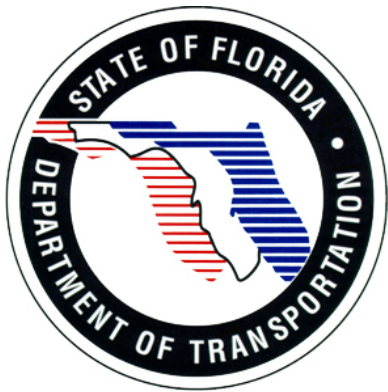*technical memorandum*

Refinement of Florida Statewide Operations Performance Measures and Data Collection Methodology

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2006 Year End Summary of Activities Report

Task 1: Prepare 2006 Performance Measures Report

Cambridge Systematics (CS) completed the data collection and reporting of ITS perform-ance measures for the 2006 fiscal year (July 1, 2005-June 30, 2006). The report included statewide data collected for the three output performance measures: annual 511 calls, annual Road Ranger stops, miles managed by ITS, and for one outcome measure, customer satisfaction. The final report is included in Appendix A.
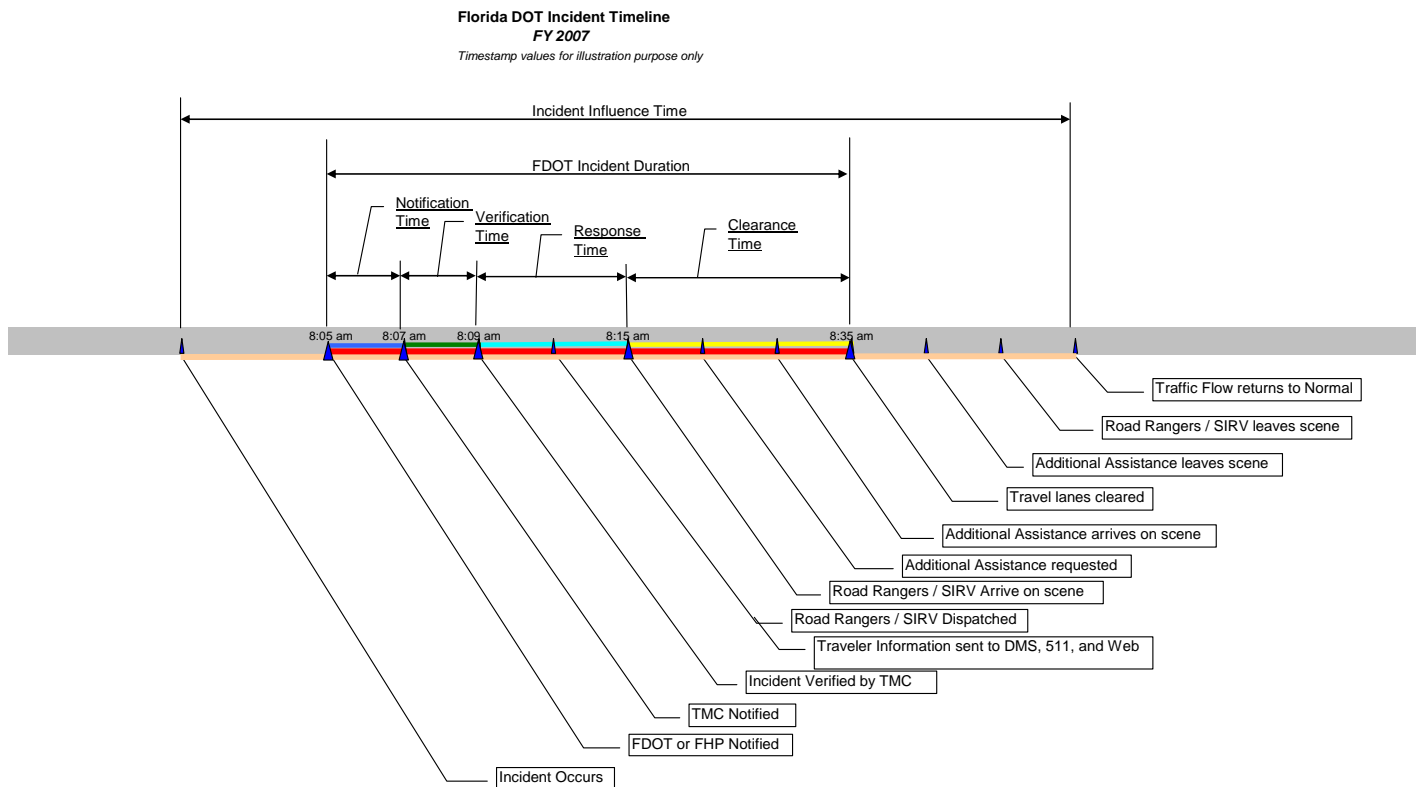
Task 2: Conduct Incident Duration Performance Measure Activities

CS worked throughout the year with FDOT Central Office and District staff, PBS&J staff, and the SunGuide software contractor Southwest Research Institute (SWRI) to define the incident duration performance measures and to refine the software requirements to collect incident data automatically through SunGuide.

An initial meeting was held in the ITS Office in Tallahassee on November 16, 2006 to define which incident-related performance measures would be collected and reported statewide. It was determined that the primary measures associated with the incident timeline would be collected and reported. In Florida, the initial incident timeline would begin when either FDOT or their partner; the Florida Highway Patrol (FHP) is notified of an incident. In a few cases, a local public safety agency such as local police or fire depart-ment may actually be the first agency to be notified. It was decided that there is no cur-rent mechanism to easily obtain a time when those agencies are notified, so that data will not be reported at this time. The definition of the end of an incident was defined to be the time when all travel lanes are cleared for use by general purpose traffic. The other key

timeline points, i.e., notification time, verification time, response time, and clearance time also will be collected and reported. CS was asked to provide a graphic depicting the data points included in the FDOT incident timeline. This graphic is shown in Figure 1.

Figure 1.   Florida DOT Incident Timeline

Florida DOT Incident Timeline
FY 2007
Timestamp values for illustration purpose only

Incident Influence Time

FDOT Incident Duration

Notification Time

Verification Time

Response Time

Clearance Time

8:05 am   8:07 am   8:09 am   8:15 am   8:35 am

Traffic Flow returns to Normal

Road Rangers / SIRV leaves scene

Additional Assistance leaves scene

Travel lanes cleared

Additional Assistance arrives on scene

Additional Assistance requested

Road Rangers / SIRV Arrive on scene

Road Rangers / SIRV Dispatched

Traveler Information sent to DMS, 511, and Web

Incident Verified by TMC

TMC Notified

FDOT or FHP Notified

Incident Occurs

One other primary incident-related measure collected and reported will be the output measure of total number of Road Ranger stops.

On November 20-21, 2006, CS staff met with FDOT Districts 4, 6, and the Florida Turnpike Enterprise to review the current methods of collecting incident data. We found all necessary incident timeline data was being collected by SunGuide (version 2.2) software in Districts 4 and 6. The Turnpike will be upgrading their SunNav software to incorporate automated incident timeline data collection. SunGuide version 3.0 will provide enhancements to incident data collection.

In December 2006, Cambridge Systematics began working with FDOT staff, PBS&J staff, and SWRI staff to review incident duration data definitions and SunGuide software version

3.0 functional requirement statements. Between December 2006 and April 2007, several iterations of definitions and functional requirements were reviewed and commented on.

The final list of performance measures for incident duration, which includes the incident timeline components shown in Figure 1, as well as a number of secondary measures that provide information on the output of various incident management program activities is included in Appendix B. The list also includes the definition of each that will be used in the SunGuide software, current status of data needed to report that measure and uses of the measure.

Another element of this task was to assess the availability, format, and accessibility of FHP incident data. It was found that FHP incident data is being developed so that it can be shared and it will be available to FDOT statewide eventually; however, it currently is only available in some districts. In the near term, the SunGuide software GUI will provide the operator with a space to capture the FHP incident number. That FHP number will be used manually to identify the FHP incident timeline, which could then be compared to the FDOT incident timeline captured by the TMC operator's input. In the future, an electronic link between the SunGuide software and the FHP statewide database will be implemented to automatically provide the combined FDOT/FHP incident timeline. This link currently is planned and should be developed in the near future.

Another element of this task was to review the SunGuide software acceptance test. The full implementation of the SunGuide incident management module will be included in the SunGuide version 3.0 delivery. That delivery is expected in fall 2007 with the acceptance test to follow. Therefore, that review, if still required, will need to be provided in a future contract.

Additional detail on the data collection activities needed to collect the incident duration measures are described in the Task 5 section of this report.

Recommendations for FY 2008 ITS Performance Measures Program

1. Continue working on Task 5 of this project to collect and report available 2006-2007 data in prototype Annual Report;

2. Continue to monitor the development of SunGuide version 3.0 and assist with the software acceptance test;

3. Develop automated procedures for transporting and compiling incident timeline data from each District TMC and conduct a pilot project to report the incident timeline data for a 2008 quarterly reporting period from one district; and

Task 3: Develop Reliability and Congestion Data Collection Procedures

Cambridge Systematics (CS) worked throughout the year with FDOT Central Office and District staff, PBS&J staff, and the SunGuide software contractor Southwest Research Institute (SWRI) to define the reliability performance measures and to refine the software requirements to collect speed data automatically through SunGuide.

CS met with Professor Ken Courage at the University of Florida (UF) in early October 2006 to discuss coordination of this project with the Central Data Warehouse Proof of Concept project being conducted for TERL. It was determined that both projects had many common data needs and issues. Since Professor Courage already was in contact with Districts 2 and 4, CS agreed to use travel-time data from the Central Data Warehouse project rather than asking the districts again for the same data they had provided UF. Another relevant UF project is to develop a model for estimating reliability. This project, under the direction of Dr. Lily Elefteriadou, is being conducted for the FDOT Planning Office. CS found that Dr. Elefteriadou also had similar data needs to both this project and the Central Data Warehouse project. All three projects consistently shared information and coordinated schedules and meetings.

An initial meeting with FDOT was held in the ITS Office in Tallahassee on November 16, 2006 to define which of a list of reliability performance measures would be collected and reported statewide. It was determined that the primary reported measures would be the buffer-time index and Florida on-time arrival measure. Both of these measures along with several other reliability measures such as the travel-time index and delay all use the same base data (either speed that is converted to travel time or directly measured travel time). Since the travel-time data will be collected it was decided that these secondary measures also could be calculated and reported. On November 20-21, 2006, CS staff met with FDOT District 4, District 6, and the Florida Turnpike Enterprise to review the current status of speed detector installation and found that no data currently was available and that the districts did not expect speed to be available before summer 2007.

Between November and April, CS reviewed several data sets provided by Districts 2 and 4 through UF. CS conducted data quality checks on these data sets and reported a number of issues back to UF. Our conclusion, with which UF concurred, was that the available data was not high enough quality for use in calculating travel-time reliability. Specifically, we found that many of the time periods where data was expected reported zero speed and a number of detectors were consistently reporting very high speeds (often more than 90 mph). At the Reliability Workshop held on May 29, UF reported that that District 2 has addressed many of the speed detector data quality problems and is archiving the data. Since several months of data are needed to calculate reliability, we are not able to calculate the buffer index in this time period.

In December 2006, CS also began working with FDOT staff, PBS&J staff and SWRI staff to review reliability definitions and SunGuide software version 3.0 functional requirement statements. Between December 2006 and April 2007, several iterations of definitions and

functional requirements were reviewed and commented on. The final list of primary performance measures for reliability as well as a number of secondary reliability measures is included in Appendix B. The list also includes the definition of each that will be used in the SunGuide software, current status of data needed to report that measure, and uses of the measure.

Additional details on the data collection activities needed to collect the reliability measures are described in the Task 5 section of this report.

Due to the lack of continuously available speed data for a period of several months, the planned reliability pilot test was not conducted. Also, monthly reliability reports will not be provided until quality speed can be obtained. It is expected that Districts 2, 4, 5, 6, 7, and the Turnpike will be able to provide speed data in 2008.

Recommendations for FY 2008 ITS Performance Measures Program

1. Continue to work with FDOT Travel Time Reliability working group within FDOT focusing on acquiring data for travel time reliability.

2. Assist the ITS Office in obtaining funding and creating partnerships to move toward implementing the Central Data Warehouse;

3. Develop data quality issues paper, statewide data quality standards and procedures and coordinate with other on-going efforts such as the Statewide ATIS project;

4. Coordinate with FDOT Planning Office to define uses for ITS data; and

5. Coordinate with project for mainstreaming ITS into the FDOT planning process.

6. Conduct a workshop at the December Working Group meeting to review the PM program – mandates, definitions, data needs for both reliability and incident management programs.

7. Report on reliability measures in 2008 with and data available.

Task 4: Continuing Operations Performance Measure Activities

CS assisted the ITS Office in setting up a reliability session at the April ITS Working Group meeting in Orlando. Kenny Voorhies moderated the session and Rich Margiotta, CS was one of the panelists.

CS developed the idea for a Reliability Workshop, developed the agenda, and arranged for the speakers and the workshop logistics. Anita Vandervalk also moderated the work-

shop, which was held in the FDOT Central Office (Burns Building auditorium) on May 29-30. The Workshop agenda is in Appendix C.

The Workshop provided background information on the need for reporting travel-time reliability and issues with collecting and reporting reliability, the status of reporting reliability in other states, the obstacles to reporting reliability in Florida, and recommendations for Florida DOT to move forward in reporting reliability as a performance measure.

The findings of the Workshop are summarized in the following paragraphs.

Status of Reliability Reporting in Florida

FDOT through the ITS Performance Measures project has identified reliability metrics. The primary metrics are buffer-time index for Operations and on-time arrival for Planning. Secondary measures will include travel-time index and delay. All reliability measures are based on travel-time distribution data.

Data needs for reporting reliability have been identified. The data will be either speed data from roadside detectors that communicate in real time to TMCs or probe data from various sources that report travel time directly.

The FDOT ITS Performance Measures program is making progress on data collection at the district level. The project team has been in contact with Districts 2, 4, 5, 6, 7, and the Florida Turnpike Enterprise concerning obtaining detector speed data. These districts expect to be able to provide speed data in 2008. Districts 1 and 3 have indicated that data will be provided when it is available.

The Prototype Central Data Warehouse is under development by the University of Florida, under the direction of Professor Ken Courage. The prototype is expected to be completed in fall 2007. The implementation of the Central Data Warehouse is expected to begin in FY 2008 or FY 2009. The SunGuide software for TMCs can be configured to feed reliability and incident data into the SunGuide Data Archive subsystem.

FDOT Planning is investigating models for estimating statewide reliability. A project to develop a model for estimating reliability is being conducted by the University of Florida, under the direction of Dr. Lily Elefteriadou. This model development also is waiting for quality speed data to be available from FDOT Districts.

Reliability Issues

Many states are beginning to try reliability reporting but none have succeeded to date. Several overarching issues have been identified in previous work on reliability. Reliability is a significant factor affecting customers and needs to be measured and addressed. Commuters, tourists, and freight interests all face highly variable conditions and all are interested to obtain information on that variability. Reliability is a way to measure the

influence of the nonrecurring events that cause much great disruption such as incidents, weather, work zones, and special events. Because these nonrecurring events have a large effect on the transportation system, reliability measures indicate the effectiveness of system operations.

The sources of delay need to be tracked so that causes and solutions can be identified. National estimates of the causes of delay are:

- Bottlenecks – 40 percent;

- Traffic Incidents – 25 percent;

- Bad Weather – 15 percent;

- Work Zones – 10 percent;

- Poor Signal Timing – 5 percent; and

- Special Events/Other – 5 percent.

Average of travel time does not tell the full story, historically traffic conditions are reported as an average; however, travelers experience and remember the variability in travel time for their trip. Travelers do not think in terms of the average travel time, but the longest travel time.

Obstacles to Implementing Reliability Measurement in Florida

Two major obstacles to implementing reliability measurement were identified in the Workshop: FDOT management expectations and data limitations. The issues with management expectations are addressed by stating several questions that must be answered:

- When is reliability reporting needed?

- How should reliability be presented?

- How should reliability measurement activities within the Department be coordinated?

    – Operations, SIS, Planning.

- How will reliability be used? What data needs to be shared among FDOT divisions?

These questions need to be addressed in the context of how reliability measurement fits in the program activities of FDOT Planning, e.g., SIS planning, Systems Planning and Transportation Data Statistics and the FDOT Traffic Engineering and Operations offices.

Data limitations issues are data availability, data quality, data consistency among the Districts and the use of collected data as opposed to modeling reliability. Speed data currently is not available in Florida; however, some instrumented freeways will have data available in 2008. The issue is that those instrumented freeway sections are only a small portion of the SIS network. FDOT must develop a method to estimate reliability on segments that are not instrumented. Data quality also is a major issue. FDOT must

develop methods to assure quality data are provided by the detectors. This will require the development of data quality processes and a high level of maintenance of the detectors and the communications system.

Recommendations from the Workshop

The following are recommendations proposed by the Workshop participants.

1. Prepare a Data Quality Plan to improve FDOT data efforts:

    – Identify data problems (QC) and do something about it (QA);

    – Develop standard procedures for acceptance, testing, calibration, and maintenance of field equipment (how/when/where);

    – Increased cooperation between Statistics and ITS; and

    – Implies increased funding for these activities.

2. Move Central Data Warehouse into production.

3. Expand beyond detector data:

    – Involve ITS, Planning, and Safety.

4. Continue and expand development of reliability for operations using detailed traffic and event data already being collected.

5. Continue research to develop a robust model capable of estimating SIS-wide reliability (about a one-year project; use for reporting and program/project planning).

6. Work toward direct measurement of reliability as more data become available:

    – Investigate privately collected data sources; and

    – Promote FDOT probe efforts, such as license plate readers, toll tag readers, GPS and cellular telephone data collection.

7. Improve internal and external communications:

    – Involve Central Office managers;

    – Involve FDOT Executive Management;

    – Outreach to external partners (e.g., FHP); and

    – Continue meetings of the Reliability Group.

Task 5: Development of Performance Measures Reports

A. Determine Purpose, Audience, and Use of Performance Measures Reports

Task 5 was added to the ITS Performance Measures project in October 2007. The purpose of this task is to develop and refine the performance measures that will be reported on a statewide basis quarterly and annually and provide prototype reports for the entire Traffic Operations office. Data collection methodology and reporting frequency were be defined for each measure. A prototype format will be proposed for the quarterly and annual reports. Actual data will be included in each prototype report for measures where data is available. The measures will include indicators for all the Traffic Engineering and Operations Office activities: ITS, Incident Management, Traffic Safety, Traffic Operations, Safe Mobility for Life, Traffic Operations Research, and Commercial Vehicle Operations. Both outcome and output measures are included.

An initial meeting was held in the Traffic Engineering and Operations Office in Tallahassee on November 16, 2006 to define which of a list of incident-related performance measures would be collected and reported statewide. An Excel spreadsheet that listed the candidate measures, the source of date needed to conduct each measurement, how the measure ties to the Traffic Engineering, use of each measure, and a definition for the measure was developed. It was decided that the audience for the quarterly report would be District ITS staff and TEO management. The audience for the annual report will be much broader and will include FDOT management, FTC, and the public, including media.

B. List of Measures

The original list of measures was developed based on the discussions held in the November 16 meeting with TEO staff. An Excel spreadsheet was developed that included the measure name, the source of data, the TEO Business Plan element that the measures relates to, the current status of data needed, the intended use, and the definition. From mid-November to early April, several iterations of the candidate measures were reviewed by TEO staff and additional data such as the reporting level (frequency of reporting) added to each measure. At the same time, the definitions of measure were being refined, particularly those measures that will be included in the SunGuide software. The final list of measures is shown in Appendix B.

C. Collection Methodology

Another subtask included in Task 5 was to define the data collection methodology for each of the selected performance measures. When the list of selected measures was completed in April 2007, CS developed a second Excel spreadsheet that described the data

source, the current status of data collection for that measure, availability of data, a contact to obtain data, the location of the data files, and a description of procedures to update data. This spreadsheet is in Appendix D.

D. Report Format and Production

Provided in a separate document and completed by the end of August 2007.

E. Performance Measure Reporting Process

Provided in a separate document and completed by the end of August 2007.

Appendix A

2006 ITS Performance Measures Report

7. Intelligent Transportation Systems

In order to better accommodate our rapid growth in population, tourism, and commerce, the Florida Department of Transportation is committed to develop and deploy sophisticated, fully integrated, statewide Intelligent Transportation Systems (ITS) in a cost-efficient manner. ITS represent the application of real-time information systems and advanced technologies as transportation management tools to improve the movement of people, goods, and services. Instead of only building new roads and expanding existing ones, ITS will utilize advanced technologies to remedy mobility and safety problems. ITS currently is evolving in Florida, and thus the capability to report actual performance will initially be limited to only measures of basic production and usage (*output*).

As ITS deployment and integration proliferates in the future, performance and resulting benefits (or *outcome*) will be able to be more accurately documented and reported herein. Three ITS *outcome* performance measures have been identified by FDOT and subsequently approved by the FTC in 2005. These measures are: 1) incident duration; 2) travel-time reliability; and 3) customer satisfaction. Beginning July 1, 2006, available data for the incident duration and travel-time reliability *outcome* measures are beginning to be collected and will be reported in this chapter next year. The customer satisfaction measure is reported in this document.

7a. Total Annual 511 Calls

Background: In July 2000, the Federal Communications Commission designated 511 as the national three-digit telephone number for traveler information. To date, over 57 million calls have been made to 511 systems throughout the country. The ultimate national

goal is to provide coverage throughout the United States by 2010. Over 1.3 million calls per month are now being made to these existing systems (29 locations in 25 states), currently available to over 93 million people.[1] In Florida, most urban areas of the State currently offer this service to travelers; southeast (Miami-Dade, Broward, and Palm Beach counties), central (along I-4 in greater Orlando) Florida, and the greater Tampa Bay area and in November 2005 a statewide 511 service was launched. The southeast and central Florida systems were launched during 2002, and the greater Tampa Bay system began operation in September 2004. The statewide service covers southwest Florida and the Jacksonville metro area as well as freeways across the State. Since inception of the aforementioned systems, over 15 million 511 calls have been made in Florida.

Purpose: To provide accurate, real-time information on traffic and road conditions, alternate route information (during incidents), construction information, weather-related problems, and public transportation information/options.

Objective: To reduce traveler delay and improve the overall quality of trip-making as evidenced by growth in the number of 511 calls and different callers, and maintaining a high level of user satisfaction.

Methodology: Compilation of annual monthly (and ultimately, annual hourly) 511 service calls by each of the service providers. Currently, *Logic Tree* manages the statewide, southeast, and central Florida systems. The Tampa Bay area system is managed by *Mobility Technologies.* FDOT is responsible for assessing statewide user satisfaction, including 511 affects on travel behavior, and the extent of **different** callers utilizing the service. The results of customer satisfaction for the 511 service is included in another section of this document.

Results: Over five million 511 calls were made during the 12-month period from July 2005 through June 2006 under the four Florida systems. This represents 25 percent of the total 511 calls made in the entire country during this same period. As can be seen in the graphic and corresponding table below, the number of total monthly 511 calls now being made in Florida is approaching one-half million. Total statewide calls has a 6 percent overall increase over 2005.

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[1] www.deploy511.org, July 2006.

Monthly 511 Calls
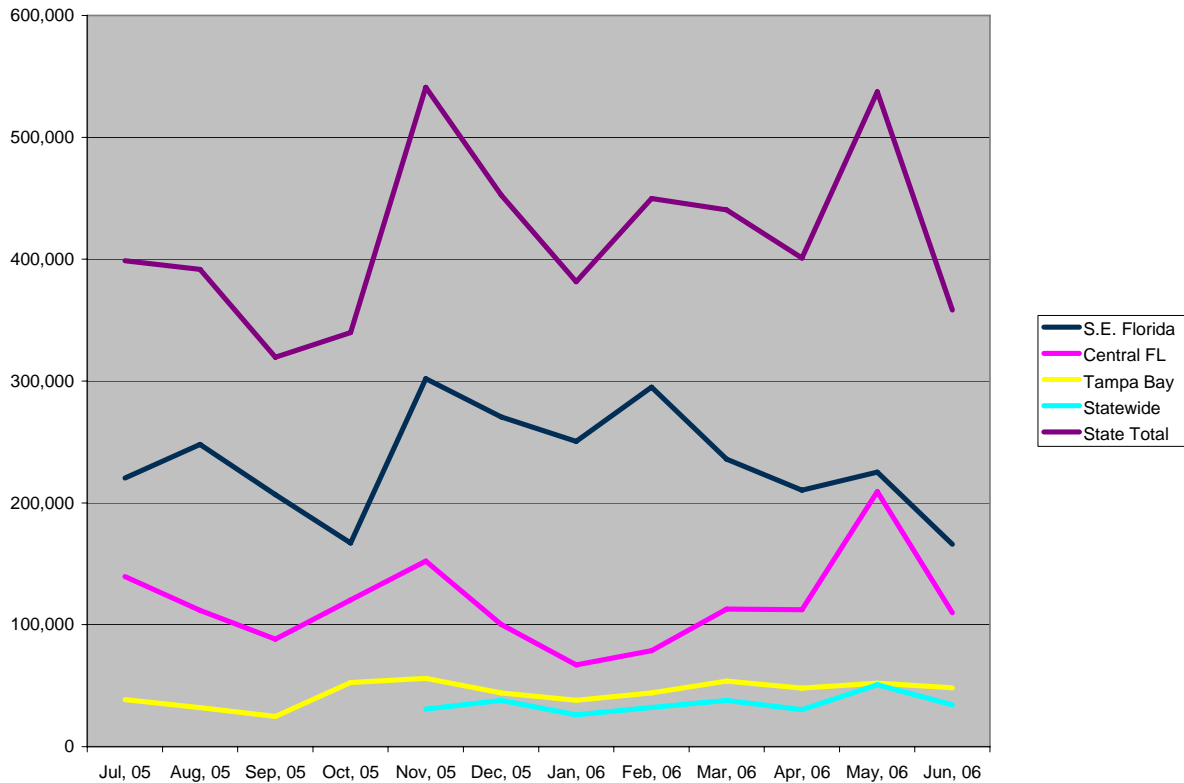
	2005					
	July	August	September	October	November	December
S.E. Florida	220,417	247,943	206,666	167,080	302,008	270,457
Central Florida	139,533	111,769	88,125	120,316	152,257	100,207
Tampa Bay	38,650	32,000	24,790	52,490	56,000	44,000
Statewide					30,793	37,880
State Total	**398,600**	**391,712**	**319,581**	**339,886**	**541,058**	**452,544**
National Total	**1,421,329**	**1,214,811**	**1,101,266**	**1,199,773**	**2,230,214**	**2,420,390**

	2006					
	January	February	March	April	May	June
S.E. Florida	250,441	294,974	235,948	210,494	225,288	166,062
Central Florida	67,078	78,762	112,791	112,215	209,179	109,881
Tampa Bay	38,000	44,000	53,751	48,000	52,122	48,150
Statewide	26,012	32,127	37,968	30,287	50,752	34,305
State Total	**381,531**	**449,863**	**440,458**	**400,996**	**537,341**	**358,398**
National Total	**2,002,821**	**1,718,539**	**2,248,160**	**1,390,440**	**1,428,757**	**1,342,264**

Totals	
S.E. Florida	2,797,778
Central Florida	1,402,113
Tampa Bay	531,953
Statewide	280,124
State Total	**5,011,968**
National Total	**19,718,764**

Additional Comments: Significant improvements (e.g., interactive voice response (IVR), intensified awareness marketing, trip planning applications, expanded real-time speed and travel-time data gathering capabilities, and related web site enhancements) are underway for these systems.

There were two monthly spikes in 511 call activity in Florida in this period. One was in November 2005 where the largest increase in calls was in Southeast Florida. This is likely due to the damage and power outages caused by Hurricane Wilma. The other peak month was May 2006, which was likely due to a series of wildfires and associated road closures along I-95. The largest increases at that time were in the Central Florida and statewide systems.

Nationally, peak activities occur during winter months when weather causes delays and road closures.

7b. Total Annual Road Ranger Stops

Background: The Department began funding the Road Ranger Program in December 1999. Except for District 5, which is contracted to the local transit provider, LYNX, Road Ranger Services are bid out to private contractors. The Road Rangers are roving vehicles which patrol congested areas and high-incident locations of the urban freeway, and provide *free* highway assistance services during incidents to reduce delay and improve safety for the motoring public and responders. All of the districts and the Turnpike Enterprise currently operate a Road Rangers Program. However, the specific services provided, hours of operation, fleet size, and area coverage differs among these entities. The extent and automation of service documentation and general record-keeping also varies greatly. Road Ranger Log Forms are generally the same, but there is wide variation on what information from the form is electronically recorded. Some districts routinely breakdown assists by Road Ranger route, shift, or corridor. Likewise, the specific types of Road Ranger assists are not being delineated in the same manner across all programs. Generally all District's Road Ranger Programs provide assistance to public safety agencies during incident management.

Purpose: To provide roadside assistance to disabled or stranded motorists free of charge, remove debris and abandoned vehicles, assist with maintenance of traffic, and incident clearance during times of incident management.

Objective: To help reduce the overall travel delay associated with incidents by providing quick response to motorists in need.

Methodology: Compilation and summary of Road Ranger Log Forms (ultimately in electronic fashion). As mentioned previously, consistency in data reporting and assessment must be established for more meaningful performance reporting. The FDOT Central Office Program Manager for Road Rangers and Statewide Traffic Incident Management is working to "standardize" Road Ranger performance reporting among all districts and the Turnpike Enterprise. Most of the districts are now providing Road Ranger data to the Central Office on a quarterly basis.

Results: For the period July 2005-June 2006, over 394,000 Road Ranger stops were made statewide along 1,105 miles of coverage, as summarized in the table and graphic on the following page. Five of the districts currently provide Road Ranger service on a "24/7" basis. Also, half of the 134 total statewide Road Ranger vehicle fleet is operating with automatic vehicle location (AVL) capabilities.

Additional Comments: The general motorist reaction has been overwhelmingly positive regarding this service. The specific findings for existing Road Ranger customer satisfaction is reported in the customer satisfaction section of this report.

Compared to the previous period of documentation (July 2004-June 2005), the total annual stops increased by almost 9.3 percent.

Road Ranger Stops
July 1, 2005 to June 30, 2006

District	Total Annual Stops	Total Fleet Vehicles[a]	Fleet Coverage (Centerline-Miles)	Hours of Operation
1	65,178	18 (7 with AVL)	241	24/7
2	10,766	8 (all with AVL)	102	5:30 a.m.-11:00 p.m., 5 days/week
3	1,762	4 (without AVL)	20	Varies[b]
4	79,738	30 (without AVL)	111	24/7
5	34,762	12 (all with/AVL)	74	24/7
6	84,851	35 (without AVL)	88	24/7
7	34,177	9 (all with AVL)	101	24/7
Turnpike Enterprise	82,767	18 (all with AVL)	368	Varies[c]
Statewide	**394,001**	**134**	**1,105**	**Varies**

a The total fleet vehicles is defined as the vehicles available as defined in the contractual agreement with the service provider.

b Two vehicles I-10/I-110, 24 hours/day for emergencies and holidays. Otherwise, 6:00 a.m.-8:00 p.m. Monday-Friday; 7:00 a.m.-7:00 p.m. Saturday; and 9:00 a.m.-5:00 p.m. Sunday. On I-10 Escambia Bay Bridge Replacement Service Patrol: One vehicle 24 hours/day, 7 days/week; the other vehicle operates 14 hours/day, 7 days/week.

c 24/7 on Florida's Turnpike; 6:00 a.m.-10:00 p.m. on OOCEA partnership roadways (Toll 417/Central Florida Greenway, Toll 528/Bee Line Expressway, Toll 408/East-West Expressway).

Percent Annual Stops by District
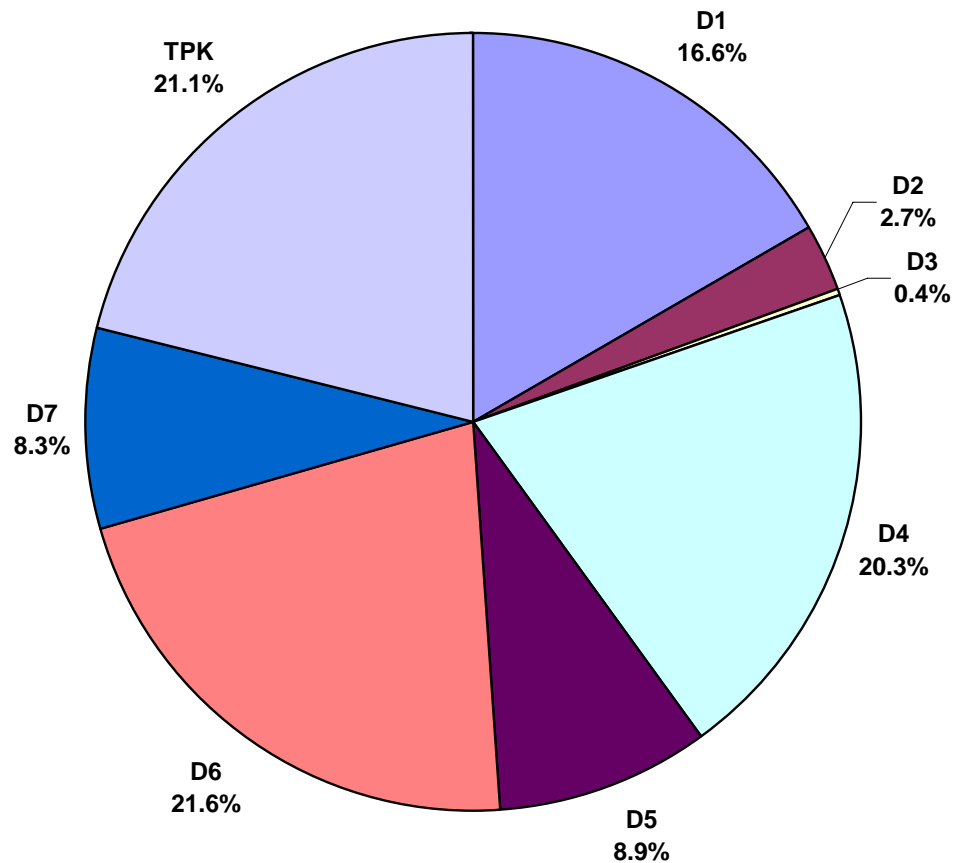
7c. Miles Managed By ITS

Background: All districts and the Turnpike Enterprise are committed to the deployment of ITS, and each has embarked with this deployment in varying stages and pace in accordance with the *FDOT Ten-Year ITS Cost Feasible Plan*. As a percent of the limited-access Florida Intrastate Highway System (FIHS) mileage in each district, "miles managed by ITS" has been defined as centerline mileage that must include ALL of the following attributes:

1. Traffic probes and/or sensors;

2. Real-time traffic information reporting coverage;

3. Real-time incident response capabilities; and

4. Availability of real-time traffic data to FDOT.

Additionally, *all* of these attributes must be continuously operated and maintained, permitting contiguous coverage of the mileage noted in order to meet the definition.

Purpose: Report progress in completing deployment of the *FDOT Ten-Year ITS Cost Feasible Plan*, and beyond as appropriate.

Objective: To initially deploy ITS across the limited-access portion of the FIHS, and ultimately to integrate all ITS and ITS-related user services across the entire state in a seamless, fully operational, real-time fashion. This deployment will help improve mobility and safety throughout the State.

Methodology: Deployment progress, on an annual basis, as reported by each district and the Turnpike Enterprise. Corresponding geographic coverage also should be reported and mapped in terms of mile point limits.

Results: As of the end of June 2006, 269 miles (or 12.7 percent of the limited-access FIHS mileage) are managed by ITS, as summarized by the table and graphic below. Extensive ITS deployment will be taking place during the next year in all districts, as well as the Turnpike Enterprise.

Miles Managed by ITS

District	Total ITS Miles	Limited-Access FIHS Miles	Facility, Extent, and Location
1	28 (12.5%)	222.9	**I-4:** 28 miles (MM 28 to MM 56 in Polk County).[a]
2	43 (11.5%)	372.3	**I-10:** 9 miles (MM 354 to MM 363 in Duval County). **I-95:** 34 miles (MM 332 to MM 366 in Duval County).
3	13 (5.4%)	242.2	**I-10:** 10 miles (MP 10 to MP 20 in Escambia County). **I-110:** 3 miles (MP 3 to MP 6 in Escambia County).[b]
4	46 (22.6%)	203.2	**I-95:** 46 miles (MP 0 to MP 46 in Palm Beach County).[c]
5	98.5 (25.5%)	386.1	**I-4**: 7.8 miles (Osceola County), 24.6 miles (Orange County), 14.1 miles (Seminole County), and 28.0 miles (Volusia County). **I-95:** 15.0 miles (Volusia County), and 7.0 miles (Brevard County). **SR 528:** 2.0 miles (Brevard County).
6	27.7 (34.0%)	81.4	**I-95:** 17.3 miles (MP 0 to MP 17.3 in Miami-Dade County). **SR 826:** 10.4 miles (MP 14.1 to MP 24.5 in Miami-Dade County).[d]
7	9 (5.4%)	166.5	**I-275:** 9 miles (MM 45.5 to 54.5).[e]
TPE	3.8 (0.8%)	446.7	**SR 91:** 3.8 miles (Orange County).[f]
Statewide	**269.0 (12.7%)**	**2,121.3**	

Percent indicated under "Total ITS Miles" column is based on District FIHS limited-access miles.

[a] The I-4 Portable Intelligent Transportation System, which was deployed and utilized during the widening of I-4 in Polk County has been retained and remains operational after construction. The approximate limits of this temporary system are from MM 28.2 to MM 56, which is 27.8 miles. This system became operational in January 2004, and currently is scheduled to remain in place until June 2007. The systems operation may be extended at the end of this period. The intention is to transition to a continuously operated and maintained permanent system in 2009/2010.

[b] The I-10/I-110 Portable Intelligent Transportation System is being utilized through the I-10/I-110 Interchange Improvement construction work zones in Escambia County. This temporary system became operational in 2004, and is scheduled to remain in place until the end of construction (anticipated September 2007). It is the intention of District 3 to transition to a continuously operated and maintained permanent system at the beginning of 2009.

[c] This I-95 portable system will be in place until 2008 (anticipated completion of widening). It is the intention of District 4 to immediately transition to a continuously operated and maintained permanent system beyond 2008; however, funding currently is not available.

[d] SR 826 (MP 0.000 to MP 14.100) Total ITS Miles 14.100 – currently traffic probes and/or sensors are not available within the specified limits.

MDX Facility – SR 836 (MP 0.000 to MP 11.756). Total ITS Miles 11.756 – currently traffic probes and/or sensors are not available within the specified limits.

[e] FDOT D-7 has entered into an agreement with Traffic.com to utilize the FHWA ITIP Program. Through this program, FDOT D-7 has placed sensors at 80 sites along I-4, I-75, and I-275 in Hillsborough and Pinellas counties to collect travel times for 511 Tampa Bay service. The Traffic.com sensors cover 80 miles of roadway. As permanent deployment of detectors occurs in these covered areas, D-7 will look to Traffic.com to relocate these sensors, per their agreement, to areas that currently are not covered.

[f] With anticipated completion in November 2005, Turnpike Phase II project (80 miles, 85 CCTV cameras) will have incident management capabilities.

Miles Managed by ITS

District	Total ITS Miles	Limited-Access FIHS Miles	Facility, Extent, and Location
1	0 (0%)	222.9	**I-4 Portable ITS:** 28 miles (MM 28 to MM 56 in Polk County).[a]
2	43 (11.5%)	372.3	**I-10:** 9 miles (MM 354 to MM 363 in Duval County).
			I-95: 34 miles (MM 332 to MM 366 in Duval County).
3	0 (0%)	242.2	**I-10 Portable ITS:** 10 miles (MP 10 to MP 20 in Escambia County).
			I-110 Portable ITS: 3 miles (MP 3 to MP 6 in Escambia County).[b]
4	0 (0%)	203.2	**I-95 Portable ITS:** 46 miles (MP 0 to MP 46 in Palm Beach County).[c]
5	98.5 (25.5%)	386.1	**I-4:** 7.8 miles (Osceola County), 24.6 miles (Orange County), 14.1 miles (Seminole County), and 28.0 miles (Volusia County).
			I-95: 15.0 miles (Volusia County), and 7.0 miles (Brevard County).
			SR 528: 2.0 miles (Brevard County).
6	27.7 (34.0%)	81.4	**I-95:** 17.3 miles (MP 0 to MP 17.3 in Miami-Dade County).
			SR 826: 10.4 miles (MP 14.1 to MP 24.5 in Miami-Dade County).[d]
7	9 (5.4%)	166.5	**I-275:** 9 miles (MM 45.5 to 54.5).[e]
TPE	3.8 (0.8%)	446.7	**SR 91:** 3.8 miles (Orange County).[f]
Statewide	**182.0 (8.6%)**	**2,121.3**	

[a] The I-4 Portable Intelligent Transportation System, which was deployed and utilized during the widening of I-4 in Polk County has been retained and remains operational after construction. The approximate limits of this temporary system are from MM 28.2 to MM 56, which is 27.8 miles. This system became operational in January 2004, and currently is scheduled to remain in place until June 2007. The systems operation may be extended at the end of this period. The intention is to transition to a continuously operated and maintained permanent system in 2009/2010.

[b] The I-10/I-110 Portable Intelligent Transportation System is being utilized through the I-10/I-110 Interchange Improvement construction work zones in Escambia County. This temporary system became operational in 2004, and is scheduled to remain in place until the end of construction (anticipated September 2007). It is the intention of District 3 to transition to a continuously operated and maintained permanent system at the beginning of 2009.

[c] This I-95 portable system will be in place until 2008 (anticipated completion of widening). It is the intention of District 4 to immediately transition to a continuously operated and maintained permanent system beyond 2008; however, funding currently is not available.

[d] SR 826 (MP 0.000 to MP 14.100) Total ITS Miles 14.100 – currently traffic probes and/or sensors are not available within the specified limits.

MDX Facility – SR 836 (MP 0.000 to MP 11.756) Total ITS Miles 11.756 – currently traffic probes and/or sensors are not available within the specified limits.

[e] FDOT D-7 has entered into an agreement with Traffic.com to utilize the FHWA ITIP Program. Through this program, FDOT D-7 has placed sensors at 80 sites along I-4, I-75, and I-275 in Hillsborough and Pinellas counties to collect travel times for 511 Tampa Bay service. The Traffic.com sensors cover 80 miles of roadway. As permanent deployment of detectors occurs in these covered areas, D-7 will look to Traffic.com to relocate these sensors, per their agreement, to areas that currently are not covered.

[f] With anticipated completion in November 2005, Turnpike Phase II project (80 miles, 85 CCTV cameras) will have incident management capabilities.

Statewide ITS Miles by District
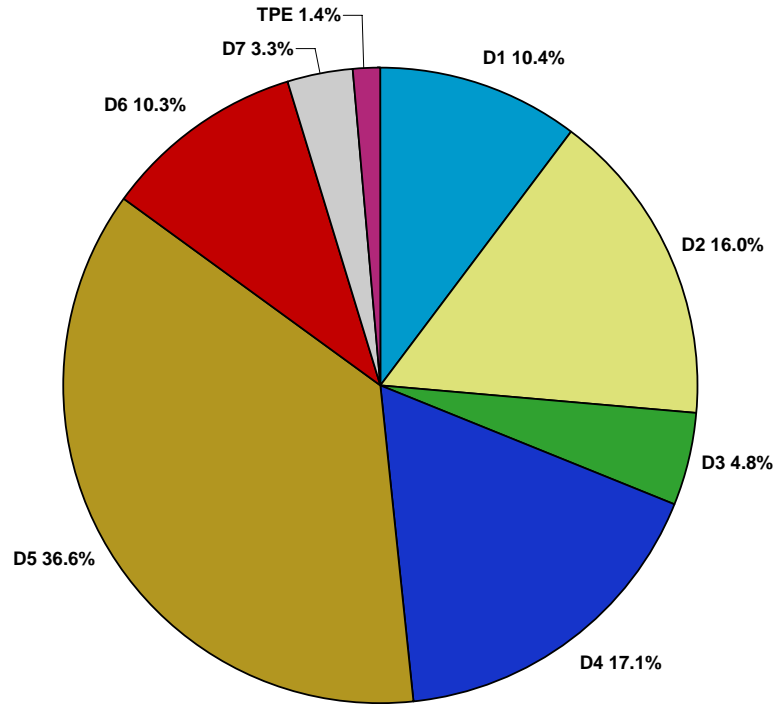
Additional Comments: Compared to the previous period of documentation (June 2004-July 2005), the Miles Managed by ITS have increased 24 percent statewide.

7d. Customer Satisfaction

In late 2005, the FDOT Central Office ITS Program initiated a project to conduct a customer satisfaction survey in order to determine public attitudes toward ITS services provided by the FDOT Districts. A draft questionnaire was developed and submitted for review by the districts at the December 8, 2005 ITS Working Group meeting. Further review was conducted by the Central Office Traffic Operations staff. Approval of the Customer Satisfaction Outcome Performance Measure questionnaire was obtained in February 2006. The telephone survey for all seven geographical districts was conducted in March 2006, and a draft analysis of the survey was delivered in May 2006.

Customer satisfaction was measured by collecting a statistically valid sample survey data from ITS users throughout the State. This task surveyed via telephone a random sample of 400 adults age 18 and over in each of the seven FDOT districts. Respondents must drive at least three times per week on freeways to qualify. The purpose of this survey is to gauge awareness and perceived value of the traffic management services offered by FDOT, including Road Ranger services, DMS, and 511. The surveys provide a benchmark

against which to measure changes in awareness and perceptions in the future. Each inter-view lasted approximately 10 minutes.

For each district, a written report summarizing the telephone survey findings and displaying the appropriate graphic (chart or table) for each question was prepared. The reports also contain an analysis of each question by various demographic subgroups (i.e., geographic, age, type of freeway use). Finally, the reports contain an overall summary, and identify key findings. A statewide summary report also was produced. The results was presented in detail at an ITS Working Group meeting in July 2006.

The following is a listing the key findings of the customer satisfaction survey:

- About two-thirds of drivers get traffic information from television, but only 23 percent tune in often;

- About three in four drivers listen to radio traffic reports; over 30 percent listen often;

- Twenty-two percent of drivers know about 511; about one-third of them have used it;

- A vast majority of drivers read DMS (94 percent), and most read them frequently;

- Seventeen percent of drivers use the Internet for traffic information;

- Eighty-six percent of 511 users are likely to change their route based on the information provided by 511;

- Thirty-one percent of 511 users have called 511 to obtain more information about a DMS message;

- Thirty percent of 511 users usually call ahead of time to plan their trip, and 64 percent usually call after running into traffic problems;

- Eighty-nine percent of drivers think DMS are easy to read;

- Traffic delay information is useful to almost all drivers (93 percent);

- Ninety-four percent of drivers stated that they believed the information on DMS to be accurate;

- Eighty-three percent of drivers who read DMS are likely to change their routes based on posted information;

- Fifty-nine percent of drivers who are familiar with DMS are aware that they post hurricane evacuation information;

- Almost one-third have used information posted on a DMS during a hurricane evacuation;

- Among 511 users, only 9 percent called for information during a hurricane evacuation;

- Half of drivers are aware of Road Rangers; less than half of them know how to request one by dialing *FHP;

- Most drivers (86 percent) who have been assisted by a Road Ranger unit think the driver was very helpful; and

- More drivers think Road Rangers are useful (92 percent) than know how to request one using *FHP.

Appendix B

List of Selected Performance Measures

ITS Program

Outcome Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Travel-time reliability – buffer index	SunGuide, SunNav	2.1, 3.1, 7.1	District 2 has speed data. Districts 4, 5, 6, and FTE should have some data this year. Consider obtaining vendor probe data for roadways not managed by ITS.	Data quality issues must be addressed before travel times can be calculated. Enhancements to SunGuide Software are likely required to make travel-time data collection efficient and consistent.	Indicates variability of roadway congestion. In urban areas, travel-time reliability provides a customer experience indication of freeway performance. Reporting is required by FHWA and FDOT Central Office.	A	Buffer Index = (95th percentile travel time – Average Travel Time)/ Average Travel Time.
Travel-time reliability – FDOT on-time arrival	SunGuide, SunNav	Systems Planning Office measure	District 2 has speed data. Districts 4, 5, 6, and FTE should have some data this year.	Data quality issues must be addressed before travel times can be calculated. Enhancements to SunGuide Software are likely required to make travel-time data collection efficient and consistent.	Indicates variability of roadway congestion.	B	Need UF definition from study. Definition will be based on on-time arrival of vehicles.
Travel-time index	SunGuide, SunNav	2.1, 3.1, 7.1	District 2 has speed data. Districts 4, 5, 6, and FTE should have some data this year.	Data quality issues must be addressed before travel times can be calculated. Enhancements to SunGuide Software are likely required to make travel-time data collection efficient and consistent.	Indicates congestion level. Reporting is required by FHWA and FDOT Central Office.	B	Travel-Time Index = Average Travel Time/Free-flow Travel Time.

ITS Program (continued)
Outcome Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Person-hours of delay	SunGuide, SunNav	2.1, 3.1, 7.1	District 2 has speed data. Districts 4, 5, 6, and FTE should have some data this year.	Data quality issues must be addressed before travel times can be calculated. Enhancements to SunGuide Software are likely required to make travel-time data collection efficient and consistent.	Indicates congestion level.	A	Person-hours of Delay = Vehicle-hours of Delay x Average Number of Occupants per Vehicle. Vehicle-hours of Delay = Sum of actual Travel Times – Sum of Free-flow Travel Times.
Truck-hours of delay	SunGuide, SunNav, estimates of truck percentage	2.1, 3.1, 7.1	District 2 has speed data. Districts 4, 5, 6, and FTE should have some data this year.	Data quality issues must be addressed before travel times can be calculated. Enhancements to SunGuide Software are likely required to make travel-time data collection efficient and consistent.	Indicates congestion level specific to trucks.	A	Truck-hours of Delay = Vehicle-hours of Delay x Percentage Trucks of the Total Number of Vehicles.
Percent customer satisfaction with DMS messages, web sites, and 511	Biannual Survey	1.3, 2.3, 3.1, 3.2	Data collection completed for 2006. Next survey anticipated in early 2008.	2006 data is completed. Supplement with Road Ranger card survey information.	Provides a qualitative measure of public satisfaction of the ITS Program.	A	Percentage of respondents satisfied with DMS usage and performance, traveler information web site and 511 service.
ITS Program benefit/ cost ratio	Manual	2.1, 2.2, 3.1, 6.1, 6.2,	District 4 has developed a formula for program benefits.	Cost information is available. Method of determining statewide benefits needs to be determined.	Provides an overall indication of the benefits of the ITS Program.	B	ITS program benefits divided by ITS program cost. ITS Program Benefits needs to be defined.

ITS Program
Output Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Number of 511 calls	ATIS providers	2.1, 2.3, 3.2, 7.1	Data collection completed for 2006.	Available.	Indicates how often 511 is used by the public. Also indicates effectiveness of ITS marketing program.	A	Total number of 511 calls.
Number of unique 511 callers	ATIS providers	2.1, 2.3, 3.2,	Tracked by 511 managers.	Available.	Indicates how many people use 511. Also an indication of effectiveness of ITS marketing program.	B	Total number of unique 511 callers.
Number of traveler information web site visits	Web analysis tool	2.1, 2.3, 3.1, 3.2	Tracked by 511 managers.	Available.	Indicates how often the web site is used by the public. Also indicates effectiveness of ITS marketing program.	C	Total number of web site visits.
Number of unique traveler information web site visitors	Web analysis tool	2.1, 2.3, 3.1, 3.2	Tracked by 511 managers.	Available.	Indicates how many people use the web site. Also an indication of effectiveness of ITS marketing program.	C	Total number of unique web site visitors.
SHS miles managed by ITS	Manual from districts	2.2, 2.3, 6.2	Data collection completed for 2006.	Available.	Measures ITS geographical coverage.	A	Total number of SHS centerline miles covered/managed by ITS equipment.

ITS Program (continued)
Output Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Arterial miles managed by ITS	Manual from districts	2.2, 2.3, 6.2	Data collection completed for 2006.	Available.	Measures ITS geographical coverage.	A	Total number of arterial centerline miles covered/ managed by ITS equipment in the network.
Percent of ITS Cost Feasible Plan completed on-time	Manual	2.2, 2.3, 6.2	Data collection completed for 2006.	Available.	Measures deployment progress of Statewide ITS program.	A	Percentage of ITS Cost Feasible Plan that has been completed.
Percent electronic payments on toll facilities	Florida Turnpike Enterprise, OOCEA, and other toll authorities	FTE measure	Tracked by toll agencies.	Available.	Measures usage of toll tags.	B	Percentage of electronic payments on toll facilities.
Number of ITS field devices, by type	SunGuide, SunNav	2.1, 2.2, 2.3, 6.1, 6.2	District 4 is tracking, SunGuide has an inventory module.	Available in District 4, others districts have manual list.	Indicates the total number of ITS field devices.	C	Total number of ITS field devices.
Number of calls from call boxes	Manual from districts	2.3, 3.1, 3.2	Tracked by ITS Communications Contractor.	Available.	Usage of call box system.	A	Total number of calls received from call boxes.
Number of detector sites used to obtain data for other FDOT Offices	Manual from districts	1.3, 2.2, 4.2, 6.1, 6.2, 6.3	Not being tracked.	To be determined.	Indicates if other FDOT divisions or agencies find ITS data useful.	C	Total number of detector sites used for nonoperational purposes (i.e., volume counts or speeds for planning).

Incident Management Program
Outcome Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Total incident duration time	SunGuide, SunNav	1.3, 2.1, 2.2, 6.1, 7.1	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	Indicates the total time of incident impact. Measures overall efficiency of TIM activities by partnering agencies.	A	Total Incident Duration Time = Time of first FDOT or FHP notification – Time travel lanes are cleared.
Notification time	SunGuide, SunNav	1.3, 2.1, 2.2, 6.1, 7.1	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	Measures the time it takes other agencies to notify the TMC. Value is zero when TMC detects the incident. A measure of agency coordination.	A	Notification Time = Time when TMC is notified – Time when first of FDOT or FHP is notified.
Verification time	SunGuide, SunNav	1.3, 2.1, 2.2, 6.1, 7.1	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	Measures camera coverage and Road Ranger coverage, which are the primary factors in reducing verification time.	A	Verification Time = Notification time – Time when the incident is confirmed.
Road Ranger/SIRV Response time	SunGuide, SunNav	1.3, 2.1, 2.2, 6.1, 7.1	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	Measures time for Road Rangers/SIRV to arrive on the incident scene. Provides an indication of Road Ranger routes and coverage areas.	A	Road Ranger/SIRV Time = Verification time – Time Road Ranger or SIRV arrives at the incident scene.

Incident Management Program (continued)
Outcome Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Clearance time	SunGuide, SunNav	1.3, 2.1, 2.2, 6.1, 7.1	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	A measure of inter-agency coordination since vehicle removal is primarily the responsibility of other agencies. Measures adherence to "Open Roads Policy".	A	Clearance Time = Time Road Ranger or SIRV arrives at the incident scene – Time when all travel lanes are cleared.
Diversions due to ATIS messages, by message type	Biannual customer survey	1.3, 2.1, 2.2, 6.1	Not being tracked.	Question needs to be added to statewide customer survey.	Indicates how many vehicles change behavior due to various ATIS information.	B	Percent of survey respondents to divert routes based on ATIS information.
Reduction in rate of secondary crashes	SunGuide, SunNav	1.3, 2.1, 2.2, 6.1, 7.1	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	Provides an indication of reduced crashes, an important public benefit of incident management.	B	The rate of secondary crashes that occur due to congestion from a primary event (designated as secondary incident by TMC).
Reduction in rate of secondary incidents	SunGuide, SunNav	1.3, 2.1, 2.2, 6.1, 7.1	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	Provides an indication of reduced incidents an important public benefit of incident management.	B	Rate of Secondary Crashes = (Number of Secondary Crashes for a Date-Time period x 1,000,000)/(Total Vehicle Volume for a Date-Time period x Road Segment Length in miles).
Percent customer satisfaction with Road Ranger Program	Biannual customer survey	2.1, 3.1, 3.2, 7.1	Data collection completed for 2006. Road Ranger card survey will be added to supplement statewide customer survey.	Available.	Provides a qualitative measure of public satisfaction of the ITS Program.	A	Percentage of respondents satisfied with Road Ranger Service.

Incident Management Program
Output Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Number of Road Ranger stops	Road Rangers	3.1, 6.1	Data collection completed for 2006.	Available.	Indicates level of Road Ranger activity. It will assist in Road Ranger resource allocation.	A	Total number of Road Ranger stops logged.
Number of requests for Road Ranger assistance	Road Rangers	3.1, 6.1	To be determined.	To be determined.	Indicated level of Road Ranger activity. It will assist in Road Ranger resource allocation.	B	Total number of requests to TMC for Road Ranger response/assistance.
Number of Road Ranger route miles	Road Rangers	3.1, 6.1	Data collection completed for 2006.	Available.	Indicates level of Road Ranger activity.	C	Total number of route miles traveled by Road Ranger vehicles.
Number of Road Ranger vehicles	Road Rangers	3.1, 6.1	Data collection completed for 2006.	Available.	Indicates level of Road Ranger resources. It will assist in Road Ranger resource allocation.	C	Total number of Road Ranger vehicles.
Percent Road Ranger vehicles with AVL	Road Rangers	3.1, 4.2, 6.1	Data collection completed for 2006.	Available.	Indicated level of Road Ranger resources. It will assist in Road Ranger resource allocation and tracking.	C	The percentage of total Road Ranger vehicles having automated vehicle location device installed.
Road Ranger total miles driven	Road Rangers	3.1, 6.1, 6.1	To be determined.	To be determined.	Indicated level of Road Ranger activity.	C	Total number of miles traveled by Road Ranger vehicles.
Number of incidents detected by TMCs, by incident detection method and incident level	SunGuide, SunNav	3.1, 6.1	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	Indicates level of TMC activity and the effectiveness of various detection methods. It can be used in managing resource needs and benefit calculations.	B	The number of incidents detected by the TMC, by surveillance camera, speed detector, Road Ranger stop, FHP.

Traffic Safety Program
Outcome Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Reduction in number of intersection crashes	FDOT Highway Safety Office	2.1	Data is continuously collected.	2005 data is currently available – contact Marcia Lich in the Safety Office.	Indicates effectiveness and performance of traffic safety program.	A	Number of Intersection Crashes = Total number of fatal and serious injury crashes occurring on all state highway system intersections annually. Percent reduction = Total number of fatal and serious injury crashes that occur at all SHS intersections in current year – Total number of fatal and serious injury crashes that occur at all SHS intersections in previous year.
Reduction in number of crashes involving elder drivers	FDOT Highway Safety Office	2.1	Data is continuously collected.	2005 data is currently available – contact Marcia Lich in the Safety Office.	Indicates effectiveness and performance of traffic safety program.	A	Total number of crashes involving elder drivers = Number of fatal and serious injury crashes annually involving drivers 65 years of age and older. Percent reduction = Total number of fatal and serious injury crashes involving 65+ drivers in current year – Total number of fatal and serious injury crashes involving 65+ drivers in previous year.
Reduction in rate of crashes involving trucks/VMT	FDOT Highway Safety Office	2.1	Data is continuously collected.	2005 data is currently available – contact Marcia Lich in the Safety Office for accidents involving trucks, Statistics Office for VMT.	Indicates effectiveness and performance of traffic safety program.	A	Rate of crashes involving trucks = Total annual number of fatal and serious injury crashes involving trucks on the SHS/total annual SHS VMT. Percent reduction = Total number of fatal and serious injury crashes involving tucks in the SHS in the current year – Total number of fatal and serious injury crashes involving tucks in the SHS in the previous year.

Traffic Safety Program
Output Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Number of intersection crashes	FDOT Highway Safety Office	2.1	Data is continuously collected.	2005 data is currently available.	Base data used to calculate traffic safety performance.	C	Total number of crashes that occur at an intersection.
Number of crashes involving elder drivers	FDOT Highway Safety Office	2.1	Data is continuously collected.	2005 data is currently available.	Base data used to calculate traffic safety performance.	C	Total number of crashes that involve a driver 65 years or older.
Number of crashes involving trucks	FDOT Highway Safety Office	2.1	Data is continuously collected.	2005 data is currently available.	Base data used to calculate traffic safety performance.	C	Total number of crashes that involve a truck.
Number of side swipe crashes at intersections	FDOT Highway Safety Office	2.1	Data is continuously collected.	2005 data is currently available.	Indicates effectiveness of advance warning and street name signs.	C	Total number of side swipe crashes occurring at intersections.

Traffic Operations Program
Output Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Statewide SHS Performance	Likely to be vendor probe data or VII data	2.1, 3.2, 7.1	Not being tracked.	Not available.	Indicates statewide system efficiency, productivity, or level of delay.	A	Needs to be defined.
Percent of SHS signals with single point span wire, dual point span wire, and mast arms supports	Manual by districts and locals	2.1	Individual traffic agencies need to be asked to provide data.	Not available.	Indicates progress in providing safer signal designs statewide.	B	Percentage of SHS signals that have safe signal support systems.
Percent of signals retimed within three years	ITE Traffic Signal Survey	2.1, 3.1, 7.1	Survey completed for 2004, 2006 Survey underway.	2004 data is currently available, 2006 data available in mid-2007.	Indicates the level of signal timing maintenance.	B	Percentage of total signals that have been retimed within the last three years.
Number of signals in coordinated systems	ITE Traffic Signal Survey	2.1, 3.1, 7.1	Survey completed for 2004, 2006 Survey underway.	2004 data is currently available, 2006 data available in mid-2007.	Indicates progress in providing signal coordination.	B	Total number of signals in coordinated systems.

Safe Mobility for Life Program
Outcome Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Percent local governments implementing roadway improvements for elder drivers	Local government survey	1.3, 3.2, 7.1	Measure included in Safe Mobility for Life Tier 4 Plan.	Data will be available end of 2008.	Indicates progress in providing improvements for elder drivers.	A	Percentage of local governments that have implemented roadway improvements for elder drivers. Improvements include: 1) six-inch pavement markings; 2) advance street name signs; 3) advance warning signs; 4) overhead street name signs; 5) internally illuminated street name signs; 6) guide sign lettering designed to roadway speeds; and 7) countdown pedestrian signals. Percent local governments implementing roadway improvements = total number of local governments responding to survey who are implementing improvements for 65+/total number of local governments responding to survey.
Percent customer satisfaction with Safe Mobility for Life Program (SMLP) activities	Biannual FDOT customer survey	1.3, 3.2, 7.1	Not being tracked.	Not available. Question needs to be added to FDOT customer survey.	Provides a qualitative measure of public satisfaction of the SMLP.	A	Percentage of respondents satisfied with SMLP activities. This measure is under development through the Safe Mobility for Life Tier 4 plan.

Safe Mobility for Life Program
Output Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Number of statewide SMLP training sessions	Training course rosters	1.3, 6.3	Courses to start in 2007.	Data available from Gail Holley.	Indicates level of training for SMLP program.	B	Number of statewide SMLP training sessions = Total number of SMLP training courses conducted per year.
Number of driver safety trainers certified to conduct driver safety, vehicle fit, and driver skills workshops	Manual from workshop trainers	1.3, 6.3	Courses to start in 2008.	Data available from Gail Holley.	Indicates level of driver safety training.	B	Number of driver safety trainers certified to conduct driver safety, vehicle fit, and driver skills workshops = Total number of driver safety trainers certified per year.
Number of elder driver workshops conducted	Manual from workshop trainers	1.3, 6.3	Courses to start in 2008.	Not available.	Indicates level of driver safety, vehicle fit, and driver skills training.	B	Number of elder driver workshops conducted = Total number of vehicle fit workshops conducted per year.
Number of written standards for the Safe Mobility for Life Program in FDOT policies, procedures, and guidelines	Manual	1.3, 6.3	In Tier 4 plan.	Data available from Gail Holley.	Indicates level of mainstreaming SMLP into FDOT activities	B	Total number of SMLP standards incorporated into FDOT processes. Standards include Traffic Engineering manual, Plans prep manual, Design standards, PD&E manual, Project Management. Handbook, FL Greenbook, FTP, SHSP – Target = 3 standards documents per year.

Traffic Operations Research Program
Output Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Number of ITS devices tested in product certification program	Manual	6.1	Tracked by TERL.	Available.	Indicates certification program progress.	B	Number of ITS equipment products tested for FDOT standards.
Number of ITS device manufacturers processed in product certification program	Manual	6.1	Tracked by TERL.	Available.	Indicates certification program progress.	B	Number of manufacturers processed by product certification program.
Average duration of ITS device tests in product certification program	Manual	6.1	Tracked by TERL.	Available.	Indicates certification program progress.	B	Average length of time taking to test ITS devices in product certification program.
Complaints on traffic signal systems addressed by TERL	Manual	6.1, 3.1	Tracked by TERL.	Available.	Indicates activity level of TERL staff.	B	Number of traffic signal system complaints from local governments addressed by TERL staff.
Number of research projects	Manual	6.4	Tracked by FDOT Research Center.	Available.	Indicates level of research activity.	B	Number of research projects underway at time of reporting.
Number of FDOT standard specifications sections updated	Manual	6.1	Tracked by TERL.	Available.	Indicates activity level of TERL staff.	B	Number of FDOT standard specifications sections updated.

Commercial Vehicle Operations Program
Outcome Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Total time and cost savings by AGPASS and weigh station bypasses	Manual estimate, HELP	3.1, 7.1	Not being tracked.	Not available.	Indicates usage and benefits of AGPASS and HELP programs.	A	Time and cost savings by trucks by use of electronic station bypass systems. Procedures to estimate costing must be developed.

Commercial Vehicle Operations Program
Output Measures

Performance Measures	Source	TEO Tier 4 Business Plan Objectives Supported	Data Collection Status	Data Availability Status	Use	Reporting Level	Definition
Florida Trucking Information web site visits	Web analysis tool	3.1, 7.1	Being tracked.	Available.	Number of elder driver workshops conducted	B	Total number of Florida Trucking Information web site visits.
Florida Trucking 800 phone number calls	Call tracking tool	3.1, 7.1	Being tracked.	Available.	Indicates how often the Florida Trucking number is used by the trucking companies.	B	Total number of Florida Trucking calls.
AGPASS bypasses	AGPASS program	3.1, 7.1	Being tracked.	Available.	Indicates usage of AGPASS program.	B	Total number of AGPASS bypasses.
Weigh Station bypasses	HELP	3.1, 7.1	Being tracked.	Available.	Indicates usage of HELP program.	B	Total number of weigh station bypasses.

Appendix C

Reliability Workshop Agenda

AGENDA

Florida Travel-Time Reliability Workshop
(1.5 Day Version)

1. *Introduction* – Anita Vandervalk:

   – Workshop purpose;

   – Agenda review; and

   – Desired outcomes.

2. *Introduction to Travel-Time Reliability* – Rich Margiotta (excerpts from four-hour workshop slides):

   – Why reliability is important;

   – The concept of travel-time reliability – common definitions;

   – Examples of reliability presentation; and

   – Types of data: sources and limitations.

3. *Florida's Travel-Time Reliability Program* – Where we've been, where we are, and where we want to be:

   – Planning and Research – Doug McLeod and Lily;

   – Policy Perspective (SIS) – Brian Watts; and

   – ITS Performance Measures – Elizabeth Birriel.

BREAK

4. *Other state's perspective on Travel-Time Reliability* – Shawn Turner.

5. *Identification of common themes and issues* "Why can't Florida get Travel-Time Reliability off the ground?"

   – Identify four to five issue areas (i.e., data, policy, education, money, etc.).

LUNCH

6. *Brainstorm issues* to be resolved for Issue Areas.

BREAK

7. *Brainstorm solutions* for each issue area.

END OF DAY 1

DAY 2

8. Formulate recommendations and next steps.

9. Present to managers (Bob, Warren, James).

10. Follow-up items.

Proposed Attendees

FDOT Planning:
Doug McLeod
Brian Watts
Gordon Morgan

FDOT Operations:
Elizabeth Birriel
Mark Wilson
Trey Tillander
Liang Hsia

FHWA Tallahassee:
Sabrina (Planning)
Ops

FDOT Management:
Kevin Thibault
Bob Romig
Warren Merrell
James Golden

Research Consultants:
Lily Elefteriadou
Ken Courage

Workshop Staff:
Rich Margiotta
Shawn Turner
Anita Vandervalk

Appendix D

Selected Performance Measures Data Collection Process

ITS Program
Outcome Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Travel-time reliability – buffer index	SunGuide, SunNav	District 2 has speed data. Districts 4, 5, 6, and FTE should have some data this year. Consider obtaining vendor probe data for roadways not managed by ITS.	Data quality issues must be addressed before travel times can be calculated. Enhancements to SunGuide Software are likely required to make travel-time data collection efficient and consistent.	District TMC staff	TSS	SunGuide TSS collects speed data continuously, TSS or TVT reports speed and travel time in graphical and tabular form. District output data must be sent to Central Data Warehouse for statewide reporting
Travel-time reliability – FDOT on-time arrival	SunGuide, SunNav	District 2 has speed data. Districts 4, 5, 6, and FTE should have some data this year.	Data quality issues must be addressed before travel times can be calculated. Enhancements to SunGuide Software are likely required to make travel-time data collection efficient and consistent.	District TMC staff	TSS	SunGuide TSS collects speed data continuously, TSS or TVT reports speed and travel time in graphical and tabular form. District output data must be sent to Central Data Warehouse for statewide reporting
Travel-time index	SunGuide, SunNav	District 2 has speed data. Districts 4, 5, 6, and FTE should have some data this year.	Data quality issues must be addressed before travel times can be calculated. Enhancements to SunGuide Software are likely required to make travel-time data collection efficient and consistent.	District TMC staff	TSS	SunGuide TSS collects speed data continuously, TSS or TVT reports speed and travel time in graphical and tabular form. District output data must be sent to Central Data Warehouse for statewide reporting

ITS Program (continued)
Outcome Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Person-hours of delay	SunGuide, SunNav	District 2 has speed data. Districts 4, 5, 6, and FTE should have some data this year.	Data quality issues must be addressed before travel times can be calculated. Enhancements to SunGuide Software are likely required to make travel-time data collection efficient and consistent.	FDOT Office of Planning, Traffic Data and Reports, Rick Reel.	Traffic Data file.	Obtain monthly average traffic volumes and auto occupancy for each road segment. Work with Planning to automate this process.
Truck-hours of delay	SunGuide, SunNav, estimates of truck percentage	District 2 has speed data. Districts 4, 5, 6, and FTE should have some data this year.	Data quality issues must be addressed before travel times can be calculated; enhancements to SunGuide Software are likely required to make travel-time data collection efficient and consistent.	FDOT Office of Planning, Traffic Data and Reports, Rick Reel.	Traffic Data file.	Obtain monthly average traffic volumes and truck percentages for each road segment. Work with Planning to automate this process.
Percent customer satisfaction with DMS messages, web sites, and 511	Biannual Survey	Data collection completed for 2006; next survey anticipated in early 2008.	2006 data is completed; supplement with Road Ranger card survey information.	Survey consultant.	Biannual written report.	Include data summaries for statewide and by district in the Annual Report. Data will cover two reporting years.
ITS Program Benefit/Cost Ratio	Manual	District 4 has developed a formula for program benefits.	Cost information is available; method of determining statewide benefits needs to be determined.	TBD	TBD	TBD

ITS Program
Output Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Number of 511 calls	ATIS providers	Data collection completed for 2006.	Available.	FDOT Statewide 511 contractor	Contractor file	Request data monthly
Number of unique 511 callers	ATIS providers	Tracked by 511 managers.	Available.	FDOT Statewide 511 contractor	Contractor file	Request data monthly
Number of traveler information web site visits	Web analysis tool	Tracked by 511 managers.	Available.	FDOT Statewide 511 contractor	Microsoft IIS file	Request data monthly
Number of unique traveler information web site visitors	Web analysis tool	Tracked by 511 managers.	Available.	FDOT Statewide 511 contractor	Microsoft IIS file	Request data monthly
SHS miles managed by ITS	Manual from districts	Data collection completed for 2006.	Available.	TMC Manager for each district.	ITS equipment inventory files.	Request data annually.
Arterial miles managed by ITS	Manual from districts	Data collection completed for 2006.	Available.	TMC Manager for each district.	ITS equipment inventory files.	Request data annually.
Percent of ITS Cost Feasible Plan completed on-time	Manual	Data collection completed for 2006.	Available.	ITS GC for Central Office.		Request data annually.
Percent electronic payments on toll facilities	Florida Turnpike Enterprise, OOCEA, and other toll authorities	Tracked by toll agencies.	Available.	Florida Turnpike Enterprise, OOCEA.	In toll authorities files.	Request data annually.
Number of ITS field devices, by type	SunGuide, SunNav	District 4 is tracking, SunGuide has an inventory module.	Available in District 4, others districts have manual list.	TMC Manager for each district.	ITS equipment inventory files.	Request data annually.

ITS Program (continued)

Output Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Number of calls from call boxes	Manual from districts	Tracked by ITS Communications Contractor.	Available.	ITS Telecommunications GC for Central Office.	Contractor file	Request data monthly.
Number of detector sites used to obtain data for other FDOT Offices	Manual from districts	Not being tracked.	To be determined.	TMC Manager for each district.	District TMC file	Request data annually.

Incident Management Program
Outcome Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Total incident duration time	SunGuide, SunNav	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	District TMC staff	EMPM	Request data monthly
Notification time	SunGuide, SunNav	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	District TMC staff	EMPM	Request data monthly
Verification time	SunGuide, SunNav	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	District TMC staff	EMPM	Request data monthly
Road Ranger/SIRV Response time	SunGuide, SunNav	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	District TMC staff	EMPM	Request data monthly
Clearance time	SunGuide, SunNav	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	District TMC staff	EMPM	Request data monthly
Diversions due to ATIS messages, by message type	Biannual customer survey	Not being tracked.	Question needs to be added to statewide customer survey.	Customer survey	TBD	Include data summaries for statewide and district in the Annual Report. Data will cover two reporting years.
Reduction in rate of secondary crashes	SunGuide, SunNav	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	District TMC staff	EMPM	Request data monthly
Reduction in rate of secondary incidents	SunGuide, SunNav	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	District TMC staff	EMPM	Request data monthly
Percent customer satisfaction with Road Ranger Program	Biannual customer survey	Data collection completed for 2006; Road Ranger survey to be added to statewide customer survey.	Available.	Survey consultant.	Biannual written report.	Include data summaries for statewide and by district in the Annual Report. Data will cover two reporting years.

Incident Management Program
Output Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Number of Road Ranger stops	Road Rangers	Data collection completed for 2006.	Available.	District Road Ranger Manager.	File maintained by Central Office Incident Management Coordinator.	CO IM Coordinator requests data from districts monthly. Spreadsheets e-mailed to CO.
Number of requests for Road Ranger assistance	Road Rangers	To be determined.	To be determined.	District Road Ranger Manager.	File maintained by Central Office Incident Management Coordinator.	CO IM Coordinator requests data from districts monthly. Spreadsheets e-mailed to CO.
Number of Road Ranger route miles	Road Rangers	Data collection completed for 2006.	Available.	District Road Ranger Manager.	File maintained by Central Office Incident Management Coordinator.	CO IM Coordinator requests data from districts monthly. Spreadsheets e-mailed to CO.
Number of Road Ranger vehicles	Road Rangers	Data collection completed for 2006.	Available.	District Road Ranger Manager.	File maintained by Central Office Incident Management Coordinator.	CO IM Coordinator requests data from districts monthly. Spreadsheets e-mailed to CO.
Percent Road Ranger vehicles with AVL	Road Rangers	Data collection completed for 2006.	Available.	District Road Ranger Manager.	File maintained by Central Office Incident Management Coordinator.	CO IM Coordinator requests data from districts monthly. Spreadsheets e-mailed to CO.
Road Ranger total miles driven	Road Rangers	To be determined.	To be determined.	District Road Ranger Manager.	File maintained by Central Office Incident Management Coordinator.	CO IM Coordinator requests data from districts monthly. Spreadsheets e-mailed to CO.
Number of incidents detected by TMCs, by incident detection method and incident level	SunGuide, SunNav	Districts 4 and 6 is currently tracking.	Will be available in districts when SunGuide 3.0 is installed.	District TMC staff	EMPM	Request data monthly

Traffic Safety Program

Outcome Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Reduction in number of intersection crashes	FDOT Highway Safety Office	Data is continuously collected.	2005 data is currently available – contact Marcia Lich in the Safety Office.	FDOT Safety Office.	Safety Office file.	CO ITS GC requests Safety data annually.
Reduction in number of crashes involving elder drivers	FDOT Highway Safety Office	Data is continuously collected.	2005 data is currently available – contact Marcia Lich in the Safety Office.	FDOT Safety Office.	Safety Office file.	CO ITS GC requests Safety data annually.
Reduction in rate of crashes involving trucks/VMT	FDOT Highway Safety Office	Data is continuously collected.	2005 data is currently available – contact Marcia Lich in the Safety Office for accidents involving trucks, Statistics office for VMT.	FDOT Safety Office.	Safety Office file.	CO ITS GC requests Safety data annually.

Traffic Safety Program

Output Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Number of intersection crashes	FDOT Highway Safety Office	Data is continuously collected.	2005 data is currently available.	FDOT Safety Office.	Safety Office file.	CO ITS GC requests Safety data annually.
Number of crashes involving elder drivers	FDOT Highway Safety Office	Data is continuously collected.	2005 data is currently available.	FDOT Safety Office.	Safety Office file.	CO ITS GC requests Safety data annually.
Number of crashes involving trucks	FDOT Highway Safety Office	Data is continuously collected.	2005 data is currently available.	FDOT Safety Office.	Safety Office file.	CO ITS GC requests Safety data annually.
Number of side swipe crashes at intersections	FDOT Highway Safety Office	Data is continuously collected.	2005 data is currently available.	FDOT Safety Office.	Safety Office file.	CO ITS GC requests Safety data annually.

Traffic Operations Program
Output Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Statewide SHS performance	Likely to be vendor probe data or VII data	Not being tracked.	Not available.	TBD	TBD	TBD
Percent of SHS signals with single point span wire, dual point span wire, and mast arms supports	Manual by districts and locals	Individual traffic agencies need to be asked to provide data.	Not available.	Local traffic engineering departments.	N/A	Annual e-mail or letter request from TEO.
Percent of signals retimed within three years	ITE Traffic Signal Survey	Survey completed for 2004, 2006 Survey underway.	2004 data is currently available, 2006 data available in mid-2007.	ITE	Signal Survey data output file.	TEO to request detailed data for Florida when survey data is available.
Number of signals in coordinated systems	ITE Traffic Signal Survey	Survey completed for 2004, 2006 Survey underway.	2004 data is currently available, 2006 data available in mid-2007.	ITE	Signal Survey data output file.	TEO to request detailed data for Florida when survey data is available.

Safe Mobility for Life Program
Outcome Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Percent local governments implementing roadway improvements for elder drivers	Local government survey	Measure included in Safe Mobility for Life Tier 4 Plan.	Data will be available end of 2008.	Local traffic engineering departments.	N/A	Annual e-mail or letter request from TEO.
Percent customer satisfaction with Safe Mobility for Life Program (SMLP) activities	Biannual FDOT customer survey	Not being tracked.	Not available. Question needs to be added to FDOT customer survey.	Customer survey contractor	Customer survey	Obtain data from FDOT survey.

Safe Mobility for Life Program
Output Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Number of statewide SMLP training sessions	Training course rosters	Courses to start in 2007.	Data available from Gail Holley.	Traffic Engineering Office.	TEO manual files.	TEO to track training continuously.
Number of driver safety trainers certified to conduct driver safety, vehicle fit, and driver skills workshops	Manual from workshop trainers	Courses to start in 2008.	Data available from Gail Holley.	Traffic Engineering Office.	TEO manual files.	TEO to track training continuously.
Number of elder driver workshops conducted	Manual from workshop trainers	Courses to start in 2008.	Not available.	Traffic Engineering Office.	TEO manual files.	TEO to track training continuously.
Number of written standards for the Safe Mobility for Life Program in FDOT policies, procedures and guidelines	Manual	In Tier 4 plan.	Data available from Gail Holley.	Traffic Engineering Office.	TEO manual files.	TEO to track standards development continuously.

Traffic Operations Research Program
Output Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Number of ITS devices tested in product certification program	Manual	Tracked by TERL.	Available.	TERL.	TERL manual files.	TERL to track product certification continuously.
Number of ITS device manufacturers processed in product certification program	Manual	Tracked by TERL.	Available.	TERL.	TERL manual files.	TERL to track product certification continuously.
Average duration of ITS device tests in product certification program	Manual	Tracked by TERL.	Available.	TERL.	TERL manual files.	TERL to track product certification continuously.
Complaints on traffic signal systems addressed by TERL	Manual	Tracked by TERL.	Available.	TERL.	TERL manual files.	TERL to track complaints continuously.
Number of research projects	Manual	Tracked by FDOT Research Center.	Available.	TERL.	TERL manual files.	TERL to track research continuously.
Number of FDOT standard specifications sections updated	Manual	Tracked by TERL.	Available.	TERL.	TERL manual files.	TERL to track specifications continuously.

Commercial Vehicle Operations Program

Outcome Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Total time and cost savings by AGPASS and weigh station bypasses	Manual estimate, HELP	Not being tracked.	Not available.	Central Office CVO Coordinator.	CVO manual files, DACS files, MCCO files.	Request bypass data from DACS and MCCO annually, develop time and cost savings factors.

Commercial Vehicle Operations Program

Output Measures

Performance Measures	Source	Data Collection Status	Data Availability Status	Data Contact	Data File Location	Description of Procedure
Florida Trucking Information web site visits	Web analysis tool	Being tracked.	Available.	Central Office CVO Coordinator.		Request monthly reports form.
Florida Trucking 800 phone number calls	Call tracking tool	Being tracked.	Available.	Central Office CVO Coordinator.		Request monthly reports form.
AGPASS bypasses	AGPASS program	Being tracked.	Available.	Central Office CVO Coordinator.	DACS files	Request bypass data from DACS annually.
Weigh Station bypasses	HELP	Being tracked.	Available.	Central Office CVO Coordinator.	MCCO files	Request bypass data from MCCO annually.