if necessary” (P. Pieratte, personal communication, November 7, 2005). She explained that other agencies and locals call with any questions because they recognize the expertise (P. Pieratte, personal communication, November 7, 2005).

With regard to the greatest challenges they face, which inhibit the ability of the Safety Office to fully achieve its mission, the lack of staffing was identified as the main constraint. Staff also mentioned that the state is widening many roads across the state due to growth pressures. “Actually, pedestrian and bike crashes have gone down, but because they have gone down nationally, we are not ahead of the curve yet. It has gone down a whole lot in Miami-Dade, where we focused a lot of resources- they got a national FHWA grant for some traffic engineering, they got a national NHTSA grant for some education programs, and I put a lot of my 402 grants into Miami-Dade over a period of like years. They went down, way down. So, it can be done, but it takes a whole lot of resources. Even targeting the top ten counties, we are spreading our resources pretty thin” (P. Pieratte, personal communication, November 7, 2005).

Staff was also asked whether there were any other comments they would like to make that best characterize enforcement initiatives within the State of Florida as they relate to pedestrian safety. It was expressed that it is a struggle to get law enforcement to realize that you cannot solve the pedestrian safety problem by ticketing the pedestrians. By getting drivers under control first, then pedestrians will behave more. Staff explained how effective it is for pedestrians to hold their hand out when they are going to cross the street (P. Pieratte, personal communication, November 7, 2005).

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Law Enforcement Staff

- Mr. Roger Doherty, Law Enforcement Coordinator, Florida Department of Transportation, Safety Office

The Safety Office offers grant funds across a variety of program areas outside of the Bicycle / Pedestrian category. These programmatic areas are largely enforcement-related. Those funded areas are Police Traffic Services; Speed Control; Alcohol; Motorcycle Safety; Traffic Records; Emergency Medical Services; Community Traffic Safety / Safe Communities; Occupant Protection and Roadway Safety. While Bicycle Pedestrian Safety Staff provided insight on enforcement projects that have been funded in the bicycle / pedestrian category, ascertaining the degree to which other projects within the other Safety Office program areas impact bicycle / pedestrian safety was seen as important.

Therefore, the Law Enforcement Coordinator within the FDOT Safety Office, Mr. Roger Doherty, was contacted to determine whether any projects under his grant programs had any overlap with the Bicycle / Pedestrian funded projects. Mr. Doherty stated that there is one course within his program areas that has been funded, through a Section 402 grant, a Bicycle / Pedestrian Crash Investigation course offered through the Institute of Police Technology and Management. Review of the Highway Safety Plan confirmed the bicycle and pedestrian crash investigation course being offered within the Police Traffic Training curriculum that is offered by the Institute of Police Technology and Management. Approximately 1,200 law enforcement officers will be trained through this course this year (p. 10-1).

Regarding enforcement activities for bicycles and pedestrians in general, Mr. Doherty stated “it is very hard to get people to do bike / pedestrian enforcement” and historically law enforcement agencies within the state have found these unpopular. In addition to the unpopularity of these projects, he stated that public drunkenness laws were repealed in Florida over a decade ago. Prior to the public drunkenness law being repealed, officers had the authority to take a pedestrian home or receive detoxification assistance, whereas now they do not have the authority to arrest a pedestrian for simply being intoxicated (Personal communication, December 1, 2005).

When asked whether any of his grant programs have funded enforcement activities for pedestrians, aside from the bicycle / pedestrian crash investigation course, he stated “no” (R. Doherty, personal communication, December 1, 2005). Review of another grant program that affects pedestrians, the Speed Control element, shows a total of 42 projects being funded throughout the State of Florida for the 2006 year, with:

- Sixteen (16) of the grants within the aggressive driving category;
- Ten (10) of the grants towards speed enforcement on Interstate 95;
- One (1) grant for speed enforcement on Interstate 75; and

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- Fifteen (15) grants focused on speed-related enforcement, but with no specific focus on targeted pedestrian crash locations.

Florida Transportation Technology Transfer (T²) Center Informants

- Ms. Janet Degner, Co-Director, Florida Transportation Technology Transfer (T²) Center, University of Florida

The Technology Transfer Center was contacted to determine the degree to which the two-day law enforcement course is attended and the degree to which law enforcement officers are utilizing the techniques taught within their respective communities.

Ms. Degner stated that over time, the course has become more popular. There has not been a formal mechanism for the Center to determine the degree to which course participants are following the train-the-trainer format and utilizing the techniques within their respective communities. However, she stated that this year the Center intends on developing an instrument that can better measure this. Until now, the Center has done follow-up calls to law enforcement agencies asking them whether they have done follow-up enforcement (Personal communication, January 13, 2006).

Table 2.1 shows that the number of courses that have been taught has increased, as well as the number of individuals trained. Based on the information collected, the number of follow-up operations conducted throughout the state reached an all-time high in the 2004 / 05 year.

**Table 2.3.1
Pedestrian / Bicycle Law Enforcement Course Statistics**

Year	Number of Courses Offered	Number of Officers Trained	Number of Follow-up Operations Conducted by Officers Attending Course
2004 / 05	7	120	31
2003 / 04	5	58	14
2002 / 03	4	44	28

Source: Technology Transfer (T²) Center

Ms. Degner stated that this course is typically offered before the summer rains. Class attendees are given an overview of state traffic safety laws. This is followed by attendees performing decoy operations at key pedestrian locations. Cones are placed in the area of the decoy of the

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operations to give drivers ample notice of the crossing. Drivers are given educational flyers and sometimes citations. With the train-the-trainer concept, course attendees are encouraged to expand upon what they have learned from the course and utilize those techniques within their communities (Personal communication, January 13, 2006).

Starting this year, Ms. Degner stated that as part of the grant awarded by the Safety Office to the Technology Transfer Center, some radar guns will be purchased and distributed for officers to use within their communities (Personal communication, January 13, 2006).

Regarding pedestrian safety being taught at law enforcement academies, she stated that a couple law enforcement academies in south Florida are working towards incorporating pedestrian safety within their curricula. With the state not requiring academies to cover pedestrian safety within the curriculum, she stated that continued integration of pedestrian safety within academy curricula is a step in the right direction (J. Degner, personal communication, January 13, 2006).

Strategic Highway Safety Plan

A component of the Strategic Highway Safety Plan that is related to law enforcement is improving bicycle and pedestrian safety. A key *existing* strategy is: “Identify high pedestrian and bicycle crash corridors (or areas) and develop corrective measures in the “3 E” areas, as appropriate” and “identify corrective measures and implement them through engineering projects, enforcement and / or education” (p. 17).

Other components of the Strategic Highway Safety Plan related to law enforcement are existing strategies to curb aggressive driving, sustain proficiency in elder drivers, and reduce impaired driving. *Potential* strategies within this report that are related to law enforcement and considered the responsibility of agencies outside of the Florida Department of Transportation are: Young Driver Safety (responsible agency DHSMV) and Driver Licensing and Competency (Responsible Agency DHSMV).

2.3.4 Findings

Review of the plans and interviews with informants within Florida leads to the following assessment / findings:

- Review of the Florida Pedestrian Safety Plan (1992) shows that three of the nine recommendations have not been accomplished; four have been accomplished; and two have been partially accomplished (see summary matrix in Appendix A3). The majority of the individuals on the original committee for the development of the plan are no longer around or in their former positions.

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- The lack of staffing was identified by Bicycle / Pedestrian staff as the most significant constraint, as well as some recommendations requiring outside interest to seek legislative sponsors.
- Review of the Florida Highway Safety Plan and the interviews with informants at the Safety Office did not reveal any projects that have been funded or will be funded at *targeted* pedestrian crash locations.
- The Law Enforcement Coordinator within the FDOT Safety Office stated it is very hard to get people to do bike / pedestrian enforcement and these projects have historically been unpopular among law enforcement agencies within the state.
- Three enforcement-related efforts were identified by FDOT Safety Bicycle / Pedestrian staff as being funded by Section 402 Grant funding. The first was a two-day Bicycle / Pedestrian Law Enforcement Workshop. The second was the development of a Florida Bicycle Law

Enforcement Guide by the Florida Bicycle Association, which was also funded through a Section 402 Grant. FDOT staff indicated that in the coming year a Florida Pedestrian Law Enforcement Guide will be developed. The third is Bike 'n Ped Driver Ed booklet, developed for voluntary distribution in driver education schools (Personal communication, November 7, 2005).

- There is little or no evidence that the Bicycle and Pedestrian program is assessing the effects of its two primary grant funded enforcement activities. For example, the FDOT staff noted that a Bike 'n Ped Driver Ed booklet has been developed for voluntary distribution in driver education schools, but staff did not know the degree to which it has been distributed. Regarding the two day law enforcement workshop at the University of Florida, Bicycle / Pedestrian Safety Staff stated that the University of Florida is considering developing a mechanism to determine the usefulness of the class and the degree to which participants are utilizing the enforcement techniques within their own communities.
- A law enforcement project identified by the FDOT Law Enforcement Coordinator as being funded by Section 402 grant in the Police Traffic Services category is a bicycle and pedestrian crash investigation course being offered within a Police Traffic Training course. This class will be taught to approximately 1,200 officers from throughout the state this year.
- The bicycle / pedestrian enforcement course taught through the Technology Transfer Center at the University of Florida trained 120 officers during the 2004 / 2005 grant year cycle.
- Another grant category potentially impacting pedestrians, the Speed Control grant program, shows that all of the grants for speed enforcement for 2006 are in high speed corridors (Interstates 95 and 75), rather than *targeted* pedestrian crash locations.
- Interagency cooperation, particularly between the Florida Department of Law Enforcement, the Florida Department of Transportation and the Department of Highway Safety and Motor Vehicles, has been marginal at best. However, the Bicycle and Pedestrian Advisory Committee will be a potential venue for increased interagency cooperation.
- Review of Florida Statutes does not show law enforcement officers have more authority today than they did in 1992 to physically remove pedestrians from limited access facilities.

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However, pedestrian violations could be made against persons in violation of pedestrian laws.

- Officers once had the authority to take a pedestrian home to receive detoxification assistance, whereas now they do not have the authority to arrest a pedestrian for simply being intoxicated (R. Doherty, personal communication, December 1, 2005).
- The basic recruit curriculum for law enforcement officers does not contain courses specifically on pedestrian safety, except within an overview of Florida laws.
- The FDOT staff made two key points regarding traffic laws and conformance with the Uniform Vehicle Code (UVC). First, the question of who is supposed to yield to whom when a driver leaving a roadway crosses a sidewalk is simply not addressed in Chapter 316, Florida Statutes. Additionally, the UVC states: “Where neither a sidewalk nor a shoulder is available, any pedestrian walking along and upon a highway shall walk as near as practicable to an outside edge of the roadway, and if on a two-way roadway, shall walk only on the left side of the roadway” (§ 11-506). However, Florida law says nothing about where pedestrian is supposed to walk in this situation.
- The Strategic Highway Safety Plan does not coincide with any of the enforcement recommendations within the existing Florida Pedestrian Safety Plan. However, the Strategic Highway Safety Plan does mention the identification of high pedestrian and bicycle crash corridors (or areas) and developing corrective measures in the areas of engineering, education and enforcement, as appropriate.

2.4 Education and Encouragement

2.4.1 Introduction

The 1992 Florida Pedestrian Safety Plan was developed in response to the high number of pedestrian related crashes that resulted in injuries and fatalities in the state. The goal of Florida’s pedestrian education efforts, according to the plan, is “to determine age-specific causes of pedestrian injury; and to create a comprehensive education program to teach the pedestrian and driver highway sharing courtesy, predictability and competency” (Florida Pedestrian Safety Plan, pg. II-2, 1992). The nine program areas identified below reflect the top focus areas for the state as determined by the Florida Pedestrian Safety Task Force:

- School Based Traffic-Education
- Develop A General Public Awareness Campaign of the Pedestrian Safety Problem
- Train All Professional Urban Designers & Roadway Officials
- Study of Injuries & Deaths to Pedestrians by Age Groups in Florida
- Elder Pedestrian Safety
- Alcohol Related Pedestrian Problems
- Traffic Safety Education Through Health Care Professionals
- Driver Education Awareness
- Community Education Campaign for Intersection “Walk, Don’t Walk” Signals

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2.4.2 Methodology

In an effort to identify the degree to which Pedestrian Safety Plan a variety of methods were used. Staff from FDOT, Safety Office, the Florida Traffic Bicycle Safety Education Program (FTBSEP) at the University of Florida (UF), and at Florida Atlantic University's (FAU) Pedestrian Safety Resource Center (PSRC) were interviewed and were surveyed electronically about implemented measures. The questionnaire consisted of asking if the recommendations within the plan had or had not been accomplished and to what degree. In addition face to face and phone interviews were conducted to provide clarification to responses that were not fully understood as well as to garner additional information. Within days after the interviews summary notes were compiled and sent to the respondents so that they could review the summary of the notes to ensure their validity. All of the summary notes collected were then made into field notes and coded for inclusion into the analysis of the existing conditions.

Although the interviews served as the most important source of information in regards to determining what had and had not been accomplished; additional information was collected through the review of various reports, documents, and online sources. The following summary of the existing conditions is based on the analysis of the data compiled.

2.4.3 Issues from the Florida Pedestrian Safety Plan

Issue #1 School Based Traffic-Ed

Implement Traffic Safety Education Program (TSEP) Statewide for 5-9 year olds in Florida Schools.

Plan Recommendation

Florida needs to combine an implementation of the traffic safety education program with reinforcement from crossing guards, school bus drivers and safety patrols. This would reinforce critical safety behaviors in children such as searching left right left that would be covered in the classroom.

Implement TSEP statewide for 5-9 year olds in Florida's schools.

Status: Accomplished

The FTBSEP was initially created in 1982, and was originally funded by Florida Department of Transportation (FDOT) Section 402 grants. In 1991, FDOT contracted with the University of Florida (UF) to continue providing the program on a recurring basis. FTBSEP currently is funded through human resource development funds and non-profit and advocacy organizations

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such as Bike Florida, Florida Bicycle Association. FTBSEP also receives non-monetary support and assistance through partnership with these same organizations.

FTBSEP mission “is to prevent injuries to children from bicycle and pedestrian crashes by training them with knowledge and skills needed to be competent and safe in traffic” (Nicholas, 2005). It does so by administering traffic and bicycle safety education programs through training workshops for elementary and middle school teachers, law enforcement officers, community leaders and volunteers as referenced in their program goal statement. Some of the courses offered through the program include a Ten-Hour Teacher Workshop, Eight-Hour Community Workshop, Driver Ed for Bike & Ped, and Adult Bicycling “Road 1,” which are conducted by members of the Florida Regional Training Team who are certified by the League of American Bicyclists. FTBSEP has expanded to also serve high school students. FTBSEP has worked with Bike Florida to develop the Bike ‘N Ped Driver Ed Handbook also well as produced Pre-Driver’s Education Thinking Ahead bicycle safety curriculum targeted for middle school students. FTBSEP is also involved in distributing Safe Ways to School (SWTS) program brochure and tool kits to interested schools and to Community Traffic Safety Teams (CTST).

Fall 2003, a survey assessing the degree of implementation of the FTBSEP was conducted and distributed to participants at the Florida Alliance for Health, Physical Education, Recreation, and Dance (FAHPERD) Conference. Summary results from the FTBSEP 2003 Implementation Survey Report indicates approximately 3,043 teachers, law enforcement officials, health officials, community safety specialists, and volunteers have been trained to date (as suggested by the record keeping documents) representing 55 percent of the state’s counties, with community or teacher trainings being delivered to 37 of 67 Florida counties. The 2004-2005 FTBSEP Annual Report suggests that 40 of the 67 counties have conducted traffic education district trainings for teachers, law enforcement, and community leaders. Twenty training statewide sessions were conducted in the 2004-2005 contact year with 259 participants.

Figures collected from the Florida Department of Highway Safety and Motor Vehicle (FDHSMV) indicate that the following seven counties Miami-Dade, Orange, Hillsborough, Broward, Palm Beach, Pinellas, and Duval have had the highest incidences of pedestrian fatalities and injuries from 2000 to 2004. Data collected detailing FTBSEP funding priorities by county from 2000 to 2004 indicated that a total of 23 grants had been funded to these counties, with each of the counties receiving a least one grant from FTBSEP with the exception Miami-Dade which has received no FTBSEP funding.

When asked what projects/activities she felt to have been the most successful in meeting the goals and objectives of the program, Linda Crider (FTBSEP director), stated “the continuous training for elementary teachers, regional training, Section 402 training, expansion of the program and coordination with Bike Florida.” FTBSEP is evaluated annually to determine if it has met short and long term goals and for establishing new goals; note however, that no measurement of this program has been performed to evaluate and determine if FTBSEP has succeeded in reducing high rates of pedestrian crash injuries and fatalities.

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Plan Recommendation

Conduct a mass media campaign through family and child-oriented companies such as AAA, food, drug, fast food, and toy stores to promote safe walking skills.

Status: Partially Accomplished

The FDOT Safety Office has worked to conduct such a campaign. Both the Safe Kids Coalition and the American Automobile Association (AAA) have conducted mass media campaigns. The FDOT Safety Office supports the efforts of the Safe Kids Coalition by providing staff to serve on its advisory board. “They’ve been supporting the Walk a Child to School Day and other pedestrian safety materials and they work with toy stores and stuff like that” (Pat Pieratte, personal communication, November 7, 2005). AAA, on the other hand, produces its own pamphlets, booklets and a number of informational videos on pedestrian and bicycle safety. Some examples include Otto the Auto Series which is a popular video series made primarily for grade school students that teaches the basic pedestrian, passenger, and bicycle safety education lessons and the bicycle/pedestrian and passenger safety videos. AAA efforts include distributing an electronic newsletter to traffic safety professionals and media contacts and providing speakers for national safety meetings (AAA Foundation, 2005). According to Ms. Sojeila Orengo, Manager of Traffic Safety Operation, AAA Florida is working with the Pinellas County School District, Suwannee County Schools and Hillsborough County (to name a few) to promote pedestrian safety through AAA School Safety Patrol Program, the “Schools Open – Drive Carefully”, and the “Halloween Safety” campaigns. Additionally, the FDOT Safety Office “has supported local bicycle pedestrian coordinators some of whom have worked with local restaurants, including McDonalds to place tray liners detailing bicycle and pedestrian safety tips” (P. Pieratte, personal communication, November 17, 2005).

Plan Recommendation

Train crossing guards, bus drivers and school liaison officers to reinforce the classroom pedestrian safety lessons. This could be done through county Sheriff’s and Police Chiefs’ Associations. AAA has materials for adult crossing guard training. Other expanded materials need to be developed and piloted. A stand-alone video could be developed to be used with statewide training.

Status: Partially Accomplished

In 1992, the Florida School Crossing Guard Training Program (FSCGTP) was established as a response to a piece of state legislation known as the “Ramon Turnquest School Crossing Guard Act” which called for the creation of a training program for school crossing guards. Florida is the only state in the nation with a mandatory standardized training for their school crossing guards. “The overall goal of the program is to provide a uniform training program that increases the effectiveness of adult crossing guard performance in Florida with the ultimate intent of

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increasing the safety of children as they make their ways to and from schools” (Evaluation Report FSCGTP, pg. 1, 1999). FSCGTP provides school crossing guard training and certification to school crossing guard trainers. The curriculum for the program consists of a teaching manual, audiovisual materials, and field exercises. Retraining is required annually, involving at least onsite observation of the guards their primary posts for two hours.

The FSCGTP was evaluated in 1992 by Dr. Ruth Steiner and Dr. Richard Schneider, professors at University of Florida’s College of Design, Construction & Planning Urban & Regional Department. Their report looked to evaluate the program, see how it fared in carrying out its goals, and provide recommendations aimed at increasing the effectiveness and efficiency of achieving those goals. In a draft copy of the Safe Ways to School Task Force 2004-2005 Report it indicates that 18 recommendations were made in the original evaluation report and of those five were fully accomplished, four were partially accomplished, and five were never accomplished. No evaluation has been completed since; however Florida State University is currently conducting a study to evaluate the FSCGTP. Additionally, no documentation has been assembled to verify the total number of participates trained through the program to date.

Plan Recommendation

Obtain a public/private partnership with Disney or other corporation offering popular childhood characters to help promote the program.

Status: Partially Accomplished

The FDOT Safety Office has not partnered with corporations such as the Walt Disney Company directly, but instead the Safety Office works with profit and non-profit organizations like Bike Florida who in turn are able to work with these types of corporations. One such example is with the Safe Kids Coalition that continues to work with Walt Disney Radio on public service announcements detailing bicycle and pedestrian traffic safety. “Disney has produced some very good but expensive bicycle and pedestrian safety materials on their own and through their Radio Disney stations in various Florida markets” (P. Pieratte, personal communication, November 7, 2005). Many of the educational programs currently in use are done on an individual effort and not in partnership with the Safety Office directly.

Issue #2 Develop a General Public Awareness Campaign of the Pedestrian Safety Problem

Florida needs to educate the general public about the severity and nature of the pedestrian safety problem. This is needed both to gain public backing and support, and to increase the public’s perception of the value of walking for transportation. This campaign should include secondary school and college students and target areas with the highest incidence of pedestrian problems.

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Plan Recommendation

FDOT shall take the leadership to develop and coordinate a statewide mass media pedestrian safety campaign. There is a new campaign at FDOT which could be used as a model. This campaign to let people know the safety issues in highway work zones, called “Think Along These Lines,” used a press conference and press kit developed through a \$100,000 grant from FHWA. Our pedestrian mass media campaign could use many complementary facets such as:

- Videos
- TV, Radio, Newspaper PSAs
- Publications safety information
- Posters and pamphlets
- Billboards
- Celebrities
- Walking tips
- Public events such as walkathons

Status: Partially Accomplished

FDOT Safety Office has not been directly involved in media campaigns. To date FDOT Safety Office had not allocated state funds for these types of campaigns. Instead they and their partners worked to create pedestrian safety material (in the form of pamphlets, brochures, mini videos, etc.) made available online and for distribution throughout the state via workshops, presentations, and conferences. Under the old rules of National Highway Traffic Safety Administration (NHTSA), Section 402 funds could not be used to purchase air time. That has since changed and paid media is now allowed under the grant based on certain provisions. The FDOT Safety Office is now currently seeking to take advantage of this new provision.

Plan Recommendation

FDOT should seek funding sources, appropriate sponsors, and marketing outlets such as industries involved with walking or athletics. Some appropriate groups could include:

- Hospitals, doctors, clinics
- PTA’s, volunteer groups
- Environmental groups
- Fast food companies
- Alcoholic beverage companies
- Bicycle/toy manufacturers
- Grocery store bags
- AAA

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- Shoe athletic apparel companies
- Metropolitan Planning Organizations
- Insurance companies
- Walking/running magazines

Status: Partially Accomplished

Because of statutory and constitutional constraints, state agencies are not organized to receive private sector sponsorship or donations and thus FDOT has been unable to take this type of action. However, private sponsorships have been secured to hold the Statewide Pro-Bike/Pro-Walk Florida Conference. The local governments or non-profit organizations in the state are not precluded from working with the aforementioned groups in accomplishing various tasks.

Plan Recommendation

FDOT should implement college and university registration/orientation pedestrian safety programs.

Status: Not Accomplished

FDOT has not implemented a safety program for state colleges and universities. In order for this effort to be modestly successful on a campus environment it would need to be implemented at the level of the individual institution. Currently, out of the twelve four-year public universities and colleges, only the University of Florida offers a traffic safety presentation during its orientation program. Based on communication held with the various orientation safety coordinators a number of universities hold some form of safety awareness week on campus in which literature is made available to students detailing safety issues. Safety issues are handled for the most part by university safety departments and not directly through new student orientation. At the recent request of the Safety Office, the Pedestrian Safety Resource Center (PSRC) at Florida Atlantic University is generating a letter to send out to universities to inform them of the need for education and the types of resources available.

Issue #3 Train all Professional Urban Designers & Roadway Officials

Encourage engineers, architects and planners to emphasize the mobility of people, not just the movement of vehicles.

Plan Recommendation

FDOT should take the lead in enlisting the aid of all those involved in land use, the environment, urban design and the construction of roadways, to develop policy statements that roadway designs should be based on uniform standards. The backbone of these standards should be to move people and goods rather than vehicles.

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Training Programs should be developed and taught through the FDOT Safety Office and other appropriate groups listed below, to all those involved in the government, land development, traffic engineering, roadway design, planning etc. Every effort should be made to build camaraderie among the groups regarding pedestrian safety. This could be done through the use of articles in newsletters and other publications of the appropriate groups. These individuals and groups should include:

Roadway engineers; planners; American Society of Civil Engineers (ASCE); Florida Engineering Society (FES); American Public Works Association (APWA); Florida Association of County Engineers and Road Supervisors (FACERS); IMSA; Institute of Traffic Engineers (ITE); Signal technicians; AASHTO; FHWA; landscape architects; architects; government officials; risk management specialists; insurance adjusters; American Association of Retired People (AARP); land management groups; & private citizen land trust organizations and trail advisory groups (Florida Pedestrian Safety Plan, III-6)

Status: Accomplished

FDOT assists in providing training programs focused on urban design and construction of roadways to appropriate groups. A number of organizations around the state offer training opportunities. “The Livable Communities courses began last year under a grant to FSU and will continue with eight more courses this year” (P. Pieratte, personal communication, November 7, 2005). The one-day course offers discussion on overview of walkable communities and building neighborhoods, engineering measures, meeting ADA requirements, traffic calming measures and implementation through public collaboration. Also, Walkable Communities offers a Pedestrian Safety & Law Enforcement Course which touches on pedestrian crash typing and engineering components of crash reduction. In 2006, the Safety Office, in conjunction with the Roadway Design Office and Federal Highway Administration plans to offer the Pedestrian Facility Design Course in several FDOT districts. In addition it should be noted that local governments work with the regional bike/ pedestrian advisory committees to have educational courses conducted at the local level.

Issue #4 Study of Injuries & Deaths to Pedestrians by Age Group in Florida

To date, we know more about injury mortality (those who die from pedestrian injuries) than we do about morbidity (injuries) because of the lack of data on injuries that do not result in death. The Trauma Registry, housed in the Office of Emergency Medical Services (OES), is a unique and as yet untapped source of data on injury morbidity. It contains information on pre-hospital care given to victims and injury severities associated with pedestrian crashes, and trauma scores, as well as basic demographic indicators and cause of injury information. However, the information available in the Trauma Registry must be validated before it can be used as a research tool. Once a study of the pedestrian problem has been conducted using a validated

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Trauma Registry, the results can be used to justify policy initiatives and to target injury preventive programs. Local professionals can use this study as a model for conducting in-depth investigations of the locations and circumstances of local pedestrian collisions. Emergency Medical Service (EMS) response time and pre-hospital care could also be investigated at the local level. (Florida Pedestrian Safety Plan, III-7)

Plan Recommendation

FDOT, Health and Rehabilitative Services (HRS), and Highway Safety and Motor Vehicles (DHSMV) should implement a study of pedestrian injuries by age group in Florida, including age, type and causation of accident. This study should highlight the nature and magnitude of the pedestrian injury problem in Florida and help in targeting age specific prevention programs. It should also incorporate information from a variety of sources, including accident reports from the DHSMV, the hospital discharge databases and the Trauma Registry information.

Status: Not Accomplished

This study was not developed. In Florida there is currently no statewide pedestrian crash typing being developed. The following quote provides insight as to why it is instead done at the local level “while it might seem desirable to have a statewide database of all crashes, differences in local administrative structures, distribution and usage of crash data within local agencies, and disparities in the distribution of resources, may mean that local governments need to develop their own systems” (Steiner. R, Schneider. R & Moss. John-David, 2002). The following counties currently conduct pedestrian crash mapping: Miami-Dade, Orange, Hillsborough, Alachua, Broward, Duval, Palm Beach and Pinellas counties. FDOT Safety Office has supported the technical assistance and capacity building to crash map at the local level. Constraints to implementing pedestrian crash mapping include fragmentation, communications, political and administrative support, and financial and other resource constraints. For further status information on this recommendation please refer to Section 2.2.5 entitled The Current Florida Crash Data Collection Process.

Issue # 5 Elder Pedestrian Safety

Due to the physiological and psychological effects of aging, elder pedestrians have additional needs that must be addressed.

It is imperative that drivers, engineers, and elder drivers be educated to the special needs of this group. Unless allowances are made for the slower and restricted movement and reduced visual acuity of the elder person, their over-representation in traffic accidents will continue.

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Plan Recommendation

The FDOT should produce materials and presentations for Metropolitan Planning Organizations (MPO's), planners, urban designers, engineers, architects, and traffic engineers on the special needs of the elder population. Materials should include concrete examples of good design in user friendly pedestrian ways. Examples would be crossings timed to accommodate older pedestrians in areas of high elder populations, larger signs, pedestrian signals, medians, refuge islands, and midblock crossings and improved parking lot designs which provide safe walkways and reduce backing accidents. The course should also include a short video from the vantage point of the senior citizens such as "A Walk on the Safe Side" by Forrest Wilkens of the Los Angeles Police Department.

Status: Accomplished

The Safety Office supports the efforts of the PSRC at Florida Atlantic University, which actively produces educational material for elderly pedestrians. PSRC produced a three volume video entitled "Walk Florida" which provides a discussion of the problem of pedestrian safety, solutions and results. Some of the additional material produced includes: "Walk Alert: Pedestrian Safety for Seniors" (pamphlets), "Walking through the Years Pedestrian Safety for the Older Adult (65+)" (booklet), and the "Highway Design Handbook for Older Drivers & Pedestrians" toolkit. The AAA foundation also provides a number of online resources as well for older drivers at its senior driver's website (AAA Foundation for Traffic Safety Annual Report 2004-2005).

Issue # 6 Alcohol Related Pedestrian Problems

Information collected through the Traffic Accident Reporting System indicates that alcohol consumption by the pedestrian was reported in 38.5 percent of all adult pedestrian fatalities. Research has shown that the average blood alcohol of these drunken pedestrians is .19, nearly twice the legal threshold for DUI. This area of pedestrian safety has received little attention and needs to be addressed.

Plan Recommendation

At the local level, collect information on where alcohol related pedestrian incidents are occurring and to whom. Possible data collectors include: County public health units, DHSMV, pedestrian safety coordinators, university students, community groups or coalitions. Develop appropriate combinations of interventions.

Status: Partially Accomplished

FDOT does have access to information regarding the age, sex, and location of crash. "Although this information could be drawn from the state databases, we don't have the staff to do local

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interventions. That is why we have been encouraging locals to GIS map their own bike/pedestrian crashes and do the analysis so they can find out where there are alcohol related problems as well as other types of patterns” (P. Pieratte, personal communication, November 7, 2005). Miami-Dade has consistently ranked number one in the state for bicycle and pedestrian crash injuries and fatalities and therefore has been using pedestrian crash mapping to develop countermeasures. For further status information on this recommendation please refer to Section 2.2.5 entitled The Current Florida Crash Data Collection Process.

Issue # 7 Traffic Safety Education through Health Care Professionals

Educating parents and children through health care professionals.

Plan Recommendation

Develop materials such as pamphlets, coloring books, etc., to be distributed in pediatric wards of hospitals, public health clinics, pediatricians’ offices, etc. Develop a video to be viewed in these offices as well. These videos should be distributed to video outlets for community service and school use. There is a satellite hookup from DOE to each school in the state, which should be utilized. Video and print materials can be distributed via the school library lending service.

Status: Partially Accomplished

FDOT has not been doing this directly but they have supported efforts by other organizations through technical assistance. Much of this is being done at the local level in conjunction with various organizations and health departments around the state. The PSRC at Florida Atlantic University has developed this material and is currently seeking to work with local departments of health around the state, in hopes of establishing better working relationships in which an avenue for sharing information can be established. Materials currently available online and for distribution include: Walking for Fun and Fitness (pamphlet), Moving Forward: Expanding Collaborations between Traffic Safety and Public Health (pamphlet), and the Pedestrian Safety Toolkit (includes: video, CD-ROM, user manual, resource manual, and sample materials).

Issue # 8 Driver Education Awareness

Driver Education is an untapped area where respect for the pedestrian should be taught. Research has shown that new drivers tend to look straight ahead, and will not see small objects such as pedestrians and bicyclists unless they are taught to search for them. Searching skills are extremely important, and they should be specifically taught.

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Plan Recommendation

Re-title Driver's Education to Traffic Education and make it part of a K-12 Traffic Safety Education Program.

Status: Not Accomplished

Re-titling Driver's Education to Traffic Education has not been achieved. Accomplishing this requires involvement of the state executive. The FDOT Safety Office has not been working closely with the Department of Education which would be the department most responsible for implementing such a change. Ms. Pieratte noted "that accomplishing this task would require involvement of state executive branch" (P. Pieratte, personal communication, November 17, 2005).

Issue # 9 Community Education Campaign for Intersection "Walk, Don't Walk" Signals

FDOT shall determine if a consistent and uniform use of international pedestrian signals (white person walking, orange stop hand) would be of benefit to pedestrians in Florida. If proven to be effective, they should be installed consistently statewide. The campaign shall consist of training in the use of audio signaling and raised arrows on signal pole buttons for the visually impaired; guidelines for handicapped people; and placement of information signs on pedestrian poles that explains the meaning of "Walk, Don't Walk" signals

Plan Recommendation

Communities should initiate campaigns for educating pedestrians of all ages in proper use of pedestrian signals and pushbuttons. This should coincide with standardization of hardware.

Communities should determine the most effective way of reaching their different population groups.

Status: Accomplished

FDOT website has posted literature addressing intersection signals including the "Crosswalk Safety" brochure. The PSRC at FAU has been producing materials on proper usage of the pedestrian signals and pushbuttons and has been making presentations to various groups towards this effort at workshops and training sessions around the state. Some of the materials they have available include the following pamphlets: "The Pedestrian Signal. How does it Work", "Walk Alert: Stop, Look Left-Right-Left", and "Walking and Crossing Safety Tips".

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2.4.4 Findings

- In the development of the Florida Pedestrian Safety Plan (1992) nine issue items were identified leading to the suggested recommendations for obtaining the education goal. In all, fourteen recommendations were made and of those four were fully accomplished, seven were partially accomplished, and three were never accomplished. See Summary Matrix Appendix A2.
- Two of the accomplished recommendations have been evaluated for their effectiveness, none of the programs implementing or partially implementing the recommendations of the plan except, the Duval County implementation of the FTBSEP have been consistently evaluated to determine if they do in fact positively reduce the number of pedestrian injuries and fatalities in the state.
- Florida is the only state in the nation with a mandatory standardized training by law for school crossing guards and is the first to have school crossing guard training program.
- In general, Florida has created many educational programs and distributed numerous educational materials targeted to elementary school age kids but has not necessarily targeted these efforts to localities designated as high pedestrian crash areas.
- Pedestrian crash mapping is currently not conducted on a statewide level to collect data on pedestrian crash victims due to implementation challenges related to fragmentation, communications, political and administrative support and financial and other resource constraints. The following counties perform pedestrian crash mapping to assist in developing educational intervention for targeted groups: Miami-Dade, Orange, Hillsborough, Alachua, Broward, Duval, Palm Beach and Pinellas.
- Both the Florida Strategic Plan and Florida Highway Safety Plan appear to coincide with the Pedestrian Safety Plan in that all three documents provide recommendation for the use of pedestrian safety education programs.
- FDOT has been unsuccessful at integrating pedestrian safety into the driver education arena due in part to a lack of coordination and involvement from the state executive branch.

Successful implementation of certain recommendations could be based on the following factors:

- Section 402 funds are being used effectively to support the right types of allowable activities.
- The redirecting of FDOT Human Resource Funds for educational programs.
- As the sole distribution of Section 402 funds the FDOT Safety Office is able to alleviate many of the problems associated with coordination among multiple departments.

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- The partnerships established with the universities (FAU, UF & FSU) and with bike/pedestrian coordinators around the state help allowing for networking and helps the Safety Office reach targeted audiences more effectively.

The combination of these factors has made for effective implementation of the recommendations. Conversely, the following reasons have been identified as factors that have impeded the implementation of the recommendations:

- FDOT Safety Office lacks sufficient staff resources in which to assist in accomplishing the various activities and programs.
- FDOT Safety Office lacks the authority or power to mandate compliance with the recommendations.
- FDOT Safety Office lacks funding for accomplishing various activities.
- Use of Section 402 funds is limited to certain activities; therefore all of the activities designated as top priorities are not accomplished.
- FDOT has few relationships with local governments, non-profit or for-profit organizations and companies in which to exchange ideas.
- FDOT has experienced difficulty in establishing intra-office & interagency communication and coordination.
- Support at the local level for the implementation of these recommendations is not always strong in part because the awareness for pedestrian safety is not present.

2.5 Engineering

2.5.1 Introduction

The 1992 Florida Pedestrian Safety Plan was developed in response to the high number of pedestrian related crashes that resulted in injuries and fatalities in the state. The goal of Florida's pedestrian engineering and planning efforts is "To provide a safe and pleasant walking environment in all urban locations in Florida by the year 2010." The seven areas identified below are the focus areas for the engineering and planning element.

1. Sidewalks
2. Intersections
3. Parking and safe access to buildings and schools
4. Mid block crossings
5. Maintenance of pedestrian traffic through work zones

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6. Planning facilities with pedestrian needs in mind
7. Most transportation and safety professionals are not trained in pedestrian planning, design, operations and maintenance.

2.5.2 Methodology

In analyzing the status of each of the above issues an extensive review of the following documents was performed as well as interviews with key informants from the Florida Department of Transportation, The Florida Safety Office and the State Bicycle and Pedestrian Coordinator.

Florida Statutes

Pedestrians are permitted to use public highways except where otherwise prohibited, in accordance with federal, state and local regulations. Pedestrian facilities along major roadways provide improved safety and encourage alternate modes of transportation. They also provide recreational opportunities that generally improve the quality of life and are, therefore, desirable.

Florida Statute 335.065 sets forth requirements regarding bicycle and pedestrian ways along state roads and transportation facilities and provides that pedestrian facilities be given full consideration in the planning and development of transportation facilities. Pedestrian facilities are defined as any facilities that provide access and support for pedestrians. These include, but are not limited to, paved shoulders, wide curb lanes, multi-use paths, sidewalks, walkways, crosswalks, pedestrian signals, median refuge islands, features that slow traffic, overpasses, and special tunnels or bridges.

Florida Statute 335.065 also states:

“Bicycle and pedestrian ways shall be established in conjunction with the construction, reconstruction, or other change of any state transportation facility.”

The phrase “shall be” is the most firm directive the legislature can make.

However, the directive is followed by three exceptions that allow bicycle lanes to be excluded: “Where their establishment would be contrary to public safety; when the cost would be excessively disproportionate to the need or probable use; where other available means or factors indicate an absence of need.”

Standards

There are many publications that guide engineers and planners in designing pedestrian facilities along roadways.

- *Manual on Uniform Traffic Control Devices (MUTCD)* (2003), published by the Federal Highway Administration (FHWA), is recognized as the national standard for traffic control devices on all public roads and provides transportation professionals with standards and guidance needed to make decisions regarding the use of traffic control devices on streets and highways. As stated in the *Plans Preparation Manual (PPM)* “the

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Florida Department of Transportation has adopted the MUTCD as a standard that applies to all roads in the state”.(PPM, 2005)

- *American with Disabilities (ADA) Standards for Accessible Design (1994)* issued by the Department of Justice (28 CFR Part 36) sets standards for accessibility to places of public accommodation and commercial facilities by individuals with disabilities and provides national standards for accessible design.

The Florida Department of Transportation (FDOT) has published two manuals that set statewide standards for the Strategic Intermodal System (SIS) which is comprised of transportation facilities and services of statewide and interregional significance, Florida Intrastate Highway System (FIHS) which are state-maintained facilities which carry the highest volumes of traffic over the longest distances, State Highway System (SHS) the portion of Florida’s roads under FDOT control, as well as all other county and city roads within the state.

- *Plans Preparation Manual (PPM) (2005)* represents requirements for the State Highway System and sets forth geometric and other design criteria, as well as procedures which must be met for the design of all FDOT projects. Authority for this manual is given under Florida Statute Section 334.044(2).
- *Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (The Florida Greenbook) (2005)* is intended for use on all public roads that are not part of the State Highway System. Authority for this manual is given under Florida Statute Sections 334.044(10)(a) and 336.045.

Recommended Practices and Handbooks

The following state handbooks and manuals were also reviewed and provide further guidance on each specific issue listed above.

- *American Association of State Highway Transportation Officials - Policy on Geometric Design of Highways and Streets “AASHTO Greenbook” (2004)* is a set of national standards for geometric design and construction of all types of roadways from freeways to local roads and streets. The standards were developed for a national audience and portions may not be applicable for every municipality. Florida uses the AASHTO manual as guidance but has not adopted it for use within the state.
- *Institute of Transportation Engineers (ITE) Transportation Planning Handbook (2001)* provides transportation planning professionals with a source of reference and guidelines of the typical practices and proven techniques of the profession. Florida uses the ITE manual as guidance but has not adopted it for use within the state.
- *Florida Pedestrian Facilities Planning and Design Handbook (2004)* provides the designer, planner, safety practitioner, or community leader with tools to “create safe, secure, friendly, convenient, efficient, comforting and welcoming streets, walkways, and public plazas”.
- *Florida Intersection Design Guide (FIDG) (2004)* provides designers with a handbook for new construction and major reconstruction of at-grade intersections on the State Highway System. The information contained in the *FIDG* is used as a supplement to the *Plans Preparation Manual (PPM)*.

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- *Florida Department of Transportation Drainage Manual* (2003) provides a basis for uniform design practice for typical roadway drainage design situations.
- *Florida Department of Transportation Driveway Handbook* (2003) provides guidance to existing rules, standards and procedures on the best ways to plan driveways. The information contained in this manual is used to supplement the *Plans Preparation Manual (PPM)*.
- *Florida Building Code* (2004) is based on national model building codes and national consensus standards which are amended where necessary for Florida's specific needs. The code incorporates all building construction-related regulations for public and private buildings in the State of Florida.
- *Florida Design Standards* (2003) contains a series of index sheets with drawings that prescribe detailed requirements for construction and maintenance of highway facilities in Florida. For the purpose of pedestrian facilities, these index sheets outline the design of curb ramps and the placement of pedestrian signals at intersections.

2.5.3 Issues from the Florida Pedestrian Safety Plan

Objective: Issue #1 Sidewalks

The primary function of the FIHS is to provide for high-speed and high-volume traffic movement. The safe movement of pedestrians must be carefully considered and accommodated so that there will be no adverse impact on vehicular safety, capacity or speed. To accommodate pedestrian traffic on roads intended for high-speed, high-volume vehicular traffic requires a careful balancing. Meeting the needs of each mode is the objective. Separate, offsite, and/or parallel facilities shall be used where practical and feasible. Facilities shall be consistent with the requirements of the *Florida Pedestrian Facilities Planning and Design Handbook*.

According to the *Florida Pedestrian Facilities Planning and Design Handbook*, sidewalks will be constructed in conjunction with all new construction, major reconstruction, and lane addition in urbanized areas and curb and gutter projects. As a general practice, sidewalks should be constructed along both sides of arterial streets that are not provided with shoulders even though pedestrian traffic may be light. Sidewalks should be provided along both sides of collector streets that are used for pedestrian access to schools, parks, shopping areas, and transit shops and along all collectors in commercial areas. In residential areas, sidewalks are desirable on both sides, but should be provided on at least one side of collector streets.

Criteria for sidewalk widths are given in the *Plans Preparation Manual (PPM)* which outlines the requirements for the design of all FDOT projects on the State Highway System. Additional width may be justified in highly-developed urban areas and in the vicinity of schools. The additional width should be based on anticipated pedestrian volumes.

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Policy Recommendation

At a minimum, 5 foot sidewalks should be included on both sides of all urban area roadways except limited access highways, unless the land use dictates a need on only one side. Every effort should be made to add sidewalks to all existing urban streets where they do not exist, and to complete missing links with preference given to areas serving schools, parks, tourist zones, and where high levels of elder pedestrians can be anticipated.

Recommendation Status

Based on the *Plans Preparation Manual* sidewalks shall be considered on all projects in urbanized areas. Although the standard sidewalk width is 5 feet, it may be desirable to create wider sidewalks in high volume pedestrian areas. “If the sidewalk is located adjacent to the curb, the minimum width of the sidewalk shall be 6 feet.” (PPM, 2005)

Policy Recommendation

Sidewalks should be included in all residential and commercial development plans submitted to public agencies for review and permit in urban areas.

Recommendation Status

Florida Statute 163.3177 “Required and optional elements of comprehensive plan; studies and surveys” requires that all long range and comprehensive plans must include a pedestrian circulation element.

(6) In addition to the requirements of subsections (1)-(5) and (12), the comprehensive plan shall include the following elements:

(b) A traffic circulation element consisting of the types, locations, and extent of existing and proposed major thoroughfares and transportation routes, including bicycle and pedestrian ways.

Policy Recommendation

The Growth Management Act (Chapter 163, F.S.) requires that all long range and comprehensive plans must include a pedestrian circulation element. These plans should provide for a pedestrian circulation that connects sidewalks and other pedestrian facilities with neighborhood shopping, recreation and public transit facilities. A plan to provide sidewalks on at least one side of all future neighborhood streets is required.

Recommendation Status

Florida Statute 163.3177 “Required and optional elements of comprehensive plan; studies and surveys” requires that all long range and comprehensive plans must include a pedestrian circulation element.

(6) In addition to the requirements of subsections (1)-(5) and (12), the comprehensive plan shall include the following elements:

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(b) A traffic circulation element consisting of the types, locations, and extent of existing and proposed major thoroughfares and transportation routes, including bicycle and pedestrian ways.

Policy Recommendation

All MPO's should submit a ten year plan to provide sidewalks on both sides of all non-limited access roads within the urbanized area.

Recommendation Status

Federal and state transportation laws require that a long range transportation plan (LRTP) be developed in urban areas of greater than 50,000 people. The agency responsible for conducting the long range transportation planning process is the Metropolitan Planning Organization (MPO). The MPO is required by Florida Statute to develop a Transportation Improvement Program (TIP) which is defined as "a staged, multiyear, Intermodal program of transportation projects which is consistent with the metropolitan long-range transportation plan." Projects to be included in the TIP consists of "all transportation projects, or identified phases of a project, within the metropolitan area proposed for funding under Title 23 and the Federal Transit Act and certain planning and research activities. "Projects" include pedestrian walkways, bicycle transportation facilities, and transportation enhancement projects."

Design or Technical Recommendation

FDOT discourages the building of facilities to minimal standards.

Recommendation Status

Jim Mills with FDOT stated that standards and manuals provide minimum criteria that must be met and they should be used to assist engineers in planning facilities. In certain instances it may be desirable to create wider sidewalks in high volume pedestrian areas and engineers should use sound engineering judgment when designing facilities.

Duane Brautigam, State Specifications **Engineer** stated that the construction standards used are minimal and that FDOT encourages and in most instances requires contractors to build facilities to a higher standard.

Design or Technical Recommendation

Sidewalks should be designed free of obstructions. Obstructions should be placed on utility strips or removed or the sidewalk should be widened by the width of the obstruction.

Recommendation Status

Both the *Plans Preparation Manual (PPM)* and the *Florida Green Book* state that placement of obstructions within a sidewalk shall be such that a minimum unobstructed sidewalk width of 32 inches is provided. This allows for obstructions on sidewalks because sidewalks are required by the *ADA* to be a minimum of 60 inches. (ADA, 1994) (PPM, 2005)

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Design or Technical Recommendation

The installation of sidewalks immediately adjacent to the curb should only be placed when severe right-of-way constraints exist. Under those circumstances, the minimum width allowed by *AASHTO* is six feet.

Recommendation Status

Required in the *Plans Preparation Manual (PPM, 2005)* and the Florida Green Book. (2005)

Design or Technical Recommendation

In areas with insufficient right-of-way to provide the standard five foot sidewalk, use a reduced sidewalk width (no less than four feet) that provides a lower level of service to the pedestrian. A width of less than four feet is too narrow for a wheelchair to pass through easily.

Recommendation Status

A sidewalk of no less than four feet is required by the *ADA* which states that the minimum sidewalk width shall be 60 inches (four feet).

Design or Technical Recommendation

In areas near schools and other major bicycle/pedestrian areas, the minimum width of the sidewalk should be eight feet.

Recommendation Status

The *Plans Preparation Manual (PPM)* suggests it may be desirable to create wider sidewalks in business districts, near schools, transit stops, or where there are other significant pedestrian attractors but does not specifically state a minimum width of eight feet in areas near schools. (PPM, 2005)

Design or Technical Recommendation

A sidewalk or pedestrian overpass should not have a grade greater than six percent and should be flattened every twenty yards to prevent runaway wheelchairs.

Recommendation Status

The maximum grade allowed by the *ADA* is five percent and requires that the ramp be leveled every 30 feet. (ADA, 1994)

The *Plans Preparation Manual (PPM, 2005)* state that “the maximum grade of ramps shall be 8.33%. Intermediate level platforms 5 ft. long shall be provided at maximum 30 ft. intervals. Additionally, a level platform 5 ft. long at the top and 6 ft. long at the bottom shall be provided.”

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Design or Technical Recommendation

The installation of sidewalks on roadways without curb and gutter (rural section) creates several design, safety, and maintenance problems. The concern becomes how wide the clear zone or offset should be from the roadway. For installation of sidewalks on these roads, the design engineer should:

Place sidewalks at the right-of-way line in sections of roadways without curb and gutter.

Recommendation Status

The *Plans Preparation Manual (PPM, 2005)* states that on existing roadways with flush shoulders, sidewalks or pedestrian pathways should be placed as far from the roadway as practical in the following sequence of desirability:

1. Outside of the roadway right of way in a separate, offsite and/or parallel facility.
2. At or near the right of way line.
3. Outside of the clear zone.
4. As far from edge of driving lane as practical.

The *Plans Preparation Manual* recommends placement outside of the roadway right of way in a separate, offsite and/or parallel facility as the first alternative.

Objective: Issue #2 – Intersections

When designing pedestrian facilities, the safe crossing needs of the pedestrian must be considered, such as median refuge, crosswalks being placed perpendicular to the roadway or to match the intersection lines at skewed intersections, and minimizing pedestrian crossing length.

Policy Recommendation

Right-Turn-on-Red (RTOR) should be prohibited at those intersections where pedestrian volumes are significant and field studies suggest this treatment.

Recommendation Status

Florida Statutes permit RTOR.

The *Florida Intersection Design Guide* states that prohibition of RTOR will generally be “justified by safety considerations, brought about by high crash rates, visibility limitations, complicated geometrics or phasing and special populations. RTOR prohibitions may also be desirable on cross streets where heavy conflicting U-Turn volumes are observed. RTOR may be prohibited at school signals as a matter of local judgment.” (FIDG, 2004)

The *Florida Green Book* (2005) states when “designing urban highways with substantial pedestrian-vehicle conflicts, the following measures may be considered to help reduce these conflicts and may increase the efficient operation of the roadway”:

- Eliminate left and/or right turns

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- Prohibit free flow right turn movements
- Prohibit right turn on red

Policy Recommendation

Install two pedestrian curb ramps per corner as near as possible to the pedestrian pushbutton, to aid the handicapped, sight impaired, persons with strollers, etc. in crossing at crosswalks. A single ramp design is not desirable as it will direct pedestrians into through traffic.

Recommendation Status

At intersections where more than one road is crossed the *Plans Preparation Manual (PPM, 2005)* outlines that “each crossing should have a separate curb ramp”. The *Florida Green Book (2005)* states that “curb ramps must be incorporated at locations where crosswalks adjoin the sidewalks and curb ramps at marked crossings shall be wholly contained within the crosswalk markings excluding any flared sides”. The *Florida Design Standards Index* No. 17346 Sheets 2 and 7 illustrate these requirements.

Policy Recommendation

Medians should be provided whenever the crossing distance exceeds 60 feet to provide a refuge for slow or late crossing pedestrians.

Recommendation Status

The *MUTCD (2003)* and the *Florida Intersection Design Guide (FIDG, 2004)* both state that if “pedestrian clearance time is sufficient only to cross from the curb or shoulder to a median of sufficient width for pedestrians to wait and the signals are pedestrian actuated, an additional pedestrian detector shall be provided in the median.”

The *Plans Preparation Manual (2005)* states that “medians shall be evaluated to determine if modifications such as pedestrian refuge sections are necessary. Traffic separators with a width sufficient to provide refuge should be used at intersections where possible. When adequate pedestrian refuge cannot be provided at the intersection, midblock islands should be provided. For wheelchair accessibility, it is preferable to provide at-grade cuts rather than ramps”. Median widths for roadways are dependent on roadway type and speed limit.

Policy Recommendation

Where warranted, pedestrian buttons shall be installed in accordance with *DOT Design Standards Index #17784* in a standardized manner at all signalized crosswalks and in medians.

Recommendation Status

The *Florida Design Standards Index* No. 17784 illustrates this requirement.

Policy Recommendation

Pedestrian signal heads should be installed at urban signalized intersections when field studies warrant. All signal heads should be brought up to current MUTCD standards.

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Recommendation Status

Signal heads are not required to be brought up to current *MUTCD (2003)* standards until they need to be replaced due to failure of the unit.

The *Florida Intersection Design Guide (205)* suggests that pedestrian signal heads should be installed under the following conditions:

- When an exclusive pedestrian phase is provided;
- When vehicular indications are not visible to pedestrians;
- At established school crossings;
- When pedestrians are expected to cross different parts of the street on different phases;
- When protected left turn phases are included in the signal sequence;
- When the crash history indicates a hazard that could be mitigated by pedestrian signals;
- When the crosswalk is a part of an established pedestrian or bicycle corridor;
- When the crosswalk is used by people with special needs or
- When an abnormal intersection configuration (skewed, multi-legged, etc.) exists.

The sum total of all of these conditions suggests that pedestrian signals should be installed at nearly all signalized crosswalks. When pedestrian signals are not included in the design, it is important that the minimum green time displayed to all approaches be adequate to accommodate pedestrian crossing requirements.

Policy Recommendation

When possible, move existing and install new drainage structures out of the curb radius to prevent design induced tripping and to ensure water is directed away from the pedestrian crossing.

Recommendation Status

The *Plans Preparation Manual (PPM, 2005)* states that “drainage inlets, grates and utility covers are potential problems to bicyclists. When a new roadway is designed, all such grates and covers should be kept out of the bicyclists’ expected path.”

Policy Recommendation

Install new traffic signals using pole/mast arm mounted signals or box spans when diagonal spans supporting traffic signal heads would prevent pedestrians from seeing the current vehicle phases.

Recommendation Status

The *Florida Intersection Design Guide (2005)* states that mast arms with horizontal signal heads should be parallel to their intended stop bar.

Policy Recommendation

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Parking should be prohibited within 60 feet of the approach to, and 30 feet on the departure from, a signalized intersection.

Recommendation Status

The *MUTCD* (2003) requires a minimum of 30 feet on the approach to and 20 feet from the departure from an intersection.

Policy Recommendation

When advantageous, provide full corner and half corner sidewalk flares (bulbouts) on streets with parking.

Recommendation Status

Plans Preparation Manual (2005) states that “in urban areas, where a parking lane is present, curb extensions may be used to minimize the crossing distance.”

The *Florida Green Book* (2005) states that “parking shall be prohibited where it would interfere with the required sight distance. Particular care should be exercised to ensure ample mutual sight distances are provided at all intersections and driveways.”

Policy Recommendation

Whenever possible, locate bus stops on the departure (far) side of the intersection so that the bus does not screen departing passengers from the traffic as they cross the street.

Recommendation Status

This recommendation is consistent with the *Florida Green Book* (2005).

Policy Recommendation

When approaching driver’s views of pedestrians is restricted, clean-up corners by using joint-use poles and relocate and remove other items or trim trees or shrubs.

Recommendation Status

This recommendation is consistent with the *Plans Preparation Manual* (PPM, 2005) and the *Florida Green Book* (2005).

Objective: *Issue #3 – Parking and Safe Access to Buildings and Schools*

Policy Recommendation

To eliminate conflicts, provide traffic circulation that fully separates drop-off zones from pedestrians.

Recommendation Status

Institute of Transportation Engineers (ITE) Transportation Planning Handbook (ITE, 2001) recommends prohibiting parking immediately adjacent to a building.

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Policy Recommendation

Control parking lot interior circulation and provide sidewalk median access to parking.

Recommendation Status

Institute of Transportation Engineers (ITE) Transportation Planning Handbook recommends that raised pedestrian sidewalks be used in large parking lots to separate rows of cars and to provide more favorable walking conditions. (ITE - Traffic Engineering Handbook 5th Edition, pg. 545)

Policy Recommendation

Reduce pedestrian/automobile conflict points in all parking lot traffic circulation.

Recommendation Status

Institute of Transportation Engineers (ITE) Transportation Planning Handbook recommends using 90 degree parking to decrease pedestrian-vehicular conflicts in parking lots (ITE - Transportation and Land Development 2nd Edition, 2002 pg. 9-13)

Policy Recommendation

Reduce or eliminate driveway access on pedestrian emphasis streets or minimize driveways by using a dual entry driveway.

Recommendation Status

No information could be located for this recommendation.

Policy Recommendation

Prohibit unsignalized left turns from roads into and out of all driveways to public schools, public buildings and large commercial buildings.

Recommendation Status

The *FDOT Driveway Handbook* states the whenever a driveway is directly served by a median opening, a left turn lane should be available. This provides for the safest left turns into the driveway.

Policy Recommendation

Plan parking garages with side or rear street entrances.

Recommendation Status

Not discussed in the *Florida Building Code*.

Policy Recommendation

Provide separate access to garages for pedestrians.

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Recommendation Status

Required by the *Florida Building Code*.

Policy Recommendation

Where pedestrian volumes are high use raised pedestrian crossings and illuminate the crossings.

Recommendation Status

The *Florida Pedestrian Planning & Design Handbook* describes one especially effective raised crosswalk at the Daytona Beach airport. “The raised crossing has imbedded yellow lights and prisms on the approach taper. Although expensive, this high use pedestrian zone treatment leads to a nearly 100 percent yielding behavior by motorists.”

Policy Recommendation

To the maximum extent possible, create one-way traffic flow to minimize pedestrian conflict with vehicles.

Recommendation Status

Institute of Transportation Engineers (ITE) Transportation Planning Handbook recommends two-way traffic when parking is at 90 degrees and one-way traffic where parking spaces are at less than a 90 degree angle. (ITE - Transportation and Land Development 2nd Edition, 2002 pg. 9-13)

Policy Recommendation

When walkways are constructed between rows of parking stalls, the facility should be at least 11.2 feet in width to allow 2.6 feet of automobile overhang with five feet of walking space.

Recommendation Status

Although not specifically listed as being for walkways between rows of parking stalls, for existing problems, *Institute of Transportation Engineers (ITE) Transportation Planning Handbook* recommends installing wheel stops 2.5 feet from the edge of the sidewalk.

Policy Recommendation

Bulbouts should be provided at all pedestrian/vehicle facility intersections to shorten the distance a walker must cross.

Recommendation Status

The *Florida Pedestrian Planning & Design Handbook* states that curb bulbouts may be an excellent way to bring the pedestrian forward of parked cars and street furniture.

Policy Recommendation

Crosswalks should be well marked to alert motorists and pedestrians. Heavily used crosswalks should be raised to slow vehicular traffic.

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Recommendation Status

The *Florida Intersection Design Guide* states that crosswalk lines are solid white lines marking both edges of the crosswalk. The *MUTCD* requires a minimum width of 6 inches. The standard width for the State Highway System is 12 inches. They should be spaced 6 feet apart as illustrated in *Design Standards, Index No. 17346 Sheet 2 and 7*.

Policy Recommendation

All facilities must be handicap accessible, not only to provide for the needs of the handicapped, but to allow shopping carts to be pushed easily on the walkways.

Recommendation Status

Required by the ADA (1994)

Objective: Issue #4 – Midblock Crossings

Midblock crossings need to be studied from a pedestrian point of view and should be considered when all of the following conditions apply

1. High pedestrian concentrations
2. The Midblock crossing provides the most direct route
3. The Midblock crossing presents the least conflict with vehicles.

Policy Recommendation

Types of Midblock Crossings

1. Pedestrian Refuge
2. Midblock Flare (Bulbout)
3. Pedestrian Crossings
4. Signalized Crossings

Recommendation Status

According to the *Plans Preparation Manual (PPM)*, all the above midblock crossings are appropriate on State Highway System Urban roadways, they may be appropriate on State Highway System rural and non-State Highway System roadways as well as on FIHS controlled access roadways but are not appropriate on FIHS limited access roadways.

The *Plans Preparation Manual (PPM)* states that “the use of unsignalized midblock crosswalks should be carefully considered. When used, midblock crosswalks should be illuminated, marked and outfitted with advanced warning signs or warning flashers.” Pedestrian-activated, signalized midblock crosswalks are preferred, but locations must meet the warrants established in the (*MUTCD*) *Chapter 4C-2*. An engineering study is required before they are installed at locations away from traffic signals or STOP signs. Refer to the *Traffic Engineering Manual, (Topic No.750-000-005)* and the *Design Standards, Index No. 17346*.

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The *Pedestrian Planning and Design Handbook* states that "midblock crossings are an essential design tool. All designers must learn the best placement, geometrics, and operations of midblock crossings."

The following policies are recommended in the maintenance of pedestrian traffic through work zones section of the 1992 Florida Pedestrian Safety Plan:

Objective: Issue #5 – Maintenance of Pedestrian Traffic through Work Zones

Policy Recommendation

The *Design Standards, Indexes 601* through *670*, are layouts of work zone traffic control for typical conditions. These indexes should be referenced only if project conditions are nearly the same as the typical layout. Otherwise, specific plan sheets or details must be prepared and included in the design plans.

- 1. Advance information**
- 2. Transition information**
- 3. Work Area information**

Recommendation Status

The *MUTCD* provides an outline for the location of all required signage and permanent and temporary barriers. Specific plan must be provided within construction plans.

- 4. Exit information**

Recommendation Status

The *MUTCD* outlines that signing for the control of traffic entering and leaving work zones by way of intersecting highways, roads and streets shall be adequate to make drivers aware of work zone conditions.

The *MUTCD* outlines the precise location of all required signage as well as permanent and temporary barriers.

- 5. Corner closures**

Recommendation Status

The *Plans Preparation Manual (PPM)* outlines that signing for the control of traffic entering and leaving work zones by way of intersecting highways, roads and streets shall be adequate to make drivers aware of work zone conditions.

The *MUTCD* states that where an existing pedestrian way is located within a work zone, it must be maintained. There are three threshold considerations in planning for pedestrian safety in work zones on highways and streets:

1. Pedestrians should not be led into direct conflicts with work site vehicles, equipment or operations.

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2. Pedestrians should not be led into direct conflicts with mainline traffic moving through or around the work site.
3. Pedestrians should be provided with a safe, convenient travel path that replicates as nearly as possible the most desirable characteristics of sidewalks or footpaths.
4. Signing should be used to direct pedestrians to safe street crossings in advance of an encounter with a work zone. Signs should be placed at intersections so pedestrians, particularly in high-traffic-volume urban and suburban areas, are not confronted with midblock crossings.

6. Crosswalk closures

Recommendation Status

The *MUTCD* states that where an existing pedestrian way is located within a work zone, it must be maintained.

7. Midblock closures

Recommendation Status

The *MUTCD* and the *Plans Preparation Manual (PPM)* state that signing should be used to direct pedestrians to safe street crossings in advance of an encounter with a work zone. Signs should be placed at intersections so pedestrians, particularly in high-traffic-volume urban and suburban areas, are not confronted with midblock crossings.

8. Physical barriers

Recommendation Status

Temporary traffic control devices used to delineate a temporary traffic control zone pedestrian walkway shall be crashworthy and, when struck by vehicles, present a minimum threat to pedestrians, workers, and occupants of impacting vehicles.

Intermittent segments of temporary traffic barrier shall not be used. All upstream leading ends shall be appropriately flared or protected with properly installed and maintained crashworthy cushions.

9. Training of those responsible for designing and approving traffic control plans

10. Training for those responsible for inspecting the field setup for compliance.

Recommendation Status

The Department's Maintenance of Traffic Committee has prescribed work zone traffic control training requirements outlined in *Department Procedure, Topic No. 625-010-010*.

Objective: Issue #6 – Planning Facilities with Pedestrian Needs in Mind

Policy Recommendation

Full pedestrian accommodations shall be provided in accordance with FDOT policies and standards on all new construction projects.

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Recommendation Status

The *Plans Preparation Manual (PPM)* states provisions for pedestrian traffic should be incorporated into the original intersection design. All new or major reconstruction projects should be designed with the consideration that pedestrians will use them. Decisions on appropriate pedestrian facilities shall be determined with input from the District Pedestrian/Bicycle Coordinators and District Americans with Disabilities Act (*ADA*) Coordinators.

The *Plans Preparation Manual (PPM)* requires that on RRR projects with curbed facilities, curb ramps shall be brought into compliance with *ADA* requirements. This includes installing new curb ramps at crosswalks where none exist, replacing existing substandard curb ramps, and retrofitting truncated domes on existing ramps that otherwise comply with current *ADA* requirements. A Design Variation is required when compliance with *ADA* curb ramp requirements is determined to be technically infeasible. This may occur where existing right of way is inadequate and where conflicts occur with existing features that cannot feasibly be relocated, e.g., drainage inlets, signal poles, etc.

Other than meeting curb ramp requirements, existing sidewalks and flared driveway turnouts are not required to be upgraded for the sole purpose of meeting *ADA* requirements, unless included in the project scope by the District. All new sidewalk and driveway construction or reconstruction included on 3R projects shall be designed in accordance with *ADA* requirements. However, even if new sidewalk is to be constructed, non-conforming driveways are not required to be upgraded.

Objective: Issue #7 – Most transportation and safety professionals are not trained in pedestrian planning, design, operations and maintenance.

Recommendation

The Department of Transportation's Safety Office should pilot then deliver a series of twenty-five one day Pedestrian Facilities planning and design training courses. They will target engineers, planners, risk management/adjustment officials and public safety officials in all Florida MPO's. In addition, the Safety Office should also make one hour workshop presentations to FSITE, FSACE, FPL and other professional engineering and planning associations.

Recommendation Status

In an e-mail conversation with Dwight Kingsbury on October 14, 2005, he stated "I don't know about the exact number, but Dan Burden (past State Pedestrian & Bike Coordinator) and Michael Wallwork (past design engineer FDOT staff, did conduct many pedestrian facility training courses for FDOT staff."

"Dan also conducted workshops for MPO and other non-FDOT staff."

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Recommendation

Current Florida engineering and planning degrees are limited to techniques in moving vehicles. A new emphasis is needed on how to move people. All Florida schools should offer a basic course on how to provide for the pedestrian in society.

Recommendation Status

Pedestrian safety is seen as a social issue and not technical issue. Each of the three Planning Schools interviewed offer at least one course pertaining to pedestrian oriented design whereas the Engineering Schools interviewed only offer courses in Highway and Facilities design in which the pedestrian is mentioned as a side note.

Engineering School:

The University of Florida Civil Engineering Department “offers a transportation facilities design course which touches on pedestrian issues” (Dr. Lily Elefteriadou, Associate Professor, Director, Transportation Research Center (TRC))

The Florida State University Civil Engineering Department “offers Highway Geometric Design in which there is a small section covering pedestrians”. (Dr. Renatus Mussa, Associate Professor, Director of the Traffic Engineering Laboratory)

Florida International University Civil Engineering Department offers “Planning and Design of Intermodal Facilities which has a significant component of pedestrian design”. (Fang Zhao, Ph.D., P.E. Associate Professor and Deputy Director Lehman Center for Transportation Research)

Planning School:

The Florida State University Planning School “offers Pedestrian Oriented Communities which focuses on merging transportation planning with neo-traditional design concepts as a means to promoting communities in which pedestrians are safe and comfortable and are able to walk to various public and private services.”

The University of Florida Planning School offers a Traffic and Bicycle Safety Education Program (FTBSEP). This program is “geared to the needs of planners, engineers, landscape architects, private consultants and government administrators, with a focus on the planning and design of bicycle and pedestrian trails, greenways and on-road facilities for non-motorized transportation and recreation.” The audience is teachers and community trainers to serve as instructors for grades K-2, grades 3-5, grade 6-8, and driver's education students.

2.5.4 Findings

In analyzing the recommendations set forth in the Engineering Element of the 1992 Florida Pedestrian Safety Plan, it was essential to review national standards and state manuals pertaining to each of the seven main issues within the plan and interview experts within the fields of pedestrian safety and roadway engineering. A summary matrix is contained in Appendix A.

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The pertinent national standards reviewed were the *ADA*, *MUTCD*. These standards provide guidance for meeting the bulk of the recommendations in the pedestrian plan. Of the recommendations not covered by one of the previous standards, many are covered by one of the following state standards: the Florida Green Book and the Plans Preparation Manual or state handbooks, the Florida Pedestrian Facilities Planning and Design Handbook, Florida Intersection Design Handbook, AASHTO and ITE. Additionally, Florida's Growth Management Act (Chapter 163, Part II, Florida Statutes, the Local Government Comprehensive Planning and Land Development Regulation Act) set forth requirements for pedestrian circulation as well. Interviews with Jim Mills, State Traffic Engineer and Dwight Kingsbury, Assistant State Pedestrian/Bicycle Coordinator provided further guidance and clarification.

Of the eleven recommendations within the sidewalk issue five were not accomplished because they were not covered by standards, manuals or statutes. The recommendations not accomplished are:

- “Five foot sidewalks should be included on both sides of all urban area roadways.” The *Plans Preparation Manual (PPM)* recommends sidewalks on both sides of the road but only requires a sidewalk on one side.
- “Sidewalks should be designed free of obstructions.” Both the *Plans Preparation Manual (PPM)* and the Florida Green Book state that placement of obstructions within a sidewalk shall be such that a minimum unobstructed sidewalk width of 32 inches is provided.
- The installation of sidewalks immediately adjacent to the curb should only be placed when severe right-of-way constraints exist. Under those circumstances, the minimum width allowed by AASHTO is 6 feet. The Florida Green Book and says that a “four foot sidewalk may be considered when physical constraints exist and where necessary right of way is unavailable or prohibitively expensive.”
- “In areas near schools and other major bicycle/pedestrian areas, the minimum width of the sidewalk should be eight feet.” The *Plans Preparation Manual (PPM)* suggests it may be desirable to create wider sidewalks in business districts, near schools, transit stops, or where there are other significant pedestrian attractors but does not specifically state a minimum width of 8 feet in areas near schools.
- “Place sidewalks at the right-of-way line in sections of roadways without curb and gutter.” The *Plans Preparation Manual (PPM)* states that on existing roadways with flush shoulders, sidewalks or pedestrian pathways should be placed as far from the roadway as practical with the following location as the desired alternative: Outside of the roadway right of way in a separate, offsite and/or parallel facility.

Of the eleven recommendations within the intersection issue four recommendations were either not accomplished or were partially accomplished. The recommendations that were not accomplished or partially accomplished are:

- “Medians should be provided whenever the crossing distance exceeds 60 feet to provide a refuge for slow or late crossing pedestrians.” The *Plans Preparation Manual (PPM)*

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states that traffic separators with a width sufficient to provide refuge should be used at intersections where possible but does not mention crossing distance.

- “When possible, move existing and install new drainage structures out of the curb radius to prevent design induced tripping and to ensure water is directed away from the pedestrian crossing.” The *Plans Preparation Manual (PPM)* states that drainage inlets, grates and utility covers are potential problems to bicyclists. When a new roadway is designed, all such grates and covers should be kept out of the bicyclists’ expected path. (No mention of Pedestrian path)
- “Parking should be prohibited within 60 feet of the approach to, and 30 feet on the departure from, a signalized intersection.” The MUTCD requires a minimum of 30 feet on the approach to and 20 feet from the departure from an intersection.
- “When advantageous, provide full corner and half corner sidewalk flares (bulbouts) on streets with parking.” The *Plans Preparation Manual (PPM)* and the Florida Intersection Design Guide do not recommend bulbouts on new arterials.

Of the thirteen recommendations within the Parking and Safe Access to Buildings and Schools issue nine recommendations were either not accomplished or were partially accomplished. The recommendations that were not accomplished or partially accomplished are:

- “To eliminate conflicts, provide traffic circulation that fully separates drop-off zones from pedestrians.” ITE recommends prohibiting parking immediately adjacent to a building but DOT has no control over parking lot circulation.
- “Control parking lot interior circulation and provide sidewalk median access to parking.” Providing sidewalks medians is cost prohibitive and DOT lacks control over parking facilities.
- “Reduce pedestrian/automobile conflict points in all parking lot traffic circulation.” ITE states that a decrease in pedestrian-vehicular conflict is the most significant and compelling reason for using 90 degree parking. 90 degree parking is not required.
- “Reduce or eliminate driveway access on pedestrian emphasis streets or minimize driveways by using a dual entry driveway.” FDOT Chapter 14-97 State Highway System Access Management Classification System and Standards states “to the greatest extent possible, FDOT will encourage joint use driveways.
- “Prohibit unsignalized left turns from roads into and out of all driveways to public schools, public buildings and large commercial buildings.” According to the FDOT Driveway Handbook, “whenever a driveway is directly served by a median opening, a left turn lane should be available.
- “Where pedestrian volumes are high, use raised pedestrian crossings and illuminate the crossings.” Not required by standard and cost prohibitive.
- “To the maximum extent possible, create one-way traffic flow to minimize pedestrian conflict with vehicles.” ITE recommends two-way traffic when parking is at 90 degrees and one-way traffic where parking spaces are at less than a 90 degree angle.
- “Bulbouts should be provided at all pedestrian/vehicle facility intersections to shorten the distance a walker must cross.” Bulbouts are not required by standard but The Florida

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Pedestrian Planning & Design Handbook states that curb bulbouts may be an excellent way to bring the pedestrian forward of parked cars and street furniture.

- “Crosswalks should be well marked to alert motorists and pedestrians. Heavily used crosswalks should be raised to slow vehicular traffic.” This is required in new construction but the maintenance of crosswalks is expensive. Also, raised crosswalks are not required by standard and are cost prohibitive.

There are no actual recommendations made in the Midblock Crossing section. There are three conditions that must be present for a Midblock Crossing to be considered:

1. High pedestrian concentrations
2. The Midblock crossing provides the most direct route
3. The Midblock crossing presents the least conflict with vehicles.

The following are the Types of Midblock Crossings that are recommended:

1. Pedestrian Refuge
2. Midblock Flare (Bulbout)
3. Pedestrian Crossings
4. Signalized Crossings

All of the Midblock Crossings above are appropriate on State Highway System Urban roadways; they may be appropriate on State Highway System rural and non-State Highway System roadways as well as on FIHS controlled access roadways but are not appropriate on FIHS limited access roadways. The *PPM* states that the use of unsignalized midblock crosswalks should be carefully considered. When used, midblock crosswalks should be illuminated, marked and outfitted with advanced warning signs or warning flashers. Pedestrian-activated, signalized midblock crosswalks are preferred.

Of the ten recommendations within the Maintenance of Traffic through Work Zone issue all are covered within the standards or manuals or through training provided by the FDOT. The MUTCD and the Design Standards, Indexes 601 through 670 cover the majority of the recommendations for layout of work zone traffic control for typical conditions. These indexes should be referenced only if project conditions are nearly the same as the typical layout. Otherwise, specific plan sheets or details must be prepared. When design plans are submitted to FDOT for approval the drawings must include a work zone safety plan. The MUTCD and the *Plans Preparation Manual (PPM)* state that signing should be used to direct pedestrians to safe street crossings in advance of an encounter with a work zone. Signs should be placed at intersections so pedestrians, particularly in high-traffic-volume urban and suburban areas, are not confronted with midblock crossings.

The recommendations within the “Planning Facilities with Pedestrian Needs in Mind” issue are covered within the standards or manuals. The *Plans Preparation Manual (PPM)* states provisions for pedestrian traffic should be incorporated into the original intersection design. All new or major reconstruction projects should be designed with the consideration that pedestrians

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will use them. Decisions on appropriate pedestrian facilities shall be determined with input from the District Pedestrian/Bicycle Coordinators and District Americans with Disabilities Act (*ADA*) Coordinators.

There are two recommendations within the “Most transportation and safety professionals are not trained in pedestrian planning, design, operations and maintenance” issue. The first recommendation is that the Department of Transportation’s Safety Office should pilot then deliver a series of twenty-five one day Pedestrian Facilities planning and design training courses. Dwight Kingsbury said in an interview on October 14, 2005 that both Dan Burden and Michael Wallwork had conducted many training courses for FDOT staff as well as workshops for MPO and other non-FDOT staff but he did not know the exact number. Mr. Kingsbury also stated that these courses and workshops have not continued due to staffing issues and the outsourcing of projects to private companies.

The second recommendation, current Florida engineering and planning degrees are limited to techniques in moving vehicles. A new emphasis is needed on how to move people. All Florida schools should offer a basic course on how to provide for the pedestrian in society has not been accomplished. In conversations with professors within the civil engineering departments of FSU, UF and FIU, there are no courses offered specifically for pedestrian oriented design. The only courses offered that even mention pedestrian needs are in courses such as Highway Geometric Design where the pedestrian is an afterthought to the automobile. Within the planning schools interviewed, FSU, UF and FAU, all three offer at least one course specific to pedestrian design.

The safety issues and programs discussed above can lead to improved safety conditions for all users. Improving the safety of a community's streets involves cooperation on a number of different levels. The most thorough and effective strategy - according to traffic safety experts - is a three-pillar approach which focuses on enforcement of traffic laws, increased safety education for all street users, and engineering the construction of a city's roadways and sidewalks in ways which reduce the risk of injury to pedestrians and drivers. A quality pedestrian safety program is built on these three strong pillars: *engineering, education, and enforcement*. Of the three pillars, engineering is the most important to plan correctly before proceeding. Once roads exist, the built environment lasts for decades. Education and enforcement can be improved from time to time without costly consequences. Improving the built environment can be very costly.

2.6 Implementation

2.6.1 Introduction

As illustrated above, Section 402 and Section 163 grants have been the principle mechanism for implementing Florida’s pedestrian and bicycle safety plans. The following is an analysis of the allocation policies and spending patterns of those programs as implemented in Florida. Section 402 grants receive more analysis than Section 163 grants for two reasons. First, Section 402 has

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historically been a larger funding source than Section 163, and Florida and other state granting agencies use it as the primary funding source for safety programs. Total Section 402 spending has outpaced Section 163 spending by two to one. Secondly, the Section 163 funding was not re-appropriated in the recent Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation and FY 2006 was its last funding cycle.

The primary funding source for implementing the education and encouragement, enforcement, and engineering and planning recommendations of the 1992 Florida Pedestrian Safety Plan has been Section 402 and Section 163 grants. Pedestrian and bicycle safety is, however, only one of several areas on concern to which spending is divided in those programs.

2.6.2 Federal Guidance on Section 402 and Section 163 spending

The United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA) oversees the State and Community Highway Safety Formula Grants program, which are funded through the SAFETEA-LU legislation. The grant program has numerous programs and section areas of focus. Sections 2001 and 2002 of the legislation reauthorized the Section 402 program of Chapter 4, Title 23. (National Traffic Highway Safety Administration [NHTSA], 2005) This program is intended to "support state highway safety programs, designed to reduce traffic crashes and resulting deaths, injuries, and property damage" (NHTSA, 2005).

The SAFETEA-LU legislation provides \$244.1 billion in total funding and authorizes Section 402 funding from 2005 to 2009 for a total of \$1.06 billion dollars. (NHTSA website, 2005) The SAFETEA-LU bill was a reauthorization of the previous Transportation Equity Act for the 21st Century (TEA-21), which was enacted in 1998 and its predecessor, the Intermodal Surface Transportation Efficiency Act (ISTEA), which was enacted in 1991. TEA-21 provided approximately \$933 million in resources to the federal Section 402 program during its duration. (NHTSA, 2005) The SAFETEA-LU legislation provided an increase of \$127 million to Section 402 funding.

According to Warren LaHeist, the author of the *Highway Safety Assessment: A Summary of Findings in Ten States*, "Section 402 was set up by Congress to provide Federal leadership and assistance to state and community highway safety activities" (LaHeist, 1998, p. 1). According to the Highway Safety Act of 1996, 23 USC Chapter 4, revised June 9, 1998, the Section 402 legislation addresses the program and it provides categories in which Section 402 funding can be spent, and according to the SAFETEA-LU eligibility information, they should be programs that will promote the national highway safety goals such as:

- National Law Enforcement Mobilization
- Sustained Enforcement of Statutes Addressing Impaired Driving, Occupant Protection, & Speed
- Annual Safety Belt Use Surveys

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- Development of Timely and Effective Statewide Data Systems, (Highway Safety Act of 1996, 23 USC, Chapter 4, § 402a, 1998)

Additional legislative guidance states that the Section 402 programs will be implemented to “improve pedestrian performance and bicycle safety” (Highway Safety Act of 1996, 23 USC, Chapter 4, § 402a, 1998).

2.6.3 Federal Formula for Distribution

Section 402 funding is to be directed to each state’s Governor’s Office and is to be administered by a state highway safety agency. (Highway Safety Act of 1996, 23 USC, Chapter 4, § 402 b (1) A, 1998) Grants are only to be used for highway safety purposes and construction of facilities is not a permissible activity. In order to maintain eligibility for funding, states must provide two separate documents, a performance plan is needed that outlines goals and performance measures of the organization and a highway safety plan that discusses the actions that will be used to reach these goals. (NHTSA, 2005) These documents can be separate or combined.

The Federal legislation envisioned Section 402 grants primarily as seed money to initiate local and statewide safety efforts. Funding is provided to states and territories by a 75/25 formula, where the 75% of the calculation is based on the state’s population in the last Federal census divided by the total population of all states. The smaller 25 percent is calculated by dividing the amount of public roads in the state by the total amount of public road miles in all eligible areas. (NHTSA, 2005)

Within each state, forty percent of the funding must be used by a “political subdivision” of the State, in other words a local government. Statewide programs should not consume more than 60 percent of the State’s total Section 402 funding. (NHTSA, 2005)

2.6.4 Florida Implementation

State Guidance 402

The State of Florida administers the highway safety grants program through its Department of Transportation Safety Office. The Safety Office has adopted specific goals to guide their implementation of the program. The goals of the agency in the use of funds are threefold. They are to:

1. Decrease the frequency, rate, and severity of, and potential for, crashes involving motor vehicles, pedestrians, and bicycles on public roads in Florida through the implementation of comprehensive safety programs involving engineering, enforcement, education, and/or emergency services.
2. Provide procedures, training and awareness activities that foster safe work practices and workplaces for Department employees.

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3. Provide plans and procedures to guide, direct, and improve the Department's preparedness for, response to, and recovery from workplace, local and state emergency events. (Florida Department of Transportation [FDOT], 2005)

The fact that decreasing crashes involving pedestrian and bicycle activities is a part of the Safety Office goals represents the importance of understanding the implementation methods that are used to meet these goals.

In addition to Section 402 and Section 163 grants, Florida receives funding from the Federal government for a variety of highway safety programs.

- Section 157: for increasing seat belt use
- Section 405: occupant protection, including child safety seat use enforcement
- Section 410: Drunk or impaired driving prevention
- Section 411: for improving highway safety data (funded 1999-2002)

All highway safety program grants are awarded for activities that involve the expansion of an existing activity, addressing current traffic safety deficiencies, and/or creating a new program. According to the Florida Department of Transportation State Safety Office, highway safety grant program, *Highway Safety Concept Paper Instructions*, "Replacement of existing program expenditures, program maintenance, research, rehabilitation, and construction are not allowable costs. Other unallowable costs are dealt with on a project-by-project basis".

State Process of Distribution

The State Safety Office distributes Section 402 grants for activities in each of the ten national high safety priority areas. They are:

1. Police Traffic Services
2. Speed Control
3. Alcohol
4. Motorcycle Safety
5. Traffic Records
6. Emergency Medical Services
7. Occupant Protection
8. Community Traffic Safety/Safety Communities
9. Pedestrian and Bicycle Safety
10. Roadway Safety

The Safety Office drafts a highway safety plan annually to prioritize the funding received from the NHTSA and creates a recommended project list for the upcoming fiscal year. Applicants are encouraged to submit papers for conceptual programs that focus on that year's identified key target areas. In 2006 the state combined its required highway safety plan and its performance

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plan into the highway safety performance plan. Each year the highway safety plan is approved by the Governor's highway safety representative by September 1. The State of Florida's highway safety performance plans are submitted each year for all the federal highway safety grant programs. The performance plan section of the document outlines the goals and performance measures of the organization, and the other section discusses the actions to be used to reach those goals. Those actions are, in fact, the programs selected from the submitted concept papers each year. (FDOT, 2005)

Eligible applicants include municipalities, state universities, colleges, school districts, public emergency medical service providers, metropolitan planning organizations, and approved non-profit organizations. (Florida Department of Transportation State Safety Office, 2005)

Grant application requests or "Highway Safety Concept Papers" are submitted to eligible agencies and are reviewed for compliance with state and Federal regulations by the various FDOT personnel over a specific funded traffic safety area. Pedestrian and bicycle safety are combined into a single area and are overseen by the same traffic safety specialist. That specialist reports to the State's Bicycle/Pedestrian Coordinator who is also a member of the Safety Office Staff.

The Safety Office prioritizes the various conceptual projects based on answers to the following questions,

- Does the concept paper request satisfy a specific traffic safety need identified by the Safety Office?
- Does the agency making the funding request serve a city/county ranked in the top 25% of its population group for the program area in which funds are being requested?
- Does the crash data supplied in the concept paper's "Statement of the Problem" document an existing traffic safety problem?. (Citation data and survey results can also be used to document the problem.)
- Are the goals and objectives of the concept paper consistent with the goals of the Safety Office?
- If the agency was funded in the past, did it submit reports and financial paperwork on a timely basis and implement the activities that were defined in the subgrant agreement? (Florida Department of Transportation State Safety Office, 2005)

The grant award period coincides with the Federal fiscal cycle of October 1 – September 30. Section 402 funding is used as start up money which creates new programs and gets them up and running with the idea that the applicant will become self sufficient, hence funding is typically approved for one year. Continuing programs typically receive no more than three years of funding through exceptions to this rule are occasionally allowed for statewide programs. (Florida Department of Transportation State Safety Office, 2005)

In order to facilitate the "weaning" process from full support the self-sufficiency of local programs, Florida requires a match be provided for a funded personnel position in the second and

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third years of the grant request. Typically local match must be 25 percent in the second year of the grant and 50 percent in the third year. There is no indication in the Safety Office's *Highway Safety Concept Paper Instructions* that a match is required for programs other than for funded personnel positions. (Florida Department of Transportation State Safety Office, 2005)

Methodology

In order to describe the existing conditions and previous distribution trends of Section 402 and Section 163 spending for pedestrian and bicycle safety in the State of Florida, data was collected from year end summaries provided by the Safety Office for 1993 to 2006¹. These collections of documents are entitled the "Florida Highway Safety Plans – Bike/Pedestrian Grants 1993-2006" and they represent a summary of yearly reports that are provided to the Federal government by the state. The specific sections that are relevant to pedestrian and bicycle safety programs were recorded from each grant year's summary sheets, which included the following information:

- Grant project number
- Project Title
- Implementing Agency
- Problem Statement
- Project Objective(s)
- Problem Solution Plan
- Funding Amount

The data, which was only available for use in a hard copy format, was compiled into an electronic spreadsheet in order to extrapolate key patterns and trends and to transform the data into a more manageable configuration.

2.6.5 Previous Distributions

The Federal government has allocated between the years of 1998-2006 a total of \$175,207,144 in total Highway Safety Funding to the State of Florida. Section 402 grants have received \$64 million from that amount, or 37 percent of the overall funding. (NHTSA, 2005) During the same time period 1998 to 2006, the State of Florida awarded approximately \$7.8 million or 12 percent in Section 402 grants to bicycle and pedestrian sub-grantees. (Florida Highway Safety Plans – Bike/Pedestrian Grants 1993-2006) Table 2.6.1 displays the percentage of Section 402 funding spent annually on pedestrian and bicycle safety programs.

¹ The majority of data will be reported for the period of 1997 through 2006. Due to the fact that previous reporting periods can not be broken out by dollar amount into pedestrian versus bicycle uses or by the amount awarded to individual applicants. An overall funded amount is reported in some instances for numerous projects and individual amounts were not available.

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Table 2.6.1 Florida Section 402 Bike/Ped Safety Programs, (1998-2006, \$1000)

<i>Year</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>Total</i>
<i>Bike/Ped Programs</i>	\$609	\$924	\$695	\$699	\$595	\$800	\$1,086	\$1,148	\$1,200	\$7,756
<i>Total 402 Funding</i>	\$6,300	\$6,293	\$6,418	\$6,506	\$7,248	\$7,404	\$7,261	\$7,348	\$9,495	\$64,273
<i>Percent of Bike/Ped to Total</i>	9.67%	14.68%	10.83%	10.74%	8.21%	10.80%	14.96%	15.62%	12.64%	12.07%

Source: NHTSA website and State of Florida Highway Safety Plans, 1998-2004

Total Section 402 spending increased at an average of 12%. There was a significant increase in 2006 as a result of changes to the programs resulting from SAFETEA-LU. No parallel increase in pedestrian and bicycle safety programs could be identified. The average allocation to pedestrian and bicycle safety was 12%. While spending increased in most years, in two years it decreased, 2000 and 2002. Only two of the nine years of funding have provided less than ten percent of funds going towards pedestrian and bicycle programs with the highest percentage of funding, 15.63 percent, occurring in 2005. There was a steady increase from 2002 to 2005 but the percent of overall funding spent in the pedestrian and bicycle safety program area declined when even though the total program amount greatly increased.

Match

Table 2.6.2 examines the relationships between the amount of funding provided by FDOT and the match provided by the grant recipient. The highest percent of match in any given year was 15% in 2005; the lowest was 0% in 2000.

Table 2.6.2 Florida Section 402 Bike/Ped Grants: State Funding plus Match, (1997-2006, \$1000)

	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>Total</i>
<i>State Funding</i>	\$410	\$609	\$924	\$695	\$699	\$595	\$800	\$1,086	\$1,148	\$1,200	\$8,166
<i>Match</i>	\$44	\$4	\$52	\$0	\$148	\$95	\$77	\$193	\$78	\$33	\$724
<i>Total Funding</i>	\$454	\$613	\$976	\$695	\$847	\$690	\$877	\$1,279	\$1,226	\$1,233	\$8,890
<i>Percent Match of Total</i>	9.69%	0.65%	5.33%	0.00%	17.47%	13.77%	8.78%	15.09%	6.36%	2.68%	8.14%

Source: State of Florida Highway Safety Plans, 1997-2006

There does not appear to be an apparent pattern or link to the amount of match provided throughout each time period.

Travel Mode

The total dollars and the percent of spending each year has been reported in Table 2.6.3 and has been reviewed to determine that the largest percent of funded programs were for predominantly bike related uses, at 43 percent of the overall total. There were 47 mixed bike/ped programs funded, with 37% of total program funds going to this category. Projects were classified as mixed bike/ped if they described programs that would be affecting bicyclists and pedestrians. For

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example, a grantee may have proposed creating a pedestrian safety brochure and also holding bicycle rodeos, this combination would have lead to a joint program classification. Given that the grant reports do not provide budget information on activities it is impossible to determine the degree to which many mixed programs are either targeted to pedestrian or bicycle groups. Of the three category programs that were predominantly targeted, bicycle safety received grants most often (55 out of 117) and consumed the most funding, 43%. In five out of ten years, grants to predominantly bicycle safety consumed more than half of all program dollars. In the past two years there has been a shift to mixed bicycle/pedestrian programs. In no year did programs primarily focused on pedestrians receive the majority of grants or funds. The highest percentage allocated was 38% in 2003 and the lowest was 0% in 2000 and 2001.

**Table 2.6.3 Florida Section 402 Bike/Ped Spending by Travel Mode,
(1997-2006, \$1,000)**

<i>Year</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>Total</i>
<i>Grant Type</i>	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
<i>Predominantly Bike (N=55)</i>	\$188 (46%)	\$336 (55%)	\$381 (41%)	\$446 (64%)	\$388 (56%)	\$381 (64%)	\$347 (43%)	\$591 (54%)	\$300 (26%)	\$183 (15%)	\$3,541 (43%)
<i>Bike/Ped (N=47)</i>	\$69 (17%)	\$120 (20%)	\$442 (48%)	\$249 (36%)	\$310 (44%)	\$84 (14%)	\$153 (19%)	\$230 (21%)	\$630 (55%)	\$742 (62%)	\$3,029 (37%)
<i>Predominantly Pedestrian (N=15)</i>	\$152 (37%)	\$152 (25%)	\$100 (11%)	\$0 (0%)	\$0 (0%)	\$129 (22%)	\$300 (38%)	\$265 (24%)	\$218 (19%)	\$275 (23%)	\$1,591 (20%)
<i>Total (N=117)</i>	\$409	\$608	\$923	\$695	\$698	\$594	\$800	\$1,086	\$1,148	\$1,200	\$8,161

Source: State of Florida Highway Safety Plans, 1997-2006

Countermeasures

The Section 402 grant money was spent on various projects that promoted different kinds of countermeasures for reducing pedestrian and bicycle fatalities and non fatal injuries. FSU clustered grants into three categories:

- Enforcement: Enforcing laws, issuing tickets, officer training
- Education and Encouragement: Producing materials, pamphlets, and instructional videos, giving classes and providing instructional workshops
- Engineering and Planning: Studying structural problems of the roadway, recording and analyzing crash data, providing salaries for a position, and purchasing equipment

The data provided in Table 2.6.4 illustrates in every year grant funding has been consumed by education or encouragement purposes. From 1997 to 2006 the total amount of funding provided for education and encouragement programs was \$6.7 million or 82 percent of all funding. The second largest funded category was engineering and planning which totaled 11 percent of all funding, following it was the mixed category at five percent, which contained education/enforcement programs and education/engineering programs. Enforcement programs

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received only three percent of the total funds in the period considered and have received no percentage since 1999.

**Table 2.6.4 Florida Section 402 Bike/Ped Spending by Countermeasures,
(1997-2006, \$1,000)**

<i>Year</i>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
<i>Grant Category</i>	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
<i>Education or Encouragement (N=89)</i>	\$301 (73%)	\$468 (77%)	\$849 (92%)	\$646 (93%)	\$650 (93%)	\$455 (76%)	\$647 (81%)	\$976 (90%)	\$788 (69%)	\$944 (79%)	\$6,724 (82%)
<i>Engineering & Planning (N=16)</i>	\$30 (7%)	\$35 (6%)	\$52 (6%)	\$49 (7%)	\$48 (7%)	\$0 (0%)	\$153 (19%)	\$82 (8%)	\$250 (22%)	\$167 (14%)	\$866 (11%)
<i>Enforcement (N=4)</i>	\$79 (19%)	\$106 (17%)	\$23 (2%)	\$0 (0%)	\$208 (3%)						
<i>Mixed (N=8*)</i>	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$140 (24%)	\$0 (0%)	\$29 (3%)	\$110 (10%)	\$90 (7%)	\$369 (5%)
<i>Total (N=117)</i>	\$410	\$609	\$924	\$695	\$698	\$595	\$800	\$1,087	\$1,148	\$1,201	\$8,167

* = The mixed category contained: 6 education/enforcement grants (\$224), 2 education/engineering & planning grants (\$145)

Source: State of Florida Highway Safety Plans, 1997-2006

Scope of Service

According to Federal guidance, 40 percent of all Section 402 grants must be consumed by local entities addressing local problems. (NHTSA, 2005) It does not appear to the case that each sub-section also needs to fulfill this allocation rule. Indeed there has been significant variability in the distribution of the funds.

**Table 2.6.5 Florida Section 402 Bike/Ped, State vs. Local Awarded Grants,
(1997-2006, \$1,000)**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
<i>Statewide</i>	\$0	\$155	\$516	\$305	\$292	\$109	\$112	\$306	\$770	\$875	\$3,440
<i>Local</i>	\$410	\$454	\$408	\$390	\$407	\$485	\$688	\$781	\$378	\$325	\$4,726
<i>Percent of Local Funding</i>	100%	75%	44%	56%	58%	81%	86%	72%	33%	27%	63%

Source: State of Florida Highway Safety Plans, 1997-2006

Table 2.6.5 above illustrates that the percent of local funding was above 40% in every year between 1997-2004, with the high being 100% in 1997 and the low being 44% in 1999. In 2005 and 2006 the total of grants for local activities declined.

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State Institutions

An analysis was performed on the amount of funding spent statewide and this analysis also examines the types of agencies that specifically fall under each category. In the past ten years, \$3.4 million has been spent on statewide projects. The majority of that funding, 73 percent was awarded to State Universities, with Florida Atlantic University being the largest recipient. State agencies consumed 21 percent of funding and FDOT received the largest amount of funds that were distributed to state agencies.

Table 2.6.6 Florida Section 402 Bike/Ped, Funding Statewide by Recipient Type, (1997-2006, \$1,000)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
<i>State Universities</i> ¹	\$0 (0%)	\$35 (23%)	\$154 (30%)	\$305 (100%)	\$292 (100%)	\$109 (100%)	\$112 (100%)	\$184 (60%)	\$598 (78%)	\$715 (82%)	\$2,504 (73%)
<i>State Agencies</i> ²	\$0 (0%)	\$120 (77%)	\$150 (29%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$121 (40%)	\$172 (22%)	\$160 (18%)	\$724 (21%)
<i>Non-profit and Other</i>	\$0 (0%)	\$0 (0%)	\$212 (41%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$212 (6%)
<i>Total State Wide</i>	\$0	\$155	\$516	\$305	\$292	\$109	\$112	\$306	\$770	\$875	\$3,440
1 = FAU (\$1,209,399), UF (\$540,716), FSU (\$510,000), UCF (\$139,155), USF (\$105,000).											
2 = FDOT (\$295,000), FL Dept of Health (\$280,119), DHSMV (\$129,000), FL Dept of Education (\$20,000)											

Source: State of Florida Highway Safety Plans, 1997-2006

Local Institutions

There has been much more diversity found in the type of institutions receiving locally distributed pedestrian and bicycle safety grants. The category to receive the most funding, 29 percent was law enforcement agencies which includes city police departments and sheriff offices. This group was funded for nine times in the ten years reported. The next largest category of funding was Other which included many groups that applied for one time funding, or for agencies that were funded possibly more than once but for the same grant program, just in multiple years. The data listed in Table 2.6.7 reveals a comparatively large amount of funding went to both Health Agencies at 19 percent and Cities which received 17 percent, which were fairly constant grant recipients each year with cities being funded nine out of ten years and a health agency being funded eight out of ten years of reporting.

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**Table 2.6.7 Florida Section 402 Bike/Ped, Funding Locally by Recipient Type,
(1997-2006, \$1,000)**

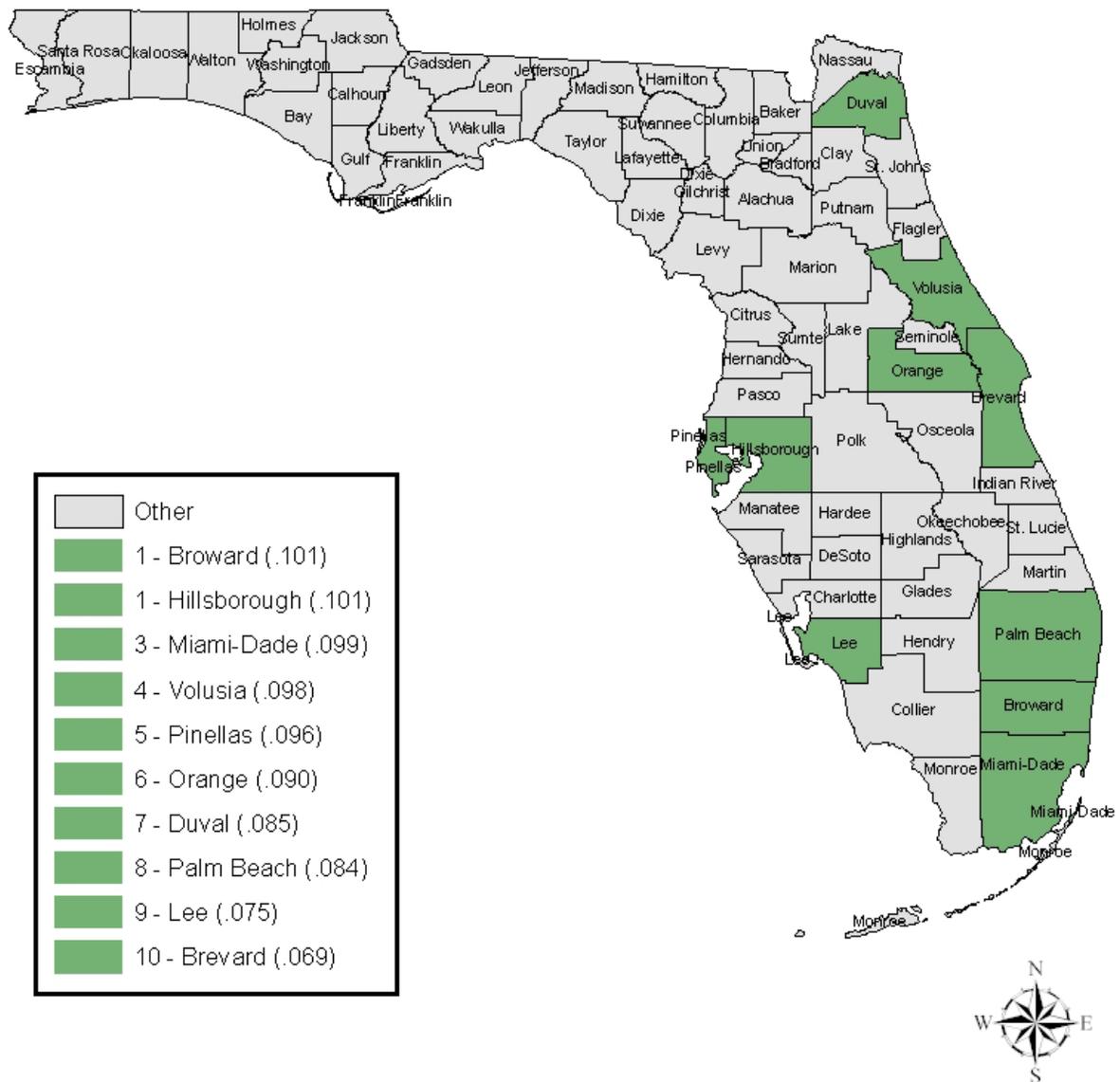
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
<i>Law Enforcement</i>	\$107 (26%)	\$126 (28%)	\$140 (34%)	\$0 (0%)	\$96 (23%)	\$121 (25%)	\$126 (18%)	\$251 (32%)	\$101 (27%)	\$142 (44%)	\$1,210 (26%)
<i>Health Agency</i>	\$55 (13%)	\$41 (9%)	\$63 (15%)	\$0 (0%)	\$234 (58%)	\$189 (39%)	\$72 (11%)	\$69 (9%)	\$0 (0%)	\$100 (31%)	\$916 (19%)
<i>City</i>	\$0 (0%)	\$60 (13%)	\$127 (31%)	\$49 (13%)	\$77 (19%)	\$30 (6%)	\$62 (9%)	\$111 (14%)	\$80 (21%)	\$47 (14%)	\$824 (17%)
<i>Non-profit</i>	\$79 (19%)	\$80 (18%)	\$10 (2%)	\$0 (0%)	\$0 (0%)	\$80 (16%)	\$79 (12%)	\$117 (15%)	\$42 (11%)	\$36 (11%)	\$643 (14%)
<i>County</i>	\$6 (1%)	\$13 (3%)	\$15 (4%)	\$40 (10%)	\$0 (0%)	\$21 (4%)	\$91 (13%)	\$27 (3%)	\$35 (9%)	\$0 (0%)	\$523 (11%)
<i>Bike/Ped Area Safety Council</i>	\$74 (18%)	\$100 (22%)	\$0 (0%)	\$248 (5%)							
<i>Parks and Recreation</i>	\$47 (11%)	\$34 (7%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$50 (13%)	\$0 (0%)	\$174 (4%)
<i>MPO</i>	\$42 (10%)	\$0 (0%)	\$15 (4%)	\$0 (0%)	\$131 (3%)						
<i>Other</i>	\$0 (0%)	\$0 (0%)	\$38 (9%)	\$301 (77%)	\$0 (0%)	\$44 (9%)	\$257 (37%)	\$206 (26%)	\$70 (19%)	\$0 (0%)	\$57 (1%)
<i>Total Locally Funded</i>	\$410	\$454	\$408	\$390	\$407	\$485	\$688	\$781	\$378	\$325	\$4,726

Source: State of Florida Highway Safety Plans, 1997-2006

Allocations to High Crash Counties

The following Figure 2.6 illustrates the top ten counties in Florida by rates of pedestrian and bicycle fatalities or none fatal injuries per 100,000 for 2002. This figure illustrates the areas with the biggest problems that are experiencing the largest amount of crashes. As previously stated, Broward County has received the most Section 402 funding but its pedestrian crash numbers remain in the top three. Hillsborough County has also moved into the top three for 2002. From the map it becomes evident that the problem areas are clustered around the major metro hubs and areas experiencing high growth. The Miami-Dade/Broward/Palm Beach metro area, the Tampa Bay region, Jacksonville, and the central eastern coast region which is a rapidly developing portion of the state are all noticeable focus areas.

Figure 2.6 Top 10 Counties in Florida by Rates of bike/ped fatalities and non-fatal injuries per 100,000 people - 2002



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Florida targets its spending to ten “high crash” counties, those counties which exhibit the highest rates of combined pedestrian and bicycle fatalities and non-fatal injuries. Those counties have remained a fairly consistent group. Table 2.6.8 provides a look at the top ten crash counties in Florida for bike/ped fatalities and non-fatal injuries and it compares the rankings from 1996 and 2002. Broward and Miami-Dade remained in the top three and Pinellas dropped from number one in 1996 to number five in 2002, with Hillsborough exchanging its number five spot from 1996 for a place in the top three of 2002.

Table 2.6.8 Top 10 crash Counties in Florida per 100,000 people for bike/ped fatalities and non-fatal injuries, (1996 & 2002)

<i>Rank (1996)</i>	<i>Counties</i>	<i>Bike/ped fatalities & injuries per 100,000 people</i>	<i>Rank (2002)</i>	<i>Counties</i>	<i>Bike/ped fatalities & injuries per 100,000 people</i>
1	Pinellas	0.121	1	Broward	0.101
2	Miami-Dade	0.12	1	Hillsborough	0.101
3	Broward	0.114	3	Miami-Dade	0.099
3	Volusia	0.114	4	Volusia	0.098
5	Hillsborough	0.113	5	Pinellas	0.096
6	Orange	0.111	6	Orange	0.09
7	Palm Beach	0.104	7	Duval	0.085
8	Duval	0.096	8	Palm Beach	0.084
9	Brevard	0.074	9	Lee	0.075
10	Lee	0.071	10	Brevard	0.069

Source: State of Florida Highway Safety Performance Plan - 2006

Table 2.6.9 compares the amount of money being received by each county to the amount of change that occurred in the numbers of bike/ped fatalities and injuries. The top three counties with the highest rate of improvement were Pinellas, Orange, and Palm Beach. The top three counties to receive the most Section 402 pedestrian and bicycle safety program funding on the other hand were Broward, Palm Beach, and Duval.

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Table 2.6.9 Top 10 Crash Counties in Florida, Ranked by Amount of Section 402 Grant Funding Distributed Locally

<i>County</i>	<i>Awarded Amount (1997-2002, \$1000)</i>	<i>Change in Bike/Ped Fatality & Injury rate* (1996-2002)</i>
Broward	\$412	-11.7%
Palm Beach	\$371	-18.5%
Duval	\$240	-16.6%
Miami-Dade	\$224	-17.0%
Pinellas	\$172	-20.9%
Orange	\$128	-19.0%
Lee	\$100	4.4%
Hillsborough	\$97	-10.8%
Brevard	\$58	-8.1%
Volusia	\$15	-14.0%
* = The average percentage change for all Florida counties was -14.0%		

Source: State of Florida Highway Safety Performance Plan - 2006

A similar analysis will follow on the Section 163 grant program and its funding impact in the pedestrian and bicycle safety program area. This program has been providing additional treatment under the TEA-21 legislation and its impact must be recognized as part of the overall impact on the program area.

2.6.6 Federal Guidance (Section 163)

TEA-21 provided four additional grant programs under the state and community highway safety formula grants program. The main addition of interest for this analysis was Section 163, the 0.08 Blood Alcohol Concentration (BAC) incentive grant program.

Under the Blood Alcohol Concentration (BAC) incentive grant program, any state that had a 0.08 percent BAC law in effect and was enforcing a law was eligible to receive funding for the Section 163 Safety incentives to prevent operation of motor vehicles by intoxicated persons. This program was designed to reward states for enacting .08 percent (BAC) drunk driving laws. (NHTSA, 2005) The State of Florida has received funding for each available year of the program, from 1998 to 2006, but funds were not spent in the pedestrian and bicycle safety program area until 2000. The FY 2006 was the last year of funding and resources will not be provided for this program in 2007.

According to Federal guidelines, the states could use Section 163 funds for any project eligible for funding under Title 23. (NHTSA, 2005) The money was to be used to encourage states to

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establish 0.08 percent (BAC) as the legal limit for drunk driving. A state with that restriction in place was eligible to diversify their program purpose. The previous discussions in Sections 2.6.1, 2.6.2, and 2.6.3 in regards to federal guidance, the federal formula for distribution, and the Florida implementation process, in regards to state guidance, applied to the Section 163 grant program and will not be repeated.

2.6.7 Previous Distributions (Section 163)

The Transportation Equity Act for the 21st Century (TEA-21) provided approximately \$500 million across the country in total resources to the federal Section 163 program during its duration, 1998-2006. (NHTSA, 2005) The State of Florida received \$50,787,275 in Section 163 funding from 1998-2006, or 10.2 percent.

Table 2.6.10 illustrates the percent of Section 163 funding being spent annually on pedestrian and bicycle safety programs over time.

Table 2.6.10 Florida Section 163 Bike/Ped Safety Programs, (2000-2006, \$1,000)

<i>Year</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>Total</i>
<i>Bike/Ped Programs</i>	\$404	\$537	\$513	\$437	\$467	\$500	\$540	\$3,398
<i>Total 163 Funding</i>	\$7,586	\$5,916	\$6,945	\$4,719	\$4,004	\$3,553	\$4,988	\$37,711
<i>Percent of Bike/Ped to Total</i>	5.33%	9.08%	7.39%	9.26%	11.66%	14.07%	10.83%	9.01%

Source: NHTSA website and State of Florida Highway Safety Plans, 1998-2004

From 2000-2006 Florida received \$37 million for Section 163 and spent \$3.4, or nine percent on pedestrian and bicycle safety grants during the same period, no money was spent on bike/ped programs in 1998 or 1999. (Florida Highway Safety Plans – Bike/Pedestrian Grants 1993-2006) The program received the highest percent of funding, 14 percent in 2005 and its lowest percent of funding, five percent in 2000.

There was no clear pattern that emerged as to the level of funding spent each year on pedestrian and bicycle safety programs. There was no obvious trend of increases or decreases in the percent of total Florida Section 163 funding except for an increase from 2002 to 2005, but then a decrease in 2006.

Match

Table 2.6.11 illustrates the relationships between the amount of funding provided by the granting agency and the match provided by the awarded agency. The State Funding amount reported is capturing all pedestrian and bicycle program grants funded during a year period, with the total amount of \$3.4 million being spent in the seven year period. When the amount of match

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provided by funded agencies, \$177 thousand is calculated in, the amount of overall funding spent on the pedestrian and bicycle safety program area increases to \$3.6 million.

**Table 2.6.11 Florida Section 163 Bike/Ped Grants: State Funding plus Match,
(2000-2006, \$1,000)**

	2000	2001	2002	2003	2004	2005	2006	Total
<i>State Funding</i>	\$404	\$537	\$513	\$437	\$467	\$500	\$540	\$3,398
<i>Match</i>	\$0	\$37	\$0	\$0	\$28	\$82	\$30	\$177
<i>Total Funding</i>	\$404	\$574	\$513	\$437	\$495	\$582	\$570	\$3,575
<i>Percent Match of Total</i>	0.00%	6.45%	0.00%	0.00%	5.66%	14.09%	5.26%	4.95%

Source: State of Florida Highway Safety Plans, 1997-2006

The amount of match is a very small percentage of the overall dollar amounts and no clear pattern of an increase or decrease in funding appears. The match requirements for the State of Florida highway safety grant programs are required for programs that are continued for more than one year and are funding all or portions of salaries for positions. The low to no amounts of match provided yearly may be an indication that Section 163 money is being used for more actual implementation purposes and not as administrative support for positions of people involved in pedestrian and bicycle programs.

Travel Mode

The amount of total dollars and the percent of spending each year has been detailed in Table 2.6.12. The majority of funding during the period reviewed was allocated to mixed bike/ped programs with 65 percent of the total dollars spent. For a discussion of the characteristics of mixed programs, see Section 2.6.4 above.

**Table 2.6.12 Florida Section 163 Bike/Ped Spending by Travel Mode
(2000-2006, \$1,000)**

<i>Year</i>	2000	2001	2002	2003	2004	2005	2006	Total
<i>Grant Type</i>	\$	\$	\$	\$	\$	\$	\$	\$
<i>Bike/Ped N=23</i>	\$208 (51%)	\$136 (25%)	\$383 (75%)	\$265 (61%)	\$343 (73%)	\$322 (64%)	\$540 (100%)	\$2,197 (65%)
<i>Predominantly Bike N=19</i>	\$173 (43%)	\$241 (45%)	\$64 (12%)	\$158 (36%)	\$123 (26%)	\$178 (36%)	\$0 (0%)	\$937 (28%)
<i>Predominantly Pedestrian N=5</i>	\$24 (6%)	\$160 (30%)	\$66 (13%)	\$15 (3%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$265 (8%)
<i>Total N=58</i>	\$405	\$537	\$513	\$438	\$466	\$500	\$540	\$3,399

Source: State of Florida Highway Safety Plans, 1997-2006

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The predominantly bike category was funded each year, except 2006 and received 28% of allocated dollars. The pedestrian only category was funded four of the seven years and received overall 8 percent of the total funding allocated.

Countermeasures

The Section 163 grant money was spent on a range of projects that promoted various forms of countermeasures for reducing pedestrian and bicycle fatalities and non fatal injuries. As in the discussion on Section 402 grant funding, the three treatment categories examined were enforcement, education or encouragement, and engineering or planning.

The data provided in Table 2.6.13 illustrates that the largest percent of funding went toward mixed category grants which received \$1.4 million dollars and 40 percent of the total allocation. The second largest funded category was education or encouragement, which from 2000 to 2006 received \$1.1 million or 31 percent of all dollars spent. Close behind education was engineering and planning which totaled 29 percent of all funding. Section 163 grant funding appears to have been more evenly disbursed than Section 402 funds which were previously discussed.

**Table 2.6.13 Florida Section 163 Bike/Ped Spending by Countermeasures,
(2000-2006, \$1,000)**

<i>Year</i>	2000	2001	2002	2003	2004	2005	2006	Total
<i>Grant Category</i>	\$	\$	\$	\$	\$	\$	\$	\$
<i>Education or Encouragement N=27</i>	\$269 (67%)	\$327 (61%)	\$158 (31%)	\$201 (46%)	\$54 (12%)	\$52 (10%)	\$0 (0%)	\$1,061 (31%)
<i>Engineering & Planning N=14</i>	\$136 (34%)	\$120 (22%)	\$214 (42%)	\$135 (31)	\$70 (15%)	\$149 (30%)	\$160 (30%)	\$984 (29%)
<i>Enforcement N=0</i>	\$0 (0%)							
<i>Mixed N=17</i>	\$0 (0%)	\$90 (17%)	\$141 (27%)	\$101 (23%)	\$343 (73%)	\$299 (60%)	\$380 (70%)	\$1,354 (40%)
<i>Total N=58</i>	\$404	\$537	\$513	\$437	\$467	\$500	\$540	\$3,398
* = The mixed category contained: 13 education/enforcement (\$1,090), 5 education/engineering & planning (\$264)								

Source: State of Florida Highway Safety Plans, 1997-2006

Scope of Service

Another important analysis of previous distribution trends to examine is who received the funding. According to federal legislation, 40 percent of the program money must be spent locally overall. (NHTSA, 2005)

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**Table 2.6.14 Florida Section 163 Bike/Ped, State vs. Local
Awarded Grants, (2000-2006, \$1,000)**

	2000	2001	2002	2003	2004	2005	2006	Total
<i>State Wide</i>	\$244	\$335	\$317	\$94	\$224	\$260	\$376	\$1,850
<i>Local</i>	\$160	\$202	\$196	\$343	\$243	\$240	\$164	\$1,548
<i>Percent of Local Funding</i>	40%	38%	38%	78%	52%	48%	30%	46%

Source: State of Florida Highway Safety Plans, 1997-2006

Table 2.6.14 above illustrates that the percent of funding being spent locally declined from 2003 to 2006, though 2003 provided well over half the Section 163 funding spent on pedestrian and bicycle safety programs to local government at the overall highest rate of 78 percent.

State Institutions

Table 2.6.15 demonstrates that the majority of Section 163 for statewide programs was awarded to state universities, with the University of Florida being the largest recipient. The amount of funding to state universities decreased from 2001 to 2003 and increased from 2004 to 2006. State Agencies received funding the first four years of the Section 163 pedestrian and bicycle safety program funding but received no funding in 2004-2006.

**Table 2.6.15 Florida Section 163 Bike/Ped, Funding Statewide by Recipient Type,
(2000-2006, \$1,000)**

	2000	2001	2002	2003	2004	2005	2006	Total
<i>State Universities</i> ¹	\$120 (49%)	\$322 (96%)	\$299 (94%)	\$63 (67%)	\$224 (100%)	\$260 (100%)	\$376 (100%)	\$1,664 (90%)
<i>State Agencies</i> ²	\$124 (51%)	\$13 (4%)	\$19 (6%)	\$32 (33%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$188 (10%)
<i>Total State Wide</i>	\$244	\$335	\$318	\$95	\$224	\$260	\$376	\$1,852
1 = UF (\$1,267,640), UNF (\$128,950), UCF (\$103,136), FIU (\$80,000), UNF (\$60,217)								
2 = FL Dept of Health (\$162,500), FL Dept of Education (\$24,000)								

Source: State of Florida Highway Safety Plans, 1997-2006

Local Institutions

As with the Section 402 grants, there was much more diversity found in the type of institutions receiving locally distributed pedestrian and bicycle safety grants. Table 2.6.16 below illustrates that the category to receive the most funding was non-profits, predominantly the Florida Bicycle Association (FBA). The FBA was funded four out of six of the eight years reported and represents 100% of the non-profit category which received 29 percent of the total allocations. The next largest category of funding was cities at 18 percent and closely following them were Metropolitan Planning Organizations and 16 percent.

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Table 2.6.16 Florida Section 163 Bike/Ped, Funding Locally by Recipient Type, (2000-2006, \$1,000)

	2000	2001	2002	2003	2004	2005	2006	Total
<i>Non-profit (Florida Bicycle Association)</i>	\$0 (0%)	\$0 (0%)	\$45 (23%)	\$44 (13%)	\$70 (29%)	\$127 (53%)	\$164 (100%)	\$450 (29%)
<i>City</i>	\$30 (19%)	\$27 (14%)	\$0 (0%)	\$100 (29%)	\$70 (29%)	\$50 (21%)	\$0 (0%)	\$277 (18%)
<i>MPO</i>	\$0 (0%)	\$105 (52%)	\$84 (43%)	\$53 (15%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$242 (16%)
<i>Health Agency</i>	\$0 (0%)	\$14 (7%)	\$0 (0%)	\$66 (19%)	\$54 (22%)	\$52 (21%)	\$0 (0%)	\$186 (12%)
<i>Other</i>	\$90 (56%)	\$0 (0%)	\$66 (34%)	\$16 (5%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$173 (11%)
<i>Law Enforcement</i>	\$0 (0%)	\$35 (17%)	\$0 (0%)	\$63 (19%)	\$50 (20%)	\$12 (5%)	\$0 (0%)	\$160 (10%)
<i>County</i>	\$40 (25%)	\$21 (10%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$0 (0%)	\$61 (4%)
Total Locally Funded	\$160	\$202	\$195	\$342	\$244	\$241	\$164	\$1,549

Source: State of Florida Highway Safety Plans, 1997-2006

2.6.8 Findings

The following implementation funding strategies for pedestrian and bicycle safety program have been recognized through the Section 402 and Section 163 Highway Safety Grant program for the State of Florida.

- Florida has invested from 1998-2006 approximately \$7.8 million or 12 percent of its total Section 402 program funds, \$64 million dollars, in bicycle and pedestrian safety programs. Florida has invested from 2000-2006 approximately \$3.4 million or nine percent of its total Section 163 program funds, \$37.7 million dollars, in bicycle and pedestrian safety programs.
- A percentage of match is required for funded personnel positions in the second and third years of the grant request. Typically 25 percent for the second year of the grant and 50 percent for the third year of a Section 402 grant funding request for the start up of a local program. Section 163 follows the same guidelines.
- Florida distributes funding to all applicants eligible under the NHTSA program guides with no obvious exceptions or differences. For Section 402, From 1997-2006, the

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primary travel mode funded has been predominantly bike projects, which received 43 percent of the funding. The second highest expense went to programs that had a mixed bike/ped emphasis, and the last category was pedestrian only projects which received \$1.6 million or 20 percent of an \$8.2 million dollar program. For Section 163 grants, from 1997-2006 the primary travel mode funded has been predominantly mixed bike/ped projects, which received 65 percent of the funding. The second highest expense went to programs that were predominantly bike which received 28 percent of funding, and the last category was pedestrian only projects which received \$265 thousand or 8 percent of a \$3.4 million dollar program.

- The primary countermeasure utilized in the Section 402 pedestrian and bicycle safety programs has been education or encouragement programs that from 1997-2006 received 82 percent of the total allocation. Engineering and planning programs received 11 percent of the funding, and enforcement programs received three percent of overall funding. For the Section 163 grant program, the primary countermeasure has been a mixed program focus which combined education/enforcement grants and education/engineering grants. The mixed category received 40 percent of the total allocation. Education or encouragement programs ranked second during that time period and received 31 percent of funding. Engineering and planning programs received 29 percent of the funding, and enforcement programs received 0 percent of overall.
- From 1997-2006, the Section 402 grant program provided a total of \$8.2 million was allocated to state and local programs with \$3.4 million going towards state wide programs and \$4.7 million or 63 percent towards local programs. At the State funding level for Section 402, State Universities received the majority of funds with 73 percent going to finance their programs. At the local level, law enforcement agencies received the majority of bike/ped funding with \$1.2 million or 26 percent of total appropriations. Additionally, for Section 163 grants, from 2000-2006 from the total of \$3.4 million that was allocated to state and local programs, \$1.9 million went towards state wide programs and \$1.5 million or 46 percent towards local programs. At the state funding level, state universities received the majority of funds with 90 percent going to finance their programs. At the local level, non-profit organizations received the majority of bike/ped funding with \$450 thousand or 29 percent of total appropriations.
- The majority of grants are funded for one year but can be funded for up to three years, with exceptions made for projects with statewide impacts being funded longer. Section 163 follows the same guidelines.
- In regards to funding reaching the target populations of high crash areas for locally funded projects, the county receiving the majority of funding was seventh in improvement of pedestrian fatality and non-fatal injuries but number three for crashes. High crash areas were found in the most populated regions of the state.

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3.0 Case Study States

As part of the planning process, comparing the Florida pedestrian fatality problem to other states is a vital part of developing recommendations for an updated Strategic Pedestrian Plan for the State of Florida. Investigators compiled a wide variety of variables that provided a logical starting point to begin understanding the Florida pedestrian safety problem. Data regarding a variety of variables was entered into a large spreadsheet for each of the 50 states (listed in random order). These variables included mileage of public roads; annual vehicle miles; average travel time to work; percent of commuters driving alone; National Highway Traffic Safety System State Data System participant; Highway Safety Information System participant; tourism; pedestrian plans; sunbelt versus snowbelt; population (Census 2000); the percent of elderly; urbanized / non-urbanized; poverty; juveniles; pedestrian fatality rates; and federal highway safety funding. While these variables played a role in deciding which case study states to analyze, the sunbelt factor and pedestrian fatality rates were ultimate determinants in choosing case study states.

Sunbelt versus Snowbelt States

The State of Florida is one of the fastest growing states in the nation, with approximately 1,000 people a day moving to the state. Other southern states are facing substantial growth as well, with migrants largely coming from northern regions of the country. Much of the south is within what is referred to as the sunbelt, which lies below the 37th degree latitude and includes: Alabama, Arizona, the southern tip of Arkansas, southern California, Florida, Georgia, Louisiana, Mississippi, Nevada, New Mexico, North Carolina Oklahoma, South Carolina, Tennessee and Texas. The sunbelt states, including Florida, have grown substantially the past few decades due to the region becoming more tolerable to live in, largely due to advent air conditioning. Growth and development of the south in the post-manufacturing era has largely centered around the automobile, with substantial transportation networks resulting from the implementation of the national interstate highway system (Sawers & Tabb, 1984)

With a wide range of variables to take into consideration, studio participants agreed that analyzing pedestrian plans of other states that are facing growth and population patterns similar to Florida would be a key variable in choosing which states should be analyzed. In large part, this would include states with substantial populations like Florida; geographic locations within the sunbelt; states with pedestrian plans; and states with a substantial public road network.

Review of Pedestrian Fatality Rates

Review of pedestrian fatality rates is an important component of identifying which states have shown the greatest improvement over the course of time. Data was collected from the National Highway Traffic Safety Administration from the period 1994-2004. Pedestrian fatality rates per 100,000 individuals were averaged for each state for two periods – 1994 to 1999 and 2000 to 2004. Sunbelt states that had a statistical reduction in pedestrian fatalities between these two

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periods, performing better than Florida, were Arizona, Nevada and New Mexico. Other sunbelt states that had a reduction in average pedestrian fatalities were Alabama, Arkansas, California, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Texas. The pedestrian fatality rates for all 50 states can be seen in Appendix A5. The key factor in deciding which states to use as case studies was those states that had the most improvement in auto-pedestrian crash fatality rates between the two time periods of 1995-1999 and 2000-2004. These two time periods are significant because of the distribution of highway safety dollars from the National Highway Traffic Safety Administration. The Intermodal Surface Transportation Efficiency Act (ISTEA) which was enacted from 1991-1997 and the Transportation Equity Act for the 21st Century (TEA-21), was in effect from 1998 - 2003, and was reauthorized to 2005 (NHTSA, 2005). It is important to note that the data from the National Highway Traffic Safety Administration that was used to determine pedestrian fatality rates begins in 1994. However, with data ending in 2004, it was determined to study a time period that could be broken into two equal portions.

While the reduction in fatality rates was the primary variable in deciding on which states to include in the case study, other considerations were made as well to reduce the list to a more manageable size. It was decided to eliminate Alabama as a candidate due the lack of a plan and because it is a state that is much different than Florida, based on the criteria. With the exception of no pedestrian plan, Texas is a large, populous state like Florida, with dispersed population centers, a significant roadway network, and centrally located within the sunbelt. Therefore, Texas was chosen as a state to research further.

Nevada, while considered part of the sunbelt, is not within the sunbelt entirely and is not as populous, so it was ruled out as a potential case study state. The states of Arkansas, Louisiana, Mississippi and Tennessee, while within the sunbelt region, are substantially different than Florida based on the identified criteria and were ruled out as candidates. The remaining states, Arizona, Georgia, and New Mexico, were seen as viable states to study due to meeting the criteria. North Carolina was considered as a viable candidate as well; over the course of the ten-year period, on average it did better than South Carolina in fatalities per 100,000 people and matches the Florida pedestrian fatality problem more so than South Carolina.

Based on the noted criteria, the states that were chosen for analysis were Arizona, Georgia, New Mexico, North Carolina, and Texas. California provided useful information and it was decided to incorporate it as the sixth case study state in order to increase the sample size. It is important to note, however, that even though states such as Arizona and New Mexico have shown the most improvement between the 1995-1999 and 2000-2004 time periods, they still have very high pedestrian fatality rates. The remaining case study states selected have high pedestrian fatality rates. (NHTSA, 2005) However, the investigators were interested in determining which states have improved the most. Table 3.1 depicts the case study states and their respective fatality rates.

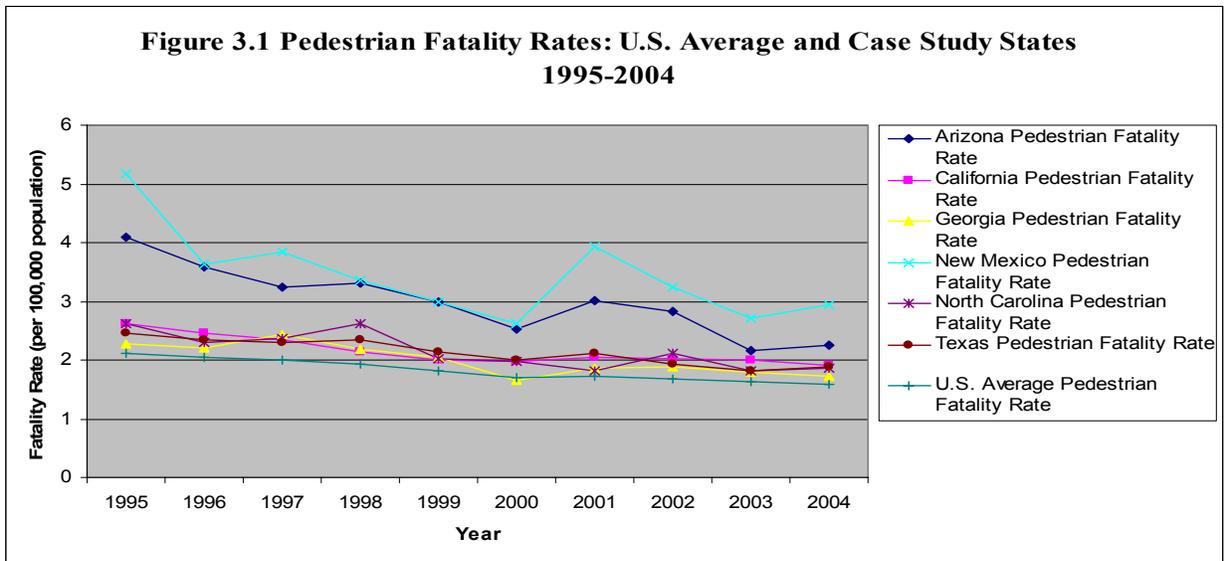
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Table 3.1 Case Study States with Greatest Change in Pedestrian Fatalities Between 1995-99 and 2000-04 Time Periods

State	Average Fatalities Per 100,000 1995-1999	Average Fatalities Per 100,000 2000-2004	Average Pedestrian Fatality Rate (1995-2004)	Greatest Change in Fatalities Between 1995-99 & 2000-04 Periods
Arizona	3.45	2.56	3.00	-0.89
New Mexico	3.79	3.09	3.44	-0.70
Florida	3.61	2.95	3.28	-0.66
North Carolina	2.39	1.92	2.15	-0.47
Georgia	2.23	1.79	2.01	-0.44
Texas	2.32	1.94	2.13	-0.37
California	2.32	1.99	2.15	-0.33
USA	1.98	1.66	1.82	-0.32

Source: National Highway Traffic Safety Administration

Over the 1995-2004 timeframe, the national trend of automobile-pedestrian crash fatality rates shows a decrease in pedestrian fatality rates across virtually all states. This data is shown in detail in Appendix A5. This data has been provided below in Figure 3.1 for the case study states, showing a general case study clustering slightly higher than the national average. The exceptions to this case study state clustering are the states of Arizona and New Mexico which show automobile-pedestrian crash fatality rates much higher than the national average.



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State Highway Safety Programs and State Bicycle Pedestrian Coordinators

The National Highway Traffic Safety Administration, provides traffic safety grants on an annual basis to all 50 states and territories. There are a variety of sections funded by NHSTA to address traffic safety. The most significant being Section 2001 of TEA-21, which reauthorizes the State and Community Highway Safety formula grant program (Section 402 of chapter 4 of Title 23) to support State highway safety programs, designed to reduce traffic crashes and resulting deaths, injuries, and property damage. A state may use these grant funds only for highway safety purposes; at least 40 percent of these funds are to be used to address local traffic safety problems (NHSTA). The agency that receives annual federal funding varies by state.

Table 3.2 Agencies Receiving Highway Safety Funding and Location of Bicycle / Pedestrian Coordinators: Florida and Case Study States

State	Receiving Agency of Federal Safety Dollars	Bicycle Pedestrian Coordinator
Arizona	Governors Office of Highway Safety	Department of Transportation
California	Office of Traffic Safety	Caltrans (Department of Transportation)
Florida	Department of Transportation, Safety Office	Department of Transportation, Safety Office
Georgia	Governors Office of Highway Safety	Department of Transportation
New Mexico	Department of Transportation, Traffic Safety Bureau	Department of Transportation, Transportation Program Division
North Carolina	Department of Transportation, Governors Highway Safety Program	Department of Transportation, Division of Bicycle & Pedestrian Transportation
Texas	Department of Transportation, Traffic Operations Division, Traffic Safety Section	Department of Transportation, Traffic Operations Division, Traffic Safety Section

Source: Governors Highway Safety Association at: www.ghsa.org/html/links/highwaysafetywebsites.html

The State of Florida, for example, receives its traffic safety funding at the Florida Department of Transportation, Safety Office. The Bicycle Pedestrian Coordinator for the state is also within the Safety Office. The State of Arizona receives its funding within its Governors Office of Highway Safety; the Bicycle Pedestrian Coordinator is located within the Arizona Department of Transportation. California receives its funding at the Office of Traffic Safety, with Caltrans housing the Bicycle Pedestrian Coordinator. The States of Georgia, New Mexico and North Carolina all receive their traffic safety dollars through their Governor’s Offices’ of Highway Safety, with the Bicycle Pedestrian Coordinators housed within their respective departments of

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transportation. The State of Texas is similar to that of Florida, with the highway safety dollars going to and the bicycle / pedestrian coordinator housed within the Department of Transportation.

It is important to understand the way in which federal funding is utilized to fund programmatic efforts that are intended to reduce bicycle and pedestrian injuries and fatalities. While the governors' offices of highway safety, traffic safety office, and departments of transportation for the states, see Table 3.2, all receiving federal funding to improve highway safety, the bicycle and pedestrian coordinators are also seeking to improve the safety of pedestrians and bicyclists. Coordination of strategies and funding amongst these offices is an important component of understanding how each state is attempting to reduce of pedestrian and bicyclist fatalities and injuries via strategies and funding available to them.

3.1. General Methodology

3.1.1 Data Collection Methodology

The study of data collection is a two faceted process. At its most general level, a survey of data collection techniques involves a survey of the functional areas of:

1. How data is collected and stored for future use, and
2. How data is analyzed and used by decision makers.

For each of the case studies, a series of interviews were held with the appropriate representative of the state level body primarily responsible for these functional areas. In only the State of Georgia was it determined that the two functional areas were vested in a common department (hence one interview). In the State of North Carolina, the representative of the data collection functional area instructed me that the representative of the data analysis functional area was ideally the individual to interview for both areas. Hence there is only one interview for North Carolina as well.

Throughout this process there was only one functional area that was unresponsive. This was the data collection functional area from Arizona. In Arizona the avowed expert (according to all others who were asked questions regarding data collection in Arizona) responded to a verbal request for an interview with the reply "I am too busy to answer questions." As email questionnaires were unreturned for this study, Arizona has been listed as unresponsive in certain functional areas regarding data collection. Note that whenever possible, appropriate information for Arizona was gleaned from the end users of data.

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3.1.2 Enforcement Methodology

Review of the case study states was conducted via two primary methods. The first method was to review general literature and federal highway guidance to garner any useful information related to the topic of enforcement. Additionally, highway safety plans and any pedestrian plans of case study states were reviewed to better understand enforcement related activities within those states. The second method was to interview key informants from case study states to gather additional information on enforcement activities. Questions were developed for the case study states and notes from these interviews were then sent back to the informants for them to review and make changes as necessary.

The selection of the informants was important because of the need to select people with ample knowledge of enforcement activities within their respective states. The States of Georgia and North Carolina had law enforcement coordinators within their Governors' Office of Highway Safety. The remaining states did not have individuals with these titles. However, these offices were contacted to ascertain the individual with the most experience with the enforcement activities as they related to pedestrians and bicyclists.

Although a telephone interview was scheduled with Mr. Cam Reed, Law Enforcement Coordinator for the Georgia Governors Office of Highway Safety (the preferred point of contact), he did not answer the telephone as scheduled. Subsequent follow-ups to reschedule were unsuccessful. Contact was established with a planner within the Governors Office of Highway Safety, Mr. Gary Butler, who was able to provide some information.

An interview with the California Office of Traffic Safety was not established. Findings from the review of the California traffic safety plan are identified within the findings section. Contact was established with the key informant with the State of Texas, however, the state does not fund enforcement projects related to bicycles and pedestrians, therefore, the informant was unable to provide insight on such projects.

3.1.3 Education and Encouragement Methodology

In order to adequately present an overview of the pedestrian education/encouragement strategies identified by the selected case study states, a variety of methods were used to collect reliable data. The process involved reviewing the Pedestrian Safety Action Plan developed by the Federal Highway Administration (FHWA) to determine the suggested components for developing a plan, identifying a contact bike/pedestrian coordinator for each of the six states, developing and conducting interview questionnaires for all of the coordinators, summarizing and emailing interview notes to the contacts for verification and clarification, coding the results of the emailed interview correction notes, reviewing the various states plans, conduct on-line data collection, and reviewing other relevant literature.

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3.1.4 Engineering Methodology

Review of the case study states was conducted via two primary methods. The first method was to review general standards, manuals and handbooks to garner any useful information related to the topic of engineering for pedestrian safety. Additionally, highway safety plans, Federal supplements and any pedestrian plans of case study states were reviewed to better understand engineering-related activities as they relate to pedestrian safety within those states. (Appendix B) The second method was to interview key informants from case study states to garner additional information on engineering activities. Questions were developed for the case study states; notes from these interviews were then sent back to the informants for them to review and make changes as necessary. (Appendix C.1)

The selection of the informants was important because of the need to select people with ample knowledge of engineering activities within their respective states. The initial contacts were with the state traffic engineers or traffic safety engineers within the Department of Transportation of each state (Arizona, California, Georgia, New Mexico, North Carolina and Texas). (Appendix C.2)

Several attempts were made to contact the informants within the case study states and no response was received from the contacts in Georgia, California, North Carolina or Texas whereas the contact in New Mexico returned my call and told me he had no interest in participating in my survey. The contact in Georgia forwarded my voice mail and e-mail to the state Bike/Pedestrian coordinator who was extremely helpful. The informant in Arizona was also extremely helpful.

3.1.5 Implementation Methodology

In order to obtain contact information on the personnel for each state that administers the Section 402 and Section 163 grant program funding, the primary implementation of the Florida Pedestrian Safety Plan, the following steps were taken. The National Highway Traffic Safety Administration (NHTSA) was contacted by phone to determine which state agency receives Federal appropriations of Highway Safety funding.

The NHTSA regional state representative was contacted for each of the case study states, and they provided the name on the state level of which agency receives funding and a name of the person overseeing the program. From this point in the process each state agency was contacted and the name verified as to the correct person to speak with or another point of contact was recommended. Key informants were identified and the survey instrument transmitted electronically for their review prior to the scheduled telephone interviews.

Telephone interviews were carried out and once completed, field notes were compiled over each interview, and then e-mailed to the respondent for verification. Respondents were asked to reply within seven days to the accuracy of the field notes and to note any changes in what was documented. The respondent was made aware that if no reply was received within a weeks time,

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the field notes would stand as is and be considered agreeable to both parties. The recorded field notes were then coded into an excel spreadsheet in order to categorize similar topics and subjects of discussion and study.

3.2 Data Collection

3.2.1 Introduction

There are a wide variety of potential sources for determining what policies various states are implementing in regards to data collection and analysis. A review of literature is a good place to start, but does not necessarily capture current practices and is therefore an incomplete study. Conducting personal interviews is also an important step to the overall process. By documenting both sources of information, it should be possible to determine what the states are actually implementing, as well as what the general improvement plan is regarding data collection and analysis.

Federal Highway Guidance

The 2005 Federal Highway Administration (FHWA) plan gives some general guidance on data collection and analysis. According to FHWA, a good crash database should be: inclusive of all crashes, up to date (timely), accurate, and computerized. Similarly, for the maximum effectiveness of crash data in the planning process, crash data should be used to: identify high crash locations, areas and jurisdictions, data should be used proactively as opposed to merely reactively, and data should be used post-implementation to determine the overall effect of improvement programs. The FHWA plan does not address the availability of data to end users (FHWA, 2005, pp. 22-47).

General Literature

In regards to data collection and analysis, there are commonly two different types of general literature available. The first type of general literature is an actual plan, typified by the Federal guidance shown above in the FHWA plan. Most other documents in the general literature regarding data collection and analysis are of the second type of literature – summary plans containing guidelines on how to create a data collection plan.

The 2003 General Accounting Office (GAO) summary plan on Better Guidance for Highway Safety merely indicates that grant money is available for improving the quality of data collection systems. These grants were to further the overall goal that data systems should support “problem identification, analysis, and countermeasure identification” (GAO Plan, 2003, p. 19). The summary plan provides case studies of where money was spent in a few states, but does not present any novel methodologies for improving data collection and analysis.

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The 2005 American Association of State Highway and Transportation Officials (AASHTO) Strategic Highway Safety Plan notes that data is a key management function in implementing any Strategic Highway Safety Plan (AASHTO, 2005, p. 5). Beyond this, the strategic plan merely lists general strategies for improving the utilization of data as part of the overall process. These strategies are:

1. Improve the quality of safety data by establishing programs for quality assurance, incentives, and accountability within agencies responsible for collecting and managing safety data.
2. Provide managers and users of highway safety information with the resources needed to make the most effective use of the data.
3. Establish a means by which collection, management, and use of highway safety information could be coordinated among organizations at all jurisdictional levels.
4. Establish a group of highway safety professionals trained in the analytic methods appropriate for evaluating highway safety information.
5. Establish and promote technical standards for highway safety information systems' characteristics that are critical to operating effective Strategic Highway Safety Plan programs. (AASHTO, 2005, p. 36-37).

For certain states a third type of general literature is sometimes noted. This is the ever increasing body of literature designed to show the detailed characteristics of either the victim or the accident scene. These studies are in fact a microcosm of crash typing, and such detailed data is generally not available regarding Florida automobile-pedestrian crashes. Such data is generally unavailable on a per-roadway or per-intersection basis, and is only available at the level of the entire city or county as a whole. An excellent example of this sort of literature may be seen in the study by the Bureau of Economic and Business Research (BEBR) entitled *Transportation Issues: Pedestrian Safety* (BEBR, 2003). Note that for examples of this style of literature that are generated in Florida the results generally appear as vague countermeasures to be overlaid on the population as a whole, as opposed to location-specific countermeasures.

3.2.2 Case Studies

Arizona

Plan Review

The 2005 State of Arizona Transportation Safety Plan indicates that the primary use of crash data will be to locate “data driven emphasis areas” that will be targeted “to reduce the number of fatal and serious injury crashes” (AZ Governor’s Office of Highway Safety, 2005, p.4). Beyond this, the plan only contains a generic mission statement in regards to the collection and use of data: “understanding and effectively using integrated traffic records containing all necessary data to plan and assess safety programs, as well as leverage critical resources, is highly needed to protect

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public safety. Systems currently in place must be assessed and improved to meet the needs of our safety professionals” (AZ Governor’s Office of Highway Safety, 2005, p.16). The exploratory nature of efforts to tie data collection with roadway conditions and automated dispatch are noted as an engineering strategy in the plan.

Key Informants

- Ms. Nancy Crandal - ALICE Database Supervisor, Arizona Department of Transportation (UNRESPONSIVE)
- Mr. Reed Henry – ITD Safety Team, Arizona Department of Transportation

Insights Provided by Key Informants

Arizona has recently created a Crash Data Coordinating Committee to look at new database software, input hardware, and overall procedures. Mr. Henry says that as of right now, the only requirements identified have been that the new database will be “end user friendly,” and that the procedures developed will allow for “easier sharing of data” among agencies. (R. Henry, personal communication, November 8, 2005)

Mr. Henry indicated that all crash reports in Arizona are still filed on paper. The Arizona Department of Transportation (ADOT) has responsibility for this crash data and currently there has been no decision on whether the new crash reporting system will contain provisions for e-filing with a resulting elimination of paper forms. (R. Henry, personal communication, November 8, 2005)

In regards to location information in the ALICE database, Mr. Henry noted that location coordinates for GIS are only stored for crashes on the state road system. Arizona standard practice is to denote locations on state roads using the existing mile marker system, and then to convert these to a GIS latitude/longitude format. Off of the state road system, the only location information captured is the intersection and/or corridor where the accident occurred. (R. Henry, personal communication, November 8, 2005)

As in Florida, access to the crash data seems to be guarded by the holders of the data, in this case that would be the ALICE database team. Mr. Henry noted that he currently only has one person on his team that has clearance to access the ALICE database at will. Otherwise, requests must be submitted in advance to the ALICE team. These requests may not result in immediate responses, although Mr. Henry was unable to provide an average timeframe for a response to such a request. (R. Henry, personal communication, November 8, 2005)

Arizona attempts to integrate crash data into its planning process through two methods. First, ADOT produces yearly comprehensive studies on a wide variety of crash types. These

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comprehensive studies are based on perception of ADOT leadership, and are often made with generation of political capital in mind. As such, the subjects of these comprehensive studies can vary from year to year. Mr. Henry indicated that currently crashes involving pedestrians, as well as crashes involving vehicles running off the road, are the main focus of comprehensive study. These comprehensive studies are based on five years worth of data, and are designed to find areas of high occurrences of these specific types of crashes. The second way that Arizona attempts to integrate crash data into planning is through the use of before and after safety studies. Every road improvement project is required to submit a safety study citing before and after crash statistics. According to Mr. Henry, “these before and after studies are pretty basic because no good statistics exist.” The studies typically consist of at least one year of data before and after the improvement project, although “three years of after data is preferred” according to Mr. Henry. (R. Henry, personal communication, November 8, 2005)

Finally, Arizona does disseminate some data by request to cities and counties for their individual planning purposes. This is used to put proposals for funding together “competition style.” Mr. Henry says that within Arizona, competition for grant money is “very political.” (R. Henry, personal communication, November 8, 2005)

California

Plan Review

In the 2004 Annual Performance Report for the California Office of Traffic Safety (CAOTS), ‘Traffic Records’ is listed as an area of concentration. The report notes that “grant funded items include hardware, software and expert services necessary to aid in the automation of manual processes, eliminate process duplication and facilitate enhanced data gathering and data sharing” (CAOTS, 2004, p. 11). Interestingly, Pedestrian and Bicycle safety is listed as an area of concentration on the same page, but does not contain any mention of data collection or analysis. The report goes on to announce three goals for data collection:

1. To establish citywide and countywide GIS and/or other automated collision analysis systems.
2. To ensure that public works and law enforcement agencies have timely access to current and complete traffic data
3. To improve the Traffic Engineering Department’s customer service by reducing the time that it takes to produce and track collision reports, and to reduce by 50 percent the time it takes to identify and analyze high collision locations. (CA OTS, 2004, p. 24)

Key Informants

- Ms. Roberta Tanger – SWITRS Database Analyst, California Highway Patrol
- Mr. Chris Murphy – Director, California Office of Traffic Safety

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Insights Provided by Key Informants

In California, ownership and storage of crash data is the responsibility of the California Highway Patrol (CHP). For over 30 years California has been storing crash data in a database known as SWITRS and according to Ms. Tanger, until 2002 this database was an old COBOL database with limited ability to retrieve data through queries. In 2003, the SWITRS database was upgraded to an Oracle database with enhanced query capability. (R. Tanger, personal communication, November 7, 2005)

California practice still requires that all crash reports be sent to the CHP in paper format. CHP staff enters the crash data into SWITRS by hand, and due to sheer volume of crash reports flowing into the department, Ms. Tanger noted that approximately a six month backlog has developed in data entry. While there may be an e-filing initiative in the future, Ms. Tanger was unaware of any progress being made to implement such a system, and simply noted that “it hasn’t happened yet.” (R. Tanger, personal communication, November 7, 2005)

Regarding location data captured and held in SWITRS, Ms. Tanger noted that currently there was no field in the database to maintain a GIS latitude/longitude location. This field would be added to the database in the near future; targeted availability being January of 2006 in coordination with the deployment of GPS units in state police cruisers. CHP was currently responsible for investigating crashes on all public roads in unincorporated areas, and also for interstate and state routes in incorporated areas of the state. As individual incorporated areas will be responsible for providing their own GPS after January 2006, it remains to be seen what percentage of crash reports flow into CHP with a position location already attached. As a result of the current inability to track a GIS location in SWITRS, Mr. Murphy said that the OTS office barely utilizes GIS at all. Responsibility for attaching a mile marker locator to each crash was the responsibility of Caltrans. (R. Tanger, personal communication, November 7, 2005; C. Murphy, personal communication, November 8, 2005)

Unlike Florida, California has a fairly liberal attitude towards data access. Under California law, crash reports are considered to be confidential, but as long as the layer of personal information is stripped away (driver’s license and insurance information mostly), the data may be released to the general public. Currently, the SWITRS group at CHP will provide data for reasonable requests made by the public, free of charge in ASCII text format on CD-ROM. This freedom of information was also extended by implication to other state agencies and departments, who receive their updates as often as weekly on electronic tape. Ms. Tanger’s group also produces some reports for the public on request, “but more often than not, the public just asks for the raw data.” (R. Tanger, personal communication, November 7, 2005)

Timeliness was a continuing issue with data in the California system. According to Ms. Tanger, the sheer number of crash reports coming in has resulted in approximately a six month data entry

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backlog into SWITRS. This delay in data input filters through to the end analysis side as well. Mr. Murphy noted that in November of 2005, the OTS was working on 2004 summary data and expected to have 2004 data posted around the first of the year. (R. Tanger, personal communication, November 7, 2005; C. Murphy, personal communication, November 8, 2005)

At the state level, crash data analysis primarily falls to Mr. Murphy's Office of Traffic Safety. Mr. Murphy said that the OTS primarily uses crash data in the form of rates for each municipality/unincorporated area. These rates are standardized per number of vehicle trips, and are used to rank places with high rates of crashes. These rankings are then used to choose what grant requests will be funded. These rates and rankings are then placed on the OTS website for public dissemination and use. Mr. Murphy also noted that there was a Caltrans group that performed a similar ranking based on rates over specific corridors of the state highway system. Ms. Tanger's group also provides some auto-generated reports for Caltrans. These reports were typically designed to show crashes over a predetermined area of the state road system, but may be targeted to all state roads in a particular municipality. (R. Tanger, personal communication, November 7, 2005; C. Murphy, personal communication, November 8, 2005)

Ms. Tanger noted that at the present time, none of her department's auto-generated reports dealt solely with bike/ped crashes. In her own words, "these are generally issues for the counties to analyze for themselves." (R. Tanger, personal communication, November 7, 2005)

Georgia

Plan Review

In the 2006 Georgia Governor's Office of Highway Safety Plan, Georgia commits itself to analyzing crash data by rates and rankings among counties (GA GOHS, 2006, p. 12). The improvement of data collection systems in the state is targeted as an objective in the plan: "to collect and analyze traffic crash data to ensure resources are directed to the identified problem areas" (GA GOHS, 2006, p. 47). Finally, the plan sets a number of objectives regarding data collection for 2006:

1. To develop and disseminate a long-range strategic plan for traffic records improvement in Georgia.
2. To co-sponsor the Georgia Traffic Records Coordinating Committee for continued synchronization and cooperation among various governmental and law enforcement entities.
3. To support a Georgia Traffic Records Coordinator to provide leadership in the production and implementation of the long-term strategic plan.

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4. To promote and support research initiatives related to highway safety in Georgia. (GA GOHS, 2006, p. 82)

Key Informants

- Mr. Norm Cressman – Safety Program Manager, Georgia Department of Transportation.

Insights Provided by Key Informants

In Georgia, ownership and maintenance of crash data is currently in flux. As of July 1, 2005, crash data became the responsibility of the Georgia Department of Transportation (GDOT). On that date, the Georgia Department of Motor Vehicles (GDMV) was abolished and its data collection functions were turned over to GDOT. This is important to note, in that all of the crash statistics prior to 2005 fell under what will be referred to as the old Georgia system.

Mr. Cressman noted that there were currently two crash databases in use, mostly due to the fact that in the past both GDOT and GDMV had responsibility for crash data. The main database was the database that used to be owned and maintained by GDMV. This was an IBM DBII database, with COBOL search forms. Mr. Cressman said that there was currently a proposal to upgrade this main database, but that funding had not yet been allotted for this upgrade. The secondary database was the database that used to be the GDOT database. This was essentially a mirror of the main database, but approximately 40 fields containing personal information relating to the individuals involved in the crash have been stripped away. This secondary database was a newer Oracle 9I database with improved query capability. (N. Cressman, personal communication, November 8, 2005)

In current Georgia practice, the process for entering data into the database was completely a manual one at the present time. Due to the advanced age of the main IBM DBII database, there was currently “no work towards e-filing right now.” Mr. Cressman did note however that many agencies do currently have e-forms scanned into their own computers. Unfortunately, regarding these e-forms that individual agencies are using, “all will need to be revised” before e-filing of crash reports can proceed from the local agency, right into the GDOT database. (N. Cressman, personal communication, November 8, 2005)

Mr. Cressman said that there was an effort to develop e-filing back in 2001. A records coordinating committee had decided that TraCS should be implemented in Georgia. The pilot deployment and testing of TraCS resulted in development of an input algorithm with approximately 500 input rules, along with the testing of the TraCS location tool. In Mr. Cressman’s opinion “the state DMV undermined the effort to implement TraCS.” In 2004, Cobb County resurrected the trial program by effectively asking if they could have the TraCS equipment that had been abandoned by the state. Currently, Cobb County prints out all of

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their crash reports from TraCS and then mails them to GDOT. Mr. Cressman said that the Georgia State Patrol was also interested in testing TraCS. (N. Cressman, personal communication, November 8, 2005)

Georgia currently does not have a field in the database for a GIS style location coordinate. Instead, the old milepost system has been retained in Georgia crash locating. Mr. Cressman said that the matter of “crash locating” was handled by an outside consultant. The consultant was charged with locating the crash site in accordance with the Georgia County/Route/Milepost system. Mr. Cressman believes that this system was adequate as every road in Georgia has a route number and mileposts. In regards to an eventual transition to GPS based location system, Mr. Cressman said specifically that he was more of a fan of the state’s current locator system. “That system works well with both DOT and local Police Departments, while GPS does not help local Police Departments.” Mr. Cressman did note that Cobb County was in the process of purchasing GPS to go along with TraCS. (N. Cressman, personal communication, November 8, 2005)

Unlike Florida, Georgia crash data is essentially available on an “ask and we give” basis. Georgia has adopted the CARE system developed at the University of Alabama for disseminating their crash data. Mr. Cressman said that when a request for crash data came in to GDOT, they would send the requestor a confidentiality/non-compete agreement to sign. When the confidentiality agreement was signed and returned, the appropriate dataset would be sent to CARE. The requestor can then go to the CARE website and download the data. In this way, raw data was available for use by “local law enforcement, MPO’s, counties, cities, and the general public.” (N. Cressman, personal communication, November 8, 2005)

Mr. Cressman was unable to state what sort of lag time there was between the crash forms being submitted to GDOT and when data becomes available for dissemination. He did comment on the fact that unlike other states, Georgia tends to suffer from a procedural lag with the sworn agencies not sending the reports to GDOT in a timely manner. This was due to the fact that there was no penalty prescribed under state law for sworn agencies that do not follow the state requirements for timely submittal of crash reports. (N. Cressman, personal communication, November 8, 2005)

Georgia crash data generally finds its way into the planning process in two ways. First, GDOT creates a yearly ranking of the top 150 locations on Georgia roads where there was the potential for improvement. Mr. Cressman was adamant that this list of 150 represents merely the potential for improvement, NOT “the 150 most dangerous places in Georgia.” The list of 150 was determined by a mathematical formula combining the rate, severity, and frequency of accidents. This list of 150 would then be distributed to the traffic engineers in the seven districts. This list is utilized by both state and local safety staff in prioritizing projects. The second way for crash data to enter the process was by local competition for grant money among the seven planning

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districts. In support of this, there was the generically available public data, as well as special reports developed by GDOT by request. These special reports generally contain a three year summary of crash statistics, and these reports can be run on a “statewide, countywide, corridor or intersection level.” (N. Cressman, personal communication, November 8, 2005)

New Mexico

Plan Review

In the 2005 New Mexico Highway Safety and Performance Plan, the state commits itself to reducing traffic related fatalities and injuries by means of data management and analysis, among other things (NM HSP Plan, 2005, p. 3). Additional commitment to data collection and analysis was shown in the state’s plan to identify problems through “coordination and planning with traffic safety partners” (NM HSP Plan, 2005, p. 14). In terms of programs designed to improve statistics, the plan notes that the TraCS pilot program would be continued (NM HSP Plan, 2005, p. 47), and that there was an electronic form entry/submission goal of 15% by end of FY 2005 (NM HSP Plan, 2005, p. 52).

Key Informants

- Mr. Jimmy Montoya - Management Analyst, Traffic Safety Bureau, New Mexico Department of Transportation.
- Mr. Jim Davis – Director, University of New Mexico Division of Govt. Research.

Insights Provided by Key Informants

In New Mexico, ownership and maintenance of crash data was the responsibility of the New Mexico Department of Transportation (NMDOT, which was until recently known as NMSHTD). Paper copies of crash reports are received by NMDOT and then entered by hand into a MS Access database. Scanned copies of the crash forms are then stored on the NMDOT mainframe (Mr. Montoya believes that these scans are in .pdf format). (J. Montoya, personal communication, November 10, 2005)

At the present time, all New Mexico crash reports were submitted in paper format. Mr. Montoya noted that there was currently a TraCS pilot program being tested in New Mexico, and that electronic data transfer was one of the capabilities that New Mexico was interested in. Other than this pilot program, there was no proposal for electronic submission of crash forms, and departments utilizing TraCS were still required to send in paper copies at present. (J. Montoya, personal communication, November 10, 2005)

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Regarding the storage of location data, Mr. Montoya indicated that New Mexico did not currently store crash data with a GIS latitude/longitude coordinate. Location data was currently provided by roadway mile markers when the accident happened on a US highway, US interstate, New Mexico highway, or a municipal road. Crashes occurring on other types of roads are located using a node system, but this primarily only applies to Navajo Routes, and according to Mr. Montoya, “not many roads use a node system”. A method for integrating GPS was underway, but was at least a year off when a larger TraCS implementation project was scheduled to roll out. At this point it may be important to note that Mr. Davis and his analysis group are not fans of GIS. In his own words, “oftentimes you don’t need fancy GIS, eyeballing works great.” (J. Montoya, personal communication, November 10, 2005; J. Davis, personal communication, November 16, 2005)

Like Florida, New Mexico was fairly rigid with its data availability. One major exception was that most safety data analysis was contracted to an outside agency, this being Mr. Davis’ University of New Mexico Division of Government Research (UNM DGR). This University of New Mexico (UNM) department apparently does all safety planning in New Mexico except for the Albuquerque MPO, which prefers to do its own safety planning. Even the Albuquerque MPO requires the services of UNM, who georeferences the Albuquerque MPO’s data for them. The second major exception was that New Mexico made its statewide crash statistics available online via website. A companion website provided for statewide statistics regarding bike/ped crashes. (J. Davis, personal communication, November 16, 2005)

At present, Mr. Montoya says that UNM DGR gets their data update of all crashes every three months, although this had admittedly slipped to every six months on occasion. NMDOT also sends a special file containing only fatal crashes to UNM DGR each month, for FARS reporting. UNM DGR works on these files immediately upon receipt, and as a result Mr. Davis claims that the New Mexico statewide reports were only approximately six months behind in their preparation. (J. Montoya, personal communication, November 10, 2005)

According to Mr. Davis, to date the process for utilizing crash data in planning had been fairly autocratic, with the state choosing where money was spent. Up to now, the process for integrating data into safety planning had been:

1. The file of the previous year’s crashes is input and clean by June of following year
2. Preliminary numbers are calculated for a spring planning meeting
3. Statewide maps and local maps are presented at meeting
4. ½ mile sliding window maps by corridor and strip maps of state roads by milepost are made available - segments with more that 2 standard deviations off of state rate are identified. (J. Davis, personal communication, November 16, 2005)

Mr. Davis further notes that the above process has been gradually turning the other way over the past year. “There was currently a push in the DOT now to use data to drive decisions, but this was a pendulum.” This was a new initiative, whereby each of the six highway districts would be

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forced to use crash statistics in their own planning as “the six districts are like little fiefdoms” of the district engineers. At present, Mr. Davis did not know how this new regime would work. He said that the individual districts would be obviously competing for money, but he did not know how it would be allotted (population, percentage of roadway miles, total crashes, etc.). When engineers determine that enforcement was the issue not engineering, data was used to justify grants to police departments for additional enforcement. Mr. Davis said that statistics were evaluated after three years of additional enforcement, with some yearly preliminary looks each year. Mr. Davis closed by noting simply that the Traffic Safety Department at NMDOT put a lot of money into enforcement. (J. Davis, personal communication, November 16, 2005)

North Carolina

Plan Review

The 2006 North Carolina Highway Safety Plan contained few recommendations and was primarily devoted to explaining where North Carolina would focus its grant money in 2006. The plan indicates that there were two 2006 grant programs. Both grants were to the University of North Carolina Highway Safety Research Center (UNC HSRC). The first grant was for funding staff in regards to data processing and analysis, and the second grant was for funding the necessary staffers to create and maintain a North Carolina crash data website (NC GHS Plan, 2005, Tab 9).

Key Informants

- Mr. Eric Rodgman – Database Specialist, University of North Carolina Highway Safety Research Center

Insights Provided by Key Informants

In North Carolina, the state Department of Transportation - Division of Motor Vehicles (DMV) has ownership and maintenance responsibility over crash data. According to Mr. Rodgman, paper copies of crash reports must be sent in to the DMV within 24 hours of the crash occurring. Upon reception, the crash reports are coded and entered into an Oracle database. This was a relatively new upgraded Oracle database, which was accessed through SQL queries. (E. Rodgman, personal communication, November 11, 2005)

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At the present time, most crash reports in North Carolina are still submitted on paper. Mr. Rodgman indicated that there was currently a pilot study underway on the electronic submission of crash reports. To date, the state Department of Transportation (NCDOT) and pilot law enforcement agencies have tested a few different electronic data capture systems and had decided that they prefer the TraCS system for the software. The North Carolina Highway Patrol (NCHP) out of Raleigh is currently pilot program testing TraCS, and DMV was receiving their data electronically. (E. Rodgman, personal communication, November 11, 2005)

Some of this electronically filed data was encoded with GPS, but there was still no database location to save that piece of information when it comes in on pilot program e-forms. According to Mr. Rodgman, “the problem is that the state does not have \$35 million to give each crash investigator the hardware and software.” But in regards to the overall e-crash initiative, Mr. Rodgman thinks that “this would really push us forward, and make us much more accurate.” Again, in Mr. Rodgman’s words: “I think it is forthcoming.” (E. Rodgman, personal communication, November 11, 2005)

North Carolina location positioning is currently done by County/City/Milepost Marker. When an accident occurs on a lesser road, the location variable is given as ‘3.2 miles from...’ No non-pilot program agency currently uses GPS for positioning, since there is no place for it on the form, and thus would be an inefficient use of resources. (E. Rodgman, personal communication, November 11, 2005)

Although North Carolina has created several websites where partial or summary crash data may be found (there exists a companion North Carolina bike/ped website with statistics), like Florida, North Carolina is still relatively stingy in terms of data access. Mr. Rodgman notes that most people who get access to the data are in North Carolina state government; “there are no private groups with access; even insurance companies must write an official request.” Similarly, only individuals authorized by DMV may write and run Oracle queries. Currently there are two outside university groups contracted to perform safety analysis for the state. These are Mr. Rodgman’s group at UNC, and there is a sister group at NC State University (that works primarily on engineering studies); both of these university contractors have full VPN access and can access the data from their remote locations as if they were sitting at a terminal in Raleigh. (E. Rodgman, personal communication, November 11, 2005)

There is currently a backlog of approximately five months in the data entry process. Mr. Rodgman calls this a “fairly unfortunate lag.” Up until approximately 3-4 years ago, this data entry lag was about three months. Data in the database goes back to 1990, and there are no current plans to limit/purge old data. (E. Rodgman, personal communication, November 11, 2005)

As indicated above, NCDOT contracts out most of its safety research to Mr. Rodgman’s UNC HSRC group. This was how most of the crash data finds its way into the safety planning process. In terms of research and analysis, Mr. Rodgman indicated that his group at UNC contains

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researchers assigned to all sorts of different projects – older drivers, bike, ped, etc... Generally, for NCDOT analysis of crash data, Mr. Rodgman's group is utilizing three years of statewide level data. (E. Rodgman, personal communication, November 11, 2005)

Some limited safety analysis of crash data was performed by UNC HSRC for the local level as well. Mr. Rodgman notes that the group provides safety analysis for local agencies and municipalities, and that these local groups generally contract for analysis on local and/or individual corridor levels. Occasionally an individual study contract will call for medical data as well from area hospitals and trauma centers, but availability of this is sometimes limited under North Carolina's confidential information laws. (E. Rodgman, personal communication, November 11, 2005)

Texas

Plan Review

In the 2005 Texas Department of Transportation Strategic Plan, the state notes that one of their greatest challenges is that they face a 2.5 year backlog in crash data (TX DOT Plan, 2005, p.11). To meet this challenge, the plan notes that getting the Crash Records Information System (CRIS) up and running is critical to the plan (TX DOT Plan, 2005, p.12). As the Texas system for collecting data is so "broken" at this point, it is understandable that this is the only mention of data in the plan.

Key Informants

- Ms. Laura Torres-Vasquez – Statistical Services, Crash Records Bureau, Texas Department of Public Safety.
- Mr. Terry Pence – Director, Traffic Safety Section, Texas Department of Transportation.

Insights Provided by Key Informants

In Texas, the agency charged with ownership and maintenance of crash data is the Texas Department of Public Safety (DPS). At this point in time it is critically important to note two things about the Texas data collection and analysis process.

First, Ms. Torres-Vasquez indicated that there is about to be a change in the storage database at DPS. In January of 2006, a new database will come on line which will have the advantages of: intelligent utilities, automated report generation, and the potential for e-filing. Currently, crash

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forms are received on paper and are entered into the existing database. The crash forms are disposed of and the data is archived in ASCII text file format. When the new database comes online, crash reports will be scanned and electronic copies maintained in a data warehouse on an IBM server. (L. Torrez-Vasquez, personal communication, November 9, 2005)

The second critical piece of information regarding the Texas data collection and analysis process is that since 2001 the state has been bogged down with implementing their new CRIS data collection system. In 2001 there was a halt to all data entry pending a switchover to the new CRIS system. Unfortunately the project hit a snag, and no data has been entered for general statistical purposes since 2001. To comply with Federal regulations, fatal crashes are currently stored in a separate FARS database, with minimal information necessary for statistical analysis attached. This is the only data entry currently occurring in Texas. Mr. Pence said that as a result, Texas can do no statistical analysis of crash data beyond 2001. (T. Pence, personal communication, November 9, 2005)

Mr. Pence says that the overall goal of CRIS is to create a relatively automatic flow of data from the officer filling out the crash form electronically, to electronic submission to DPS, to automatic report generation. The goal is to free analysts up so that they may spend their time doing analysis, and not assembling data into reports. (T. Pence, personal communication, November 9, 2005)

In terms of location data, Ms. Torrez-Vasquez indicated that the current system does not contain a GIS position field. Thus, the smallest granularity of detail would be by corridor within a municipality. The new database is expected to contain a location field suitable for GIS. (L. Torrez-Vasquez, personal communication, November 9, 2005)

Texas seems to be slightly less restrictive than Florida in terms of overall accessibility of data. Ms. Torrez-Vasquez said that access to crash data is “somewhat restricted.” The general public cannot just come in and look at the data; however, the general public can make a request for statistical reports as long as the request is reasonable. “What is reasonable depends on how long it would take a staffer to eyeball and run statistical packages on our data.” Other governmental agencies in Texas and other branches internal to DPS must request special (non standard) reports, just as the general public does. The DPS Crash Records Bureau has about 4 people that solely work on assembling these special reasonable requests for data. (L. Torrez-Vasquez, personal communication, November 9, 2005)

Due to the age of the DPS database, statistical analysis of this (pre-2001) data is extracted on standard reports monthly/quarterly/semi-annually/annually, and the output is paper summary statistical reports. If the crash occurred on the Texas state road system, the statistical analysis can be run on the corridor level (note that the Texas state road system contains a high percentage of all roads in Texas and includes county roads, city streets, US interstates, US highways, and FM roads). The new system will have fields for latitude and longitude. Ms. Torrez-Vasquez noted that it would be possible to put together a statistical summary for 2002+ crash data (for all

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crashes – FARS and non-FARS), but that this would require “one person eyeballing paper crash reports.” Currently there are approximately 100 total people in the Crash Records Bureau, but

this still does not happen much as it is very labor intensive. (L. Torrez-Vasquez, personal communication, November 9, 2005)

Mr. Pence said that due to the trouble with obtaining good statistical reports, the Texas Department of Transportation (TxDOT) currently looks at one key statistic for analysis purposes. This statistic is (FARS style crashes + serious injuries)/10000 pops. This statistic is utilized during the state strategic planning initiatives that are required every 2-3 years, and which cover outward approximately 5-6 years in length. The primary purpose of these strategic plans is to determine how grant money is spent. TxDOT currently does have a webpage where the current goals & projections are listed, and where (in theory) some of these statistics may be found. (T. Pence, personal communication, November 9, 2005)

Mr. Pence noted that TxDOT does consider crash reduction as a factor when a proposal for grant money comes in to the agency. Crash reduction impact is required to be a portion of the proposal, along with an action plan, budget and metrics for success. Mr. Pence also noted that local agencies may be required to provide “estimated effects on crash reduction” in the end of the year report required for each grant program funded by TxDOT, but that these numbers are currently merely estimates due to a lack of official statistical data, and also because the crash forms are not required to be submitted to DPS until around March of the following year, creating a huge potential for lag time (T. Pence, personal communication, November 9, 2005).

3.2.3. Findings

Complete findings in relation to Florida will be presented in section 4 of this document; however, it is worth noting at this time that a brief review of the case study results shows that no case study state has truly implemented the four FHWA guidelines in totality. Some states receive high marks in certain areas – as an example, North Carolina in terms of being computerized. Other states receive dangerously low marks in other areas – Texas is an example of this in terms of being up to date.

The findings results in section 4 will show that Florida has adopted many procedures commonly found in the case study states, while specifically avoiding others. Similarly, there are a few areas where Florida could be considered to be “ahead of the pack” in regards to adhering to the FHWA guidelines, while the case study states lag behind. It is important to remember that the purpose of this document is not to be wholly critical of Florida, although it may seem to be as such. Instead, the purpose of this document is to gather the lessons of what has succeeded in the case study states, and make appropriate recommendations wherever they may be of use in Florida.

3.3 Enforcement

3.3.1 Introduction

Federal guidance and general literature was reviewed in order to identify any best practices and information that could be useful in the development of enforcement recommendations for a revised Strategic Bicycle and Pedestrian Safety Plan. Plans of case study states were reviewed and interviews with key informants were conducted in order to provide insight towards the development of enforcement recommendations.

Federal Highway Guidance

How to Develop a Pedestrian Safety Action Plan (2005) by the Federal Highway Administration, was reviewed to obtain any beneficial enforcement guidance. Review of the federal guidance document provides enforcement-related ideas for implementation. Those include: a hotline used for addressing citizen traffic complaints; neighborhood speed watches; radar speed trailers; pedestrian safety enforcement operations targeted toward drivers and warnings to pedestrians; photo enforcement; and neighborhood safety programs (pp. 62-63).

The guidance also noted that in pedestrian / vehicle crashes, it is the pedestrians that are often blamed, “even when the driver was at fault for not looking for and yielding to the pedestrian, because of the underlying assumption that pedestrians should not be in the road” (p. 60). The literature also suggests that education on the issue itself may not be effective enough, without supplemental enforcement and engineering efforts (p. 61). Other key findings of the guidance are:

- Enforcement aimed at pedestrians is less effective than enforcement aimed at drivers. Activities such as “anti-jaywalking” campaigns have been unpopular and ineffective.
- Police should focus on education and warnings for pedestrians rather than giving them citations;
- Rather than enforcement that is less frequent with high penalties for drivers, literature suggests it is more effective to cite drivers for behavior violations with more frequent and reasonable penalties;
- Police resources should be used to control driver speeds and enforce pedestrian crossing rights. Additionally, training should take place that enforcement officers understand the issues and laws of pedestrian safety (pp. 61-62).

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The document does not provide any specific guidance on policy development relating to enforcement.

Literature Review

Review of pertinent literature relating to enforcement can provide insight on effective enforcement activities and techniques that could be applied to new and improved goals, objectives and policies. Literature that was reviewed revealed a few key findings.

First, Joyce, et al (2005) state that enforcement itself and / or the perception that enforcement is taking place appears to alter motorists' behavior (p. 3-14). It is also noted that the European countries such as The Netherlands and Germany are generally stricter towards motorists, even though pedestrians and bicyclists may have been at fault for causing an accident. They also are more strict with regard to enforcing traffic laws (pp. 3-8, 3-14).

Additionally, Joyce et al. (2005), state:

Two observations should be noted with regard to the pedestrian literature. First, Dahlgren-Gunnels [2001] has identified a tendency to “blame the victim” that adheres to epidemiologic epistemology in its depiction of host-related causation. Secondly, less a characterization of epidemiology than it is perhaps of transportation policy, automotive operators and passengers appear to be valued more than pedestrians. Far more research attention has been focused on protecting the operators and passengers of motor vehicles than on those forced to share the right-of- way with them. At the same time a variety of policy makers conceive a certain degree of motorist error and misbehavior as part of an acceptable transportation environment, therefore there has been little research done on motorist pedestrian interaction [Roberts & Coggan, 1994] (p. 3-2, ¶ 2).

Similarly, with regard to discreet enforcement interventions that could be implemented to reduce pedestrian fatalities and injuries – targeting either pedestrians or drivers – there are also varying points of view as to which populations to target. The Pedestrian and Bicycle Information Center at the University of North Carolina Highway Safety Research Center, provides insight from both the driver and pedestrian perspectives. The following is an excerpt from the Center:

There is some debate over whether to target enforcement towards pedestrians, motorists or both. Some pedestrian and bicycling advocates believe that motorists are not held as accountable as they should be and are forgiven for serious driving violations.

For example, a motorist may say ‘I did not see the person’ when in fact they simply failed to look. Motorists counter that pedestrians are often hard to see and behave in unpredictable ways. There is merit in each view.

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Much of our population doesn't drive. Those who do drive are engaged in a dangerous activity. Driving is highly regulated and reasonably safe when people comply with the rules, are licensed and insured to undo the financial consequences of their mistakes. It is the driver who creates the risk and is responsible for avoiding injury to the people and property he passes. Clearly, pedestrians are a part of the problem. A sound enforcement program should address both groups (University of North Carolina Highway Safety Research Center at <http://www.walkinginfo.org/ee/enforcement.htm>).

Enforcement Targeting Pedestrians

According to the University of North Carolina Highway Safety Research Center, jaywalking does not play a big role in pedestrian injuries and deaths. For example, the Seattle Police Department issued more than 500,000 jaywalking citations, however, the city's pedestrian crash statistics were not that different from the rest of the country where little or no attention was paid to jaywalking (University of North Carolina Highway Safety Research Center at http://www.walkinginfo.org/ee/target_ped.htm).

The following is an excerpt from the Center, identifying enforcement activities that can take place either through a verbal warning or a citation:

Police officers should ask themselves 'why do I expect pedestrians to go to a crosswalk? Do drivers behave differently there, yielding?' Officers should make the crosswalk attractive. Pedestrians might then find value in going to them. There are reasonable enforcement targets out there: Pedestrians who push through a crowd of people waiting for a "walk" light and cross illegally; Pedestrians who enter a stream of traffic and disrupt the flow; Pedestrians who 'dash out' into the path of oncoming cars; Pedestrians who are drunk [take to a place of safety] (University of North Carolina Highway Safety Research Center at: http://www.walkinginfo.org/ee/target_ped.htm).

Enforcement Targeting Drivers

The University of North Carolina Highway Safety Research Center also provides insight on the enforcement strategies towards drivers. The following is an excerpt from the Center:

The foundation of a good traffic safety program is a strong and continuous program to rid the streets of alcohol impaired drivers. This will protect pedestrians along with everyone else. Real danger is created by the inattentive or indifferent driver. Many are going too fast and fail to look out for pedestrians.

Danger to children comes from drivers going too fast near schools or in neighborhoods where children live. Many of our streets are designed to a 'high' standard that allows for cars to move fast. Sadly, one consequence of this is that kids can't be near the street or are in danger of being killed.

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It is impossible to police speeding on all the many miles of residential streets in our cities. There are too few police and too many speeding drivers. The real solution here is traffic calming. Police should vigorously patrol for speeding cars around schools, an area where children are concentrated.

Motorist compliance with crosswalk right-of-way laws is often poor. Officers should watch for these violations. Officers should also be alert for crosswalk violations by drivers making turns. The pedestrian 'sting' tactic is an effective way to combat these violations.

A deadly threat to pedestrians is created when a driver overtakes and passes a car stopped at a crosswalk to let a pedestrian cross. Officers who observe these violations should issue a citation in every case (University of North Carolina Traffic Safety Center at http://www.walkinginfo.org/ee/target_driver.htm).

Vehicular Homicide

With pedestrians and bicyclists at significant risk, understanding the degree to which drivers can be prosecuted for killing a pedestrian is important to understand. Drivers could say 'I did not see the person' when in fact they simply failed to look. Extreme harm can be done to a pedestrian when colliding with a vehicle, whereas the driver faces the a smaller likelihood that he / she would be harmed by hitting a pedestrian, regardless of whether he or she caused the accident intentionally or unintentionally. According to the Mothers Against Drunk Drivers, 47 of the 51 states and territories within the U.S. have laws which allow a homicide charge to be brought against an individual who kills another person through the operation of a motor vehicle, either intentionally or negligently (Mothers Against Drunk Drivers, accessed online at: <http://www3.madd.org/laws/law.cfm?LawID=VEHH>).

A general internet query on state vehicular homicide laws resulted in the American Prosecutors Research Institute, National Traffic Law Center- based in Alexandria, Virginia. It researches traffic safety laws for all U.S. states, including vehicular homicide. Contact was established with the individual at the Center that is currently updating a matrix that highlights vehicular homicide laws across the country, Ms. Elizabeth Earleywine, Senior Attorney. She was asked whether she knew of any states with vehicular homicide laws that place blame on the driver of a vehicle if they kill a pedestrian or bicyclist, regardless of whether it was their fault or not? Case in point, drivers could say 'I did not see the person' when in fact they simply failed to look. Extreme harm can be done to a pedestrian when colliding with a vehicle, whereas the driver faces the a smaller likelihood that he / she would be harmed by hitting a pedestrian, regardless of whether he or she caused the accident intentionally or unintentionally. Ms. Earleywine stated that was not something she has researched before, however, she stated: "I would feel comfortable saying that

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I doubt there are any such statutes. Fatality statutes typically require some sort of mental state, such as recklessness or negligence. Such a statute would probably be held unconstitutional as impermissibly requiring a presumption to be made by the fact finder, thereby relieving the state of their burden of proof.”

Review of the matrix produced by the National Traffic Law Center verifies that the State of Florida and case study states require some sort of recklessness or negligence on behalf of the driver of a motor vehicle for the respective vehicular manslaughter laws to take effect. Of all the states, the State of Florida appears to have the strictest penalties, as evidenced in Table 3.1. The penalties are maximum 30 years in prison and \$10,000 penalty and a maximum of 15 years in prison and \$10,000 penalty for Felony of the 1st Degree and Felony of the 2nd Degree, respectively. The remaining case study states show much lower sentence durations and respective penalties.

However, it should be noted, again, that there has to be some sort of recklessness or negligence on behalf of a driver of a motor vehicle to be charged with vehicular manslaughter. This coincides with the ‘blame the victim’ mentality and the literature review that revealed some European countries placing substantially more responsibility on the driver, even though pedestrians and bicyclists may have been at fault for causing an accident.

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	<p>3. The death of any human being commits DUI manslaughter, and commits:</p> <p style="padding-left: 20px;">(f) A felony of the second degree....</p> <p style="padding-left: 20px;">b. A felony of the first degree...if</p> <p>(I) At the time of the crash, the person knew, or should have known, that the crash occurred; and</p> <p>(II) The person failed to give information and render aid as required by s. 316.062.</p>	Felony 1 st Degree	<p><u>Term of imprisonment:</u> Max 30 years (775.082(3)(b))</p> <p><u>Fine:</u> Max \$10,000 (775.083(1)(b))</p>
ARIZONA	<p><u>13-1102 Negligent homicide</u> A person commits negligent homicide if with criminal negligence such person causes the death of another person.</p>	Class 4 Felony	<p><u>Term of imprisonment:</u> Min: 1.5 Max: 3 years <u>Fine:</u> >\$150,000</p>
CALIFORNIA	<p><u>Cal Pen Code § 192. Manslaughter</u> Manslaughter is the unlawful killing of a human being without malice. It is of three kinds:</p> <p>....</p> <p>(c) Vehicular –</p> <p style="padding-left: 20px;">(1) Except as provided in Section 191.5, driving a vehicle in the commission of an unlawful act, not amounting to felony, and with gross negligence; or driving a vehicle in the commission of a lawful act which might produce death, in an unlawful manner, and with gross negligence.</p> <p style="padding-left: 20px;">(2) Except as provided in paragraph (3), driving a vehicle in the commission of an unlawful act, not amounting to felony, but without gross negligence; or driving a vehicle in the commission of a lawful act which might produce death, in an unlawful manner, but without gross negligence.</p> <p style="padding-left: 20px;">(3) Driving a vehicle in violation of Section 23140, 23152, or</p>	<p>Misdemeanor / Felony</p> <p>Misdemeanor</p> <p>Misdemeanor /</p>	<p><u>Term of imprisonment:</u> max county jail 1 year or state prison: 2, 4, or 6 years (Cal Pen Code § 193)</p> <p><u>Term of imprisonment:</u> max county jail 1 year (Cal Pen Code § 193)</p> <p><u>Term of imprisonment:</u></p>

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	<p>malice aforethought, by operation of a motor vehicle, commits the offense of homicide by vehicle in the first degree.</p>		
NEW MEXICO	<p><u>66-8-101. Homicide by vehicle; great bodily injury by vehicle</u> A. Homicide by vehicle is the killing of a human being in the unlawful operation of a motor vehicle. ... C. Any person who commits homicide by vehicle or great bodily injury by vehicle while under the influence of intoxicating liquor or while under the influence of any drug or while violating Section 66-8-113 NMSA 1978 [reckless driving; however, violation of speed laws is not per se violation of 66-6-113] is guilty of a third degree felony. ... F. Any person who willfully operates a motor vehicle on violation of Subsection C of Section 30-22-1 NMSA 1978 [evading or fleeing an officer] and directly or indirectly causes the death of or great bodily injury to a human being is guilty of a third degree felony.</p>	<p>Misdemeanor</p> <p>3rd Degree Felony</p> <p>3rd Degree Felony</p>	<p><u>Term of imprisonment:</u> Max 90 days Fine: max \$300 (66-8-7B)</p> <p><u>Term of imprisonment:</u> Max 6 years (31-18-15) (sentence increased by 2 years for each prior DWI conviction under 66-8-101(d)) <u>Fine:</u> Max \$5,000 (31-18-15)</p> <p><u>Term of imprisonment:</u> Max 6 years (31-18-15) <u>Fine:</u> Max \$5,000 (31-18-15)</p>
NORTH CAROLINA	<p><u>N.C. Gen. Stat. § 20-141.4 Felony and misdemeanor death by vehicle (a1) Felony Death by Vehicle—</u> A person commits the offense of felony death by vehicle if he unintentionally causes the death of another person while engaged in the offense of impaired driving under G.S. 20-138.1 or G.S. 20-138.2 and commission of that offense is the proximate cause of death.</p>	<p>Class G Felony</p>	<p><u>Term of imprisonment:</u> 8-36 months (determined by number of prior conviction and by aggravating and mitigating circumstances) (15A-13440.23) <u>Fine:</u> Discretionary</p>

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	(a2) Misdemeanor Death by Vehicle – A person commits the offense of misdemeanor death by vehicle if he unintentionally causes the death of another person while engaged in the violation of any State law or local ordinance applying to the operation or use of a vehicle or to the regulation of traffic, other than impaired driving under G.S. 20-138.1. and commission of that violation is the proximate cause of the death.	Class 1 misdemeanor	<u>Term if imprisonment:</u> 1-120 days (determined by number of prior convictions) (15A-1340.23) <u>Fine:</u> Discretionary
TEXAS	Penal Code § 49.08. Intoxication Manslaughter (a) A person commits an offense if the person: (1) operates a motor vehicle in a public place, an aircraft, or a watercraft; and (2) is intoxicated and by reason of that intoxication causes the death of another by accident or mistake.	2 nd degree felony	<u>Term of imprisonment:</u> Min 2 years Max 20 years (12.33) <u>Fine:</u> Max \$10,000

Source: American Prosecutors Research Institute, National Traffic Law Center

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Definitions of Key Penalties:

Misdemeanor:

A lesser crime punishable by a fine and/or county jail time for up to one year. Misdemeanors are distinguished from felonies, which can be punished by a state prison term. They are tried in the lowest local court such as municipal, police or justice courts. Typical misdemeanors include: petty theft, disturbing the peace, simple assault and battery, drunk driving without injury to others, drunkenness in public, various traffic violations, public nuisances and some crimes which can be charged either as a felony or misdemeanor depending on the circumstances and the discretion of the District Attorney. "High crimes and misdemeanors" referred to in the U.S. Constitution are felonies (Accessed online at: <http://dictionary.law.com/>).

Felony:

A crime sufficiently serious to be punishable by death or a term in state or federal prison, as distinguished from a misdemeanor which is only punishable by confinement to county or local jail and/or a fine. 2) a crime carrying a minimum term of one year or more in state prison, since a year or less can be served in county jail. However, a sentence upon conviction for a felony may sometimes be less than one year at the discretion of the judge and within limits set by statute. Felonies are sometimes referred to as "high crimes" as described in the U.S. Constitution (Accessed online at: <http://dictionary.law.com/>).

Manslaughter:

The unlawful killing of another person without premeditation or so-called "malice aforethought" (an evil intent prior to the killing). It is distinguished from murder (which brings greater penalties) by lack of any prior intention to kill anyone or create a deadly situation. There are two levels of manslaughter: voluntary and involuntary. Voluntary manslaughter includes killing in heat of passion or while committing a felony. Involuntary manslaughter occurs when a death is caused by a violation of a non-felony, such as reckless driving (called "vehicular manslaughter"). (Accessed online at: <http://dictionary.law.com/>).

Vehicular Manslaughter:

The crime of causing the death of a human being due to illegal driving of an automobile, including gross negligence, drunk driving, reckless driving or speeding. Vehicular manslaughter can be charged as a misdemeanor (minor crime with a maximum punishment of a year in county jail or only a fine) or a felony (punishable by a term in state prison) depending on the circumstances. Gross negligence or driving a few miles over the speed limit might be charged as a misdemeanor, but drunk driving resulting in a fatality is most likely treated as a

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felony. Death of a passenger, including a loved one or friend, can be vehicular manslaughter if due to illegal driving (Accessed online at: <http://dictionary.law.com/>).

3.3.2 Case Studies

Arizona

Plan Review

Review of the Statewide Bicycle Pedestrian Plan, Phase II (2004) does not mention detailed law enforcement interventions. Review of the Transportation Safety Plan for the State of Arizona identified increased enforcement in high crash zones as a strategy for improving bicyclist and pedestrian safety (p.10).

Key Informants

- Key Informant: Mr. Arnie Cuellar, Occupant Protection Coordinator, Governors Office of Highway Safety and City of Phoenix Police Officer

Insight Provided by Key Informants

Mr. Cuellar stated there have been many studies on jaywalking done within the State of Arizona, however, these studies “never got off the ground.” The City of Phoenix identified two key areas in which there were a substantial number of pedestrian-related incidents. Consequently, under a traffic safety grant from his office, the city implemented Driving Under the Influence enforcement programs within those areas and targeted enforcement efforts of speeders and pedestrians, particularly during evening hours near bars and liquor establishments. These areas were identified through the city’s Traffic Accident Description System. On a statewide level, Mr. Cuellar stated that the state has safety booths at safety fairs and school events (A. Cuellar, personal communication, November 9, 2005).

Mr. Cuellar identified three key enforcement initiatives that the Governors Office of Highway Safety handles: Click it or Ticket; Drive Safely for the Holidays; and Concentrated Occupant Protection Enforcement Program. These enforcement initiatives are largely implemented during peak holiday periods in one to three week timeframes during certain times of the day (A. Cuellar, personal communication, November 9, 2005).

When asked if there are any states Arizona has used as a model for enforcement programs that reduce pedestrian and bicycle fatalities and injuries Mr. Cuellar stated that Arizona often looks at the initiatives of the State of California” (A. Cuellar, personal communication, November 9, 2005).

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Regarding the law enforcement curriculum for officers within the State of New Mexico, the curriculum does go over pedestrian laws, however, there is no focus specifically on pedestrian safety (A. Cuellar, personal communication, November 9, 2005).

“There are no laws that can allow officers to detain drunken pedestrians above a certain blood alcohol level (A. Cuellar, personal communication, November 9, 2005).” From personal experience, he stated that he tries to make sure that pedestrians that are intoxicated do not accidentally go into the road. There is a law in Arizona that states that pedestrians cannot step out in front of a vehicle, due to the delay that a driver has to stop the vehicle in a timely manner. Another law states that a vehicle has to make the initiative to steer clear of pedestrians that are in the way, despite the pedestrian being in the way (A. Cuellar, personal communication, November 9, 2005).

Arizona does not have any laws that allow officers to remove pedestrians from places such as limited access facilities, or fine them (A. Cuellar, personal communication, November 9, 2005).

Regarding the state’s law enforcement agencies issue citations to motorists for failure to yield to pedestrians or bicyclists in the right-of-way, enforcement officers can issue citations in marked and unmarked crosswalks and in school zones where the pedestrian has the right of way (A. Cuellar, personal communication, November 9, 2005).

Mr. Cuellar stated that officers and people in the street are the greatest asset for his office, as well as engineers who can facilitate the improvement of areas that law enforcement officials see as problematic (A. Cuellar, personal communication, November 9, 2005). Regarding the greatest challenges that his office faces, he stated that communicating is often the most difficult, particularly with regard to city versus state initiatives. While many participate and are familiar with state initiatives, there is always the need to adapt to the needs of the communities (A. Cuellar, personal communication, November 9, 2005).

Georgia

Plan Review

The State of Georgia’s Pedestrian & Bicycle Streetscape Guide (2003), primarily consists of design oriented traffic calming techniques to improve pedestrian safety. Review of the literature did not show any enforcement-related initiatives.

Review of the Georgia Statewide Bicycle and Pedestrian Plan (2005) did not show any enforcement-related initiatives.

The Governors Office of Highway Safety, Safety Plan 2006, states a specific objective of: “To provide funds to agencies for the purpose of increasing pedestrian education,

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enforcement, and engineering considerations”. Identified strategies relating to enforcement include: Awareness of motorist and cyclists safe and legal road use through enforcement and education; Provide funding for pedestrian safety enforcement and training; and Provide funding to Pedestrians

Educating Drivers on Safety to coordinate pedestrian safety awareness in high-risk locations (p. 101).

Review of this plan indicates that the State of Georgia is funding one project in the Bicycle Pedestrian category via Section 402 funding, Pedestrians Educating Drivers on Safety (P.E.D.S.). According to the plan, the intent of this project is “to promote effectiveness of pedestrian safety enforcement by partnering with local law enforcement to provide pedestrian safety training workshops and to inform the general public on pedestrian safety” (p. 102).

Key Informants

- Preferred Informant: Mr. Cam Reed, Law Enforcement Coordinator, Governors Office of Highway Safety. Contact established with Mr. Gary Butler, Planner, Governors Office of Highway Safety

Insight Provided by Key Informants

Regarding enforcement initiatives the State of Georgia has sponsored that have been effective, the Pedestrians Educating Drivers on Safety (P.E.D.S.) group is very active in promoting pedestrian awareness through the use of enforcement techniques (as well as engineering, education) within the Atlanta metropolitan area, particularly within high speed corridors (G. Butler, personal communication, November 22, 2005).

The City of Atlanta and the State of Georgia are working on improving sidewalks. The Atlanta Regional Commission is also working on an initiative to educate seniors about pedestrian safety near where they live (G. Butler, personal communication, November 22, 2005).

Georgia State University has a very active enforcement program in downtown Atlanta, giving citations regularly. Atlanta is the area within the state with most of the pedestrian fatalities and injuries. With the City of Atlanta now boasting the largest aquarium in the world, there were initially issues related to inadequate sidewalks and the dangerous road that was adjacent to it. However, efforts have been made since the opening of the facility to ensure that pedestrian safety is improved (G. Butler, personal communication, November 22, 2005).

Mr. Butler noted that reducing pedestrian fatalities and injuries is not an easy fix, due to the random nature of many of the accidents that happen. Often times homeless people are

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involved. However, through a combination of education, engineering, and enforcement and identifying key locations where pedestrians are having difficulties, he asserted it is possible to tackle the problem (G. Butler, personal communication, November 22, 2005).

New Mexico

Plan Review

The New Mexico Bicycle, Pedestrian, Equestrian Advisory Plan indicates that increased enforcement can have the greatest effect on pedestrian safety. Many motorists who run lights and stop signs or fail to yield at crosswalks do not get fined because there are not enough law enforcement officers dedicated to or knowledgeable about traffic infractions (p. 20). The plan emphasizes two main enforcement-related efforts.

The first is increasing education efforts aimed at law enforcement officers can help them understand the seriousness of pedestrian crosswalk infractions. The plan makes note of an effective program in Seattle that increased ticketing of motorist infractions at crosswalks with extensive media coverage of the extra patrolling. The result was a dramatic decrease in the number of automobile-pedestrian crashes following these efforts. The second is that “the pedestrian is often assumed to be partially at fault for simply ‘being in the road.’ The consequences of disobeying the laws that protect pedestrians should be more severe and more widely publicized for motorists to change behavior” (p. 20).

Review of the New Mexico Highway Safety & Performance Plan states:

Within the pedestrian / bicycle safety section of the plan, an Urban Pedestrian Law Enforcement Pilot Study is mentioned. Administered by the University of New Mexico, Department of Emergency Medicine and funded by Traffic Safety Bureau, it has three primary objectives:

- “Train law enforcement officers on how to conduct pedestrian ‘decoy’ operations;
- Implement pedestrian ‘decoy’ operations in areas identified as high-risk for pedestrian injuries;
- Evaluate the effectiveness of the operations in terms of injury reduction and motorist yielding to pedestrian behavior (p. 64)”.

According to the plan, the ‘decoy’ operations are conducted in the City of Albuquerque, which has the highest pedestrian injury rate in the state. The operation has a uniformed or undercover officer attempting to cross the street at a marked crosswalk and observing motorist compliance. If a motorist does not stop or yield to a pedestrian, the uniformed or undercover officer notifies other law enforcement officers to stop the motorist and take action” (p.64).

An enforcement strategy within the pedestrian safety section of the plan is: “Support safety law enforcement activities to reduce pedestrian fatal and injury crashes in New

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Mexico communities (p. 66). Activities identified under this strategy related to enforcement are:

- 1. Fund the University of New Mexico, EMS Department to offer specialized training for law enforcement on pedestrian 'sting' enforcement projects;*
- 2. Use crash data and FHWA Pedestrian Crash Analysis Tool software to locate target intersections for law enforcement operations;*
- 3. Implement the pedestrian law enforcement operation at target intersections;*
- 4. Evaluate law enforcement activities on rates of pedestrian injury per pedestrian volume and percent of legal motorist and pedestrian behaviors observed (p. 66).*

The plan also mentions that traffic enforcement efforts within the state benefit from a Traffic Safety Education and Enforcement Fund. The fund operates by half of a \$3.00 fee being collected for each traffic conviction and penalty assessment, which is then made available to the agency issuing the citations. To receive these monies, the agency submits to Traffic Safety Bureau plans for how it wants to use the funds for traffic safety education and enforcement. The plan notes that more than 80 law enforcement agencies participate in this program, using state law or local ordinances. It generates close to a million dollars annually, with approximately \$1,000,000 extra dollars extra being generated by local city ordinances (p. 72).

Key Informants

- Key Informant(s): Ms. Juliet-Armijo-Pana, Management Analyst, District II Programs Manager, Pedestrian Safety, New Mexico Department of Transportation

Insight Provided by Key Informants

Regarding enforcement initiatives the State of New Mexico has sponsored that have been effective, the state has funded a pedestrian sting operation where "law enforcement officers dress up as regular people to see if motorists will comply" (J. Armijo-Pana, personal communication, November 9, 2005). In 2004, a pilot program was initiated and federal funding will be used to implement the program in 2006. The initial pilot program was only within the City of Albuquerque, however, in 2006 the program will be expanded to include the cities with the highest pedestrian fatality and injury rates: Albuquerque, La Cruces and Galup. The annual report from the sting last year indicated that the pedestrian fatality and injury rates for the 2004 pilot year had gone down and in 2005 when it was not implemented, the pedestrian fatality and injury rates went up. Public awareness, sobering services and the formation of community-based coalitions maybe effective or ineffective (J. Armijo-Pana, personal communication, November 9, 2005).

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Ms. Armijo-Pana stated that the greatest resources her office has that allow it to work towards fulfilling its mission are “Partners, people and communities.” The input of communities is important. Each year, the state sends out Request for Proposals for communities throughout the state. One community, for example, is trying to get rid of stray dogs because kids are afraid to walk. Partners with this project include the University of New Mexico, the Department of Health, law enforcement agencies and the Mid-Regional Council of Governments (J. Armijo-Pana, personal communication, November 9, 2005).

The New Mexico Traffic Safety Bureau views the lack of concern for drunk pedestrians as a significant concern. Additionally, funding and staffing is a concern as well. Ms. Armijo-Pana is the only staffer that handles pedestrian matters within her office (J. Armijo-Pana, personal communication, November 9, 2005).

The Traffic Safety Bureau does coordinate with Tim Rogers, the Bicycle Pedestrian Equestrian Coordinator. A good relationship has been established with the Albuquerque Police Department, which is very ambitious with its undercover operations (J. Armijo-Pana, personal communication, November 9, 2005).

A Pedestrian Death Review Team Committee was created in October, 2005. This committee will review pedestrian fatality cases to see what could have been done to prevent those deaths. The State Police, law enforcement agencies and the Department of Health are involved with this project. Additionally, the Bureau Chief has requested that the state investigate each pedestrian fatality that has happened, by mile marker (J. Armijo-Pana, personal communication, November 9, 2005).

Regarding laws that allow law enforcement officers to detain pedestrians above a certain blood alcohol level, at least until sobriety, Ms. Armijo-Pana stated that there is a law that enables law enforcement officers to do so. She stated that it was the Detoxification Act of 1978.

Note: A review of New Mexico laws indicates that the Detoxification Act of 1978 is also referred to as the Detoxification Reform Act, which is cited in Chapter 43, Article 2, New Mexico statutes. Review of the Act shows that enforcement officers can take “intoxicated and incapacitated persons” into custody. The statute states: “it is further the policy of this state that alcohol-impaired persons and drug-impaired persons should be afforded treatment in order that they may lead normal lives as productive members of society” (New Mexico statutes, Section 42-2-3).

When asked whether law enforcement agencies within the State of New Mexico issue citations to motorists for failure to yield to pedestrians or bicyclists in the right-of-way, Ms. Armijo-Pana stated “yes”, however, mostly through sting operations.

North Carolina

Plan Review

The Bicycling & Walking Plan for North Carolina does have a section on the plan that discusses the importance of enforcement initiatives in address pedestrian and bicyclist fatalities and injuries.

Review of the state's Highway Safety Plan for 2006 shows there are no funded projects in the pedestrian / bicycle category. However, the plan identifies a grant awarded to East Carolina

University in the Police Traffic Services category, intended to slow motorists at key locations on campus and reduce pedestrian fatalities by five percent (no page number).

Key Informants

- Key Informant(s): Mr. Richard Holden, Law Enforcement Advisor, Governors Highway Safety Program

Insight Provided by North Carolina Key Informants

Regarding enforcement initiatives the State of North Carolina has sponsored, the State Capitol Police have implemented strategies to reduce pedestrian fatalities and injuries. Through the implementation of speed trailers, enforcement officers are able to determine the degree to which speeding is taking place around state office buildings in Raleigh. Officers can then make assignments accordingly based on their findings. The University of North Carolina at Chapel Hill has also implemented similar strategies to address pedestrians (R. Holden, personal communication, November 22, 2005).

The Governors Office of Highway Safety has also been involved with "Operation Lifesaver," an initiative focused on pedestrian crossings at railroad tracks (R. Holden, personal communication, November 22, 2005).

While the State of North Carolina has not used other state programs as a model for enforcement programs, Mr. Holden stated that North Carolina hosted the annual highway safety conference this past year, known as "Lifesavers," in Charlotte. This is an opportunity for states to share information with one another and learn what other states are doing in the area of traffic safety. The next conference will be held in Austin, Texas (R. Holden, personal communication, November 22, 2005).

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When asked whether pedestrians could be arrested for being drunk, he stated that they could not, unless they are charged with disorderly conduct and are posing a threat to another person or property (R. Holden, personal communication, November 22, 2005). Pedestrian accidents happen throughout the day, however, late at night is when the most issues arise from drunks. Some pedestrians actually lay in the highway at night because they are trying to keep warm. The education and actions of both drivers and pedestrians is needed to address the problem of pedestrian fatalities and injuries. "If everybody does their part, that will help solve the problem" (R. Holden, personal communication, November 22, 2005).

With regard to pedestrian safety being taught within the law enforcement curriculum for officers, Mr. Holden stated that there is not a specific section on pedestrian safety, however, state pedestrian and bicycle related laws are touched upon within the general curriculum (R. Holden, personal communication, November 22, 2005).

Texas

Plan Review

The State of Texas does not have a state bicycle and pedestrian plan.

Review of the Texas Highway Safety Performance Plan for 2006 shows that the state has not spent any dollars on enforcement initiatives related to bicycles and pedestrians.

Key Informants

- Key Informant(s): Ms. Tracie Mendez, Bicycle Pedestrian Coordinator, State of Texas Department of Transportation, Traffic Safety Division

Insight Provided by Texas Key Informants

According to Ms. Mendez, no federal dollars have been spent on enforcement activities for bicycle and pedestrian enforcement activities for the 2006 year or in the past. She stated that a main obstacle within the State of Texas is that municipalities have different ordinances, therefore, implementing bicycle and pedestrian enforcement projects cannot be accomplished easily (T. Mendez, personal communication, November 28, 2005).

3.4 Education and Encouragement

3.4.1 Introduction

For each of the six selected case study states pedestrian education/encouragement strategies were identified in each state Highway Safety Plan and their respective Bicycle

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and Pedestrian Plans (if available). Education and encouragement strategies are crucial elements of a safety plan. Pedestrian education and encouragement strategies provide the foundation for teaching pedestrians as well as state and local officials, engineers, educators, and planners about safety techniques and laws that govern pedestrian traffic safety. Education and encouragement strategies can come in various formats ranging from using public service announcements, producing literature for distribution, holding training workshops/courses, conducting public awareness campaigns, to holding conferences for targeted groups. In an effort to obtain a clear understanding of the pedestrian safety education programs that currently exist, additional literature was reviewed.

Federal Highway Guidance

Guidance given in the Federal Highway Administration – Pedestrian Safety Action Plan suggests that educational campaigns should target both pedestrians and drivers as a means to improve their behavior and compliance with laws and ordinances. The plan also indicates safety education by itself may have limited effectiveness without also providing engineering and enforcement countermeasures. Therefore a combination of all three measures should be in place when targeting pedestrian safety. An example scenario could involve encouraging increased motorist yielding to pedestrians in crosswalks, with a roadway designed to carry motor vehicles at a lower speed (engineering), police enforcement to issue warnings and tickets to violating motorists (enforcement), and education programs to educate the public about the importance of motorist compliance to relevant laws (education).

The plan also suggests that educational programs and campaigns are most effective when there is a clear understanding of the objective, the message being conveyed, and the findings. Three areas of approach for educational programs include:

1. Public awareness campaigns: which suggest that educational programs and campaigns involve increasing knowledge and motivating positive behavioral changes;
2. Campaigns to targeted groups: which suggest that educational material produced target groups such as elderly adults, children, and situations; and
3. Individuals campaigns: which suggest that intermediaries play a role in providing educational materials to various target audiences.

In a report published by FHWA a study was performed that examined existing research on pedestrian safety programs in the United States. The study suggests that education is an important component of pedestrian safety programs, coupled with engineering and enforcement, and indicated that cities with historically low incidence of pedestrian

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crashes typically have active pedestrian education programs (Campbell, Zegeer, Huang, & Cynecki, 2004).

General Literature Review

A study published in a 2002 issue of the British Medical Journal looked to quantify the effectiveness of safety education of pedestrians by reviewing randomly selected safety education programs. Results of the study reveal that pedestrian safety education can improve children's knowledge of the road crossing task and can change observed road crossing behavior. However, there is a lack of good evidence of the effectiveness of safety education for adult pedestrians, and elderly people in preventing injuries (Duperrex, Bunn, & Roberts, 2002). The study supports the idea for continued examination and evaluation of safety education program so that these programs are developed in a manner that makes them more effective in preventing pedestrian crash injuries and fatalities.

A report published by FHWA entitled *Education and Public Awareness Campaigns* suggest in order to evaluate education programs effectively the evaluation process should:

1. Review crash statistics on an annual basis to track changes, and trends over time.
2. Keep a record of the number of pedestrian programs that advocate walking.
3. Keep a tally of the total number of projects that are designed specifically to promote walking.
4. Record on a periodic basis the percentage of employee commute options that contain elements that encourage walking.
5. Keep a record of the law enforcement officials who have received training in bicycle and pedestrian safety education and enforcement training activities (Bikewalk.org, 2005).

The AASHTO Strategic Highway Safety Plan identifies pedestrians as special users and as one area of key concern for mitigation strategies and countermeasures. These strategies suggest looking to bring more awareness of the risks and responsibilities of drivers and pedestrians when engaged in roadway activities through a combination of engineering, enforcement, and education in urbanized and rural areas. The strategies include:

1. Implement comprehensive programs (engineering, enforcement, education) to influence impaired pedestrians.
2. Encourage states to become active in public outreach and training on pedestrian safety.
3. Implement comprehensive integrated pedestrian safety programs targeting pedestrian crash concerns in major urbanized areas and select rural areas (AASHTO Strategic Highway Safety Plan, 2005, p.17-18).

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The FDOT 2003 Strategic Highway Safety Plan (SHSP) provides guidance to the state in the form of strategies for increasing highway safety through the reduction of fatalities and injuries related to traffic crashes. The SHSP Steering Committee initially identified a top ten listing of the important safety areas to address that may have a direct impact on traffic crashes injuries and fatalities in Florida. The section entitled “Improve pedestrian and bicycle safety” specifically focuses on pedestrian safety education. The recommended goal and a subset of the strategies are identified below:

Goal:

Implement a comprehensive approach to providing a safer pedestrian and bicycle travel environment through the use of engineering, education, and enforcement.

Strategies:

Identify high pedestrian and bicycle crash corridors (or areas) and develop corrective measures in the engineering, enforcement, and education areas.

Implement a comprehensive pedestrian and bicycle traffic safety education component in at least three elementary and/or middle schools per year in each district (FDOTSHSP, 2003, p. 16-18).

The 2006 FHSP provides goals and strategies for increasing highway safety through the reduction of fatalities and injuries related to traffic crashes. In addition the plan establishes program areas for which performance measures and projects are identified. Nine program areas were established in the section entitled “Bicycle and Pedestrian Safety,” which specifically focuses on pedestrian safety education. The goal identified below outlines seven projects related to pedestrian safety education programs.

Goal:

To implement pedestrian and bicycle education, planning and enforcement programs aimed at decreasing pedestrian and bicycle fatalities and injuries 3 percent by September 30, 2006 from the 2003 levels (for pedestrians from 7,958 to 7,719 and for bicyclists from 5,086 to 4,933.) (FHSP, 2006, p. 7-10).

3.4.2 Case Studies

Arizona

Plan Review

Arizona’s Statewide Bicycle & Pedestrian Plan is divided into two phases. Phase I of the plan provides an overview of the state’s existing conditions, and recommendations for implemented

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bicycle and pedestrian programs as well as the development of the Statewide Bicycle Network. Phase I also includes an ADOT Pedestrian Policy for Consideration and an action recommendation to “develop education programs that improve pedestrian safety” (Michael Sanders, personal communication, November 11, 2005). Phase I of the plan developed two actions and eight strategies. Of the two actions suggested, only one is specifically related to education initiatives. The strategies directly related to education are identified as follows.

Action 2:

Develop education programs that improve pedestrian safety

- Strategy 2C. Develop walking safety education programs to improve skills and observance of traffic laws, and promote overall safety for pedestrians.
- Strategy 2D. Develop safety education programs aimed at motor vehicle drivers to improve awareness of the needs and rights of pedestrians.
- Strategy 2E. Develop a promotional program and materials to encourage increased walking (Arizona Statewide Bicycle & Pedestrian Plan, 2003).

The other document that serves to guide the state is the Arizona Transportation Safety Plan (ATSP). The ATSP indicates that the primary goal “is to reduce the total number of fatalities and injuries” (Arizona TSP, 2005, p. 4). Several emphasis areas were identified for the goal, each goal recommends enforcement and education strategies. Out of the seven focus areas one provided education strategies for pedestrian safety. The focus area entitled “Improving Pedestrian and Bicyclist Safety provided the following educational strategies:

- Develop strategies to support national initiative of “Safe Routes to School”.
- Educate on the benefits of increased visibility and the need to wear reflective clothing (Arizona TSP, 2005).

Key Informants

- Mr. Michael Sanders – Bicycle and Pedestrian Coordinator, Transportation Planning Division, Arizona Department of Transportation

Insights Provided by Key Informants

The bike/pedestrian program is staffed and administered by one person (the bike/pedestrian coordinator) and is housed within ADOT, Transportation Planning Division. According to Mr. Sanders the bike/pedestrian program works in conjunction with other ADOT divisions, the statewide bicycle/pedestrian committee, local

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bicycle/pedestrian advisory boards, district engineers, FHWA, and the Arizona Department of Health.

Mr. Sanders stated that current pedestrian safety educational programs throughout the state include bike/pedestrian safety classes in schools, the Safe Routes to Schools Program, and the Alternative Modes Education Program that promotes bicycle and pedestrian access, safety, and use. The Traffic Safety Village program uses interactive educational tools to reinforce pedestrian, bicycle, and passenger safety and procedures; the Bike Safety Clinic, Drivers' Education program presents educational videos to students on bike and pedestrian safety. When asked if any of the education programs implemented had been evaluated to measure effectiveness in reducing pedestrian injuries and fatalities Mr. Sanders replied, "I wish we had a program in place to evaluate them, we haven't got to that point yet, it needs to be addressed in the pedestrian safety plan" (M. Sanders, personal communication, November 14, 2005).

The educational training opportunities available from ADOT for planners, engineers, and government officials on pedestrian related safety issues includes "Bicycle/Pedestrian Facility Design Training Program, seminars presented by the Association of Bicycle/Pedestrian Professionals and a two-day course on bike/pedestrian design sponsored by University of North Carolina's Bike/Pedestrian Information Center" (M. Sanders, personal communications, November 14, 2005). ADOT is in the process of launching the Bicycle and Pedestrian Education Program (BPEPP) to inform bicyclists, pedestrians, and motorists about the rules of the road, laws, and safety. The BPEPP will target pedestrians and bicycle riders of all ages, motorists, community leaders, public facility administrators, and facility designers. When asked what factors help the department succeed or fail in educating people about bicycle/pedestrian safety, Mr. Sanders replied "outreach to people in the beginning of the process for creating the bicycle/pedestrian plan and the first efforts by ADOT to reach out to the non-motorist public." For failures, "lack of relationship with law enforcement and lack of engineering solutions" were identified as factors (M. Sanders, personal communication, November 14, 2005).

California

Plan Review

The California Bicycle and Pedestrian Blueprint identify eight program areas to be addressed through interventions. In the pedestrian and bicycle safety area, the document identifies the need to have a comprehensive program that includes both education and enforcement. The document suggests that the educational efforts may be designed to include the entire community or specific target groups. The document does not identify goals, objectives or strategies, but instead offers guidance for using various treatments in addressing problems.

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The other document reviewed was the California Highway Safety Plan (2005). The overall goal for the plan related to facilitating programs that would reduce death rates in the state. However none of the goals within the plan directly referenced education strategies within other areas of the plan.

The plan identifies the following strategies:

- Encourage the implementation of effective Senior Citizen Traffic Safety Education programs at senior, community centers and through the local Department of Motor Vehicles.
- Increase the awareness of traffic safety through specially tailored programs for the promotion of safe behavior as drivers and pedestrians.
- Perform pedestrian safety programs at elementary, middle and high schools, as well as after school and summer programs to create positive and safer attitudes as pedestrians and reinforce traffic safety responsibility.
- Continue intensive multicultural and age-specific public education campaigns addressing safe driving and walking behaviors conducive to pedestrian safety for high-risk populations and locations (California HSP, 2005).

Key Informants

- Mr. Ken McQuire – Bike/Pedestrian Coordinator, Bicycle Facilities Unit, California Department of Transportation

Insights from Key Informants

The Office of Traffic Safety grantees conduct traffic safety rodeos and presentations in an attempt to increase the level of awareness among various age groups and presents pedestrian and bicycle safety presentations and distributes public information developed through PSA. When asked if any of the educational strategies implemented had been evaluated to measure their effectiveness in reducing pedestrian injuries and fatalities, Mr. McQuire could not answer the question. However, the education activities outlined in the 2004 Annual Performance Plan stated that the goals identified did result in reported accomplishments as a direct effect of the activities implemented.

The bike/pedestrian program is staffed and administered by six full time staff and involves the coordinator of the twelfth district and is housed in the Division of Local Assistance/Bicycle Facilities Unit. The bike/pedestrian program works in conjunction with local governments, local agencies, OTS, department of health services, local health department, legislators, transportation management associations, law enforcement, auto

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associations, and state colleges (UC-Berkley), (K. McQuire, personal communication, November 22, 2005). Current educational programs throughout the state include the Safe Routes to School Program and the Three Step Campaign which involves spreading the word out about bike and pedestrian safety issues to children.

The educational training opportunities available for planners, engineers, and government officials regarding pedestrian related safety issues includes the Caltrans provided Bicycle/Pedestrian Facility Design Training Program, and Making Work Zone Safe workshops. When asked what factors help the department succeed or fail in educating people about bicycle/pedestrian safety issues Mr. McQuire could not identify any one thing, but instead insisted “that a number of items can come into play to work together in a positive or negative manner” (K. McQuire, personal communication, November 11, 2005).

Georgia

Plan Review

Review of the Georgia Statewide Bicycle and Pedestrian Plan indicated that urbanized areas of the state have developed bicycle plans as part of their transportation planning process. The plan focused primarily on bicycle initiatives and did not address education treatments. GDOT is currently in the process of updating the Bicycle and Pedestrian Plan. GDOT’s Statewide Transportation Plan 2001-2025 produced in December 2001 identifies major areas for policy decisions. The recommendations within the plan are consistent with the state’s transportation mission that focuses on maintenance of the system, safety, mobility, economic development and environmental quality (GDOT SWTP 2001-2025). The plan identified seven goals with strategies, but none of them addressed education initiatives. The plan did call for the continued implementation of bicycle and pedestrian improvements based on the Bicycle & Pedestrian Plan. In addition, the state’s existing Strategic Highway Safety Plan (SHSP) also lacked education strategies. It “does not contain an education component. However, the new plan under development will contain an education component as part of the bicycle & pedestrian component” (A. Goodwin, personal communication, 11/9/05).

Key Informants

- Ms. Amy Goodwin – State Bike/ Pedestrian Coordinator, Georgia Department of Transportation

Insights from Key Informants

The bike/pedestrian program is staffed and administered by the state bicycle & pedestrian coordinator and a part-time intern and is housed in GDOT, Office of Planning. The bike/pedestrian program works in conjunction with “GDOT, Office of Traffic Safety and Design,

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District Design Offices, FHWA, MPO's, Regional Development Centers (like an MPO for rural areas), to some degree the CDC and Department of Health, and almost not at all with the

Governor's Office of Highway Safety" (A. Goodwin, personal communication, November 9, 2005).

Current educational programs throughout the state include: a guide/ manual which targets adults and parents, motorists and cyclists on safety tips, rules of the road, resources and other bicycling information. The Safe Routes to School program is currently a pilot project in four elementary schools, but will expand with the creation of the new Safe Routes to School program funded in SAFETEA-LU. Additionally, the PEDS (Pedestrian Educating Drivers on Safety) program provides classroom safety education for behavioral modifications.

When asked if any of the educational strategies implemented had been evaluated to measure their effectiveness in reducing pedestrian injuries and fatalities Ms. Goodwin replied "haven't done much in terms of education, however we have produced educational flyers and booklets on bike/pedestrian safety in which we have received positive feedback" (personal communication, November 9, 2005).

As far as educational training opportunities for planners, engineers, government officials, etc. on pedestrian related safety issues, GDOT sponsored and hosted FHWA/NHI training on pedestrian design. GDOT is hosting a training/workshop geared towards the development of a Pedestrian Safety Action Plan in December, offers an ADA course, offers technical guidance in the Pedestrian Safety Design Manual, and will host the 1st Annual Bicycle/Pedestrian Conference in the spring. GDOT has also provided assistance with pedestrian safety and design trainings hosted by other organizations (A. Goodwin, personal communication, November 11, 2005). In addition, Ms. Goodwin stated that GDOT would be updating their outdated bicycle and pedestrian plan.

When asked what factors help the department succeed or fail in educating people about bicycle/pedestrian safety issues Ms. Goodwin replied, "increasing the number of bike and pedestrian facilities constructed, use of the Pedestrian Streetscape Guide, stronger partnership with MPOs and Regional Development Centers, and strong relationship with advocacy groups

which foster a better public relationship." As for failures, "although we are making progress, there is still a shortage of facilities for people to walk and bike, lack of staff in which to implement the programs and initiatives, lack of funding (can't use state gas tax for trails or bike/pedestrian initiatives). Much of the funds are focused on non-bike/pedestrian. Related safety awareness projects are drunk driving, seatbelt usage, and law enforcement activities, etc." (Personal communication, November 9, 2005).

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New Mexico

Plan Review

The immediate goal of the Statewide Bicycle, Pedestrian, and Equestrian (BPE) Advisory Plan is to promote safe travel for pedestrians, bicyclists and equestrians and more specifically as it relates to pedestrians, provide information to citizens interested in bicycle, pedestrian and equestrian trails (New Mexico BPE Advisory Plan, 2003). The plan outlines the following three areas of focus: Bicycles, Pedestrians, and Equestrians. Each of the areas of focus incorporates the use of the four E's into the recommendations. Within the Pedestrian area of focus the following recommendations were made.

- Promote education programs, such as the New Mexico Pedestrian Safety Campaign, established by NMDOT as one way to get the word out on pedestrian safety issues. Many pedestrian injuries and fatalities are due to the ignorance of rules pertaining to the right-of-way. A recent study by the American Automobile Association (AAA) revealed that almost half of Americans do not know some of the basic laws as they apply to pedestrians. More information must be made available to motorists so they know that pedestrians have the right of way at crosswalks, both marked and unmarked.
- Develop programs to teach child pedestrians to safely cross streets. It should never be assumed that a signal guarantees safety; one should look before crossing the street. The meaning of "Walk/Don't Walk" signals is not clearly understood. Even if the roadway appears safe, pedestrians should keep looking as they cross. Be alert for vehicles making a right turn on red.
- More emphasis needs to be placed on driver education relating to pedestrian behavior. Although there are many situations in which the pedestrian is technically at fault, responsible drivers might avoid or diminish the severity of a pedestrian/vehicle crash (New Mexico BPE Advisory Plan, 2003, pg. 20).

The New Mexico Highway Safety & Performance Plan (2005) (NMHSSP) presents the state's strategies for addressing high rates of traffic related fatalities and injuries. The HMHSSP identifies seven program areas in which to fund projects. One of those program areas is

Pedestrian and Bicycle Safety. The HMHSSP does not identify a specific goal for pedestrian safety education; however it does identify the following goal and strategies:

Pedestrian Safety Performance Goal

- Reduce the pedestrian fatality rate (per 100,000 population) from 2.74 (FY03 data, most recent available) to 2.60 by the end of FY05.

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- Strategy #1- Use public awareness and education to reduce pedestrian and bicycle crash fatalities and injuries.
 - Activities
 - Organize and assist communities to develop pedestrian safety plans with funding and technical assistance provided through UNM/EMS to Walkability Advocacy.
 - Provide one training course for planners, traffic engineers and one law enforcement training on successful pedestrian safety strategies.
 - Support the adoption and implementation of the NMDOT Safe Routes to School Program.

- Strategy #2- Educate at-risk populations about safe pedestrian behavior to reduce pedestrian fatal and injury crashes.
 - Activities
 - Continue work on a new Pedestrian Safety Plan that will: a) include specific recommendations for inter-agency collaboration, b) address other public health considerations related to pedestrian accommodation, and c) include current pedestrian injury and death research and statistics.
 - Activities
 - Develop a ‘hands-on’ curriculum for elementary school children that teach safe pedestrian behavior.
 - Incorporate required teaching modules that are not health related to encourage curriculum use among teachers (e.g. estimation, mapping, math, distance).
 - UNM/EMS will continue to pilot-test the curriculum at one urban, rural, pueblo, and primarily Spanish-speaking elementary school.
 - UNM/EMS will approach the NM Department of Education to make pedestrian safety part of the required curriculum for elementary school aged children (New Mexico HSPP, 2005).

Key Informants

- Mr. Tim Rogers, Bike, State Pedestrian & Equestrian Coordinator, Planning Bureau, New Mexico Department of Transportation

Insights from Key Informants

The bike/pedestrian program is staffed and administered by the state bicycle, pedestrian & equestrian coordinator and is in the process of adding a Safe Routes to School coordinator and is housed in the New Mexico’s Department of Transportation (NMDOT),

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Planning Bureau. The bike/pedestrian/equestrian committee program works in conjunction with the Traffic Safety Bureau (TSB), the NMDOT bike/pedestrian/equestrian committee, MPOs, RPOs (rural planning organizations), Pedestrian Advisory Committee, New Mexico State Parks, New Mexico Department of Health, and University of New Mexico's Center for Injury Prevention Research & Education. A majority of the educational programs offered in the state are administered through the TSB.

Current educational programs throughout the state include: hosting the statewide New Mexico Walk Our Kids to School Day, Safe Routes to School, Obesity Prevention Program, and distribution of BPE informational brochures. When asked if any of the educational strategies implemented had been evaluated to measure their effectiveness in reducing pedestrian injuries and fatalities, Mr. Rogers stated he did not know because he had only been on the job for a couple of months. (Personal communication, 11/10/05)

Educational training opportunities for planners, engineers, government officials, etc. regarding pedestrian-related safety issues include NMDOT sponsor NHI Bicycle Facilities Design Course which focuses on roadway facility design, the NHI Pedestrian Design Course which focuses on planning and designing corridors for pedestrians, and Engineering for Pedestrian Safety which is sponsored by the Federal Highway Resource Center. When asked what factors help the department succeed or fail in educating people about bicycle/pedestrian safety issues Mr. Rogers stated that partnerships with local level organizations helped with success and a lack of staff and support from the engineering aspects served to hinder the agencies success.

North Carolina

Plan Review

The North Carolina Department of Transportation (NCDOT), Division of Bicycle and Pedestrian Transportation (DBPT) unit functions as the overseer of all aspects relating to bicycling and walking. One of DBPT guiding documents is the 1996 Bicycling & Walking in North Carolina: A Long-Range Transportation Plan. This plan is viewed as the framework for action by NCDOT.

The plan consists of five goals and within each is a focus area that includes an overall total of 21 recommendations. Only one of the goals is directly related to pedestrian safety education as outlined below:

Goal 2

Provide a comprehensive program of education and enforcement strategies that will improve the safety of all bicyclists and pedestrians.

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Focus Areas:

- Develop and implement school-based pedestrian safety curricula and programs;
- Develop, publish, and maintain a clearinghouse of bicycle, pedestrian, and motorist safety materials targeting at-risk ages and groups (NC Long-range Transportation Plan, 1996).

The North Carolina Highway Safety Plan (2006) (NCHSP) serves as guidance for identifying safety problems based on crash data analysis for which to fund safety activities in an effort to improve safety. Eight areas were identified as areas of primary interest and “pedestrian crashes” was one of them. The NCHSP does not provide goals, objectives, or strategy statements but instead identifies projects to fund.

Key Informants

- Ms. Mary Meletioui, Bike & Pedestrian Program Manager, North Carolina State University, Institute for Transportation Research and Education
- Mr. Tom Norman, Director of Bike & Pedestrian Transportation Division, North Carolina Department of Transportation

Insights from Key Informants

Historically, bicycle education safety had been the main area of focus for NCDOT, but with the high demand for pedestrian education, DBPT is stepping up its efforts in planning. The bike/pedestrian program is staffed and administered by ten full-time staff which includes a bike/pedestrian coordinator and is housed in the NCDOT, DBPT. The bike/pedestrian program works in conjunction extensional with the NCDOT, as well as University of North Carolina, at Chapel Hill, and North Carolina State University.

Current educational programs implemented throughout the state include the Walkable Communities Program, Safe Routes to School, Share the Road Campaign, Walk a Child to School Program, a distribution of safety literature, and the North Carolina School Crossing Guard Training Program (NCSCGTP) implemented in 1998. The NCSCGTP consists of a one

day course in which students are taught about pedestrian laws, school crossing guards, and are given simulated practice exercises in which to act out. To date, twenty six people have been successfully trained in this program.

The education team assembled at DBPT develops and implements new programs, creates and distributes materials, provides support to community initiatives, trains teachers, conducts media awareness campaigns and promotes safe bicycling and walking. When asked if any of the educational strategies implemented had been evaluated to measure their effectiveness in reducing pedestrian injuries and fatalities, Mr. Norman identified a number of projects that had been studied though none of them directly or indirectly

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related to pedestrian safety, “however a statewide survey was conducted to gauge residents’ views on walking and bicycling in the state” (Tom Norman, personal communication, November 10, 2005).

As far as educational training opportunities for planners, engineers, government officials, etc. on pedestrian related safety issues, NCDOT sponsors Walkable Communities workshops, offers Pedestrian Planning & Design, Bike Planning & Design, hold conferences, and held the 2000 Safety Summit in Raleigh, N.C. which brought into discussion safety issues and interventions. Several initiatives were developed as a result of the summit, one of them dealing with pedestrian safety education programs. Priorities identified for pedestrians included developing safety information for distribution of targeted groups, conducting workshops on pedestrian laws for officials, and educating motorists about speeding and its impact on pedestrian injuries and fatalities.

When asked what factors help the organization succeed or fail in educating people about bicycle/pedestrian safety issues Mary Meletiou with NCSU suggested the establishment of partnerships. For failures, she suggested lack of money, staff, lack of partners, and the fact that it is hard to get programs into the schools due to the policies and guidelines (Mary Meletiou, personal communication, November 10, 2005). Mr. Norman, Director of the NCDOT, DBPT division felt that the willingness of certain schools to participate was a reason for success, while others were hindered by a lack of interest, compounded by a lack of educational awareness by parents on bicycle/pedestrian safety. “Parents don’t feel the need to educate their children” (T. Norman, personal communication, November 10, 2005).

Texas

Plan Review

The Texas Department of Transportation (TXDOT), Traffic Safety Section, oversees the state’s traffic safety program. Texas does not have a Bicycle/Pedestrian Safety Plan so the Highway Safety Performance Plan (HSPP) serves as the leading manual for all issues related to traffic safety projects. For the 2006 Texas HSPP the overall state goal was to reduce the number of motor vehicle crashes, injuries and fatalities (Texas HSPP, 2006). Texas developed 14 program areas, which produced 16 specific goals for the traffic safety program, 55 specific strategies, and 30 specific performance measures for years 2006 through 2010. Of the 16 specific goals identified only one directly relates to educational initiatives. The specific goals identified under Pedestrian & Bicyclist Safety are noted below, with recommended strategies.

Goal:

- To reduce the number of motor vehicle-related pedestrian and bicyclist fatalities.

Strategy:

- Improve public education and information on pedestrians and safe walking. (Texas HSPP, 2006).

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The bike/pedestrian program is administered by the Traffic Safety Section within TX DOT. The bike/pedestrian program works in conjunction with other divisions within TX DOT and Texas Bicycle Coalition (TBC). Current educational programs throughout the state include the Safe Routes to School program, Traffic Safety – Save a Life Program, and the Super College Program implemented by TBC.

For the purpose of this report, we were unable to interview the individuals in Texas most knowledgeable about the educational initiatives related to pedestrian safety and therefore were not able to obtain more specific information.

Key Informants

Texas was non-responsive.

3.5 Engineering

3.5.1 Introduction

Review of the case study states was conducted via two primary methods. The first method was to review general standards, manuals and handbooks to garner any useful information related to the topic of engineering for pedestrian safety. Additionally, highway safety plans, Federal supplements and any pedestrian plans of case study states were reviewed to better understand engineering-related activities as they relate to pedestrian safety within those states. (Appendix B) The second method was to interview key informants from case study states to garner additional information on engineering activities. Questions were developed for the case study states; notes from these interviews were then sent back to the informants for them to review and make changes as necessary. (Appendix C.1)

The selection of the informants was important because of the need to select people with ample knowledge of engineering activities within their respective states. The initial contacts were with the state traffic engineers or traffic safety engineers within the Department of Transportation of each state (Arizona, California, Georgia, New Mexico, North Carolina and Texas). (Appendix C.2)

Several attempts were made to contact the informants within the case study states and no response was received from the contacts in Georgia, California, North Carolina or Texas whereas the contact in New Mexico returned my call and told me he had no interest in participating in my survey. The contact in Georgia forwarded my voice mail and e-mail to the state Bike/Pedestrian coordinator who was extremely helpful. The informant in Arizona was also extremely helpful.

3.5.2 Case Study States

Arizona Plan Review

Review of the Statewide Bicycle/Pedestrian Plan, Phase I (2004) reveals that Arizona has similar recommendations as the Florida Pedestrian Safety Plan concerning sidewalks, intersection, and work zone safety.

Review of the Statewide Bicycle Pedestrian Plan, Phase II (2004): Phase II reveals that “Arizona has limited policies regarding pedestrian travel, generally providing pedestrian facilities only if the local jurisdictions through which the State facilities travel take on the liability and maintenance of the sidewalks”.

The sidewalk section of the Arizona’s Statewide Bicycle/Pedestrian Plan covers three of the eleven recommendations covered in the Florida Plan.

- Sidewalks should almost always be placed on both sides of a highway. (pg. 83)
- The minimum clear width for comfortable walking is five feet. Eight feet is needed for two pedestrians to pass two other pedestrians. (pg. 83)
- Sidewalks may be separated from traffic by five feet or more. The offset serves three essential purposes:
 - Comfort;
 - The ability to keep sidewalks level (two percent ADA requirement) through driveways; and
 - This provides an area in which to place signs and hydrants, keeping the sidewalk clear of obstructions. Sidewalks should typically not be offset more than five feet at intersections, where pedestrians need to be seen by drivers. (pg. 83)

Additionally, two new recommendations are made:

- Sidewalks at least eight feet wide in multi-family residential areas. (pg. 87)
- Sidewalks at least five feet wide in single-family residential areas. (pg. 87)

Within the intersection section, Arizona’s Statewide Bicycle/Pedestrian Plan covers two of the eleven recommendations covered in the Florida Plan.

Intersections

- Corner bulbouts provide for on street parking and shorter crossing lengths for pedestrians.
- Include ‘bulb-outs’ at intersections or roadway ‘neck-downs’ to reduce the crossing distance for pedestrians at intersections.

Work Zone

Chapter 6D “Pedestrian and Worker Safety” of the MUTCD outlines the pedestrian considerations necessary in work zones. Arizona Statute 28-641 requires the MUTCD to be followed with respect to traffic control devices.

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The following procedures are used by the ADOT to provide a walking route that minimizes the inconvenience for pedestrians:

1. Traffic control plans should be required that address pedestrian movements so that pedestrians are provided separation from construction activities, motorized vehicles, and bicycles.
2. The walking surface should not have a vertical edge greater than 0.4 inches (10 mm), without a temporary asphalt lip. The temporary asphalt lip should have a slope angle maximum of 3 horizontal to 1 vertical.
3. When sidewalks must be closed, appropriate signing must be placed just before the point at which pedestrians are being redirected to the opposite side of the street (see signs on following page). If a sidewalk is closed mid-block, warning and detour signs must be placed at the intersections to avoid dangerous mid-block crossings.
4. In some instances, pedestrians may be channeled through or around a construction area. A route without sudden changes in grade or terrain should be installed. Separate facilities for bicyclists and pedestrians should be considered. In these cases, crashworthy temporary traffic barriers must be in place to protect pedestrians from motor vehicles.
5. Fencing or other protective barriers are recommended around construction sites to prevent pedestrian access.
6. Covered, lighted walkways are needed to shield pedestrians from falling debris where structures under construction are adjacent to the sidewalk.
7. Where sidewalks exist, temporary facilities must be accessible to people with disabilities.

Key Informant

A phone interview was conducted with Mr. Sam Elters the State Engineer with the Arizona Department of Transportation on November 9, 2005.

Insight Provided by Key Informants

Arizona's Highway Safety Plan lists pedestrian safety as a major concern because Arizona is among the five states highest in pedestrian and bicycle deaths each year. The Highway Safety Plan (pg 10) lists the following as recommendations to improve pedestrian safety:

- Identify locations with a disproportionately large number of fatal and serious injury pedestrian and bicyclist crashes.
- Develop standard operating procedures for roadway improvements including the use of sidewalks, crosswalks, and roadway and pedestrian lighting.

California Plan Review

The State of California does not have a Pedestrian Safety Plan

An Analysis of Pedestrian Safety Programs

The State of California's Highway Safety Plan consists mostly of efforts to improve Pedestrian Safety through Education and Enforcement. Engineering appears to be a side note. The following are the stated goals of the California Highway Safety Plan with respect to Pedestrian Safety:

- Reduce the total number of pedestrians killed by five percent from the base year 2002. (702 to 667 by December 31, 2005)
- To reduce the total number of pedestrians injured by three percent from the base year 2002. (14,377 to 13,946 by December 31, 2005)
- To reduce the number of pedestrians killed under age 15 by eight percent from the base year 2002. (60 to 55 by December 31, 2005)

The Engineering Components California believes the following will assist them in achieving the stated goals:

1. To support the acquisition of lighted crosswalk devices to be installed by the agency at non-signalized intersections and mid block crossings,
2. To encourage engineers to consider traffic calming designs and equipment to promote pedestrian and bicycle friendly environments
3. To encourage engineers to work in conjunction with local law enforcement agencies to improve pedestrian and bicycle safety in their community.

Bike and pedestrian safety is a major concern and California is approaching the issue from an education/enforcement perspective but little is mentioned about how engineering can improve pedestrian safety. The following engineering strategies are recommended in the Highway Safety Plan:

- "Support the acquisition of lighted crosswalk devices to be installed by the agency at non-signalized intersections and mid block crossings coupled with a public information component to highlight the proper use of these devices as well as their efficiency".
- Control motor vehicle speeds in neighborhood, school, and shopping areas.
- Plan and design neighborhoods to reduce the threat of traffic collisions with pedestrians and bicyclists.
- To encourage engineers to consider traffic calming designs and equipment to promote pedestrian and bicycle friendly environments.
- To identify causes of pedestrian or bicycle crashes through the improvement of the collection of data.
- To encourage engineers to work in conjunction with local law enforcement agencies to improve pedestrian and bicycle safety in their community

Key Informants

Mr. Don Scheel, Standard Specifications, California Department of Transportation
Mr. Ken McGuire, Bicycle Facilities Unit, MS 1, California Department of Transportation

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I contacted Mr. Scheel on several occasions via phone and e-mail and he never returned my calls or responded to my e-mails.

I contacted Mr. McGuire on December 29, 2005 to inquire about the existence of a Pedestrian Advisory Committee. Mr. McGuire's contact information was listed on the California Department of Transportation's Bicycle Advisory Committee (CBAC) website.

According to Mr. McGuire, the California Pedestrian Safety Program is a program that resulted from Assembly Bill 2522 known as the Pedestrian Safety Act of 2000. The California Bicycle Advisory Committee (CBAC) was started through a Federal grant and is composed of thirteen members who represent various California agencies and organizations. The Pedestrian Advisory Committee has between 10 and 12 members and was also started through a Federal grant. The grant money ran out in 2004 but the Committee has remained because of the dedication of the members. Both advisory committees have a wide range of members from DOT to the Department of Health and the Center for Physical Activity. He feels the diversity of the committees adds to their success in providing guidance to Caltrans on bicycle issues.

Georgia **Plan Review**

Georgia's Statewide Transportation Plan states that "bicycle and pedestrian infrastructure improvements will facilitate walking and/or bicycling as a mode of transportation. Improvements to bicycle and pedestrian facilities will provide the residents of Georgia with better transportation choices, relieve congestion, improve the quality of life and provide a low-cost transportation service. The cost for the bicycle and pedestrian program is included in the cost of the highway program."

The State of Georgia's Pedestrian & Bicycle Streetscape Guide (2003) covers many of the recommendations covered in the Florida Plan and of the state plans evaluated, has the greatest number of engineering recommendations. In addition, the guide has many recommendations which the Florida plan does not mention.

Sidewalks (Toolkit 5)

- For two people walking side-by-side the minimum required distance is 4 feet 8 inches with adequate buffer areas on either side. The desirable width that best serves two pedestrians walking together or passing each other is six feet.
- In most cases, it is desirable to provide sidewalks on both sides of streets used by pedestrians.
- **Highway (rural)** Min. 5-foot shoulder and secure/preserve ROW for future sidewalks

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- **Highway (rural/suburban)** One side preferred and secure/preserve ROW for future sidewalks
- **Suburban Highway (1 to 4 d.u./acre)** Both sides preferred. One side strongly recommended
- **Major Arterial (residential)** Both sides
- **Collector and Minor Arterial (residential)** Both sides
- **Local Street (residential)** One side preferred and secure/preserve ROW for future sidewalks
- **Local Street (residential) 1 to 4 d.u./acre** Both sides
- **All Streets (commercial areas)** Both sides
- **All Streets (industrial areas)** Both sides preferred

Intersections (Toolkit 6)

- Georgia follows the recommendations of AASHTO the MUTCD and ITE.
- RTOR is allowed by Statute.
- Medians and refuge islands are generally most necessary where the length of crossing exceeds 60 feet.
- Curb bulbouts and extensions at intersections and midblock crossings may help to slow traffic by narrowing the street. They should be considered where on-street parking exists.
- GDOT prefers parking spaces to be at least 20 feet from crosswalks or stop signs.
- *The ITE Design and Safety of Pedestrian Facilities* recommends that parking be restricted within 50 feet of all intersection crossings where the speed of travel on the street is 35 to 45 mph, and be restricted within 100 feet at intersections on streets where the speed of travel is above 45 mph and at midblock crossings
- Pedestrian signals head should adhere to MUTCD Standards.
- The walking speed normally used by GDOT for calculating pedestrian walking time is 4 feet per second, GDOT recommends using 3.5 feet per second when there is a known presence of slower pedestrians (including elderly and people with mobility impairments)

Crossings (Toolkit 7)

Georgia uses *The ITE Design and Safety of Pedestrian Facilities* for guidance on crossings and the *MUTCD* for signage at all crossings.

Mid-block crosswalks should generally be avoided under the following circumstances (unless they are stop controlled):

- Immediately downstream (less than 300 feet) from a traffic signal or bus stop where motorists are not expecting pedestrians to cross.
- Within 600 feet of another crossing point except in central business districts or other locations where there is a well defined need.
- On high speed streets with speed limits above 45 mph.
- Pedestrian actuated signals should be considered in locations where pedestrian walk routes cross major arterials or other high volume or high speed facilities.

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Key Informants

- Mr. Keith Golden, P.E. State Traffic Safety and Design Engineer, Georgia Department of Transportation
- Ms. Amy Goodwin, State Bicycle and Pedestrian Coordinator, Office of Planning

Insight Provided by Key Informant

Mr. Keith Golden, P.E. State Traffic Safety and Design Engineer, Georgia Department of Transportation was my initial contact. I left three messages for him on November 9, 14 and 16, 2005. I then sent him an e-mail with the questionnaire attached on November 17, 2005. On December 19, 2005 Amy Goodwin, State Bicycle and Pedestrian Coordinator, Office of Planning contacted me via e-mail and said the Mr. Golden had forwarded my contact information to her. I contacted Ms. Goodwin the same day via phone.

Ms. Goodwin characterized Georgia's efforts to reduce pedestrian related injuries as poor. She stated Georgia has "many multi-lane roadways with no sidewalks and up to a mile between protected signalized crossings." Additionally, "new construction projects are doing better at incorporating bike and pedestrian facilities and the department is working on some projects to improve safety such as adding medians and pedestrian refuge islands."

New Mexico Plan Review

Review of the New Mexico Highway Safety & Performance Plan revealed no information relative to the issues covered in the 1992 Florida Pedestrian Safety Plan.

Review of the State Highway Access Management Requirement reveals requirements relative to the *Americans with Disabilities Act*:

ADA: Where pedestrian use may be expected across an access point, the vertical and horizontal design characteristics of the access shall be designed in accordance with the *Americans with Disabilities Act* (Sub-Section 9.J) and applicable New Mexico State Highway and Transportation Department (NMSHTD) standards (Paragraph 18.P.3).

ADA: Non-motorized facilities shall be designed in accordance with the *Americans with Disabilities Act* (see Sub-Section 9.J) and applicable NMSHTD standards. Curb ramps shall be provided on urban sections where sidewalk and curb returns exist.

- a) **Ramps:** Access/curb ramps should be no steeper than 12:1 except on roadways with grades steeper than +6%. Where a road grade exceeds +6%, the maximum ramp length should be 25 feet. For steep down grades, the minimum ramp length should be 3.5 feet. Table 18.P-1 contains ramp lengths based upon a 6-inch barrier curb height. The equation for Table 18.P-1 is $H_c/(0.08333-G)$ where H_c is the

An Analysis of Pedestrian Safety Programs

- curb height (in feet) and G is the grade of the roadway, access, or sidewalk. Curb ramps should be designed using the applicable NMSHTD standard drawings.
- b) **Curb Return Radius:** If the curb return radius is less than or equal to 20 feet, directional ramps should be installed. If the curb return radius is greater than 20 feet, diagonal ramps may be installed in the middle of the radius. This recommendation is contrary to the Florida recommendation “Install two pedestrian curb ramps per corner as near as possible to the pedestrian pushbutton, to aid the handicapped, sight impaired, persons with strollers, etc. in crossing at crosswalks. A single ramp design is not desirable as it will direct pedestrians into through traffic.”
- c) **Signalized Access:** Where an access is signalized, curb ramps should be provided in all quadrants of the intersection.

Sidewalks:

Sidewalks should be constructed along both sides of urban arterial and collector state highways. Sidewalks are required where they exist on adjacent properties to maintain consistency along the highway facility. Sidewalk widths should match existing adjacent sidewalk widths, but in any case shall conform to all federal, state, and local regulations and ordinances. (New Mexico Highway Access Manual, 2001, Section 18, pg 98)

Key Informants

- Mr. Robert Ortiz, Deputy Secretary of Highway Operations, New Mexico Department of Transportation
- Mr. Alvin Dominguez, District 1 Traffic Engineer, New Mexico Department of Transportation

Insight Provided by Key Informants

I contacted Mr. Ortiz numerous times via voice mail and e-mail with no response. On November 30, 2005 I made contact with Mr. Ortiz via telephone at which time he informed me he was not interested in participating in the survey. I then tried to establish contact with Mr. Dominguez via voice mail and e-mail. On December 7, 2005 Mr. Dominguez informed me he had been instructed not to participate in the survey by Mr. Ortiz.

North Carolina Plan Review

North Carolina formally adopted the AASHTO Strategic Highway Safety Plan as their state plan and made modifications as appropriate.

An Analysis of Pedestrian Safety Programs

As part of the long-range planning process for the Office of Bicycle and Pedestrian Transportation, the University of North Carolina Highway Safety Research Center (HSRC) developed an inventory of bicycling and walking facilities such as bicycle lanes, multiuse paths, wide curb lanes, paved shoulders, greenways, and sidewalks, as well as amenities like bicycle parking racks in communities throughout North Carolina. .

Sidewalks shall be required for all new construction and for renovations, additions and/or expansions to existing structures which fall into one of the following categories:

- (1) All new single family residential development which consists of 20 or more single family homes;
- (2) All new multi-family residential development, except for the construction of less than ten units;
- (3) All new office, institutional, commercial, and industrial development;
- (4) All existing office, institutional, commercial, and industrial development additions or expansions to structures where the expansion results in an increase of more than 50 percent value of the structure as defined in section 7-11-2(b)(1)a of this chapter.
- (5) All new streets, improved streets or extension to streets.

Key Informants

- Mr. J. Kevin Lacy, PE, CPM, State Traffic Engineer

Insight Provided by North Carolina Key Informants

- I received no response from this contact.

Texas Plan Review

The State of Texas does not have a state bicycle and pedestrian plan.

Review of the *Texas Highway Safety Performance Plan* revealed the following:

The goal of the *Texas Highway Safety Performance Plan* is to “use information, data, technology, resources, and skills to identify priority traffic safety issues, plan initiatives, generate coordinated action, and evaluate and communicate results”. (pg. 103)

Stated Goals, Objectives and Strategies

An Analysis of Pedestrian Safety Programs

Goal:

- Reduce the number of motor vehicle-related pedestrian and bicycle fatalities.

Objectives:

- Reduce the number of motor vehicle-related pedestrian fatalities from 1.75 motor vehicle-related pedestrian fatalities per 100,000 population (2003 FARS) to no more than 1.72 motor vehicle-related pedestrian fatalities per 100,000 population by September 30, 2006.

Strategies:

- Improve identification of problem areas for pedestrians
- Increase pedestrian “walkability” of roads and streets
- Improve data collection on pedestrian injuries and fatalities
- Improve public education and information on pedestrians and “safe walking”

Texas is the only case study state to mention training. They have put together the Pedestrian Safety Workshops/Partnership for a Walkable Texas to conduct pedestrian safety audits, Pedestrian Safety Road shows, and train-the-trainer sessions in communities to facilitate improvements in the “walkability” of their towns and improve pedestrian safety by separating motor vehicle and pedestrian traffic. I found no mention of the success of this program.

Key Informants

- Mark Marek, P.E., Director, Design Division TXDOT

Insight Provided by Texas Key Informants

I received no response from Mr. Marek.

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3.6 Implementation

3.6.1 Introduction

Funding through the Federal government's Sections 402 and Section 163 grant programs provides the primary treatment methods of meeting the goals and objectives of the Florida Pedestrian Safety Plan. This case study examined other states with similar conditions in order to determine their uses of the Section 402 and Section 163 grant programs and to determine their practices, outcomes, and results. Other state's highway safety plans and pedestrian safety plans were examined to determine methods of funding pedestrian initiatives and to look for any correlation between the afore mentioned grant programs and the implementation of the state pedestrian safety plans. In addition, the current Florida Pedestrian Safety Plan has four paragraphs concerning funding with no real specifics of what is available and of what type of funding is applicable to a specific type of desired result.

3.6.2 Cases

Arizona

Plan Review

The Arizona Statewide Bicycle and Pedestrian Plan contains a section referring to existing and potential funding sources which refer to various Federal, state, regional, and local funds that can be utilized to implement the plan. The focus of the listed funding sources is for, "the primary funding sources available for design, construction, implementation, and maintenance of bicycle and pedestrian facilities and implementation of safety programs" (Arizona Statewide Bicycle and Pedestrian Plan, 2003, p.146). Under a section concerning Federal revenue funds, the plan does mention Section 402 Highway Safety Funds, though the main comment was that "This source of funding has been utilized successfully across the U.S. to pay for start-up costs of bicycle and pedestrian education courses, primarily for children" (Arizona Statewide Bicycle and Pedestrian Plan, 2003, p.148). The emphasis of the Arizona Plan seems to be funding the improvement of facilities such as additional sidewalks, bikeways, and shared-use facilities. This is not a use authorized under Section 402 or Section 163. Because the plan is focused on construction, these funding sources seem to play a small part in the overall implementation of the plan. The disconnect may associated that the plan was produced by the Arizona Department of Transportation and the Section 402 grant program is administered through a separate state agency, the Arizona Governor's Office of Highway Safety (GOHS).

The transportation safety plan for the State of Arizona makes no mention of funding and contains a small section on improving pedestrian and bicyclist safety. The strategies in improving safety are linked to engineering, enforcement, and education.

An Analysis of Pedestrian Safety Programs

The State of Arizona provides yearly a proposal guide which presents instructions and guidance for projects funded under the highway transportation safety act, specifically Section 402 safety funds previously available Section 163 funds. Arizona's rules and instructions closely resemble the Federal guidelines with one addition. All the allowable program funding areas are listed, and then the state lists its preferences for the year's grant cycle. For instance in 2006, preference will be given to projects focused on "1. Speed: Exceeding maximum posted, not reasonable and prudent, School Zones, and Aggressive Driving; 2. Impaired Drivers (over and under 21 years): Youth Alcohol Violations and Holiday DUI Task Forces; 3. Occupant Protection: Seat Belts and Child Safety Seats; 4. Emergency Medical Services: Extrication equipment and 5. Traffic Records" (Arizona FY 2006 Proposal Guide, 2006, p. 5).

Bicycle and pedestrian programs did not make the list of focus areas for the state in 2006, and this suggests that they will be very low on the list of ranked if they are funded at all. In summary, the bicycle and pedestrian safety programs in Arizona appear to be focused on the construction of facilities. Section 402 grants are generally not employed to construct structural improvements.

Key Informants

- La Retta Lehan, Program Manager at the Arizona Governor's Office of Highway Safety (GOHS)

Insights Provided by Key Informants

Ms. Lehan provided several key insights in regards to the State of Arizona's involvement with bicycle and pedestrian initiatives tied to the Section 402 and Section 163 grant funds. The Section 163 grant program was treated like the 402 grant program, which was similar to the State of Florida. Arizona was funding an average of 40 Section 163 grants a year, though not much, if any, of the Section 163 funding went towards pedestrian and bicycle safety program uses. The funds were being used in the other approved NHTSA program areas that addressed enforcement issues. (L. Lehan, personal communication, November 11, 2005)

In 2005, approximately \$2.5 million was funded for all Section 402 grants in the State of Arizona and approximately \$53,552, or two percent was spent in the pedestrian and bicycle safety program section. It is estimated that \$2.7 million will be received in 2006 and \$39,000, or 1.4 percent will be spent on bike/ped programs. The overall amount of funding spent by Arizona on pedestrian and bicycle safety programs using Section 402 funding is less than five percent. The largest Section 402 funded program areas in Arizona are police traffic services, EMS services, and driving under the influence (DUI)/alcohol programs. (L. Lehan, personal communication, November 11, 2005)

An Analysis of Pedestrian Safety Programs

Grants are limited to one year. Most applicants do resubmit for multiple years, up to three, but rarely is an initial grant funded that has a continuing funding period of multiple years. The Governor's office of highway safety annually reevaluates their funding situation and past performance of the grantee in meeting compliance is reviewed to determine if funding should be extended past the first year. In Arizona, the state provides the match to the federal dollars and the program does not require a match in any year of funding from local recipients. (L. Lehan, personal communication, November 11, 2005)

The GOHS provides priority areas for funding, meaning that the agency lists in their proposal guide, the NHTSA program areas being promoted in a given year. Sub-grantees submit proposals based on that information. Ms. Lehan said that the current year's focus areas were "impaired driving, occupancy protection, EMS service, traffic records and aggressive drivers/speeders" (L. Lehan, personal communication, November 11, 2005). The eligible applicants are those approved by NHTSA and numerous grants are going to local law enforcement and transportation agencies and county road departments for funding for signage or education programs. The majority of program requests are for law enforcement, in all categories, bike/ped included. The target population for the state in funding any program, according to Ms. Lehan is on motorists. (L. Lehan, personal communication, November 11, 2005)

Ms. Lehan believes that the counter measures being funded through safety grants are having an effect on pedestrian and bicycle safety. On the issue of coordination with the bike/ped coordinator and pedestrian and bicycle safety grants, Ms. Lehan stated that, "the state is in the process of re-establishing a bicycle/pedestrian advisory council through an Executive Order issued by the Governor" (L. Lehan, personal communication, November 11, 2005). Once the council is in place, the agency may have more of a focus on bike/ped issues and place this category on the preference project list.

California

Plan Review

The California Blueprint for Bicycling and Walking, which was drafted in May 2002, is the acting statewide bicycle and pedestrian plan. This document contains a section referring to funding sources that refers to various local, state, and Federal funding available. The focus of the funding sources that are listed is projects for, "innovative lighted pedestrian crosswalks to more conventional on-street and off-street bikeways, all of which contribute to development of a comprehensive system of non-motorized transportation facilities" (California Blueprint for Bicycling and Walking, 2002, p.29). This would seem to signify that the plan places a heavy emphasis on engineering measures to effect the bicycle/pedestrian safety situation. Under a

An Analysis of Pedestrian Safety Programs

section entitled “Federal-aid Funds”, the Transportation Equity Act for the 21st Century (TEA-21) is mentioned, but the plan does not mention Section 402 highway safety funds specifically. Overall, the plan focuses on a variety of other local, state, and Federal grants that provide significant funding for more structural changes. Similar to Arizona there is an institutional disconnect between the allocation of the state’s safety funds and the plans. The plan was drafted by Caltran, the California Bicycle Association, and the Rails-to-Trails Conservancy. The Section 402 funding is administered through the California Office of Traffic Safety.

The *2005 Highway Safety Plan* for the State of California reports data on the allocation of the state’s safety grants. The plan’s goal section separates bicycle and the pedestrian categories into different study areas. There are also subsections of each category that detail separate approaches to fatalities and non-fatal injuries separately. The California plan also attempts to assess the different levels of vulnerability of different populations. It should be noted that the State of California receives more transportation funding than any other state in the country and in this study, and this money can be used for administrative uses, such as drafting their highway safety plan. Their average 402 funding from 1998-2004 was \$16.6 million.

According to the plan, “The following overall action plan would prompt a behavioral change toward realizing the goal of a safer environment for bicyclists and pedestrians: 1. Driver Behavior: Ensure that all drivers are careful and responsible; 2. Vehicle Speeds: Control motor vehicle speeds in neighborhood, school, and shopping areas; 3. Environmental Design: Plan and design neighborhoods to reduce the threat of traffic collisions; and 4. Enforcement: Improve policing and enforcement” (California Highway Safety Plan, 2005, p. 05-PS-3). It should be noted that first addressing driver behavior is how the agency approaches improving safety for bicyclists and pedestrians.

The agency encourages applicants to remember or include this list when applying for funding, or in their words, “To achieve the greatest potential for reducing fatalities and injuries, OTS recommends grantees consider the following countermeasures when preparing their project agreements” (California Highway Safety Plan, 2005, pg 05-PS-4). So, similar to Arizona, the state is giving direction to the types of projects they would like to receive. Section 402 grant funding will be given to projects focusing in one of the four areas and programs that highlight or address these sections: driver behavior, vehicle speed, environmental design, and enforcement are the types of pedestrian and bicycle programs they are looking to fund.

Key Informants

- Michelle Meadows, Acting Assistant Director for Program Planning & Operations for the California Office of Traffic Safety (COTS)

An Analysis of Pedestrian Safety Programs

Insights Provided by Key Informants

Ms. Meadows provided valuable information in regards to the State of California's involvement with bicycle and pedestrian initiatives and Section 402 and Section 163 grants. The Section 163 grant program for the State of California received \$7,145,574 in FY 2005, but the Section 163 grant program did not fund grants for specific purposes of reducing pedestrian fatalities and non-fatal injuries. Instead Section 163 grant programs were used on DUI and other alcohol-driver related programs. (M. Meadows, personal communication, November 10, 2005)

The State of California received \$14,777,233 in Section 402 funding for FY 2005 and according to their annual performance report, 9.4 percent went to pedestrian and bicycle safety program. In comparison, Florida received \$7,347,812 in Section 402 in 2005 and spent 16 percent in the pedestrian and bicycle safety program area. Florida is receiving less money but is spending proportionally more money on bike/ped category prevention. According to Ms. Meadows, a large amount of the California Section 402 bicycle and pedestrian grant program funds are going to local municipalities and school districts for education or enforcement grants. The enforcement grants usually have an education component tied into them. Ms. Meadows stated that, "no enforcement grant would be awarded that focused on just writing citations" (M. Meadows, personal communication, November 10, 2005).

The average grant length is two years with a three month start up period for hiring and purchasing and a three month close down period for reporting and consolidation of the agency program. From the large number of requests each year, and the numbers that must be denied, a shorter funding period allows more groups to eventually receive funding. (M. Meadows, personal communication, November 10, 2005) Matches are not required in the California program, according to Ms. Meadows "most of the grants are soft matches and are not auditable so there is no official documentation of the match" (M. Meadows, personal communication, November 10, 2005).

Ms. Meadows explained that all the project areas were predominantly focused on enforcement and education and this was evident by the amount of enforcement funding being provided. There were two application processes. The "grants made easy" application for those in law enforcement is more structured and streamlined and was not a concept paper application process. This process eases grant administration. Ms. Meadows stated that this new format, "reduces somewhat the creativity of the applicant being able to best decide the solution, but the volume of applicants was becoming a concern" (M. Meadows, personal communication, November 10, 2005). Outside of grant applications for law enforcement agencies, a concept paper was required of other applicants.

Eligible applicants are those listed by federal guidelines with one exception. In the California system non-profits cannot apply independently; they must be hosted by a political jurisdiction according to California regulation. The California 402 grant program funds are predominantly

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going to enforcement agencies, local municipalities, and school districts. (M. Meadows, personal communication, November 10, 2005)

Finally, Ms. Meadows believes that an impact is being made on pedestrian and bicycle safety, especially with children's outreach programs. The program and the Office of Traffic Safety coordinate with CALTRAN and have a seat on their bike/ped task force, so a regional connection and link is being pursued. (M. Meadows, personal communication, November 10, 2005)

Georgia

Plan Review

Information pertaining to Georgia comes exclusively from plan review. Several attempts were made to speak with the grants coordinator of the Georgia highway safety grant program, regarding the Section 402 and Section 163 grant programs, but the actual interview did not occur.

The State of Georgia currently does not have a bicycle/pedestrian plan. An initial bicycle route plan has been produced which does not contain a pedestrian component. There is a current bicycle/pedestrian plan under development, and it is slated to be completed in the Spring of 2006. (A. Goodwin, Electronic correspondence, October 21, 2005)

The *2006 Georgia Office of Highway Safety – Highway Safety Plan* lists the priority area goals for the state as being “1) Increase the rate of observed safety belt use from 87% to 90% for drivers and front seat outboard passengers. 2) Reduce the alcohol-related fatality rate from 0.45 to 0.43 fatalities per 100 million vehicle miles of travel. 3) Reduce the percentage of speed-related fatal crashes from 21% to 19%. 4) Develop and begin implementing a strategic action plan for traffic records improvements. 5) Reduce the pedestrian death rate from 1.80 to 1.70 fatalities per 100 thousand population” (Georgia Highway Safety Plan, 2006, pg 05). The identification of a pedestrian safety goal in the plan is notable..

This highway safety plan does make available electronically lists of funded projects, the amounts funded, broken up into the various funding categories. It also uses this document to explain and announce the grant process. The document explains that in Georgia, the agency uses an “internal epidemiologist to aggregate and correlate motor vehicle related data...and from the epidemiologist's analysis, Georgia highway safety crash data is ranked by county” (Georgia Highway Safety Plan, 2006, p. 11). “The areas considered in this analysis include speed, impaired driving, pedestrian, motorcycles, and bicycle. Governor's office of highway safety utilizes this information to identify a list of jurisdictions with high numbers of traffic safety deaths, injury and crashes. GOHS purges the lists and contacts jurisdictions to seek interest/support in addressing the problems/gaps identified in the analysis” (Georgia Highway

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Safety Plan, 2006, p. 05). The state goes to the areas of high risk and works with groups and municipalities in the area to develop grants to address the problems. This approach is quite different from other states such as Florida, which wait for applicants to come to them when the grant funding cycle is open. They do not go out to the municipalities, school districts, law enforcement and health agencies in the high crash areas and work on developing grants to address their specific problems. The use of the epidemiologist's report, which looks at all factors in ranking crash data including pedestrian and bicycle features, is important because the primary areas of these occurrences can be targeted for grant projects.

Georgia also reports data into separate pedestrian and bicycle categories rather than combining these into joint units of analysis. This may be important in ensuring that money is spent in bicycle or pedestrian areas, wherever the greatest needs occur. It can be difficult to accurately capture what is affecting a specific group if there is a general goal of reducing bicycle and pedestrian fatalities and non-fatal injuries.

Key Informants

Georgia was non-responsive

New Mexico

Plan Review

The *New Mexico Bicycle-Pedestrian-Equestrian Advisory Plan* makes no mention of specific funding or of a funding strategy that is to be used to implement the plan. There is no discussion of finances found anywhere in the document. The plan appears to focus heavily on various recommendations in the three program areas and the strongest focus is in Engineering, Planning, and Maintenance. The plan so highly geared toward altering the physical landscape that there were examples of streetscapes, signage, and ADA accessibility requirements provided in the document. (New Mexico Advisory Plan, 2003)

The New Mexico highway safety and performance plan outlines projects that have been funded by the Traffic Safety Bureau and it addresses each one and discusses its objectives and activities. The 2005 plan specifically discusses four varying programs, all four of which have ties to the University of New Mexico. (New Mexico Advisory Plan, 2003, p. 63) The overall approach appears to be that New Mexico is aware of a serious problem and is working towards reducing the number of fatalities and non-fatal injuries to pedestrians, many of which are associated with alcohol related incidents. Their plan is divided into separate reporting sections for pedestrian and bicycle activities and the specific section addressing the pedestrian and bicycle safety programs describes the overall problem and sets goals to be achieved.

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Key Informants

- Mike Pope, Bureau Chief for the New Mexico Traffic Safety Bureau

Insights Provided by Key Informants

Mr. Pope discussed several aspects of the State of New Mexico's involvement with bicycle and pedestrian initiatives tied to the Section 402 and Section 163 grants. The Section 163 grant program is treated like the 402 grant program, as it is in Florida, and any program section area can apply for funds; priority is not given to alcohol related programs. The Section 163 grant program funded about \$250,000 worth of projects in 2006, none of which were pedestrian and bicycle safety related. It was predominantly used to fund enforcement and administrative uses. Examples of funded projects include salary funding for special enforcement on holidays, impaired driving programs, operation buckle down, the annual report, and administrative tasks. (M. Pope, personal communication, November 14, 2005)

The State of New Mexico's 2006 highway safety funding program had a budget of approximately \$13 million dollars and that included all federal sources provided by TEA-21. The amount of money being received and awarded by the state has been increasing. In 2006, there were twenty-five Section 402 grants awarded, and four were for pedestrian and bicycle safety programs. The average awarded grant amount was \$125,000. Historically, the 402 funding has been awarded to law enforcement organizations, with the funding for bicycle and pedestrian uses also going to applicants in law enforcement, with some bike/ped grants going to universities. The bicycle and pedestrian programs, even when received by enforcement agencies, have tended to tie in an educational focus. (M. Pope, personal communication, November 14, 2005)

A typical awarded grant period is for one year and can be renewed for up to four years. Most agencies reapply for multiple years. After four years the agency can amend the project and reapply. The amount of match required varies among programs. (M. Pope, personal communication, November 14, 2005)

To determine the specific program areas that are the focus of funding efforts, a pre-plan is formulated in-house on specific areas of concentration. "The New Mexico highway safety and performance plan describes what will be funded by the agency and is the application" (M. Pope, personal communication, November 14, 2005). Funding goes to eligible groups such as public agencies, non-profits, local universities, and enforcement agencies.

Mr. Pope does not believe that the countermeasures being funded through Section 402 are having an effect on bike/ped safety. They are currently beginning into a statewide comprehensive safety plan process and looking at issues with various partners such as the courts, state police, and DUI

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programs. In Mr. Pope's opinion, that effort will have a greater impact on increasing safety. When asked about coordination and interaction between the bicycle and pedestrian coordinator and the 402 bicycle and pedestrian safety program during the interview, Mr. Pope turned the question over to Ms. Juliette Armijo-Pana, the pedestrian enforcement specialist, who was present in the room. She stated that the two groups worked very closely together and were in contact on a daily basis. The level of coordination is extremely high in the New Mexico office.

North Carolina

Plan Review

The document, *Walking and Bicycling in North Carolina – A Long Range Transportation Plan* was prepared by the North Carolina Department of Transportation, Division of Bicycle and Pedestrian Transportation in 1996. The document discusses various implementing funding sources for the plan. For instance, the North Carolina Transportation Improvement Program (TIP), which provides state monies for planning, design, and construction. Though in order to be eligible for TIP, a project must be on the Local Transportation Improvements Program (LTIP) which is prepared by the MPOs. Improvements made for pedestrians or bicyclists can be part of a TIP highway construction project. Once a project is on the TIP list, it goes through the Highway Design Branch which does basic designs, holds public meetings, and works out right-of-way and construction preliminary details. The approach to funding pedestrian and bicycle improvements is very engineering and design based, which is somewhat different than the goals that can be met through the Section 402 grant program. (Walking and Bicycling in North Carolina, 1996, p. 18)

This document also refers to a Federal Aid Construction program that receives funding each year (approximately \$2.5 million), though it is not received in a lump sum but on a project-by-project basis. This funding source is cumbersome and heavily restricted by Federal reporting guidelines. There are problems created in budgeting the local match and construction if often delayed and further funding is put on hold. At the time of publication of the *Walking and Bicycling Transportation Plan*, the "annual bicycle requests for TIP funding from localities total over \$20 million, and pedestrian requests are anticipated to be even higher" (Walking and Bicycling in North Carolina, 1996, p. 90). This document contains recognition of funding available and the need for continued funding sources. It does not specifically mention Section 402 or Section 163. The plan emphasizes construction/engineering based programs and they have found a way to spend significant funds on making environmental changes.

The North Carolina highway safety plan for fiscal year 2006 was produced by the Governor's highway safety program and provides separate sections of analysis for different funding sources and funding types. There is a section on all .08 Per Se Incentive grants which are funded with Section 163 funds. There is a separate section for Pedestrian/Bicycle Safety grants that are funded through Section 402.

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The sections contain little analysis or program description. They provide data sheets of each individual funded project and there is no total analysis of how much was spent overall or on what type of program. For instance, the Section 163 grants were all funded to Law Enforcement Agencies, there were 20 in total and they funded predominantly equipment and officer training. All these grants were used for the reduction of Driving While Intoxicated (DWI) and are not linked to bicycle and pedestrian uses, unlike Arizona and Florida. The funds, which totaled \$473,963, the largest being for \$113,000 to buy motorcycles, were not used in a similar manner to 402 grant monies.

The section concerning pedestrian and bicycle safety grant provides a thorough problem statement and goes into discussions on causation factors such as temporal and environmental factors. It also looks at profile information on pedestrian characteristics in regards to age, race, and gender. Finally, it looks at the types of roadways where crashes are occurring that involve pedestrians and provides a list of crash types and countermeasures. No tabulation of grants spent in the pedestrian and bicycle safety areas were provided in the document.

Key Informants

- Don Nail, Deputy Director of the North Carolina Governor's Highway Safety Program

Insights Provided by Key Informants

Mr. Nail from the Governor's Highway Safety Office was interviewed in regard to bicycle and pedestrian initiatives tied to the Section 402 and Section 163 grant funding. The Section 163 grant program is treated like Section 402 funds, and it predominantly finances law enforcement programs related to alcohol and police/traffic service projects. Mr. Nail could recall one Section 163 grant that addressed the pedestrian and bicycle program area, and it had funded the distribution of bicycle helmets and a bike study. (D. Nail, personal communication, November 7, 2005) The State of North Carolina received \$1,975,864 in 2005 for Section 163. (NHTSA, 2005)

According to Mr. Nail, a very minimal amount, less than 5 percent of all Section 402 funding, is allocated to bicycle and pedestrian safety programs and that amount has decreased overtime. The Section 402 grants are used predominantly to fund full-time personnel positions in law enforcement agencies and to purchase equipment, though it cannot be used to fund overtime for officers. (D. Nail, personal communication, November 7, 2005) North Carolina received \$4,086,135 in Section 402 funds in FY 2005. (NHTSA, 2005)

The majority of the grants, 150 to 200 a year, are awarded to law enforcement agencies. Mr. Nail estimated that about 10% is spent on education and other programs such as Child Passenger Training and School Bus Education Training. This pattern would coincide with the goals of the agency, which are to increase seat belt use, increase child safety seat use, decrease fatalities and

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non-fatalities (predominantly in automobiles), and to decrease teenage and Hispanic crash numbers. (D. Nail, personal communication, November 7, 2005)

Grants are awarded for one year, for up to three years, and most applicants do reapply for all three years. The State of North Carolina has a fairly rigid matching funds system in place. In the first year the grant will pay up to 100% for personnel and 75 percent of other costs, a 25 percent match is required for other costs. The second year provides up to 75 percent for personnel and 50 percent for other costs. The third year provides up to 50 percent for personnel and 25 percent for other uses. The system of match requirements is geared toward funding positions and this would seem to be a direct link to the majority of funds going towards personnel costs, the incentive is in place to request that type of funding program. (D. Nail, personal communication, November 7, 2005)

To determine who is awarded funding, the Safety Office has the required project concept paper applications reviewed by grant specialists for designated regions. They rank the applications based on overall numbers for crashes and injuries and for alcohol impaired crash and injuries. The specialist meets with the Director, the Deputy Director: Mr. Nail, the Manager for Planning and Programming. Projects are then chosen to be funded, not funded, or revisited as additional funding becomes available. Eligible applicants include all government agencies and other categories approved by NHTSA for the Highway Safety Program funds. (D. Nail, personal communication, November 7, 2005)

On the overall challenge of improving bicycle and pedestrian safety, Mr. Nail stated that he was not concerned with the level of federal funding being received for that use, as he is involved with the decisions of where to spend funds. When initial construction of roadways occurs, the construction money and designs may not include bike lanes or paths. He also mentioned that the new bike/pedestrian coordinator is more focused on construction issues which look at behavioral effects and is less coordinated with the Section 402 grant program. (D. Nail, personal communication, November 7, 2005)

Texas

Plan Review

The State of Texas does not have a Bicycle and Pedestrian Plan.

The 2006 Texas Highway Safety Performance Plan was prepared by the Traffic Operations Division of the Texas Department of Transportation. This document provides a brief project description in the pedestrian and bicycle safety program section. There are also defined goals, objectives, and strategies. Three funded Section 402 grant projects in the pedestrian and bicycle safety program area from 2006 are listed with a brief description of each. There was one new

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grant project for a Pedestrian Safety Workshops/Partnership for a Walkable Texas and then two continuations of funding. Finally, there is a budget module of this portion of spending which illustrates the amount of federal money spent and the amount of match provided by the applicant. (Texas Highway Safety Performance Plan, 2006, p. 103)

The entire document is predominantly addressing automobile issues such as impaired driving, safety belts, and speeding. The emphasis in the grant process is enforcement and is automobile oriented.

Key Informants

- Susan Warren, Traffic Safety Planner with the Texas Department of Transportation: Traffic Operations Division of Traffic Safety

Insights Provided by Key Informants

Ms. Warren offered insight on the State of Texas' connection with Bicycle and Pedestrian initiatives tied to the Section 402 and Section 163 grant funding. The Section 163 grant program is funded predominantly for alcohol related programs. The program averaged around 14 projects for pedestrian and bicycle safety programs and \$500,000 dollars in funding which would be roughly nine percent of the total amount received in FY 2005 which was \$5,286,596. (NHTSA, 2005) (S. Warren, personal communication, November 07, 2005)

Ms. Warren stated that less than ten percent of Section 402 funding goes toward pedestrian and bicycle safety program areas. In Texas, the bicycle/pedestrian grants fall into a contiguous competencies category that deals with other programs that are considered less directly effective areas of reducing fatalities or non-fatal injuries such as bike/ped programs. The Texas grant program, which encompasses Section 402 and other funds, provides 75 percent of funding for enforcement, 15 percent for auxiliary competencies such as publications, public information, education, and traffic records. There is a final 10 percent that 'other uses' can be spent on and bike/ped falls into that category. For example, there was one bike/ped grant funded in 2005. It was a bike grant for \$300,638 awarded to the Texas Bike Coalition and this would represent 3% of the \$10,932,810 received by Texas for Section 402 funding in 2005. In 2006, there were 188 Section 402 grants funded with three being for bike/ped uses. Of the three in 2006, there were two pedestrian grants, one awarded to the Dallas County Hospital District and one to the Trans Texas Alliance, a non-profit and one bike grant, again going to the Texas Bike Coalition. These results coincide with the goals of the agency which, according to Ms. Warren are "to reduce fatalities and decrease crashes, using predominantly enforcement means" (S. Warren, personal communication, November 07, 2005). By having a maximum of ten percent of the funding allowable for pedestrian and bicycle uses, the program is somewhat restrictive. The majority of the funding is awarded to law enforcement agencies.

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The majority of grants are funded for one year. Agencies do resubmit proposals, but usually for no more than three years since the match increases each year significantly after that time period. The match requirements are that 10 percent is required for years one, two, and three. A 35 percent match is required for year four and a 50 percent match is required for year five.

The State has one application for multiple grants such as Section 402, 163, 157, or 405. Applicants submit concept papers and staff work with applicants in the application process and then match up appropriate grants to the appropriate projects. Eligible applicants are those approved by NHTSA with no additional guidelines or differences.

When asked if she felt if measures funded through Section 402 were having an effect on bike/ped safety, Ms. Warren stated that she was not sure since it was hard to measure, but she had concerns of the funding reaching the target audiences and actually assisting in reducing the numbers. She discussed how the Bike Coalition Program receives funding to provide education in curriculum of certain classes, yet this appeared to be an indirect linkage and it was difficult to verify the extent to which this was occurring and the impact. (S. Warren, personal communication, November 07, 2005)

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4.0 Findings

4.1 Introduction

The findings presented in this section of the document are the culmination of the overall data comparison and analysis of the existing conditions of the State of Florida and the examined case study states of Arizona, California, Georgia, New Mexico, North Carolina, and Texas. A separate section of findings is reported for each study area of concentration; data collection, enforcement, education and encouragement, and implementation. Engineering and planning findings will be completed at a later date.

The findings examine associations between the State of Florida and the case study states that may or may not exist. Relationships may be found connecting current practices between states, or a lack of similarity may also be determined to exist. The findings that are reported will be used to draft a series of recommendations that contain goals, objectives, and strategies for each focus area of concentration.

4.2 Data Collection

Below are the findings once the case studies have been synthesized down to briefly show what states are doing with their crash data. Please note that as the conditions in the states are always in flux, the summary findings listed below represent the majority condition in the states as they were over the statistical cycle of interest (1994-2004).

- Florida has an upgraded database with advanced query capability (and has had such a system for at least part of the study period). This compares with two of five responding case study states that have had an upgraded database with advanced query capability for at least part of the study period (New Mexico, North Carolina). Note that one of the other three responding case study states, California, will be upgrading its database in January of 2006. Arizona was non-responsive in this area.
- Florida currently has initiated a pilot program allowing the e-filing of data. This compares with only one of six case study states currently initiating a pilot program for e-filing of data (North Carolina). Note that three of the remaining five case study states have identified a plan to test or fully implement e-filing in the near future (Georgia, New Mexico, Texas).
- Florida does not collect and save location data in a GIS compatible form; the state of Florida currently prefers the mile marker form that they currently utilize, with responsibility for converting to latitude and longitude coordinates left to the end users of the data. This compares with only one of six case study states that collects and saves location data in a GIS compatible form (Arizona-partially). Note that three of the remaining five case study states

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prefer the mile marker form that they currently utilize (Georgia, New Mexico, North Carolina). For all states but Arizona the production of GIS compatible coordinates is performed at the local level, if at all.

- Florida limits crash data access to both government agencies and the general public. This compares with three of six case study states having virtually no restriction on making crash data available to anyone (California, Georgia, Texas). Note that of the remaining three case study states, two have virtually no restrictions on access within the state government (New Mexico, North Carolina) and that only one limits access to crash data for both the general public and state government (Arizona).
- Florida has a delay in data availability to decision-makers of greater than six months. This compares with three of five responding case study states that have an access delay of six months or less (California, New Mexico, North Carolina). Note that two of the remaining three case study states have access lags greater than six months (Georgia, Texas) and that AZ was non-responsive in this area.
- Florida has no requirement that data be analyzed in a follow up format after improvement projects are completed. This compares with two of six case study states that do require a follow up data analysis after improvement projects are completed (Arizona, New Mexico).
- Florida does not have auto-generated reports or websites with statewide bike/ped crash statistics available. This compares with two of six case study states that do have either auto-generated reports or websites devoted to disseminating statewide bike/ped statistics (New Mexico, North Carolina). Note that no case study state has auto-generated reports or a website available for less than statewide bike/ped crash statistics.
- Florida makes planning decisions for bike/ped at the local government level primarily. This compares with three of six case study states that also make decisions for bike/ped primarily at the local level (Arizona, Georgia, Texas)
- Florida at the state level does not perform any detailed crash typing of bike/ped crashes below the “pedestrian with {something}” level. There was no case study state that performed detailed crash typing of bike/ped crashes either, although the four case study states that are testing or considering TraCS have expressed interest in implementing such a typing program (Georgia, New Mexico, North Carolina, Texas). All states surveyed perform detailed crash typing at the local level, if at all.

These findings are summarized below in Table 4.2.1, which is designed to quickly show what each of the case study states is doing in comparison to Florida.

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Table 4.2.1 - Case Study Summary Matrix For Data Collection

<i>Finding</i>	<i>Database Is Advanced Query Capable?</i>	<i>E-Filing Of Data Is Possible?</i>	<i>Location Data Is Saved In GIS Format?</i>	<i>Are There Limits On Access To Crash Data?</i>	<i>What Is The Time Delay Until Crash Data Is Available?</i>	<i>Is Post-Project Follow-Up Data Analysis Required?</i>	<i>Are Auto-Generated Reports Or Updated Websites Available?</i>	<i>What Govt. Level Makes Bike/Ped Planning Decisions?</i>	<i>Is Detailed Crash Typing Standard?</i>
<i>Florida</i>	Yes	Pilot Program	No. Any Geocoding Is At Local Level	Limited Access For General Public And Government Agencies	Greater Than 6 Months	No	No	Local	No. Any Detailed Crash Typing Is At Local Level
<i>Arizona</i>	No Response	No	Yes	Limited Access For General Public And Government Agencies	No Response	Yes	No	Local	No. Any Detailed Crash Typing Is At Local Level
<i>California</i>	January 2006	No	No. Any Geocoding Is At Local Level	Virtually No Restrictions	Less Than 6 Months	No	No	State	No. Any Detailed Crash Typing Is At Local Level
<i>Georgia</i>	No	No, But Studying	No. Any Geocoding Is At Local Level	Virtually No Restrictions	Greater Than 6 Months	No	No	Local	No, But Studying. Any Detailed Crash Typing Is At Local Level
<i>New Mexico</i>	Yes	No, But Studying	No. Any Geocoding Is At Local Level	Limited Access For General Public	Less Than 6 Months	Yes	Yes	State	No, But Studying. Any Detailed Crash Typing Is At Local Level
<i>North Carolina</i>	Yes	Pilot Program	No. Any Geocoding Is At Local Level	Limited Access For General Public	Less Than 6 Months	No	Yes	State	No, But Studying. Any Detailed Crash Typing Is At Local Level
<i>Texas</i>	No	No, But Studying	No. Any Geocoding Is At Local Level	Virtually No Restrictions	Greater Than 6 Months	No	No	Local	No, But Studying. Any Detailed Crash Typing Is At Local Level

Source: Personal Communication with Key Informants

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4.3 Enforcement

Review of the plans of various states and interviews with informants of case study states leads to the following assessment / findings:

- Of the highway safety plans that were reviewed (California, Georgia, New Mexico, North Carolina and Texas), three states (California, New Mexico and North Carolina) identified at least one enforcement project at *targeted* pedestrian crash locations. The State of Arizona plan was not available for review at the time of print.

California identified a grant project with the City of Long Beach where vehicle speed feedback signs will be installed at key locations with high reported occurrences of pedestrian and bicycle victims (p. 05-PS-8).

New Mexico identified ‘decoy’ operations in the City of Albuquerque, which has the highest pedestrian injury rate in the state. The operation consists of uniformed or undercover officers attempting to cross the street at a marked crosswalk and observing motorist compliance. If a motorist does not stop or yield to a pedestrian, the uniformed or undercover officer stops the motorist (p. 64).

North Carolina identified a grant awarded to East Carolina University, intended to slow motorists at key locations on campus and reduce pedestrian fatalities by five percent (no page number).

- Interviews with the case study states show that Arizona, New Mexico, and North Carolina have funded at least one enforcement project at *targeted* pedestrian crash locations.

Arizona identified two key areas in which there were a substantial number of pedestrian-related incidents. Through a traffic safety grant, the city implemented targeted enforcement efforts of speeders and pedestrians, particularly during evening hours near bars and liquor establishments.

Also, an article within the Tuscon Citizen identified a \$15,000 grant made to the City of Tuscon from the Governors Office of Highway Safety to crack down on pedestrian and bicycle violations. At the time of the article being published (October, 2005), as of January, 1999, more than 1,500 pedestrians had been hit in Tuscon at specific locations. The article notes that such a grant is important to the Tuscon Police Department because it funds officers to enforce lower priority crimes (such as pedestrian and bicycle enforcement) and such funding allows officers to not be diverted from normal duties (Poole, 2005).

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New Mexico is funding a sting operation project at crosswalks within the City of Albuquerque, which will be extended to two other cities in 2006. Pedestrian fatality and injury rates decreased with the implementation of the pilot project and when it was not implemented the following year, the pedestrian fatality and injury rates went up.

North Carolina described a grant to fund speed trailers at specific pedestrian crash locations near state offices within the City of Raleigh.

- Of the five case study states with bicycle pedestrian plans (Arizona, California, New Mexico, North Carolina and Georgia), California and New Mexico addressed enforcement.
- Like Florida, Arizona and North Carolina do not have statutory provisions allowing officers to take drunken pedestrians into custody, solely based on being intoxicated. The State of New Mexico is an exception with the “Detoxification Reform Act,” which allows officers to take at risk intoxicated pedestrians into custody to sober up. Review of the Texas Penal Code reveals that pedestrians cannot be detained for simply being arrested. Data for California and Georgia is inconclusive.
- Like Florida, Arizona, New Mexico and North Carolina do not have pedestrian safety course requirements in their law enforcement curriculums. Data for California, Georgia, New Mexico and Texas is inconclusive.
- Guidance from the Federal Highway Administration notes a variety of enforcement methods that could assist communities in developing a pedestrian safety action plan. Examples include a hotline that is used for addressing citizen traffic complaints; neighborhood speed watches; radar speed trailers; pedestrian safety enforcement operations; photo enforcement; and a neighborhood safety program.
- The University of North Carolina Highway Safety Research Center notes that “a sound enforcement program should address both groups” (pedestrians and drivers). The Center also noted that the City of Seattle’s jaywalking enforcement efforts did not have an impact on reducing pedestrian fatalities and injuries.
- Review of vehicular homicide laws shows that Florida and 46 other states have laws relating to vehicular homicide. The states generally require some sort of recklessness or negligence on behalf of the driver of a motor vehicle for the respective vehicular manslaughter laws to take effect. Of all the states case study states, Florida appears to have the strictest penalties.
- New Mexico traffic enforcement efforts benefit from a Traffic Safety Education and Enforcement Fund. Fees are collected for each penalty assessment and traffic conviction issued and are made available to the agency issuing the citations. To receive these monies, the agency submits to Traffic Safety Bureau its plans for how the funds will be used for traffic safety education and enforcement. Review of other plans did not reveal this.

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- Review of the California Blueprint for Bicycling and Walking (May 2002) states: “traffic law enforcement, particularly for excessive speed and right-of-way violations, should be given higher priority. Adequate resources should be allocated for effective law enforcement measures. Officials should review existing California traffic laws and enforcement practices and devise appropriate strategies to improve traffic safety” (p. 14). One of the grants being funded is for the City of Long Beach, where speed feedback signs will be installed at key locations with high reported occurrences of pedestrian and bicycle victims (California Office of Traffic Safety 2005 Performance Plan, p.05-PS-8).

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Table 4.3.1 Case Study Summary Matrix for Enforcement

	<i>1. Use of Traffic Safety Dollars for Enforcement Interventions at Crash Locations</i>	<i>2. Take into Custody for Public Drunkenness</i>	<i>3. Pedestrian Safety in Driver Violator Schools</i>	<i>4. Pedestrian Safety in Law Enforcement Curriculum</i>	<i>5. Law Enforcement Addressed in Pedestrian Safety Plan</i>	<i>6. Other Information</i>
<i>Florida</i>	No	No	No	No	Yes	Focus on Enforcement Education
<i>Arizona</i>	Yes	No	Undetermined	No	No	Enforcement at Automobile / Pedestrian Locations
<i>California</i>	Yes	Undetermined	Undetermined	Undetermined	Yes	Speed Control Projects Funded at Pedestrian Locations
<i>Georgia</i>	Yes	Undetermined	Undetermined	Undetermined	N/A Developing Plan	
<i>New Mexico</i>	Yes	Yes NM Detoxification Reform Act Chapter 43, Article 2, NMSA	Undetermined	No	Yes	Decoy Operations at Pedestrian Locations; Initiating Project to Track Deceased Pedestrians; Fees collected for infractions and made available to agency issuing the citations (Traffic Safety Education and Enforcement Fund)
<i>North Carolina</i>	Yes	No NC Statutes, Article 59 § 14-447	Undetermined	No	No	Speed Control Projects Funded at Pedestrian Locations
<i>Texas</i>	N/A	No § 49.02 TX Penal Code	Undetermined	Undetermined	N/A No Pedestrian Safety Plan	Texas does not fund enforcement projects due to varying municipal ordinances

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4.4 Education and Encouragement

The following is a list of findings compiled based on an examination of the information presented from the literature and a review of each case study state.

- Literature published by the Federal Highway Administration suggests safety education programs are most effective in conjunction with engineering and enforcement measures and not as stand alone tools.
- Literature suggests that safety education programs could be better served if evaluation tools were developed to measure their effectiveness.
- Florida, Arizona, California, New Mexico, and North Carolina all have pedestrian safety education strategies identified in their plans Georgia and Texas do not.
- Florida and North Carolina are the only case study states to have a statewide school crossing guarding training program (Florida's program is the only one with a legislative mandate).
- All of the case study states, including Florida, have some form of a "Safe Routes to School Program" in their respective state that directly targets school age children.
- All of the case study states, including Florida, primarily engage in pedestrian safety education programs that directly target school aged children, and not other vulnerable segments of the population.
- The case study states, except Georgia and Arizona, have working relationships with state universities or colleges in their respective state in which the university provides assistance in research on bike and pedestrian safety related issues.
- As in Florida, none of the case study states have performed evaluations of their safety educational programs that are currently in place to determine if the programs were successful in decreasing the incidents of pedestrian crash related fatalities or injuries.
- North Carolina is the only case study state that strategically implements their safety educational programs in areas with high incidents of pedestrian crash-related fatalities or injuries.

The following education & encouragement strategies for pedestrian and bicycle safety programs in the case study were compared to Florida. The major findings are as follows:

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- In the Florida Pedestrian Safety Plan educational recommendations were identified in the enforcement and education component. It should be noted that a vast majority of the educational programs currently implemented in the state are not identified in this plan.
- Comparatively:
 - Four of the six case study states identify educational recommendations within their respective plans (Arizona, California, New Mexico, and North Carolina).
- Florida pedestrian safety education programs primarily target elementary school level kids followed by middle school level kids with the major programs being Florida Traffic Bicycle Safety Education Program and the Safe Routes to Schools Program.
- Comparatively:
 - All of the states pedestrian safety education programs primarily target elementary school level kids.
 - Arizona and Georgia has the Safe Routes to Schools, California has the Three Step Campaign Program, New Mexico and North Carolina both offer various forms of the Walk Our Kids to School Day Program, and Texas has the Safe Routes to Schools Program.
- Florida does not perform evaluations of its pedestrian safety education programs to measure it's effectiveness in reducing pedestrian crash injuries and fatalities but does instead evaluate programs for their degree of successful implementation.
- Comparatively:
 - None of the case study states have performed evaluation of their perspective safety education programs in an effort to measure the programs effectiveness in reducing pedestrian crash injuries and fatalities. California and North Carolina both acknowledged that education program evaluation had been performed to measure the degree of implementation for certain programs.
- Florida's Department of Transportation, Safety Office has working partnerships with Florida State University, Florida Atlantic University, and University of Florida for administering the different safety education programs.

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- Comparatively:
 - Three of the five case study states identify close working partnerships with state universities for assistance in administering the various safety education programs.
 - California's partnership exists with UC- Berkley, New Mexico's partnership exists with University of New Mexico, and North Carolina's partnerships exist with North Carolina State University and University of North Carolina at Chapel Hill.
 - Both Arizona and Georgia acknowledged that no current working partnership existed with the state universities.
- Florida does not perform or use studies of pedestrian injuries and fatalities in which to target their safety education programs in the vicinity of high crash areas.
- Comparatively:
 - North Carolina is the only state that currently uses state collected data on pedestrian injuries and fatalities for targeting their safety education programs in the vicinity of high crash areas.

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Table 4.4.2 Case Study Summary Matrix for Education

<i>Case Study States Finding</i>	<i>1. Education strategies identified w/in Plan</i>	<i>2. Education programs with primary target audience</i>	<i>3. Perform evaluation of pedestrian educational programs</i>	<i>4. Working relationship with university</i>	<i>5. Completed a study of pedestrian injuries to target education programs</i>
<i>Florida</i>	Yes	School aged children	No	FSU, UF & FAU	No
<i>Arizona</i>	Yes	School aged children	No	None	No
<i>California</i>	Yes	School aged children	No	UC-Berkeley	No
<i>Georgia</i>	No	School aged children	No	None	No
<i>New Mexico</i>	Yes	School aged children	No	UNM	No
<i>North Carolina</i>	Yes	School aged children	No	NCSU & UNC	Yes
<i>Texas</i>	No	School aged children	Non-responsive	Non-responsive	Non-responsive

Table 4.4.2, provides a summary of the observations, and it indicates what each state is doing in regards to safety education in comparison to Florida. It appears that Florida strongly favors using educational countermeasures in their pedestrian safety plan as a means of reducing pedestrian crash related injuries and fatalities as similar to the other case study states with the exception of Georgia and Texas.

In addition, Florida like the other case study states targets elementary school-aged children primary as its focus audience for safety education programs. Middle school-aged children appeared to be the next highly targeted audience while the elderly audience received the least amount of attention when it comes to safety education programs.

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Although Florida provides a great deal of safety education programs, similar to the other case study states, Florida does not adequately evaluate its safety education programs in an effort to determine if the programs are successful in reducing high rates of pedestrian crash injuries and fatalities. A few safety education programs in the state perform evaluations in which the degree of successful implementation is the measured objective. Based on discussion with state staff this is something in which the Safety Office is working towards doing.

Florida, California, New Mexico, and North Carolina have working partnerships with state universities. These partnerships provide support for successful implementation of the different programs, as well as, create opportunity for networking and expanding programs. Although, Arizona and Georgia presently do not have these partnership their do have working relationships as does the other case study states with various local and state organizations who are key in bringing awareness and support for the various safety education programs.

Florida does not perform studies of pedestrian crash data in which to use in targeting specific safety education programs. Florida is not alone in the process currently North Carolina is the only state to actively target specific safety education programs to high crash areas. It should be noted that key informants interviewed for North Carolina were not able to provide reports to the success of these measures at the present time.

4.5 Engineering

The goal of implementing pedestrian improvements is to improve the walkability and safety of a community. Planning for pedestrians should begin with a thorough understanding of existing conditions, both what is there and what is needed.

Sidewalks

Establishing policies to ensure that safe places to walk will be developed is a good starting point in making a community more walkable and safer for pedestrians.

Intersections

Walkways provide mobility for pedestrians along a path. But eventually, pedestrians need to cross roads and streets at intersections. Intersections can be the most challenging parts of negotiating a pedestrian network. If pedestrians cannot cross streets easily and safely, then mobility is severely limited, access is denied, and walking as a mode of travel is discouraged.

Midblock Crossing

Most pedestrians hit by motor vehicles were trying to cross the street. While many of these crashes are at intersections, others occur at mid block locations where people often cross directly to some attractor (e.g., a bus stop or post office). The key to a successful crosswalk marking program is to install well designed crosswalks that are responsive to local situations and then

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back them up with laws that require motorist to STOP, not just yield, for pedestrians in crosswalks.

Statutes and Exceptions

The state has endeavored to correct backlogs in pedestrian and bicyclist facility provision. However, in some instances right-of-way constraints, safety considerations, and public opposition may limit the extent facilities and treatments can be applied in a given segment of the roadway system. Florida Statutes Section 335.065 “Bicycle and pedestrian ways along state roads and transportation facilities,” mandates construction of bicycle and pedestrian facilities and describes the conditions under which they are required on state roads. The Department incorporates the needs of bicyclists and pedestrians into all appropriate new construction and resurfacing, restoration, and rehabilitation (RRR) projects on the State Highway System.

FDOT should develop a method to capture and maintain a database of when, where and why and to whom exceptions are granted. This database will further assist the Department in determining where gaps in the system exist.

Pedestrian Advisory Committee

The FDOT Safety Office should institutionalize and work to legislatively empower the current ad hoc Bicycle and Pedestrian Advisory Committee (BPAC). BPACs are important venues for intergovernmental coordination. Their authority is enhanced by their ability to prioritize or to approve or deny capital projects more than it is by the source of their appointment. Non-legislated BPACs are easily disintegrated by disinterested state executives.

For the state of Florida, BPAC membership should include representatives from not only state agencies directly involved with pedestrian issues, but should also include representation from a more diverse set of individuals. This representation could include: citizen groups, business groups, MPOs, local governments, trails advocates, universities, bicycle advocates, and students (among others). The current membership of the ad hoc BPAC is diverse, but representatives from the Florida Department of Transportation comprise 46 percent of the membership, or 11 of 24 members. In order to provide the widest input of perspective and the greatest amount of influence, more representation is needed from a wider array of governmental and non-governmental entities.

Summary

The safety issues and programs discussed above can lead to improved safety conditions for all users. Improving the safety of a community's streets involves cooperation on a number of different levels. The most thorough and effective strategy - according to traffic safety experts - is a three-pillar approach which focuses on enforcement of traffic laws, increased safety education for all street users, and engineering the construction of a city's roadways and sidewalks in ways which reduce the risk of injury to pedestrians and drivers. A quality pedestrian safety program is built on these three strong pillars: *engineering, education, and enforcement*. Of the three pillars,

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engineering is the most important to plan correctly before proceeding. Once roads exist, the built environment lasts for decades. Education and enforcement can be improved from time to time without costly consequences. Improving the built environment can be very costly.

4.6 Implementation

The following implementation strategies for pedestrian and bicycle safety programs in the case study states were compared to Florida. The focus was upon the Section 402 Highway Safety Grant program. The major findings are as follows:

- In Florida the Section 163 grant program was treated similar to Section 402 funds and the funding was not focused on alcohol related programs, the original intention of the programs. Florida invested from 2000-2006 approximately \$3.4 million or nine percent of its total Section 163 program funds in bicycle and pedestrian safety programs.
- Comparatively:
 - Four of five states treated Section 163 funding like Section 402 and it could be applied to any program area (Arizona, New Mexico, North Carolina, Texas).
 - Three of five states funded no bike/ped programs with Section 163 funds (Arizona, California, New Mexico).
 - Four out of five states focused on alcohol programs (California, New Mexico, North Carolina, Texas).
 - Only Texas was similar to Florida in the level of Section 163 funding it allocated to bike/ped. It funded 9% of its Section 163 program in FY 05 towards bike/ped compared to 16% in Florida.
- Florida has invested from 1998-2006 approximately \$7.8 million or 12.7 percent of its total Section 402 program funds in bicycle and pedestrian safety programs. Florida spent 16 percent of Section 402 in 2005 on bike/ped.
- Comparatively:
 - Three of four agencies funded 5 percent or less in 2005 for bike/ped. (Arizona, North Carolina, Texas).
 - California funded 9.4% in 2005 towards bike/ped. programs.
- Florida predominantly funds educationally focused bike/ped grants.
- Comparatively:
 - No case study state had a predominant educational focus.

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- Four of five respondents had programs that primarily focused on enforcement, but also had a noticeable education component (California, North Carolina, New Mexico, Texas).
- One of five states, Arizona, reported that the majority of Section 402 funds went toward enforcement program areas within the bike/ped category.
- Florida funds the majority of grants for one year and up to three years, with exceptions made for projects with statewide impacts.
- Comparatively:
 - Three of five states funded the majority of programs for one year with the possibility of up to three years. Texas will make rare exceptions allowing for up to five years (Arizona, North Carolina, Texas).
 - New Mexico provides the majority of its grants for one year but up to four years.
 - California's average grant is funded for two years.
- Florida requires a match for funded personnel positions in the second and third years of the grant request, typically 25 percent for the second year of the grant and 50 percent for the third year.
- Comparatively:
 - Two of the four states require no match (Arizona, California).
 - Two states were similar to Florida with sliding match scales.
 - North Carolina required for personnel, zero percent in year one, 25 percent in year two, and 50 percent in year three. For equipment and other costs they required 25 percent in year one, 50 percent in year two, and 75 percent in year three.
 - Texas requires 10 percent for the first three years and then if a program goes over the preferred three year length, they require 35 percent for year four and 50 percent for year five.
- Florida distributes funding to all applicants eligible under the NHTSA program guides with no obvious exceptions or differences.
- Comparatively:
 - Four of the five states also distributed funds to those eligible under NHTSA program guides with no exceptions (Arizona, New Mexico, North Carolina, Texas).
 - California has one exception to the NHTSA eligibility list, under state legislation a non-profit cannot apply solely; they must be hosted by a political jurisdiction.

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- The State of Florida currently reports their pedestrian and bicycle program as one unit of analysis and does not divide up the funding areas.
- Comparatively:
 - Three of the six states have separate reporting categories of funding going to pedestrian or bike categories and they report data by various populations, such as age, race, and gender being affected in the state in pedestrian or bike categories (California, Georgia, North Carolina).
 - Three of six states do not separate pedestrian and bicycle reporting and are similar in their data production to Florida (Arizona, New Mexico, Texas).

Table 4.6.1, provides a summary of these observations, and it categorizes what each state is doing in comparison to Florida. It is important to note that Florida appears to be allocating a larger percent of Section 402 funding in the pedestrian and bicycle program area than others of the case study states. The only case study state providing more than five percent is California. The majority of the case study states spent Section 163 funds like Section 402, but only Texas spent any noticeable funding in the bike/ped category.

There were no states funding predominantly education programs, which is Florida's primary countermeasure approach. The majority of the observed states were funding enforcement with some educational component. Florida is in line with other states in that the funding period of one to three years seems about average so this factor is probably not to affective in the type of quality of grants being funded by the State. Similarly with the eligible applicants, no other states have any additional stipulations that may affect those who are funded except California which is governed by state legislation regarding the funding of non-governmental agencies.

The State of North Carolina's match system requirement push funding towards personnel and salaries, anything else requires higher match amounts. The match requirements in Florida are not prohibitive for non-personnel funding, meaning if equipment is being purchased, the match system does not require a higher percentage for that expenditure. The fact that Florida's match scale encourages non-personnel grants, by not requiring them is positive. Since this is a "seed" program and is to be discontinued in three years, personnel positions may be more difficult for agencies to continue, and they are more difficult to measure and evaluate how they went towards meeting the goals reducing pedestrian fatalities and non-fatal injuries in the state.

The State of Florida does not divide its data reporting into different categories for pedestrian and bicycle areas, and three states followed similar practices. Yet there were three states that disaggregated their reporting into bike and pedestrian categories. Also the programs funded were not combined purposes. Current conditions of reporting in Florida make it difficult to determine which group of travelers, bicyclists or pedestrians, are receiving the most assistance. As we have examined earlier in the document, there are proportionally larger amounts of

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fatalities and non-fatal injuries to pedestrians over bicyclists and it is important to determine that through this blending of categories, pedestrian groups which are the most at risk are not being overlooked.

The states with separate reporting also broke up at risk pedestrian and bicyclists groups by various cohorts such as age, race, gender, socio-economic level. This type of reporting is valuable in that it allows those states to focus efforts towards the most vulnerable populations who are walking and biking. For example, North Carolina currently has programs specifically targeting Hispanics and teenagers, which were the ethnic group and age group experiencing high incident numbers. (D. Nail, personal communication, November 7, 2005) North Carolina spent its pedestrian and bicycle program funds on all pedestrian programs in 2005.

There was additional information discovered that could be termed ‘findings of potential best practices identified by the case studies’. For instance, the State of Georgia is actively working with high crash counties on the grant process. The Georgia Office of Highway Safety has a specialist to determine highway crash areas and it uses this information to identify a list of jurisdictions with high numbers of traffic safety deaths, injury and crashes. The Safety Office then contacts the high crash jurisdictions to seek interest and support in addressing the problems and gaps identified in their area. (Georgia Highway Safety Plan, 2006, p. 05) In other words, the state goes to the areas of high risk and works with groups and municipalities in the area to develop grants to address the problems. This approach is quite different from other states such as Florida, which open their funding cycle and wait to see who comes to them, instead of going to them. The State of North Carolina utilizes regional specialists to work on and develop grant concepts with high crash area local municipalities and then those are submitted for funding. (D. Nail, personal communication, November 7, 2005)

The evaluation process was also something that came out of the interviews that could be adopted into the Florida model. Archived reports were retrieved from the Highway Safety office that contained the required evaluation reports and it was difficult to compare among the applicants who did what and who accomplished their goals. Some groups used specific matrices to identify their activities and others used just narrative. Some of the narratives were very broad and others very specific. A more complete, uniform, and thorough evaluation may provide a way to determine grant effectiveness. Other states are addressing this area in interesting ways. North Carolina uses specialist to do a year end evaluation of tasks gap and they determine if goals and objectives were met and they have a unified method of reporting, since it comes from one source. (D. Nail, personal communication, November 7, 2005) New Mexico requires evaluations which are written into the grant contract agreement. These evaluations can be provided by the agency, by an independent assessment group, or by the grant recipient. (M. Pope, personal communication, November 14, 2005)

5.0 Recommendations

5.1 Introduction

The recommendations offered in this report contain goals, objectives, and strategies for each of the reported concentration areas data collection, enforcement, education and encouragement, and implementation. Engineering will be completed at a later date. The recommendations have been extrapolated from the data collected and analyzed throughout the course of this assessment.

The goals presented in this document are broad statements or descriptions that create a desired end or target that, if pursued over the long term, will contribute to the attainment of a more successfully implemented Florida Pedestrian Safety Plan. The objectives consist of more detailed and specific descriptions of desired short-term ends that, if accomplished, will facilitate achievement of the goals. Finally, the strategies are statements and suggestions of means or methods to be used in achieving the desired objectives.

5.2 Data Collection

5.2.1 Goal

Reduce the rate of pedestrian fatalities and injuries by 20 percent over the next 5 years through improvements in the accuracy, timeliness and availability of crash data so that decision makers are more readily able to utilize data as part of the planning process.

5.2.2 Objectives & Strategies

Objective:

Within 5 years, improve efficiency and precision with which crash location data is collected.

It seems intuitive that one of the primary goals of data collection and analysis is to collect precise data as efficiently as possible. While there will always be a human element to data collection, the data can be made more precise by utilizing available technology whenever possible, and by recording officer collected data as quickly as possible so as not to allow memory to become a factor in what gets recorded. Similarly, efficiency of the data collection process will be heightened by collecting the proper data at the scene and by avoiding repeat trips to the scene post-cleanup.

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Strategy: Implement GPS capture and on-the-spot detailed crash typing in patrol cruisers

Currently Florida captures and stores location data in a node system that is tied to the state mile marker system. This is not unusual, as at least three of the case study states still utilize the mile marker system for crash location, and have specifically eschewed the collection of GPS coordinates. Note that while a mile marker style system is adequate for police location of crash sites, it is generally inadequate for planning purposes as there is not an efficient way to geocode into a GIS format. This is the reason why the University of Florida Mapping Center exists; to teach local planning agencies how to geocode crash locations themselves, and also to develop and provide tools on how to do this.

The resulting multi-agency procedure that Florida has developed to obtain GIS compatible position coordinates for crash locations seems horribly inefficient, especially when one considers the price of GPS units in today's market. If patrol cruisers were equipped with GPS units then GPS coordinates could be captured at the crash scene, and there is no reason why the corresponding node information could not also be captured and stored as well. The PRIDE database already contains a field for GPS coordinates, so there is no reason why it cannot be collected other than for the lack of GPS equipment in the field.

Detailed crash typing is similar to the capture of GPS coordinates on scene. Currently no case study state mandates the collection of such detailed typing data. However, the FHWA has recognized the usefulness of this data in the analysis process, and it seems like a waste of time to specifically not collect the data when there is an officer on scene and the accident scene is fresh in the mind.

Strategy: Place GPS and computer in every patrol cruiser

This is merely the method for implementing the above strategy mandating GPS capture. The expense of acquiring these GPS units is the primary reason why the timeframe for this objective has been stretched out to five years instead of one year.

Objective:

Within 1 year, reduce the general lag time between data collection and data availability for analysis to less than 6 months, and provide local decision makers with immediate access to crash data.

The overall purpose of this objective is to ensure that decision makers have access to crash test data in a timely fashion so that the data may be properly considered as part of the planning process. As the lag time increases between data collection and data availability, the likelihood

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increases that the data being analyzed no longer represents the true real world conditions at the time of analysis. This generally leads to solutions being developed by planning teams that are only partially effective in solving the problem being studied.

When reading the strategies listed below, please note that the goal is to make improvements to efficiency wherever possible, so that the data collection and transfer process is as “seamless as possible to the end user-analyst. As such, these strategies are listed below in the chronological order of where the improvement is noted throughout the data collection and analysis process.

Strategy: Reduce time for data processing by automating scripts & by rules/restrictions on e-forms in patrol cruisers

This is merely a time saving strategy that will allow the quicker filing of crash reports by sworn officers. As the TraCS system is more widely implemented, a system of scripts and rules may be implemented on electronic forms filled out by the sworn officers in their patrol cruisers. These rules would force the officer to completely fill out the form in the proper way while the information is still fresh in his memory. When combined with the e-filing strategy below, rules can also force the officer to complete the form onsite with the corresponding rejection of forms that have missing data fields.

Strategy: Implement wireless e-filing of data from patrol cruisers

Again, this is a time saving strategy that will allow quicker filing of crash reports by sworn officers. In theory, with e-filing of crash reports directly from patrol cruisers the state database could eventually be updated in as close to real time as possible. Note that Florida’s pilot program regarding e-filing does include some research into wireless e-filing directly from patrol cruisers. As such, the recommendation is for the widespread rollout of this technology statewide.

Strategy: Create a Virtual Private Network (VPN) link between FDOT and DHSMV

Currently, North Carolina utilizes a VPN link to save time in the data transfer process. A VPN link affords an offsite user immediate access to the host’s network as if they were directly logged in as part of the host’s in house network. If a VPN link were created between FDOT and DHSMV, then FDOT personnel would instantly be able to see updates made to the PRIDE database by DHSMV without the time lag needed for shipping and installing the database to FDOT. Similarly, a VPN link would ensure that both agencies are always utilizing the same database with the most up to date records.

If DHSMV is concerned with privacy issues, then DHSMV would simply need to create a rules system where FDOT does not have access through the VPN to certain confidential data record fields in PRIDE. Note that five of the six case study states have managed to work out

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some sort of agreement between the state agency with ownership responsibility over the collected data and other state agencies that require use of the data, thus eliminating the privacy issue as a concern.

Strategy: Eliminate charges to municipalities for access to CARS/PRIDE data

Recently FDOT has allowed certain municipalities and planning organizations to use CARS data in the planning process for a fee. Nominally it is assumed that this fee is to help FDOT recapture costs, and is therefore somewhat justified. Unfortunately, most municipalities and planning organizations operate on a tight budget and this fee is still seen somewhat as an impediment to end user-analysts obtaining the data. Since Florida is a state where the majority of planning decisions occur at the local level, it only makes sense to eliminate as many potential barriers to local decision makers as possible.

Strategy: Create password protected website to allow intra-governmental access to data

New Mexico and North Carolina already have implemented similar methods for disseminating statewide data. This seems to be a good method for storing and accessing frequently used reports and studies, so that the data is warehoused in a convenient and easy to find location.

Objective:

Within 1 year, increase use of data by local decision makers so that all local decision making agencies are using data as part of the safety planning process.

As the majority of bike/ped planning is performed on the local level in Florida, it only seems to make sense that local agencies have access to accurate and up to date data. This was the purpose of the previous objective. The purpose of the current objective is to ensure that now that the local planners have access to crash data, the data will be utilized effectively as part of the planning process. Note that this effective use of data should be targeted to determining the effectiveness of remediation projects, as well as to the process through which such projects are prioritized in the planning process.

Strategy: Require local governments to include a summary of relevant crash data as part of the grant application package

Florida does not require any sort of detailed crash typing below the level of “pedestrian with {something}.” This is not surprising, as none of the case study states currently requires this sort of detailed analysis. What is surprising in Florida is that there is technically no requirement that appropriate local crash data be supplied as part of the grant application

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process. This is likely due to the fact that many smaller municipalities are forced to utilize countywide crash data in the planning process. A summary of detailed crash typings for at least the year preceding the proposed safety improvement project would be ideal, but at a minimum there should be some pre-grant analysis to ensure that the proposed solution will actually mitigate the problem.

Strategy: Mandate collection of post-implementation data to ensure the effectiveness of implemented programs

Two of the six case study states mandate the collection and analysis of post-implementation data to determine the effectiveness of the remediation techniques, and also to determine the effectiveness of the money spent for remediation. This intuitively seems to make sense as part of virtually any project plan. To date, it is likely that Florida's lengthy data collection lag times discussed in the previous objective is the primary reason as to why this is not required in Florida. If the time-saving strategies in the previous objective are implemented, and Florida's lag time is brought down to less than six months, then it could reasonably be possible to implement a post-implementation study that would be completed within the same budgetary cycle as the remediation project itself.

5.3 Enforcement

5.3.1 Goal

Reduce the rate of pedestrian fatalities and injuries by 20 percent over the next five years through increased enforcement if and appropriate revisions to existing traffic safety laws.

5.3.2 Objectives and Strategies

Objective:

Increase the number of effective enforcement interventions at high crash locations.

Strategy: Fund enforcement interventions at targeted, high crash pedestrian areas. This would entail Bicycle Pedestrian staff coordinating with Police Traffic Services and Speed Control staff within the FDOT Safety Office.

[Note: This is a new objective that was not identified within the Florida Pedestrian Safety Plan (1992)]

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Review of case study states and highway safety plans revealed that other states place more emphasis on the funding of enforcement interventions at known automobile-pedestrian crash locations. This recommendation would likely entail funding pedestrian-oriented projects outside of the Bicycle/Pedestrian category within the FDOT Safety Office, similar to the case study states.

Objective:

Move to the universal use of pedestrian crash data to develop and guide the delivery of enforcement countermeasures in high pedestrian crash localities, within five years.

[Note: This objective is currently a recommendation within the enforcement section of the existing Pedestrian Safety Plan (1992) and coincides with the recommendation of utilizing pedestrian crash data within the Florida Strategic Highway Safety Plan].

Strategy: Use crash mapping data to target high crash localities for the development of directed enforcement countermeasures with the assistance of local partners.

Targeting enforcement efforts at identified automobile / pedestrian crash locations is a step towards reducing pedestrian fatalities and injuries. Case study states are funding enforcement project at known problem locations. GIS is a tool that can allow for the identification of high automobile-pedestrian crash locations; the State of New Mexico, identified the use of GIS within its highway safety plan.

Objective:

To maintain or increase the number of enforcement officers adequately trained in Florida pedestrian laws.

[Note: This objective is currently a recommendation within the enforcement section of the existing Pedestrian Safety Plan (1992)].

Strategy: Continue to fund the training of enforcement officers on Florida pedestrian laws through continuation of the Bicycle / Pedestrian Law Enforcement Workshop offered through the University of Florida, Technology Transfer Center (T²).

While FDOT staff has indicated that the course has increased in popularity, the degree to which law enforcement officers are utilizing the techniques taught within this course within their jurisdictions is largely not understood. The University of Florida should develop a mechanism that captures how course participants feel this course can be

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improved, as well as the degree to which officers are utilizing the techniques taught within this course.

Strategy: Continue to fund the training of enforcement officers on bicycle / pedestrian crash investigations offered through the Institute of Police Technology and Management.

The IPTM should develop a mechanism that captures how enforcement officers feel this course can be improved, as well as the degree to which officers are utilizing the techniques taught within this course.

Strategy: Develop and distribute the Florida Pedestrian Law Enforcement Guide for law enforcement officers and distribute to every law enforcement agency within the State of Florida.

The development and distribution of the law enforcement guide for enforcement officers would be a good tool to ensure officers are knowledgeable about Florida pedestrian laws. Similar to the previous two recommendations, understanding the degree to which the guides are distributed and effectively used is important to measure.

Objective:

To revise Florida traffic safety laws where there are known deficiencies, rendering them no less stringent than the Uniform Vehicle Code, within five years.

[Note: This objective is currently a recommendation within the enforcement section of the existing Pedestrian Safety Plan (1992)].

Strategy: Improve Florida traffic laws where there are known deficiencies.

FDOT staff identified areas in which the State of Florida does not address provisions within the Uniform Vehicle Code. Further, FDOT staff identified ways in which other states have improved their traffic safety laws with more detailed language- beyond the recommended language of the Uniform Vehicle Code.

Objective:

To further strengthen the relationship with law enforcement partners, such as the Florida Department of Law Enforcement and the Department of Highway Safety and Motor Vehicles.

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[Note: This is a new objective that was not identified within the Florida Pedestrian Safety Plan (1992)].

Strategy: To further engage the Florida Department of Law Enforcement and the Department of Highway Safety and Motor Vehicles with the Bicycle Pedestrian Advisory Committee.

The Florida Department of Law Enforcement (FDLE) and the Department of Highway Safety and Motor Vehicles (DHSMV) are key players in law enforcement within the State of Florida.

The FDLE is the agency responsible for the curriculum content of recruit law enforcement officers within Florida. The Department of Highway Safety and Motor Vehicles handles the required content of basic driver education and driver violator schools. Increased partnerships could further enhance the ability for these two agencies to better integrate pedestrian safety into their curricula and work towards the cause of reducing pedestrian fatalities and non-fatal injuries within Florida.

5.4 Education and Encouragement

5.4.1 Goal

Reduce the rate of pedestrian fatalities and injuries by 20 percent over the next five years through the continuation of traffic safety education programs by delivering them to vulnerable target audiences living, working, and or schooling in high pedestrian crash localities.

The literature suggests that implementing traffic safety education programs to targeted audiences in conjunction with engineering and enforcement measure is most effective for meeting the desired goal. In addition all of the case study states primarily do education programs as countermeasures to the problem.

5.4.2 Objectives and Strategies

Objective:

Increase the delivery of state funded safety education and training programs by increasing efforts in high crash pedestrian localities within the next five years.

All the case study states fund safety education programs but particular do not necessarily target the programs to specific areas but instead to specific groups (elementary school age children),

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the Safety Office knows (through data access) which counties have high rates of pedestrian crashes so increased efforts should be made to insure that these counties are implementing safety education programs.

Strategy: FDOT should continue to assist funding of the Florida School Crossing Guard Training Program and implement it within the high pedestrian crash localities.

The Ramon Turnquest Act requires local governments to provide a training program for school crossing guards in counties with populations of 75,000 or more. FDOT Safety Office is the primary funding source for this program. Evaluation of the program administered by researchers at UF suggests that the program had been effectively delivered and improved competence of school crossing guards.

Strategy: FDOT should require that funded education programs be evaluated on a regular bi-annual basis in order to measure effectiveness in reducing pedestrian fatalities and injuries.

None of the case study states were able to say if their safety education programs are successful in reducing pedestrian fatalities and injuries, the literature suggests that evaluations are good tools and therefore evaluation tools need to be developed and used to measure the programs efforts.

Objective:

Within the next five years FDOT should move to universal use of pedestrian crash data to develop and guide the delivery of educational countermeasures in high pedestrian crash localities.

North Carolina is the only state that is currently doing this to some degree although they do not evaluate the effects of this effort. The literature tends to suggest that targeting your educational countermeasure is ideal and effective for reaching desired goals.

Strategy: Use crash mapping data to target high crash localities for the development of directed educational countermeasures with the assistance of local partners and universities.

North Carolina is the only state that is currently doing this to some degree although they do not evaluate the effects of this effort. The literature tends to suggest that targeting educational countermeasures is ideal and effective for reaching desired goals. All of the case study states have relationships with local organizations and universities with the exception of Arizona and Georgia with which to work and network in order to implement this strategy.

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Strategy: FDOT should continue to assist in the funding of the Florida Traffic Bicycle Safety Education Program and implement it statewide.

According to the Safe Ways to School Task Force 2004 Report, FTBSEP has been successfully implemented in 37 counties and nearly 55 percent of the school districts in the state. The report also suggests that FDOT should work with FDOE and develop legislation that would mandate some form of the program in grades K-12.

Strategy: Ensure that education countermeasures are delivered to vulnerable audiences in the vicinity of high crash areas.

North Carolina is the only state currently using crash mapping data to specifically target countermeasures such as safety education programs in high crash areas. The AASHTO and the Florida SHSP literature suggest implementing comprehensive traffic safety education programs in high crash environments.

5.5 Engineering

5.5.1 Goal

Reduce the rate of pedestrian fatalities and injuries by 20 percent over the next five years through the continuation of traffic safety education programs by delivering them to vulnerable target audiences living, working, and or schooling in high pedestrian crash localities.

Recommendations for the Updated Florida Pedestrian Safety Plan

The goal of implementing pedestrian improvements is to improve the walkability and safety of a community. Planning for pedestrians should begin with a thorough understanding of existing conditions, both what is there and what is needed.

5.5.2 Objectives and Strategies

Objective: Sidewalks

Establishing policies to ensure that safe places to walk will be developed is a good starting point in making a community more walkable and safer for pedestrians. Below are several strategies to consider:

Strategies:

1. Develop a database of existing pedestrian facilities.
2. Determine gaps within the facilities.

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3. Regulate new development and redevelopment. Official policies and ordinances related to sidewalks being included in all development can go a long way towards making sidewalk installation automatic.
4. Capital projects. Look for opportunities to install sidewalks as part of capital projects. In urban and/or suburban situations, add sidewalks when widening a road or installing a sewer line in the right of way. Typically, sidewalks will add only a small amount to the overall project budget.

Objective: Intersections

Walkways provide mobility for pedestrians along a path. But eventually, pedestrians need to cross roads and streets at intersections. Intersections can be the most challenging parts of negotiating a pedestrian network. If pedestrians cannot cross streets easily and safely, then mobility is severely limited, access is denied, and walking as a mode of travel is discouraged.

Strategies:

The solution is to design and build intersections that:

1. Make pedestrians as visible as possible.
2. Make pedestrian and motorist actions as predictable as possible.
3. Minimize the width of roadways that pedestrians must cross.
4. Slow vehicular traffic.
5. Intersections with high accident rate should be evaluated for possible deficiencies.
6. Program should be implemented to count pedestrians.
7. An evaluation should be made as to who is using particular intersections and when.
8. Expedite improvements at locations where heavy pedestrian use is occurring.

Objective: Midblock Crossing

Most pedestrians hit by motor vehicles were trying to cross the street. While many of these crashes are at intersections, others occur at mid block locations where people often cross directly to some attractor (e.g., a bus stop or post office). The key to a successful crosswalk marking program is to install well designed crosswalks that are responsive to local situations and then back them up with laws that require motorist to STOP, not just yield, for pedestrians in crosswalks.

Strategies:

One solution is to create a program that will encourage retrofitting of roadway crossings to encourage pedestrians to cross at appropriate locations and increase motorists' awareness of pedestrians. Crosswalks are one tool that municipalities can use to accomplish both goals. Important crosswalk concepts and issues include:

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1. Creating reasonable expectations of where pedestrians will cross a roadway. A marked crosswalk creates a visible indication for both motorists' and pedestrians of where pedestrians may typically be expected to cross a roadway.
2. Predictability of pedestrian actions and movement. When combined with signalization (as well as curb extensions and median refuges where appropriate), crosswalks can encourage pedestrians to cross at specific locations.

Objective: Statutes and Exceptions

The state has endeavored to correct backlogs in pedestrian and bicyclist facility provision. However, in some instances right-of-way constraints, safety considerations, and public opposition may limit the extent facilities and treatments can be applied in a given segment of the roadway system. Florida Statutes Section 335.065 "Bicycle and pedestrian ways along state roads and transportation facilities," mandates construction of bicycle and pedestrian facilities and describes the conditions under which they are required on state roads. The Department incorporates the needs of bicyclists and pedestrians into all appropriate new construction and resurfacing, restoration, and rehabilitation (RRR) projects on the State Highway System.

As noted earlier, Section 335.065 also provides three broadly defined exceptions to the required establishment of bicycle and pedestrian ways:

1. Where their establishment would be contrary to public safety;
2. When the cost would be excessively disproportionate to the need or probable use;
3. Where other available means or factors indicate an absence of need.

Strategy:

FDOT should develop a method to capture and maintain a database of when, where and why and to whom exceptions are granted. This database will further assist the Department in determining where gaps in the system exist.

Objective: Pedestrian Advisory Committee

The FDOT Safety Office should institutionalize and work to legislatively empower the current ad hoc Bicycle and Pedestrian Advisory Committee (BPAC). BPACs are important venues for intergovernmental coordination. Their authority is enhanced by their ability to prioritize or to approve or deny capital projects more than it is by the source of their appointment. Non-legislated BPACs are easily disintegrated by disinterested state executives.

Strategy:

For the state of Florida, BPAC membership should include representatives from not only state agencies directly involved with pedestrian issues, but should also include representation from a

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more diverse set of individuals. This representation could include: citizen groups, business groups, MPOs, local governments, trails advocates, universities, bicycle advocates, and students (among others). The current membership of the ad hoc BPAC is diverse, but representatives from the Florida Department of Transportation comprise 46 percent of the membership, or 11 of 24 members. In order to provide the widest input of perspective and the greatest amount of influence, more representation is needed from a wider array of governmental and non-governmental entities.

5.6 Implementation

5.6.1 Goal

Reduce the rate of pedestrian fatalities and injuries by 20 percent over five years through the strategic funding of pedestrian safety countermeasures developed to specifically contribute to that reduction.

This goal addresses the need to strategically utilize available funding into countermeasure areas; education and encouragement, enforcement, or engineering and planning that will most directly affect pedestrian fatalities. It recognizes the Section 402 grants and re-directed Safety Office human resource and development funds will continue to be the primary resource utilized in implementing the plan.

5.6.2 Objectives and Strategies

Objective:

Annually develop a highway safety performance plan that enhances the state's ability to collect and analyze pedestrian crash data, to develop countermeasures based on that data, and implement those countermeasures among the states most vulnerable residents in the highest crash locations, and provide the state with measures of the effects of those counter measures once implemented.

This objective calls for the annual highway safety performance plan to focus on crash data, linking the proposed countermeasures to the data collected, and to provide those countermeasures to the most at risk pedestrian populations. There must also be an evaluation done that measures the effectiveness of the implemented countermeasures.

Strategy: The Safety Office should proactively develop countermeasure programs eligible for Section 402 spending with appropriate agencies serving high crash locations tailored to address specific factors contributing to increased levels of pedestrian fatalities and injuries and targeted to the most vulnerable population.

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The Safety Office should work with municipalities and metropolitan planning organizations in high crash counties to develop specific measures eligible for integrated corridors. They should finance targeted high risk groups, such as low-income minorities, the elderly, and children walking to schools in un-safe high crash corridors and intersections.

Strategy: Revise Section 402 funding priorities as follows;

1. Prioritize Section 402 spending to enhance the abilities of localities to collect and to analyze pedestrian crash data.

Fund grants that provide for data collection of GIS/GPS mapping for pedestrian crash area which are necessary in order to enhance the abilities of localities to develop more precise countermeasures over the long term.

2. Prioritize Section 402 spending to support the initiation of locally developed countermeasures developed through the analysis of such data.

Proposed grants developed from the best available data should be given priority over proposals developed from generalized data. This will promote and encourage data collection and analysis.

3. Direct Section 402 spending for delivery of education programs developed for statewide distribution to identified vulnerable populations living, working and going to school in high crash locations.

Grants developed for educational countermeasures must reach the groups most in need, those in the high crash areas who belong to vulnerable populations.

4. Spend on pedestrian and bicycle programs in rough proportionality to the number and rates of pedestrian versus bicycle fatalities and injuries.

There are a higher number of pedestrian fatalities and injuries for pedestrians than there are affecting bicyclists. Yet more funds are being spent on bicyclists.

Strategy: Require every grantee to set aside a portion of the grant for program evaluation or develop a mechanism for measuring grant effectiveness in all Section 402 grant programs.

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The evaluation process is critical in determining relationships between funding and reducing pedestrian fatalities and non-fatal injuries. It is important to determine if funded grant programs are effective and meeting needs in identified problem areas for vulnerable populations. An efficient and accurate method for evaluating each grant must be determined.

Appendix A1 – Survey Instruments

A1.1- Data Collection

Topic: Data Collection – Data Assembly (front end)

State: _____ Contact: _____

Date: _____ Phone #: _____

Contact Title/Agency: _____

The Data Being Collected:

How is data set determined?

- federal rules only
- state and federal rules
- state rules only

What data is collected? What data is stored?

- location
- type of injury
- type of property damage
- topography of site
- statement of parties
- statement of witnesses
- road conditions
- other information _____

Type of database used for state set

- Commercially available product specific for crash reporting
- Database provided by Federal Agency
- In house database written in MS Access
- In house “database” written in MS Excel
- Other in house database _____

What sort of accidents make it into state data set ?

- all crashes regardless of injury/property damage

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- only fatalities
- only injuries
- only with property damage

How is state data set collected?

- real time updates from local jurisdictions as crashes logged in
- data dump from local jurisdictions on nightly or weekly basis
- data dump from local jurisdictions on monthly or yearly basis
- no standard for reporting... whenever state collectors ask for it

Current Timeliness of state data set

- current within one weeks crashes
- current within one month's crashes
- current within six months crashes
- greater than 6 months worth of data to be added at this time

Same local data set collection procedures for crashes on state highways & county/local roads?

- yes
- no

How is local data set collected?

- when collected into database format
 - real time at accident scene
 - same day by reporting officer
 - within a week based on report
 - after a week based on report
- collection method
 - real time entry by officer in field through computer
 - paper report, entered into computer at later time
- gps tagging of accident location
 - yes
 - no

Is format of local data collected consistent throughout state?

- yes
- no – counties set rules
- no – no standardization even within counties

Is data file closed after initial report or is additional data entered when determined

- yes

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- no

Data Availability:

data availability to public

- complete data available to public
 - free
 - for fee
- accident location data available to public
- summary reports only available to public
- data not available to public

internal availability of data within govt.

- targeted end users of data
 - list departments _____
- availability of data to above group
 - all local data logged in state system
 - summary reports only

method of inter-governmental delivery

- year end summary report
- specific statistics available on demand
- open access in real time – certain departments only
- open access in real time – all interested departments

if data provided on demand, department(s) that are most frequent requestors of crash statistics

Topic: Data Collection – Data Use (back end)

State: _____ Contact: _____

Date: _____ Phone #: _____

Contact Title/Agency: _____

Program Administered: _____

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Obtaining the Data from the Datakeepers:

What data is important to you?

- location
- type of injury
- type of property damage
- topography of site
- statement of parties
- statement of witnesses
- road conditions
- other information _____

How do you get the data you use?

- summary report
- electronic copy of data fields asked for
- electronic copy of all data
- online access into database in real time

How do you get access to the data?

- my position generically entitles me to the data
- same department as data gatherers so I can get it easily
- I make a phone call
- I send an email
- I make a formal written request to the data keeper
- I make a formal written request up my chain of command

How long does it take you to get access to data?

- immediate access
- within 24 hours
- 24 hours to 5 work days
- longer than a business week

Are there any categories of data that you wish to see added to the collection set?

Decision-making Using Data:

Tools that you use to analyze the data:

- MS Excel or equivalent
- MS Access or equivalent
- SPSS (statistical package) or equivalent
- GIS tool

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- none – I just use the reports provided to me
- none – I don't do analysis

Output of your analysis consists of:

- Report with recommendations
- Report + map
- Report + map + budgetary analysis

What is your primary criteria for prioritizing recommendations for spending?

Who gets your report and recommendations?

- sent up my chain of command
- sent to engineering group for technical analysis
- sent to budgetary group for financial analysis
- other path _____

Who is the ultimate decision maker who prioritizes my recommendations with all other spending requests/recommendations?

- I have authority to order spending of money
- my supervisor directly above me
- a supervisor in my department more than one level above me
- somebody in another department but the same agency
- somebody in another agency
- other _____

Is the process for getting your recommendation approved, documented as a standard process flow? (ask for a copy if yes)

- yes
- no

How long does it take for money to flow based on your analysis?

- under one week
- one week to one month
- greater than one month

What sort of follow up is done to see impact of these recommendations (comparing old & new data after projects are completed)?

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How long after project is complete is the data collection for the above follow up?

Appendix A1.2 – Enforcement

Interview Introduction and Process State of Florida

My name is Sean Loughlin and I am a Masters student at the Department of Urban and Regional Planning at Florida State University. As part are aware, via e-mail correspondence, you received questions relating to the education and law enforcement components of the recommendations outlined within the Florida Pedestrian Safety Plan, 1992.

The purpose of contacting you today is to set up a time to meet with you face-to-face and ask clarification questions and new questions. This will provide insight that will contribute to the analysis of existing conditions with regard to pedestrian education / enforcement activities within Florida. Your further input would be greatly appreciated and will be useful in the analysis of existing conditions and the development of recommendations for an updated Statewide Bicycle and Pedestrian Safety Plan. I would like to meet with you in person and ask questions during one interview session, lasting approximately 45 minutes to one hour.

Are you willing to participate in an interview? If yes, when?

The following are parameters for the interview:

- Interview questions will be e-mailed ahead of time;
- If necessary, additional questions may be posed to you for clarification purposes;
- The interview will be recorded;
- The interview may be discontinued at any stage if you feel necessary;
- You may contact the interviewer(s) at any time to alter or delete any statements made;

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- Sections of the final report that contain your input will be made available to you.

Point of Contact Information Sheet

Date: _____

Contact Name: _____

Formal Title: _____

How long the individual has worked in that capacity: _____

Telephone No: _____

E-mail: _____

Call Time: _____

Other:

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Questions

Ms. Pat Pieratte, FDOT Safety Office:

Introduction Questions:

- What is your formal position title?
- How long have you worked in that capacity?
- Are there any clarifications you would like to make regarding the enforcement / education matrix that summarizes the status of original enforcement / education recommendations within the Florida Pedestrian Safety Plan (1992)? If yes, please explain.

Clarification Questions:

- On October 10, 2005, Mr. Kingsbury from your office stated that a pedestrian and bicycle safety two-day law enforcement workshop has been developed (by consultant working under a traffic safety grant managed by you) and taught in many locations. A video was developed for it, and it was supposed to be available through the Florida Technology Transfer Center's web site. He stated original idea was that it would train trainers in the agencies and the training would be self-sustaining, but it hasn't worked that way.

Is this correct? If yes, could you please elaborate on this comment and describe any issues that may have been encountered to prevent the train-the-trainer format from happening?

How often is the workshop offered?

Is it correct that a safety grant was used for the development of the two-day law enforcement workshop just discussed?

If yes, was it just a one-time grant?

Has the two-day law enforcement workshop been systematically evaluated for its effectiveness?

- On October 14, 2005, you stated via e-mail that the present enforcement workshop format includes practical enforcement operations and that people have been pleased with the present format.

Is this referring to the two-day law enforcement workshop just discussed? If not, please explain.

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- On October 14, 2005, you stated via-e-mail: “a traffic safety grant (about 1998?) was used to produce the Bike 'n Ped Driver Ed materials which can be used either in Driver's Education classes for new drivers, or for Driver improvement classes, on a voluntary basis. The Technology Transfer Center is distributing the re-printed materials. I know many copies were given to the National Safety Council in Orlando, for distribution to their local Councils around the state. I don't know to what extent the materials are being used in the classes...”

Was the safety grant that was used for the development of brochures for Florida Drivers Education Courses a one-time grant?

Has this effort been systematically evaluated to determine its effectiveness?

Questions:

- The Florida Department of Transportation Safety Office prepared a Pedestrian Safety Plan in 1992 that provided enforcement recommendations to pursue at the state level.

Please describe any enforcement initiatives implemented to mitigate against pedestrian fatalities and injuries, which were not mentioned within this plan. Have any been shown to be effective or ineffective?

- Traffic safety grants are a source of funding for a variety of projects, including those enforcement-related. Please describe the degree to which your office has funded enforcement related projects.

If any have been funded, have these projects been systematically evaluated to determine their effectiveness?

Which enforcement initiatives have been shown to be effective or ineffective within the State of Florida?

- Are there any states that the Safety Office has used as a model for enforcement programs that reduce pedestrian and bicycle fatalities and injuries?
- Are there any enforcement efforts that the Safety Office feels could be implemented to improve pedestrian safety through enforcement efforts?
- Please characterize the relationship the Florida Department of Transportation Safety Office has with other agencies that deal with issues related to pedestrian and enforcement, such as

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the Florida Department of Law Enforcement and the Department of Highway Safety and Motor Vehicles.

- What do you feel are the greatest resources your office has that allow it to work towards fulfilling its mission?
- What do you feel are the greatest challenges that your office faces, which inhibit its ability to fully achieve its mission?
- Are there any other comments you would like to make that best characterize enforcement initiatives within the State of Florida as they relate to pedestrian safety?
- Are there other individuals you would recommend speaking to regarding pedestrian safety and enforcement? If yes, whom?
- May I contact you for any additional questions or clarifications I may have?

Mr. Dwight Kingsbury, FDOT Safety Office:

Introduction Questions:

- What is your formal position title?
- How long have you worked in that capacity?
- Are there any clarifications you would like to make regarding the enforcement / education matrix that summarizes the status of original enforcement / education recommendations within the Florida Pedestrian Safety Plan (1992)? If yes, please explain.

Clarification Questions

- On October 10, 2005 you stated: ... “some pedestrian safety advocates now question whether the UVC itself is deficient, so that simply adopting the UVC wording would not necessarily be beneficial.”

Please elaborate on why adopting the UVC wording might not necessarily be beneficial.

Does the Florida Department of Transportation / Safety Office have a formal position regarding the use of the UVC?

Do you have any literature from pedestrian safety advocates that indicates that the UVC itself might be deficient?

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Questions

- The Florida Department of Transportation Safety Office prepared a Pedestrian Safety Plan in 1992 that provided enforcement recommendations to pursue at the state level.

Please describe any enforcement initiatives implemented to mitigate against pedestrian fatalities and injuries, which were not mentioned within this plan. Have any been shown to be effective or ineffective?

- Traffic safety grants are a source of funding for a variety of projects, including those enforcement-related. Please describe the degree to which your office has funded enforcement related projects.

If any have been funded, have these projects been systematically evaluated to determine their effectiveness?

Which enforcement initiatives have been shown to be effective or ineffective within the State of Florida?

- Are there any states that the Safety Office has used as a model for enforcement programs that reduce pedestrian and bicycle fatalities and injuries?
- Are there any enforcement efforts that the Safety Office feels could be implemented to improve pedestrian safety through enforcement efforts?
- Please characterize the relationship the Florida Department of Transportation Safety Office has with other agencies that deal with issues related to pedestrian and enforcement, such as the Florida Department of Law Enforcement and the Department of Highway Safety and Motor Vehicles.
- What do you feel are the greatest resources your office has that allow it to work towards fulfilling its mission?
- What do you feel are the greatest challenges that your office faces, which inhibit its ability to fully achieve its mission?
- Are there any other comments you would like to make that best characterize enforcement initiatives within the State of Florida as they relate to pedestrian safety?
- Are there other individuals you would recommend speaking to regarding pedestrian safety and enforcement? If yes, whom?

An Analysis of Pedestrian Safety Programs

- May I contact you for any additional questions or clarifications I may have?

Interview Introduction and Process Case Study States

My name is Sean Loughlin and I am a Masters student at the Department of Urban and Regional Planning at Florida State University. The purpose of contacting you is that the department is working towards the development of a Strategic Bicycle and Pedestrian Safety Plan for the State of Florida, under contract with the Florida Department of Transportation. As part of the plan development, looking at efforts and activities of other states is seen as crucial developing revised goals, objectives and policies to guide the State of Florida.

The department has chosen five case study states to analyze and your state is one of those five. Your state was chosen through a variety of criteria; your input would be extremely useful. The State of Florida has the highest pedestrian and bicycle and pedestrian fatality / injury rates in the country. Feedback from other states is an important component of developing sound recommendations to counter the problem.

You were specifically chosen because your name was shown as the point of contact on your departmental web site or you were recommended as an individual to speak with.

Are you familiar with enforcement initiatives as they related to pedestrian safety within your state? (If yes, continue with interview questions. If no, what individual(s) would recommend speaking to?).

Are you willing to participate in an interview? If yes, when?

- Interview questions will be e-mailed ahead of time;
- The interview will likely take about one-half of an hour and, if necessary, additional questions may be posed to you for clarification purposes;
- The interview will not be recorded;
- The interview may be discontinued at any stage if you feel necessary;
- Informants may contact the interviewer at any time to alter or delete any statements made;
- Sections of the final report that contain your input will be made available to you.

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Point of Contact Information Sheet

Date: _____

Contact Name: _____

Formal Title: _____

How long the individual has worked in that capacity: _____

Telephone No: _____

E-mail: _____

Call Time: _____

Other:

State Case Study Questions

Introduction Questions:

- What is your formal position title?
- How long have you worked in that capacity?

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Questions:

- Please describe enforcement initiatives within your state intended to reduce pedestrian fatalities and injuries. Have any been shown to be effective or ineffective?
- Traffic safety grants are a source of funding for a variety of projects, including those enforcement-related. Please describe the degree to which your office has funded enforcement-related projects. If any have been funded, have those projects been systematically evaluated to determine their effectiveness? If so, which enforcement initiatives have been shown to be effective or ineffective within your state?
- Are there any states your state has used as a model for enforcement programs that reduce pedestrian and bicycle fatalities and injuries?
- Are there any enforcement efforts your office feels could be implemented to improve pedestrian safety through enforcement efforts?
- Are you aware of any pedestrian safety curriculum requirements for law enforcement officers within your state? If yes, please explain.
- Are there currently any laws within your state that allow law enforcement officers to detain pedestrians above a certain blood alcohol level, at least until sobriety? If yes, please explain.
- Are there currently any laws within your state that allow officers to remove pedestrians from places such as limited access facilities, or fine them? If yes, please explain.
- Do your state's law enforcement agencies issue citations to motorists for failure to yield to pedestrians or bicyclists in the right-of-way?
- Is pedestrian safety a component of your state's driver violator schools or first-time driver education programs? If yes, please explain.
- Are you familiar with the Uniform Vehicle Code (UVC)?

If yes, please explain any deficiencies your state pedestrian laws have with regard to compliance with the Uniform Vehicle Code and how that might compromise pedestrian safety.

Are you aware of any concerns your state has regarding the effectiveness of the UVC? If yes, please explain.

An Analysis of Pedestrian Safety Programs

- What do you feel are the greatest resources your office has that allow it to work towards fulfilling its mission?
- What do you feel are the greatest challenges that your office faces, which inhibit its ability to fully achieve its mission?

New Mexico

- Does your office coordinate with the Department of Transportation, Transportation Programs Division, which has the State Bicycle, Pedestrian, Equestrian Coordinator? If yes, please explain the coordination.
- Does the Traffic Safety Bureau's Highway Safety and Performance Plan coincide with the Statewide Bicycle, Pedestrian and Equestrian Plan?
- Please characterize the relationship your office has with other state agencies that handle issues related to pedestrians and enforcement.
- Are there other individuals you would recommend speaking to regarding pedestrian safety and enforcement? If yes, whom?
- May I contact you for any additional questions or clarifications I may have?

Arizona

- Does your office coordinate with the Department of Transportation, Bicycle and Pedestrian Program, which hosts the State Bicycle / Pedestrian Coordinator? If yes, please explain the coordination.
- Does the Governor's Office of Highway Safety, Transportation Plan coincide with the Department of Transportation's State Bicycle and Pedestrian Plan?
- Please characterize the relationship your office has with other state agencies that handle issues related to pedestrians and enforcement.
- Are there other individuals you would recommend speaking to regarding pedestrian safety and enforcement? If yes, whom?
- May I contact you for any additional questions or clarifications I may have?

An Analysis of Pedestrian Safety Programs

North Carolina

- Does your office coordinate with the Department of Transportation, Division of Bicycle and Pedestrian Transportation, which hosts the State Bicycle / Pedestrian Coordinator?
- Does the Governor's Highway Safety Program plan coincide with the Department of Transportation's State Bicycle and Pedestrian Plan?
- Please characterize the relationship your office has with other state agencies that handle issues related to pedestrians and enforcement.
- Are the other individuals you would recommend speaking to regarding pedestrian safety and enforcement? If yes, whom?
- May I contact you for any additional questions or clarifications I may have?

Georgia

- Does your office coordinate with the Department of Transportation, State Bicycle and Pedestrian Program, which hosts the State Bicycle / Pedestrian Coordinator?
- Does the Governor's Office of Highway Safety Program plan coincide with the Department of Transportation's State Bicycle and Pedestrian Plan?
- Please characterize the relationship your office has with other state agencies that handle issues related to pedestrians and enforcement.
- Are the other individuals you would recommend speaking to regarding pedestrian safety and enforcement? If yes, whom?
- May I contact you for any additional questions or clarifications I may have?

Texas

- Texas does not have a bicycle pedestrian plan.
- Please characterize the relationship your office has with other state agencies that handle issues related to pedestrians and enforcement.

An Analysis of Pedestrian Safety Programs

- Are the other individuals you would recommend speaking to regarding pedestrian safety and enforcement? If yes, whom?
- May I contact you for any additional questions or clarifications I may have?

A1.3 – Education and Encouragement

Interview Protocol

My name is _____ & I am a master's student in the Florida State University's Department of Urban & Regional Planning. The department is currently working with the Florida Department of Transportation, Safety Office in developing a Statewide Bicycle and Pedestrian Safety Plan. As part of the plan development, we are looking at efforts and activities of other states in order to develop revised goals, objectives and policies to guide the State of Florida.

The department has selected five states as case studies to analyze and your state is one of those five. Your state was chosen through a variety of criteria and so any input that you may have would be extremely useful. You were specifically chosen because your name was shown as the point of contact for the title of Bicycle & Pedestrian Coordinator on your departmental website.

Interview Process

- Interview questions will be emailed prior to the interview;
- The interview will take no more than an hour, and if necessary, additional questions may be posed for clarification purposes;
- The interview will not be recorded;
- The interview may be discontinued at any stage if you feel necessary;
- Informants may contact the interviewer at any time to alter or delete any statements made;
- Sections of the final report that contain the input of the interviewee will be made available upon request.

An Analysis of Pedestrian Safety Programs

General Questions

Date:

Call time:

Telephone No:

Contact Name:

Title:

Years of Experience at Current Position:

Specific Questions

Are you the individual most responsible and knowledgeable about the implementation of the bike/pedestrian plan (If no, can you recommend an individual who would be better suited to speak on this topic)?

1. List the number of staff involved in administering the bicycle / pedestrian program?
2. List the other agencies, departments and or offices with which you work in operating this program?
3. What educational programs does your state currently offer?
4. Are there any states in which you have modeled after in developing your educational initiatives?
4. Does your state's Strategic Highway Safety Plan address educational initiatives?
5. Is your state's Bicycle/Pedestrian Plan current or is it being updated?
6. Is your state currently using mass media campaigns (for example television or radio ads) to inform the public about pedestrian safety issues?
6. Please describe some of the training workshops/courses that have been made available to Planners, Engineers, etc. in an effort to education each group about pedestrian safety issues?
7. What is your department doing to inform and educate professionals (such as engineers, planners, architects, etc.) about elder pedestrian safety issues?
8. Please describe what educational programs have been put in place to target children ages 5 – 9 on bicycle / pedestrian safety?

An Analysis of Pedestrian Safety Programs

9. What initiative has been implemented to educate the general public about alcohol related pedestrian problems?
10. Has the state implemented a study of pedestrian injuries by age group, type and causation of accidents in an effort to target specific prevention programs?
11. Describe the level of coordination / communication between your office and the 402 administrator in your state?
12. Describe what effort has been made by your department to seek additional funds or partnerships with other organizations in an effort to promote pedestrian safety?
13. Please discuss the strategies you have found to be the most effective / ineffective in educating the public about pedestrian safety?
14. To what degree has the educational strategies been evaluated to measure their effectiveness in reducing pedestrian injuries and fatalities?

A1.4 – Engineering

Interview Protocol

Hello, my name is Andre Rosser and I am a graduate student at Florida State University, in the Department of Urban and Regional Planning. The department is currently evaluating the State of Florida's Bicycle and Pedestrian Plan and my specific area of study is the Engineering Element.

The department has chosen six case study states to analyze and your state is one of those chosen. The states were chosen through a variety of criteria and we have several questions about your program.

Interview Process

- Identify point of contact
- Set up time to conduct phone interview & e-mail questions prior to interview
- Interview will take approximately one-half hour and additional questions may follow for clarification purposes.
- Interview is not recorded
- Interviewee is able to call interviewer to alter or delete any statements made
- Field notes will be electronically delivered to interviewee for verification
- Sections of the final report that contain the input of the interviewee will be made available upon request.

An Analysis of Pedestrian Safety Programs

Initial Documentation

Date/Time: _____

Contact Name: _____

Agency: _____

Address: _____

Telephone/E-mail: _____

1. What is your official title?
2. How long have you worked in that capacity?
3. To whom do you directly report, and what is their official title?
4. In what department is your state highway safety office housed?
5. How many people work in (your) the Safety Office?
6. How many people work specifically for initiatives in bicycle and pedestrian safety?
7. Do you feel that your office is appropriately staffed, in terms of quantity of people and diversity of abilities?

Engineering and Planning Element

1. Do you coordinate your efforts with other transportation or safety-related offices or agencies?
2. Does your state have a specific bicycle and pedestrian safety program?
3. How would you characterize the level of safety for bicyclists and pedestrians in the right-of-way in your state?
4. Does your state have a bicycle and pedestrian advisory committee?
5. If it does, is it legislatively empowered?
6. Is the data that is collected used to inform policy changes that could result in reduced bike/pedestrian injuries and fatalities (like the SHSP)?
7. Does your state have a specific bike/pedestrian plan? Perhaps one of each?
8. Does your SHSP identify bike/pedestrian safety as a major concern?

An Analysis of Pedestrian Safety Programs

9. Does your SHSP provide any recommendations to improve that safety?
 10. Does the plan recommend the collection of certain kinds of data?
 11. Does the plan recommend the funding of particular types of countermeasures?
 12. Is your state's Highway Safety Plan modeled after the AASHTO Strategic Highway Safety Plan of 1997?
 13. Has your state adopted the MUTCD completely or do you have a supplemental document?
 14. Has your state adopted the American Association of State Highway Transportation Officials (*AASHTO Green Book*) Policy on Geometric Design of Highways and Streets?
 15. Does your state have a state specific manual that provides for uniform standards and criteria for the design, maintenance, and construction of public streets, roads, highways, and pedestrian facilities?
 16. Do the individual jurisdictions/municipalities within the state have the ability to adopt their own standards?
 17. Is there a separate guide/manual for roads on the state highway system (SHS) and off the SHS?
 18. Does your state consider pedestrian needs in all transportation facilities?
 19. Do your state policies ensure a connected system of pedestrian routes in urban areas?
- Do your state policies encourage land use and transportation development that accommodates pedestrians?

A1.5 – Implementation

Interview Protocol

Hello, my name is Karla Weaver and I am a graduate student at Florida State University, in the Department of Urban and Regional Planning. The department is currently evaluating the State of Florida's Bicycle and Pedestrian Plan and my specific area of study is the funding connected to that plan, specifically current Section 402 Grant funding, provided from the Federal government under SAFETEA-LU.

The department has chosen six case study states to analyze and your state is one of those chosen. The states were chosen through a variety of criteria and we have several questions about your program.

Interview Process

- Identify point of contact
- Set up time to conduct phone interview & e-mail questions prior to interview

An Analysis of Pedestrian Safety Programs

- Interview will take approximately one-half hour and additional questions may follow for clarification purposes.
- Interview is not recorded
- Interviewee is able to call interviewer to alter or delete any statements made
- Field notes will be electronically delivered to interviewee for verification
- Sections of the final report that contain the input of the interviewee will be made available upon request.

Initial Documentation

Date/Time: _____

Contact Name: _____

Agency: _____

Address: _____

Telephone/E-mail: _____

A. Official Title: _____

B. Length of time in position: _____

C. To Whom Do you report directly and what is there title?

1. In addition to the federal guideline provided by legislation, (TEA-21, SAFETEA-LU), what can 402 money be used for in your state and what can it not be used for and do you emphasize a specific use? (What kind of programs do you fund with 402 money?)
2. Do you have an estimate of the percent of overall 402 grant funding goes to just pedestrian or bike/ped safety issues?
3. Has the amount increased or decreased over the years?
4. Is there a cap on the amount of money one program is allowed to receive?
5. What would be an estimate of the average awarded amount?

An Analysis of Pedestrian Safety Programs

6. What are the agencies goals for the use of the funding? Ex: Reduce bicycle & pedestrian injuries and fatalities?
7. Who is eligible to receive the money and who predominantly receives the funding? Or knowing that 40% is the minimum amount of 402 money required to be apportioned to municipalities or counties, what percentage of 402 money do you typically apportion to municipalities or counties?
8. Do you have copies of all the 402 grant applications you could send us?
9. Do you have copies of the final grant reports you could send us?
10. How long do you archive your annual 402 grant reports?
11. What are the match requirements of the grants? Does your state provide funding matches to some programs?
12. When is the grant funding period open and when are the grants awarded?
13. How do the yearly grants awarded by the state compare to the total amount received from the NHTSA?
14. How are ideas for the 402 grant program spending formulated, in-house or request for concept papers, or competitive grant program with application?
15. With bike/ped concern in mind, is the 402 funding that is apportioned directed to specific types of countermeasures (ie preference for one of the 3 or 4 E's: enforcement, education, engineering, encouragement...)
16. Do you fund projects that identify high-crash locations? If not, do you have intentions of funding such projects in the future?
17. Do you feel that the counter-measures you have funded through 402 grants have had an effect on bike/ped safety?
18. How is it determined which projects are funded and is there a score sheet or matrix for determining what criteria are graded or rated? Is the priority of a certain criteria such as geography or activity, etc...?
19. What is the average length of the grants awarded or how long is a "successful" program allowed to be funded through Section 402 grant monies in your state? Are they predominantly for 1 year or do most review for a second and/or third year?

An Analysis of Pedestrian Safety Programs

20. Do you perform any systematic grant evaluation on the grants effectiveness in reducing fatality's or non-fatal injuries, or the agencies goals or objectives?
21. Are the grants used to implement any plans, such as a Highway Safety Plan or a Bicycle or Pedestrian Plan or Bike Plan of some sort?
22. Is the federal funding your state receives adequate to fund the programs you think are necessary to reduce bike/ped injuries/fatalities?
23. Is your Performance Plan a separate document from the Highway Safety Plan that is required by Rule for Section 402?
24. Is there a bike/ped program for the state and if so, how much coordination and interaction is there between the bike/ped coordinator and the 402 bike/ped safety grants program?
25. How many people in your division/office work with the 402 grant program or what is the staff size of the 402 grant program.
26. Are you familiar with the Section 163 grant program? If so, what type of programs have you funded with 163 grant money?
27. How many programs were funded each year with Section 163? How many were related to bike/ped safety?

Appendix A2 – Education Matrix

**Status of Education Recommendations
Florida Pedestrian Safety Plan**

Recommendation	Accomplished?	Why/Why Not	Method(s) Used to Ascertain Status	Measured?	Comments
1- Implement Traffic Safety Education Program.	Accomplished	N/A	Interview	Yes Evaluated annually	Florida Traffic Bicycle Safety Education Program at the University of Florida via FDOT Human Resource Development + non-profit & advocacy organizations.
2- Conduct a mass media campaign through family & child-oriented companies.	Partially Accomplished	Lack of staff, money & little coordination	Questionnaire & Interview	N/A	Some of this has been done through Safe Kids Coalition & AAA.
3- Train crossing guards, bus drivers & school liaison officers.	Partially Accomplished	Florida School Crossing Guard Training Program (FSCGTP) implemented via FDOT Human Resource Development Funds.	FSCGTP Report & Interview	Evaluation Report done in 1998, by Dr. Richard Schneider & Dr. Ruth Steiner at UF	Bus drivers have not been trained by the Safety Office but School Resource Officers can and have been trained in the FTBSEP.

An Analysis of Pedestrian Safety Programs

Recommendation	Accomplished?	Why/Why Not	Method(s) Used to Ascertain Status	Measured?	Comments
4- Obtain public/private partnership with Disney or corporations offering popular childhood character to help promote the program.	Partially Accomplished	Safety Kids Coalition has worked w/ Radio Disney on Public Service Announcements for Bike/ Pedestrian Safety.	Questionnaire, Interview	N/A	Independent efforts are being made to promote pedestrian safety.
5- Develop & coordinate a statewide mass media pedestrian safety campaign.	Partially Accomplished	402 funds have not been used for media campaign as of yet for bike/pedestrian. The Share the Road campaign + license plate included some pedestrian messages.	Questionnaire Interview	N/A	Currently working on the south Florida PI&E campaign sponsored through the National Safety Council; will perhaps be extended statewide in 2006.
6- Seek funding sources, appropriate sponsors, and marketing outlets such as industries involved with walking or athletics.	Partially Accomplished	“State agencies are not set up to receive funds from private or public for-profit or non-profit agencies” (PP) as stipulated by federal funding formulas	Questionnaire, Interview	N/A	Local bike/ pedestrian can and do get sponsors like this for events & conference.

An Analysis of Pedestrian Safety Programs

7- Implement college & university registration/ orientation pedestrian safety programs.	Not Accomplished	At the discretion of the university / college. UF currently has the only traffic safety presentation during orientation of the twelve public state universities.	Questionnaire Interview		FDOT Safety Office has asked the PSRC at FAU to draft a letter to send out to all of the state universities and colleges discussing the safety resources available to them.
8- Training programs should be developed and taught through the Safety Office.	Accomplished	N/A	Questionnaire Online references	Evaluation conducted for attendance and completion	Using 402 Funds, various courses and workshops have/are being offered.
9- Implement a study of pedestrian injuries by age group in Florida, including age, type & causation of accident.	Not Accomplished	The office creates charts of crashes by age and county each year. Crash analysis has to be done at the local level. It is being done thru GIS crash mapping analysis in some localities around the state.	Questionnaire Interview		

An Analysis of Pedestrian Safety Programs

10- Produce materials and presentations for MPOs, planners, etc. on the special needs of the elder population.	Accomplished		Questionnaire Interview Online Resources	No specific evaluation	Pedestrian Safety Resource Center at FAU has produced educational programs/curricula for elder pedestrians available on-line and for purchase.
11- At the local level, collect locations of alcohol-related pedestrian incidents and to whom they are occurring. Develop appropriate combinations of interventions.	Partially Accomplished	Safety Office does not have the staff to accomplish local interventions presently	Questionnaire Interview	None	Information can be drawn from state databases.
12- Develop materials such as pamphlets, coloring books, etc. to be distributed in public health clinics.	Partially Accomplished	FDOT has been working towards this for bicycle related safety though not as much for pedestrian safety.	Questionnaire Interview	None	Pedestrian Safety Resource Center at FAU has developed the material, and is currently seeking to work with Departments of Health in order to distribute material.
13- Retitle Driver's Ed to Traffic Ed and make it part of a K-12 Traffic	Not Accomplished	This action would require coordination with Department of	Interview		FTBSEP developed and implemented the Driver's Ed for Bike

An Analysis of Pedestrian Safety Programs

Safety Ed Program		Education and would require involvement at the state executive level.			& Pedestrian program statewide for middle school students.
14- Initiate campaigns for educating pedestrians of all ages in proper use of pedestrian signals & pushbuttons.	Accomplished		Questionnaire Interview	N/A	Pedestrian Safety Resource Center at FAU is leading this effort with literature online and through presentation.

An Analysis of Pedestrian Safety Programs

Appendix A3 Enforcement Matrix

Status of Existing Enforcement Recommendations - Florida Florida Pedestrian Safety Plan

Recommendation	Accomplished?	Why / Why Not	Method(s) to Ascertain Status	Measured?	Comments
1- Propose legislation to arrest pedestrians with blood alcohol level 0.10 and above	No	Limited staffing and time; entities outside of FDOT would need to seek a sponsor. This initiative would not be in FDOT legislative package	Questions to Informants; Statutes	N/A	Chapter 856, F.S.: citations can be issued for endangering safety of people / property (2nd Degree Misdemeanor)
2- Include pedestrian matters in the basic recruit curriculum for law enforcement officers	No	See Recommendation No. #9 Long process that requires interagency cooperation. Bike / Pedestrian Advisory Committee now involves various agencies	Admin. Code; Questions to Informants; Statutes	N/A	FDLE Curriculum Manager: pedestrian matters not focused on; just overview of state pedestrian laws
3- Integrate more pedestrian safety into Drivers' education curriculum of driver violator schools or preliminary licensing schools	Partially	Bike 'n Ped Driver Education materials are distributed on a voluntary basis to some schools	Admin Code; Questions to Informants; Statutes	No	Section 402 Grant funded production and voluntary distribution of materials at driver schools

An Analysis of Pedestrian Safety Programs

Recommendation	Accomplished?	Why/Why Not	Method(s) to Ascertain Status	Measured?	Comments
4- Develop central resource database for bicycle and pedestrian crash data to be used by agencies	See Data Collection Element		Questions to Informants	N/A	University of Florida developing crash mapping system for ten high crash counties
5- Track backgrounds and blood alcohol levels of all deceased pedestrians > age 10	No	Limited staffing and time	Questions to Informants	N/A	Other independent alcohol studies on Florida roadways have been done
6- Legislature should strengthen Section 316.130 (18) to allow officers to removed pedestrians from limited access locations	Yes, the Statute has been strengthened; does not indicate that pedestrians can be removed from limited access locations	Never introduced in the legislature; would need interagency cooperation. Bike / Pedestrian Advisory Committee now established with various agencies participating	Questions to Informants; Statutes	N/A	Chapter 316, F.S. states: “no pedestrian shall walk upon a limited access facility or a ramp connecting a limited access facility to any other street or highway” (a non-criminal infraction)

An Analysis of Pedestrian Safety Programs

Recommendation	Accomplished?	Why/Why Not	Method(s) to Ascertain Status	Measured?	Comments
7- FDOT should compare Florida pedestrian statutes to UVC	Yes	Limited staffing and time	Questions to Informants	No	Comparison to UVC was done by USDOT
8- Develop safety information for public information programs, which would become resources for selective enforcement programs	See Education Section Issue #2	N/A	Questions to Informants	No	Section 402 grant contributed to development of a Florida Bicycle Law Enforcement Guide, soon to include a Pedestrian Law Guide
9- Develop safety curriculum for education officers / law enforcement trainers	Yes	N/A	Questions to Informants	No	Section 402 Grant funds two-day bike / pedestrian law enforcement workshop and a bicycle / pedestrian crash investigation course

Appendix A4 – Engineering Matrix

**Status of Existing Engineering Recommendations - Florida
Florida Pedestrian Safety Plan**

Recommendation	Accomplished?	Why/Why Not	Citation	Measured?	Comments
Sidewalk					
5 foot sidewalks should be included on both sides of all urban area roadways	Not Accomplished	Required on one side of the road	Review of the Plans Preparation Manual (PPM, pg. 8-3)	NA	“Sidewalks on both sides of the road is recommended but only required on one side”
Sidewalks should be included in all residential and commercial development plans	Accomplished	Required by Florida Statute	Review of the 2005 Growth Policy Act	During Plan Review/ Approval	Developer has the ability to buy their way out of having to build sidewalks
Long range and comprehensive plans must include a pedestrian circulation element.	Accomplished	Required by Florida Statute	Review of the 2005 Growth Policy Act	During Plan Review/ Approval	Only a plan is required.
MPO’s should submit a ten year plan to provide sidewalks on both sides of all non-limited access roads within the urbanized area	Accomplished	Required by Florida Statute	Review of the 2005 Growth Policy Act	During Plan Review/ Approval	Only a plan is required.
FDOT discourages the building of facilities to minimal standards.	Partially Accomplished	Case by Case basis	Interview with Jim Mills, FDOT	During Plan Review/ Approval	Jim Mills with FDOT stated that DOT recommends facilities be built above minimum standards.

An Analysis of Pedestrian Safety Programs

Sidewalks should be designed free of obstructions.	Not Accomplished	(See Comments)	Review of the PPM and FL Green Book	During Plan Review/ Approval	Both the PPM and the Florida Green Book state that placement of obstructions within a sidewalk shall be such that a minimum unobstructed sidewalk width of 32" is provided.
The installation of sidewalks immediately adjacent to the curb should only be placed when severe right-of-way constraints exist. Under those circumstances, the minimum width allowed by AASHTO is 6 feet.	Not Accomplished	FL Green Book provides an out for this recommendation (See Comments)	Review of the FL Green book and PPM	During Plan Review/ Approval	A 4-foot sidewalk may be considered when physical constraints exist and where necessary right of way is unavailable or prohibitively expensive.

An Analysis of Pedestrian Safety Programs

In areas with insufficient right-of-way to provide the standard five foot sidewalk, use a reduced sidewalk width (no less than four feet) that provides a lower level of service to the pedestrian.	Accomplished	Required by AASHTO, the ADA, the PPM and the FL Green Book.	Review of PPM and the FL Green Book.	During Plan Review/ Approval	According to the ADA, a width of less than four feet is too narrow for a wheelchair to pass through easily.
A sidewalk or pedestrian overpass should not have a grade greater than 6 percent.	Accomplished	ADA requirement (See Comments)	Review of the ADA	During Plan Review/ Approval	The maximum grade allowed by ADA is 5 percent.
In areas near schools and other major bicycle/pedestrian areas, the minimum width of the sidewalk should be 8 feet.	Not Accomplished	Not required (See Comments)	Review of the FL Green book and PPM.	NA	The PPM suggests it may be desirable to create wider sidewalks in business districts, near schools, transit stops, or where there are other significant pedestrian attractors but does not specifically state a minimum width of 8' in areas near schools. (pg 2-10)

An Analysis of Pedestrian Safety Programs

Place sidewalks at the right-of-way line in sections of roadways without curb and gutter	Not Accomplished	The PPM has lists other requirements	Review of the FL Green book and PPM.	NA	The PPM states that on existing roadways with flush shoulders, sidewalks should be placed as far from the roadway as practical with the following location as the desired alternative: Outside of the roadway right of way in a separate, offsite and/or parallel facility. (pg 8-4)
Intersection					
Right-Turn-on-Red should be prohibited at those intersections where pedestrian volumes are significant and field studies suggest this treatment.	Accomplished	Although Florida Statutes allow RTOR, RTOR can be prohibited when field studies warrant	Review of the PPM, FL Green Book and the Florida Intersection Design Guide	Intersections are studied on a case by cases basis.	The Florida Intersection Design Guide states that prohibition of RTOR will generally be justified by safety considerations, brought about by high crash rates, visibility limitations, complicated geometrics or phasing and special populations. (4-14)

An Analysis of Pedestrian Safety Programs

Install two pedestrian curb ramps per corner as near as possible to the pedestrian pushbutton, to aid the handicapped, sight impaired, persons with strollers, etc. in crossing at crosswalks. A single ramp design is not desirable as it will direct pedestrians into through traffic.	Accomplished	Required by the PPM and the FL Green Book.	Review of the ADA, the FL Green Book and PPM	During Plan Review/ Approval	The PPM outlines that each crossing should have a separate curb ramp (pg 8-4)
Medians should be provided whenever the crossing distance exceeds 60 feet to provide a refuge for slow or late crossing pedestrians.	Partially Accomplished	Not required (See Comments)	Review of the ADA, the FL Green Book and PPM	Could be measured during Plan Review/ Approval	The PPM states that traffic separators with a width sufficient to provide refuge should be used at intersections where possible (pg 25-39)
Where warranted pedestrian buttons shall be installed in accordance with DOT Design Standards Index #17784 at all signalized crosswalks and in medians.	Accomplished	Required by the MUTCD and the PPM	Review of the ADA, the FL Green Book, the PPM and the DOT Design Standards	During Plan Review/ Approval/ Inspection	Required by the FDOT <i>Design Standards Index #17784</i>
Pedestrian signal heads should be installed when field studies warrant. All signal heads should be brought up to current MUTCD standards.	Not Accomplished	MUTCD Standards are required but cost may prohibit installation at all warranted locations	Review of the MUTCD and the Florida Intersection Design Guide (4-7)	During Plan Review/ Approval/ Inspection	In review of existing standards, pedestrian signals should be installed at nearly all signalized crosswalks in urban locations.

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When possible, move existing and install new drainage structures out of the curb radius to prevent design induced tripping and to ensure water is directed away from the pedestrian crossing.	Not Accomplished	Cost may prohibit installation at all warranted locations	Review of the ADA, the PPM, FDOT Drainage Manual and the Florida Intersection Design Guide	NA	The PPM state that drainage inlets, grates and utility covers are potential problems to bicyclists. When a new roadway is designed, all such grates and covers should be kept out of the bicyclists' expected path. (No mention of Pedestrian path) (pg 8-7)
Install new traffic signal installations using pole/mast arm mounted signals or box spans when diagonal spans supporting traffic signal heads would prevent pedestrians from seeing the current vehicle phases.	Accomplished	Required by the Florida Intersection Design Guide	Review of the PPM and the Florida Intersection Design Guide	During Plan Review/ Approval/ Inspection	The Florida Intersection Design Guide states that mast arms with horizontal signal heads should be parallel to their intended stop bar. (4-46)
Parking should be prohibited within 60 feet of the approach to, and 30 feet on the departure from, a signalized intersection.	Accomplished	Required by Florida Statute and the Florida Intersection Design Guide	Review of the Florida Intersection Design Guide (pg 6-14)	NA	Florida Statutes prohibits parking within 20 feet of a crosswalk at an intersection, and within 30 feet upon the approach to any stop sign, or traffic control signal.
When advantageous, provide full corner and half corner sidewalk flares (bulbouts) on streets with parking.	Not Accomplished	Not required by standard	Review of the PPM and the Florida Intersection Design Guide	NA	Not recommended on new arterials

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Whenever possible, locate bus stops on the departure (far) side of the intersection.	Accomplished	Consistent with the Florida Green Book	Review of the FL Green Book	Plan Review/ Approval/ Inspection	
When approaching driver's views of pedestrians is restricted, clean-up corners by using joint-use poles and relocate and remove other items or trim trees or shrubs.	Accomplished	Cost constraints	Review of the FL Green Book, the PPM and the Florida Intersection Design Guide	During Plan Review/ Approval/ Inspection	Consistent with the PPM and the Florida Green Book
Parking and Safe Access to Buildings and Schools					
To eliminate conflicts, provide traffic circulation that fully separates drop-off zones from pedestrians.	Not Accomplished	Lack of DOT control over parking facilities	Review of the MUTCD and the ITE handbook	NA	ITE recommends prohibiting parking immediately adjacent to a building.
Control parking lot interior circulation and provide sidewalk median access to parking	Not Accomplished	Cost Prohibitive; Lack of DOT control over parking facilities	Review of the ITE handbook (5 th Edition, pg. 545)	NA	"the value of interior walkways is so debatable that they are seldom used today."
Reduce pedestrian/automobile conflict points in all parking lot traffic circulation.	Partially Accomplished	Cost Prohibitive	Review of the ITE handbook	Use of 90 degree parking in Plan Review	ITE states that a decrease in pedestrian-vehicular conflict is the most significant and compelling reason for using 90 degree parking.

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Reduce or eliminate driveway access on pedestrian emphasis streets or minimize driveways by using a dual entry driveway.	Partially Accomplished	Not required by standard	Review of the State Highway System Access Management Classification System and Standards	During Plan Review/ Approval/ Inspection	FDOT Chapter 14-97 State Highway System Access Management Classification System and Standards states “to the greatest extent possible, FDOT will encourage joint use driveways ...”
Prohibit unsignalized left turns from roads into and out of all driveways to public schools, public buildings and large commercial buildings.	Not Accomplished	Not recommended by FDOT (See Comments)	Interview with Mr. Mills where he referred me to the FDOT Driveway Handbook	NA	According to the FDOT Driveway Handbook, “whenever a driveway is directly served by a median opening, a left turn lane should be available. This provides for the safest left turns into the driveway.”
Plan parking garages with side or rear street entrances.	Do not know	Could not find reference	Review of the FL Building Code	Could be measured During Plan Review	Not discussed in the Florida Building Code.
Provide separate access to garages for pedestrians.	Accomplished	Required by building code	Review of the FL Building Code	During Plan Review	Required by the Florida Building Code.

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Where pedestrian volumes are high use raised pedestrian crossings and illuminate the crossings.	Partially accomplished	Cost Prohibitive	Review of the Florida Pedestrian Planning & Design Handbook	During Plan Review	The Daytona Beach airport has a “raised crossing with imbedded yellow lights and prisms on the approach taper. Although expensive, this high use pedestrian zone treatment leads to a nearly 100 percent yielding behavior by motorists.”
To the maximum extent possible, create one-way traffic flow to minimize pedestrian conflict with vehicles.	Not Accomplished (See Comment)	Parking facilities can be designed with one and two way traffic	Review of the ITE handbook	NA	ITE recommends two-way traffic when parking is at 90 degrees and one-way traffic where parking spaces are at less than a 90 degree angle
When walkways are constructed between rows of parking stalls, the facility should be at least 11.2 feet in width to allow 2’6” of automobile overhang with five feet of walking space.	Accomplished	Cost Prohibitive	Review of the ITE handbook	During Plan Review	ITE recommends installing wheel stops 2.5 feet from the edge of the sidewalk. For new development the preferred practice is to increase the sidewalk width by 2.5 feet.

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<p>Bulbouts should be provided at all pedestrian/vehicle facility intersections to shorten the distance a walker must cross.</p>	<p>Partially Accomplished</p>	<p>Cost Prohibitive and not required by standard</p>	<p>Review of the PPM, FL Green Book and the Florida Pedestrian Planning & Design Handbook</p>	<p>NA</p>	<p>The Florida Pedestrian Planning & Design Handbook states that curb bulbouts may be an excellent way to bring the pedestrian forward of parked cars and street furniture.</p>
<p>Crosswalks should be well marked to alert motorists and pedestrians. Heavily used crosswalks should be raised to slow vehicular traffic.</p>	<p>Partially Accomplished</p>	<p>New construction is required by standard but upkeep of crosswalk markings is expensive</p>	<p>Review of the MUTCD, the PPM, FL Green Book and the Florida Pedestrian Planning & Design Handbook</p>	<p>Don't know</p>	<p>The MUTCD requires a minimum width of 6 inches. The standard width for the State Highway System is 12 inches. They should be spaced 6 feet apart as illustrated in <i>Design Standards, Index No. 17346 Sheet 2 and 7.</i></p>
<p>All facilities must be handicap accessible, not only to provide for the needs of the handicapped, but to allow shopping carts to be pushed easily on the walkways.</p>	<p>Accomplished</p>	<p>Required on new construction but not required for retrofit</p>	<p>Review of ADA</p>	<p>During Plan Review</p>	

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Midblock Crossings					
<p>Midblock crossings need to be studied from a pedestrian point of view and should be considered when all of the following conditions apply</p> <ol style="list-style-type: none"> 4. High pedestrian concentrations 5. The Midblock crossing provides the most direct route 6. The Midblock crossing presents the least conflict with vehicles. 	Don't know	Only requires a study and consideration	Review of the MUTCD, the PPM, FL Green Book and the Florida Pedestrian Planning & Design Handbook	NA	The PPM states that the use of unsignalized midblock crosswalks should be carefully considered. When used, midblock crosswalks should be illuminated, marked and outfitted with advanced warning signs or warning flashers. "Pedestrian-activated, signalized midblock crosswalks are preferred, but locations must meet the warrants established in the (<i>MUTCD</i>) Chapter 4C-2"
Maintenance of Pedestrian Traffic through Work Zones					
<p>The <i>Design Standards, Indexes 601</i> through <i>670</i>, are layouts of work zone traffic control for typical conditions. These indexes should be referenced only if project conditions are nearly the same as the typical layout. Otherwise, specific plan sheets or details must be prepared.</p> <ol style="list-style-type: none"> 11. Advance information 12. Transition information 13. Work Area information 	Accomplished	Required by the MUTCD	Review of the MUTCD	During Plan Review	The MUTCD provides an outline for the location of all required signage and permanent and temporary barriers. Specific plan must be provided within construction plans.

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14. Exit information	Accomplished	Required by the MUTCD	Review of the MUTCD	During Plan Review	The MUTCD outlines that signing for the control of traffic entering and leaving work zones by way of intersecting highways, roads and streets shall be adequate to make drivers aware of work zone conditions.
15. Corner closures	Accomplished	Required by the MUTCD	Review of the MUTCD	During Plan Review	The MUTCD states that where an existing pedestrian way is located within a work zone, it must be maintained.
16. Crosswalk closures	Accomplished	Required by the MUTCD	Review of the MUTCD	During Plan Review	The MUTCD states that signing for the control of traffic entering and leaving work zones by way of intersecting highways, roads and streets shall be adequate to make drivers aware of work zone conditions.

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17. Midblock closures	Accomplished	Required by the MUTCD	Review of the MUTCD and the PPM	During Plan Review	The MUTCD and the PPM state that signing should be used to direct pedestrians to safe street crossings in advance of an encounter with a work zone. Signs should be placed at intersections so pedestrians, particularly in high-traffic-volume urban and suburban areas, are not confronted with midblock crossings.
18. Physical barriers	Accomplished	Required by the MUTCD	Review of the MUTCD and the PPM	During Plan Review	Temporary traffic control devices used to delineate a temporary traffic control zone pedestrian walkway shall be crashworthy and, when struck by vehicles, present a minimum threat to pedestrians, workers, and occupants of impacting vehicles.

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19. Training of those responsible for designing and approving traffic control plans	Accomplished	Required by the MUTCD	Review of the MUTCD and the PPM	During Plan Review	The Department's Maintenance of Traffic Committee has prescribed work zone traffic control training requirements outlined in <i>Department Procedure, Topic No. 625-010-010</i> .
20. Training for those responsible for inspecting the field setup for compliance	Accomplished	Required by the MUTCD	Review of the MUTCD and the PPM	During Plan Review	The Department's Maintenance of Traffic Committee has prescribed work zone traffic control training requirements outlined in <i>Department Procedure, Topic No. 625-010-010</i> .
Planning Facilities with Pedestrian Needs in Mind					
Full pedestrian accommodations shall be provided in accordance with FDOT policies and standards on all new construction projects.	Accomplished	Required by the PPM	Review of the ADA, PPM and FL Green Book	During Plan Review	The PPM states that all new or major reconstruction projects should be designed with the consideration that pedestrians will use them.
Most transportation and safety professionals are not trained in pedestrian planning, design, operations and maintenance.					

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<p>The Department of Transportation's Safety Office should pilot then deliver a series of twenty-five one day Pedestrian Facilities planning and design training courses.</p>	<p>Accomplished</p>		<p>Interview with Dwight Kingsbury</p>		<p>He stated "I don't know about the exact number, but Dan Burden (past State Ped & Bike Coordinator) Michael Wallwork (past design engineer FDOT staff, did conduct many pedestrian facilities trainings for FDOT staff." "Dan also conducted workshops for MPO and other non-FDOT staff."</p>
<p>All Florida schools should offer a basic course on how to provide for the pedestrian in society.</p>	<p>Partially Accomplished</p>	<p>Not a technical issue</p>	<p>Interview with Engineering and Planning school professors</p>	<p>Course schedule and description</p>	<p>Offered at the three main planning schools whereas the Engineering Schools interviewed only offer courses in Highway and Facilities design in which the pedestrian is mentioned as a side note.</p>

Appendix A5 –

Chapter 856.011, Florida Statutes, Public Drunkenness

“(1) No person in the state shall be intoxicated and endanger the safety of another person or property, and no person in the state shall be intoxicated or drink any alcoholic beverage in a public place or in or upon any public conveyance and cause a public disturbance.

(2) Any person violating the provisions of this section shall be guilty of a misdemeanor of the second degree, punishable as provided in s. 775.082 or s. 775.083.

(3) Any person who shall have been convicted or have forfeited collateral under the provisions of subsection (1) three times in the preceding 12 months shall be deemed a habitual offender and may be committed by the court to an appropriate treatment resource for a period of not more than 60 days. Any peace officer, in lieu of incarcerating an intoxicated person for violation of subsection (1), may take or send the intoxicated person to her or his home or to a public or private health facility, and the law enforcement officer may take reasonable measures to ascertain the commercial transportation used for such purposes is paid for by such person in advance. Any law enforcement officers so acting shall be considered as carrying out their official duty.”

Chapter 775.083, Florida Statutes, states that the penalty for being convicted of a misdemeanor of the second degree or a non-criminal violation could be \$500.

Chapter 775.082, Florida Statutes, states that ... “(5) Any person who has been convicted of a non-criminal violation may not be sentenced to a term of imprisonment nor to any other punishment more severe than a fine, forfeiture, or other civil penalty, except as provided in Chapter 316 or by ordinance of any city or county.”

Chapter 15A-8.002, Florida Administrative Code, Driver Improvement Courses

Chapter 15A-8.002, Florida Administrative Code (2005), makes the following distinctions between various driver improvement courses:

“Basic Driver Improvement (BDI) Course – A curriculum designed for drivers who attend pursuant to Section 318.14(9) or 322.0261, F.S.;

Advanced Driver Improvement (ADI) Course – A curriculum designed for drivers who attend by order of the court or pursuant to Section 322.291, F.S.;

Traffic Law and Substance Abuse Education Course – A curriculum designed for new drivers who have not been licensed in any other jurisdiction and required by Section 322.095, F.S.”

Chapter 15A-8.006, Florida Administrative Code (2005), states that a BDI course should contain the following elements:

- “1. The concept of collision preventability, including a discussion of the magnitude of traffic collision problems;
2. Crash Avoidance Driving Techniques;
3. Alcohol and drug use as a collision factor;
4. The risk factor involved in driver attitude and in irresponsible driver behaviors, such as speeding, reckless driving, running red lights and stop signs, etc., and
5. The major traffic laws of the State of Florida.”

Chapter 15A-8.006, Florida Administrative Code (2005), states that an ADI course should contain the following elements:

- “1. Identify the major problem(s) they have created for themselves as a result of their driving behavior.
2. Identify the driving habits that have caused them problems.
3. Develop the desire to change those driving habits that are causing them problems.
4. Learn an effective system for changing their troublesome driving habits based on an increased understanding and awareness of emotions, attitudes and personality structure and how these affect driving habits.
5. Application of changes in driver behavior and attitude to simulated and real driving situations.
6. Make a firm commitment to continuously apply the change system moment by moment while driving.”

Chapter 15A-8.0061, Florida Administrative Code (2005), states that a Traffic Law and Substance Abuse Education Course should contain the following elements:

- “1. Physiological and psychological consequences of abuse of alcohol and other drugs;
2. The societal and economic cost of alcohol and drug abuse;
3. The effects of alcohol and drug abuse on the driver of a motor vehicle;
4. The laws of the State of Florida relating to the operation of a motor vehicle.”

Chapter 316.130, Florida Statutes, State Uniform Traffic Control

Chapter 316.130 Florida Statutes, State Uniform Traffic Control, Pedestrian obedience to traffic control devices and traffic regulations, states:

- “(1) A pedestrian shall obey the instructions of any official traffic control device specifically applicable to the pedestrian unless otherwise directed by a police officer.

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- (2) Pedestrians shall be subject to traffic control signals at intersections as provided in s. 316.075, but at all other places pedestrians shall be accorded the privileges and be subject to the restrictions stated in this chapter.
- (3) Where sidewalks are provided, no pedestrian shall, unless required by other circumstances, walk along and upon the portion of a roadway paved for vehicular traffic.
- (4) Where sidewalks are not provided, any pedestrian walking along and upon a highway shall, when practicable, walk only on the shoulder on the left side of the roadway in relation to the pedestrian's direction of travel, facing traffic which may approach from the opposite direction.
- (5) No person shall stand in the portion of a roadway paved for vehicular traffic for the purpose of soliciting a ride, employment, or business from the occupant of any vehicle.
- (6) No person shall stand on or in proximity to a street or highway for the purpose of soliciting the watching or guarding of any vehicle while parked or about to be parked on a street or highway.
- (7) When traffic control signals are not in place or in operation, the driver of a vehicle shall yield the right-of-way, slowing down or stopping if need be to so yield, to a pedestrian crossing the roadway within a crosswalk when the pedestrian is upon the half of the roadway upon which the vehicle is traveling or when the pedestrian is approaching so closely from the opposite half of the roadway as to be in danger. Any pedestrian crossing a roadway at a point where a pedestrian tunnel or overhead pedestrian crossing has been provided shall yield the right-of-way to all vehicles upon the roadway.
- (8) No pedestrian shall suddenly leave a curb or other place of safety and walk or run into the path of a vehicle which is so close that it is impossible for the driver to yield.
- (9) Whenever any vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass such stopped vehicle.
- (10) Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right-of-way to all vehicles upon the roadway.
- (11) Between adjacent intersections at which traffic control signals are in operation, pedestrians shall not cross at any place except in a marked crosswalk.
- (12) No pedestrian shall, except in a marked crosswalk, cross a roadway at any other place than by a route at right angles to the curb or by the shortest route to the opposite curb.
- (13) Pedestrians shall move, whenever practicable, upon the right half of crosswalks.

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(14) No pedestrian shall cross a roadway intersection diagonally unless authorized by official traffic control devices, and, when authorized to cross diagonally, pedestrians shall cross only in accordance with the official traffic control devices pertaining to such crossing movements.

(15) Notwithstanding other provisions of this chapter, every driver of a vehicle shall exercise due care to avoid colliding with any pedestrian or any person propelling a human-powered vehicle and give warning when necessary and exercise proper precaution upon observing any child or any obviously confused or incapacitated person.

(16) No pedestrian shall enter or remain upon any bridge or approach thereto beyond the bridge signal, gate, or barrier after a bridge operation signal indication has been given. No pedestrian shall pass through, around, over, or under any crossing gate or barrier at a railroad grade crossing or bridge while such gate or barrier is closed or is being opened or closed.

(17) No pedestrian may jump or dive from a publicly owned bridge. Nothing in this provision requires the state or any political subdivision of the state to post signs notifying the public of this provision. The failure to post a sign may not be construed by any court to create liability on the part of the state or any of its political subdivisions for injuries sustained as a result of jumping or diving from a bridge in violation of this subsection.

(18) No pedestrian shall walk upon a limited access facility or a ramp connecting a limited access facility to any other street or highway; however, this subsection does not apply to maintenance personnel of any governmental subdivision.

(19) A violation of this section is a non-criminal traffic infraction, punishable pursuant to Chapter 318 as either a pedestrian violation or, if the infraction resulted from the operation of a vehicle, as a moving violation.

Pedestrian Fatality Rates 1995 - 2004; Greatest Δ in Fatality Rates between 1995-99 & 2000-04 Periods

State	Pedestrian Fatality Rate per 100,000 Population 1995	Pedestrian Fatality Rate per 100,000 Population 1996	Pedestrian Fatality Rate per 100,000 Population 1997	Pedestrian Fatality Rate per 100,000 Population 1998	Pedestrian Fatality Rate per 100,000 Population 1999	Pedestrian Fatality Rate per 100,000 Population 2000	Pedestrian Fatality Rate per 100,000 Population 2001	Pedestrian Fatality Rate per 100,000 Population 2002	Pedestrian Fatality Rate per 100,000 Population 2003	Pedestrian Fatality Rate per 100,000 Population 2004	Pedestrian Fatalities Per 100,000 Population 1995-1999	Pedestrian Fatalities Per 100,000 Population 2000-2004	Greatest Δ in Fatalities Between 1995-99 & 2000-04 Periods
Nevada	3.93	4.26	3.52	2.64	3.7	2.13	2.15	2.4	2.9	2.57	3.61	2.43	-1.18
District of Columbia	2.36	3.9	4.54	2.88	3.08	3.15	1.92	1.23	3.23	1.63	3.35	2.23	-1.12
Arizona	4.09	3.59	3.25	3.32	2.99	2.52	3.01	2.83	2.17	2.25	3.45	2.56	-0.89
New Mexico	5.17	3.63	3.83	3.35	2.99	2.63	3.93	3.24	2.71	2.94	3.79	3.09	-0.70
Utah	2.23	1.63	1.89	2.05	1.78	1.47	1.45	1.08	1.19	1.05	1.92	1.25	-0.67
Florida	3.95	3.72	3.6	3.56	3.23	3.07	2.99	2.92	2.94	2.83	3.61	2.95	-0.66
Louisiana	2.84	3.13	3.17	2.59	2.45	2.24	2.21	2.3	2.07	2.13	2.84	2.19	-0.65
South Carolina	2.81	2.7	2.72	2.89	2.91	2.04	2.63	2.39	1.93	2.05	2.81	2.21	-0.60
Wyoming	1.67	1.87	1.87	0.83	2.92	2.43	1.01	0.8	1.39	0.59	1.83	1.24	-0.59
Oregon	2.45	1.88	1.76	2.01	1.45	1.46	1.67	1.36	1.29	1.20	1.91	1.40	-0.51
North Carolina	2.62	2.31	2.37	2.61	2.03	1.97	1.82	2.12	1.82	1.86	2.39	1.92	-0.47
Rhode Island	1.62	1.62	0.71	1.11	1.41	0.57	0.94	0.84	1.21	0.65	1.29	0.84	-0.45
Georgia	2.28	2.2	2.44	2.19	2.04	1.66	1.86	1.88	1.8	1.73	2.23	1.79	-0.44
Alabama	1.76	2	1.97	1.82	1.97	1.39	1.52	1.36	1.38	1.79	1.90	1.49	-0.42
Oklahoma	1.59	1.85	2.08	1.38	1.79	1.24	1.41	1.55	1.06	1.42	1.74	1.34	-0.40
Maryland	2.47	2.49	2.1	2.05	2.2	1.71	1.88	1.93	2.07	1.75	2.26	1.87	-0.39
Connecticut	1.47	1.53	1.62	1.38	1.55	1.41	0.96	1.45	1	0.77	1.51	1.12	-0.39
Vermont	0.86	1.36	2.04	1.86	0.67	1.15	0.82	0.65	1.13	1.13	1.36	0.98	-0.38
Texas	2.47	2.35	2.29	2.34	2.13	1.99	2.11	1.92	1.81	1.89	2.32	1.94	-0.37
New York	2.28	2.12	2.14	2	2.08	1.76	1.87	1.76	1.74	1.65	2.12	1.76	-0.37
Kansas	1.47	0.85	1.03	1.33	1.24	0.71	0.89	0.85	0.92	0.77	1.18	0.83	-0.36
California	2.62	2.47	2.35	2.13	2.01	1.97	2.05	2.03	1.99	1.91	2.32	1.99	-0.33
USA	2.12	2.05	1.99	1.93	1.81	1.69	1.72	1.68	1.64	1.58	1.98	1.66	-0.32
Nebraska	1.04	1.09	1.03	1.26	0.84	1.17	0.7	0.69	0.69	0.52	1.05	0.75	-0.30
Arkansas	1.81	1.08	1.94	1.85	1.61	1.42	1.52	1.22	1.5	1.16	1.66	1.36	-0.29
Indiana	1.35	1.3	1.23	1.2	1.14	0.89	0.91	0.86	1	1.17	1.24	0.97	-0.28
Ohio	1.05	1.08	1.12	1.19	1.08	0.85	0.87	0.76	0.87	0.82	1.10	0.83	-0.27
Tennessee	1.97	1.77	1.99	1.51	1.39	1.74	1.34	1.24	1.64	1.36	1.73	1.46	-0.26
Idaho	1.55	1.09	1.57	0.57	1.12	0.46	0.91	1.12	0.95	1.22	1.18	0.93	-0.25
Missouri	1.77	1.81	1.85	1.88	1.19	1.57	1.47	1.53	1.36	1.41	1.70	1.47	-0.23
Delaware	4.04	2.75	1.9	2.02	1.59	2.8	2.13	1.99	2.32	1.93	2.46	2.23	-0.23
Minnesota	1.06	1.01	1.19	1.16	1.07	0.77	0.86	0.99	1.05	0.73	1.10	0.88	-0.22
New Jersey	2.03	2.18	1.79	1.9	1.89	1.72	1.55	2.06	1.59	1.78	1.96	1.74	-0.22
Washington	1.33	1.67	1.28	1.35	1.04	1.1	1.22	1.14	1.22	0.93	1.33	1.12	-0.21
Mississippi	2.12	1.77	1.98	2.14	2.17	2.25	2.06	1.92	1.39	1.52	2.04	1.83	-0.21
Michigan	1.94	1.97	1.69	1.74	1.75	1.71	1.62	1.74	1.65	1.35	1.82	1.61	-0.20
Pennsylvania	1.62	1.79	1.41	1.38	1.53	1.38	1.53	1.24	1.37	1.21	1.55	1.35	-0.20
Wisconsin	1.17	1.02	1.21	1.21	1.03	0.95	0.83	0.92	0.99	0.98	1.13	0.93	-0.19
Virginia	1.41	1.71	1.32	1.5	1.22	1.29	1.4	1.21	1.17	1.14	1.43	1.24	-0.19
Illinois	1.79	1.68	1.65	1.55	1.44	1.5	1.48	1.52	1.49	1.23	1.62	1.44	-0.18
Kentucky	1.48	1.39	1.64	1.55	1.31	1.31	1.3	1.34	1.48	1.16	1.47	1.32	-0.16
Colorado	1.5	1.91	1.44	1.84	1.55	1.85	1.38	1.53	1.23	1.50	1.65	1.50	-0.15
Iowa	0.99	0.81	0.95	0.87	0.59	0.85	0.65	0.65	0.61	0.81	0.84	0.71	-0.13
Maine	0.73	1.29	1.53	1.04	0.88	1.17	0.93	1.08	0.99	0.76	1.09	0.99	-0.11
West Virginia	1.7	1.26	1.16	1.93	1.6	1.38	1.55	1.55	1.21	1.49	1.53	1.44	-0.09
New Hampshire	0.96	1.55	0.94	0.93	0.42	0.56	0.71	0.47	1.47	1.15	0.96	0.87	-0.09
Massachusetts	1.37	1.2	1.29	1.37	1.2	1.29	1.23	0.92	1.34	1.28	1.29	1.21	-0.07
Montana	1.04	1.48	1.02	1.48	0.79	1.22	0.99	1.54	1.09	0.76	1.16	1.12	-0.04
North Dakota	0.31	0.62	0.78	0.63	0.63	0.78	0.47	0.32	1.11	0.79	0.59	0.69	0.10
South Dakota	1.92	1.37	0.82	0.96	1.5	1.72	1.98	1.05	1.31	1.17	1.31	1.45	0.13
Hawaii	2.37	2.45	1.77	1.93	1.77	2.39	2.44	2.66	1.84	2.38	2.06	2.34	0.28
Alaska	0.83	1.49	1.64	1.14	1.29	1.59	1.1	2.49	1.39	1.53	1.28	1.62	0.34

Source: National Highway Traffic Safety Administration. Available online at: Source: <http://www-fars.nhtsa.dot.gov/finalreport.cfm?title=States&stateid=0&year=2004&title2=Pedestrians>