Technical Memorandum

Statewide Advanced Traveler Information System Project

Concept of Operations for Florida's Turnpike Enterprise

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Draft Version 2

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List of Acronyms

ATIS ..... Advanced Traveler Information System
CCTV..... Closed-circuit Television
ConOps .....Concept of Operations
CRS.....Conditions Reporting System
DMS.....Dynamic Message Sign
EDACS® .....Enhanced Digital Access Communications System
EDL .....Electronic Document Library
EOC .....Emergency Operations Center
FDOT.....Florida Department of Transportation
FHP ..... Florida Highway Patrol
FIHS..... Florida Intrastate Highway System
FTE ..... Florida's Turnpike Enterprise
HAR.....Highway Advisory Radio
I-75..... Interstate 75
ITS ..... Intelligent Transportation System
ITS America™.....Intelligent Transportation Society of America
PIO.....Public Information Office
RTMC..... Regional Transportation Management Center
SIS ..... Strategic Intermodal System
SRS .....SmartRoute Systems
TEOO.....(FDOT) Traffic Engineering and Operations Office
VAS .....Video Aggregation Subsystem

1. Introduction

1.1 Purpose

This technical memorandum describes the next-generation statewide advanced traveler information system (ATIS) to be implemented in the 2008 to 2013 timeframe at the District level, and serves as the initial concept of operations (ConOps) for Florida's Turnpike Enterprise (FTE).

This report details the current or near-term situation of 511 traveler information for FTE, along with the proposed system in 2008. This report is one of eight District ConOps that further refines the initial *Statewide ATIS ConOps* for each District.[1]

1.2 Background

The Florida Department of Transportation (FDOT) currently operates one of the most widely used traveler information programs in the country. Florida 511 services receive roughly 500,000 calls a month from people accessing real-time traveler information. Florida's combined cobranded 511 Web sites also receive roughly 1,000,000 Web hits a month. Hundreds of dynamic messages sign (DMS) devices, and dozens of permanent and portable highway advisory radio (HAR) stations are used throughout the state to inform drivers of congestion, incidents, and construction zones. Millions of travelers rely on static information provided through various means, such as rest areas, welcome centers, the state map, and public service campaigns.

While the FDOT's efforts have proven effective, opportunities remain to improve service to the traveling public. The state's initial regional advanced traveler information projects are scheduled to reach the end of contractual terms in mid-2008. This gives the state both an opportunity to improve and integrate services, and a need to plan and implement follow-up services to ensure the continued provision of quality traveler information.

[1] More information regarding the FDOT's *Statewide ATIS ConOps* is provided in *Section 2*.

In late 2003, the FDOT formed the Florida 511 Working Group to support coordination among state traveler information programs.[2] In early 2004, the 511 Working Group determined that Florida's next-generation traveler information services — or what follows when these first-generation projects end in 2008 — should be far more integrated, consistent, statewide, and seamless than current projects. Further, the FDOT Traffic Engineering and Operations Office (TEOO) Intelligent Transportation Systems (ITS) Section should take the lead in defining and establishing an integrated telephone and Web site infrastructure that supports state traveler information services in 2008 and beyond. The TEOO ITS Section should also continue working with the 511 Working Group to coordinate the creation of that infrastructure, and to define roles for the FDOT Districts and partner agencies in creating and managing the content provided by the statewide ATIS.

The FDOT Executive Board approved the budget for Florida's next-generation statewide ATIS on July 19, 2006.

1.3 Content

This technical memorandum contains the initial District ConOps, and provides an initial baseline of the project's assumptions, boundaries, and constraints, including the roadways covered by each District and the data flows within each District.

The topics covered in this report include:

- *Section 1 – Introduction*
- *Section 2 – Referenced Documents*
- *Section 3 – Concept of Operations*

[2] More information regarding the Florida 511 Working Group is available online at http://www.dot.state.fl.us/TrafficOperations/ITS/Projects_Deploy/511/WGM.htm.

2. Referenced Documents

The documents identified below were referenced during the development of this ConOps. These documents, along with other project information, are available on the project Web site located online at http://floridaits.com/Travel_Info-ConOps_Dev.htm.

Technical Memorandum *Statewide Advanced Traveler Information System (ATIS) Project* *Statewide ATIS Concept of Operations* August 4, 2006 Version 2	Florida Department of Transportation Traffic Engineering and Operations Office Intelligent Transportation Systems Section 605 Suwannee Street, M.S. 90 Tallahassee, Florida 32399-0450 (850) 410-5600
Technical Memorandum *Statewide Advanced Traveler Information System (ATIS) Project* *Environmental Scan* August 16, 2006 Version 2	Florida Department of Transportation Traffic Engineering and Operations Office Intelligent Transportation Systems Section 605 Suwannee Street, M.S. 90 Tallahassee, Florida 32399-0450 (850) 410-5600
Technical Memorandum *Statewide Advanced Traveler Information System Project* *Stakeholder Input and User Needs* August 16, 2006 Version 2	Florida Department of Transportation Traffic Engineering and Operations Office Intelligent Transportation Systems Section 605 Suwannee Street, M.S. 90 Tallahassee, Florida 32399-0450 (850) 410-5600
Technical Memorandum *Statewide Advanced Traveler Information System Project* *Project Concept Report* September 13, 2006 Version 2	Florida Department of Transportation Traffic Engineering and Operations Office Intelligent Transportation Systems Section 605 Suwannee Street, M.S. 90 Tallahassee, Florida 32399-0450 (850) 410-5600

3. Concept of Operations

To understand the impact that the future statewide ATIS, which is to be implemented in 2008, will have on traveler information for FTE, this ConOps reviews the current situation, discusses the justification for changes, and reviews the potential future state in regards to FTE.

3.1 Current Situation

3.1.1 Introduction

3.1.1.1 Background

Florida's Turnpike Enterprise operates as a separate business unit of the FDOT and includes 455 miles of toll highways, including the Turnpike Mainline from Miami to central Florida, as well as the Homestead Extension, the Sawgrass Expressway, the Seminole Expressway, the Beachline Expressway (formerly known as the Bee Line Expressway), the Southern Connector Extension of the Central Florida GreeneWay, a portion of the Western Beltway, the Veterans Expressway, the Suncoast Parkway, and the Polk Parkway. Florida's Turnpike Enterprise is also responsible for all toll operations on every FDOT-owned and operated toll road and bridge. This represents approximately 600 miles of roadway and 80 percent of all toll facilities in Florida.

Florida's Turnpike Enterprise has roadways in a majority of Florida's Districts and is a partner in a number of the existing regional 511 systems. Florida's Turnpike Enterprise provides information on its roadways in Districts 4 and 6 for the southeast Florida 511 system. Florida's Turnpike Enterprise also provides information on its roadways in District 5 for the central Florida and statewide 511 systems. While FTE has roadways in District 7, it does not currently provide information to the Tampa Bay 511 regional system since it has not yet placed ITS equipment on these roadways.

3.1.1.2 Overview

Florida's Turnpike Enterprise has two regional transportation management centers (RTMCs) — one in Turkey Lake and one in Pompano Beach. With these two facilities, FTE controls, monitors, operates, and manages traffic along its roadways 24 hours a day, 7 days a week. Working closely with partners and other agencies, FTE collects and passes along information about Florida's Turnpike to the impacted Districts. Although the Turkey Lake RTMC typically provides information to District 5, and the Pompano Beach RTMC typically provides information to Districts 4 and 6, both centers are interchangeable and have the ability to provide the necessary information to any FDOT District.

Appendix A shows the current coverage area for FTE.

Figure 3.1 shows the current traveler information data flows for FTE. The following sections review the inputs, operations, and outputs shown in this diagram.

3.1.2 Inputs

3.1.2.1 Overview

As seen in Figure 3.1, there are ITS inputs, such as detectors and closed-circuit television (CCTV) cameras, and non-ITS inputs that go to FTE's two RTMCs. The non-ITS inputs are manual in nature — that is, operators receive telephone calls and text messages; review Web sites; et cetera. Only the CCTV cameras and RTMC detectors send data automatically to the RTMC.

3.1.2.2 Florida's Turnpike Enterprise's Regional Transportation Management Center Inputs

As shown in Figure 3.1, the ATIS inputs that go directly into FTE's RTMCs include the following:

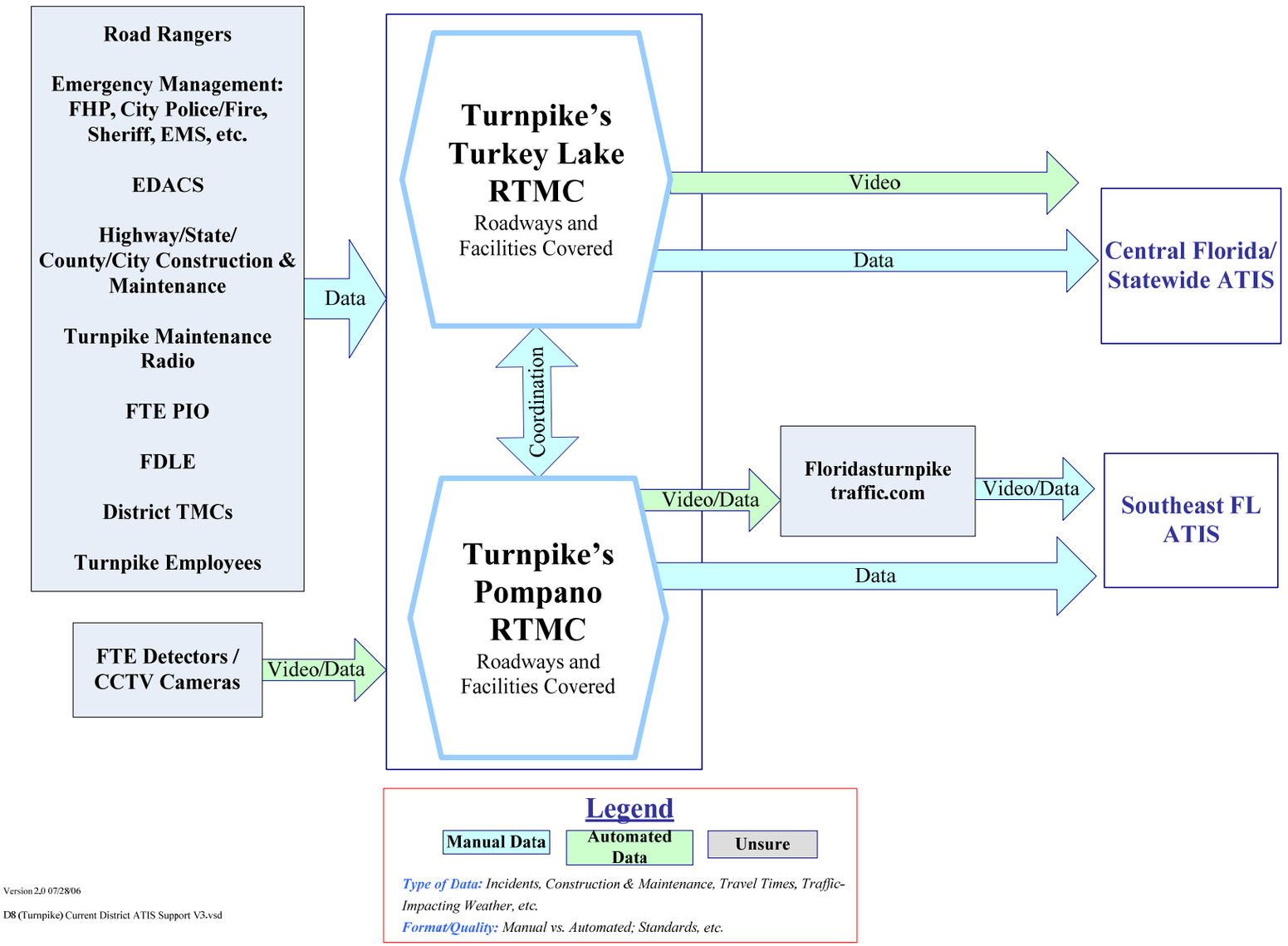
- **Closed-circuit Television Cameras and Detectors —** Florida's Turnpike Enterprise's CCTV cameras and detectors are located on the roadways shown in *Appendix A*. Currently, there are 26 CCTV cameras, 16 of which are mounted on concrete poles and 10 are located on existing microwave towers along the roadway. In addition, two design/build projects will be complete by the end of 2006 that will add another 94 cameras. Many of these are already online.

- **Road Rangers —** The State Farm Safety Patrol Road Rangers are a result of a State Farm Insurance partnership.[3] The Road Rangers provide free assistance to motorists along Florida's Turnpike. Road Rangers are often times the first to arrive on the scene and the first to provide timely incident information to the RTMCs. These motorist services along Florida's Turnpike and the Sawgrass Expressway are available every day from 6:00 a.m. to 10:00 p.m.

- **Emergency Management —** Emergency management agencies, such as the Florida Highway Patrol (FHP), the local police, emergency operation centers (EOCs), et cetera, are an important source of information on all roadways covered by the RTMCs.

[3] More information regarding FTE's partnership with State Farm Insurance is available online at http://www.floridasturnpike.com/tools_safetypatrol.cfm.

Figure 3.1 – Florida's Turnpike Enterprise's Current Advanced Traveler Information System Support



The RTMCs have access to FHP CAD data through numerous sources. Florida's Turnpike Enterprise maintains a person collocated at the FHP dispatch office to assist in coordination efforts. In addition, FTE has access to certain FHP radio channels using the Enhanced Digital Access Communications System (EDACS®) called ProVoice™, which is a digitally encrypted system.[4] Note that this scanner requires a special license for monitoring purposes. Florida's Turnpike Enterprise can also monitor the FHP CAD Web site.

During emergencies, such as hurricanes, FTE's RTMC staff interfaces with the appropriate EOC personnel and coordinates with both District 5, and Districts 4 and 6 to include necessary information, such as floodgate messages covering evacuation routes and the reversal of traffic flow on roadways, on the 511 system.

- **Construction and Maintenance —** The RTMCs interface with highway, state, city, and county construction and maintenance offices to properly update the system on an on-going basis for planned roadway construction and maintenance operations in their District.

- **Florida's Turnpike Enterprise's Maintenance Radios —** Florida's Turnpike Enterprise receives traveler information from their maintenance crews.

- **Florida's Turnpike Enterprise's Public Information Office —** Florida's Turnpike Enterprise receives various reports from their public information office (PIO), such as weekly construction and maintenance reports that provide additional traveler information.

- **Florida's Turnpike Enterprise's Employees —** Florida's Turnpike Enterprise's employees provide reports to the RTMCs when they notice incidents that impact travel.

3.1.3 Operations

3.1.3.1 Overview

As seen in Figure 3.1, the Turkey Lake headquarters complex in Orlando and the Pompano Beach RTMC are both critical elements in the data collection process for the southeast Florida 511, and the central Florida and statewide 511 systems.

Generally, the Turkey Lake RTMC covers the Turnpike Mainline from Jupiter to the northern terminus at Interstate 75 (I-75), as well as the off-Mainline roadways in the Orlando, Tampa, and Lakeland areas.

[4] EDACS is a registered trademark and ProVoice is a trademark of M/A-COM. More information regarding M/A-COM and its products is available online at http://www.macom-wireless.com/.

The Pompano Beach RTMC covers the tricounty area of Miami Dade, Broward, and Palm Beach, as well as the Homestead Extension and Sawgrass Expressway.

These two RTMCs run on the SunNav[SM] RTMC operating software and have the capability to remotely control all of FTE's ITS equipment.[5]

3.1.3.2 Regional Transportation Management Center Advanced Traveler Information System Staffing

Florida's Turnpike Enterprise's RTMCs operate 24 hours a day, 7 days a week.

There are generally three RTMC operators in each RTMC and one manager in one of the locations at all times during the daytime shift. The managers' schedules are staggered, with an early morning manager in one location and an afternoon manager in the other location.

During overnight shifts, there are four operators, with two operators in each location.

Currently, FTE's RTMCs provide information to the regional 511 systems through emails, text messages, et cetera. In the near future, the Turkey Lake RTMC will assist the central Florida 511 system by assuming some additional ATIS responsibilities for FTE's roads in District 5. Essentially, the Turkey Lake operators will input information directly into the central Florida data fusion subsystem, referred to as the conditions reporting system (CRS) and will provide the necessary information, such as voice files for the interactive voice response (IVR) subsystem for the dissemination subsystem. Florida's Turnpike Enterprise does not anticipate a need to hire additional staff to support this increase in responsibility.

3.1.4 Outputs

3.1.4.1 Overview

As seen in Figure 3.1, FTE's RTMCs provide traveler information to two regional 511 systems — the central Florida/statewide ATIS and the southeast Florida ATIS.

The central Florida/statewide ATIS receives video from FTE's CCTV cameras and traveler information on FTE roads via text alerts, screen shots, and telephone communications between operators. In the near future, Florida's Turnpike will assist the central Florida 511 system by directly inputting this ATIS data itself. This traveler information is disseminated on the central Florida/statewide IVR subsystem, which callers access by dialing 511 in central Florida and on the 511 Web site.[6]

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[5] SunNav is a service mark of the Florida Department of Transportation.

[6] The statewide 511 Web site is available online at http://www.fl511.com/.

The southeast Florida ATIS receives traveler information from the Pompano Beach RTMC via text alerts, screen shots, and telephone communications between operators. In addition, SmartRoute Systems (SRS), the southeast Florida ATIS operator, monitors FTE's Web site for additional video and traveler information.[7,8] The southeast Florida ATIS is looking into the possibility of automating the feed from FTE's RTMC into their system. This traveler information is disseminated on the southeast Florida 511 IVR subsystem, which callers access by dialing 511 in southeast Florida and on the 511 Web site.[9]

3.1.4.2 Web Sites

SmartRoute Systems currently views FTE's Web site to assist in incident monitoring. (Refer to Footnote 8.) Orlando is considering viewing this site as well. The Web site provides the following:

- **Current Incidents —** This section lists active incidents on Florida's Turnpike, as well as the lane impact level, milepost, and direction of the incident.
- **Current Construction —** This section lists active construction on Florida's Turnpike, as well as the lane impact level, milepost, and direction of the incident.
- **Traffic Cameras —** Although there is no streaming video at this time, this page provides the mile post, location, and name of each CCTV camera along Florida's Turnpike, as well as still pictures of current conditions from a selection of the existing CCTV cameras.
- **Dynamic Message Signs —** This page provides the message and location of all active DMS devices along Florida's Turnpike.

3.1.4.3 Partners

Florida's Turnpike Enterprise's 511 Web site links to the following:

- Florida Highway Patrol
- Main FTE Web site (Refer to Footnote 8.)
- National Oceanic and Atmospheric Administration
- Statewide Florida 511 Web site (Refer to Footnote 6.)

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[7] More information regarding SRS is available online at http://smartroute.com/.

[8] Florida's Turnpike Enterprise's Web site is available online at http://www.floridasturnpiketraffic.com/.

[9] The southeast Florida 511 Web site is available online at http://www.511southflorida.com/.

3.2 Justification for Changes

Distinct traveler information systems currently exist within Florida, each differing slightly in what, where, when, and how they provide traveler information. As noted previously, the Florida 511 Working Group determined in early 2004 that the next generation of Florida's traveler information services should be far more integrated, consistent, statewide, and seamless than current projects.

The *Stakeholder Input and User Needs Technical Memorandum* confirmed this assessment. Stakeholders want, and users expect, a future Florida ATIS that improves the current situation and provides high-quality information that is accurate, timely, reliable, complete, accessible, and relevant in a manner that is quick and easy to understand and use. Stakeholders also desire a future ATIS that is both consistent and accountable, while built on a common platform.

In 2008, the current contracts for all the regional 511 services in Florida end — an opportune moment to introduce a new way of providing 511 services across the state. The proposed model, a statewide approach, maintains decentralized data collection at each FDOT District while introducing a centralized data fusion and data dissemination subsystems.

This new statewide approach attempts to provide the best of both worlds. By continuing decentralized data collection each District maintains control over the 511 content, and keeps some of the flexibility and autonomy inherent in a decentralized system. By introducing centralized data fusion and data dissemination subsystems, the statewide approach provides more consistency and efficiency. By utilizing risk management and systems engineering, the potential disadvantages of centralizing the data fusion and data dissemination subsystems can be overcome.

A new statewide approach to 511 will:

- Avoid redundant spending on multiple regional 511 services
- Eliminate the current inconsistency of service delivery across the state
- Eliminate call routing issues
- Lower operating and maintenance costs
- Simplify implementation of a statewide video aggregation subsystem (VAS)
- Enhance District coordination

- Better meet stakeholder needs
  - High quality information (accurate, reliable, timely)
  - Quick and easy to use
  - Consistent
  - Accountable

This new statewide approach to 511 will affect each District differently. The following section will describe the likely future state of FTE that will be the result of this new statewide approach to traveler information. Specifically, the new data flows (i.e., inputs, operations, and outputs) and roadway coverage will be examined.

3.3 Future State

3.3.1 Introduction

3.3.1.1 Vision

The envisioned structure for the future statewide ATIS as it relates to each District is discussed in this section. The goal of this next-generation statewide ATIS is to provide users with a far more integrated, consistent, statewide, and seamless traveler information system. To achieve this goal, the future statewide ATIS will rely on the data reported by the seven Districts, FTE, and their partners for traveler information.

Each District and FTE shall manage the content (i.e., traveler information) being reported on the statewide ATIS. This management includes responsibility for the collection and verification of information on incidents, traffic flow, construction, maintenance, et cetera, for their particular coverage area (i.e., District).

3.3.1.2 Basic Model

The basic model for the data flow in each District is very similar. In this model, the RTMC acts as the information hub for traveler information on the covered roadways. At a minimum, the covered roadways consist of Florida's Strategic Intermodal System (SIS) and emerging SIS roadways within each District.[10]

[10] More information regarding Florida's SIS and emerging SIS roadways is available online at http://www.dot.state.fl.us/planning/SIS/default.htm.

The traveler information gathered at the RTMC can be categorized into ITS and non-ITS inputs. The ITS inputs, such as sensors and CCTV cameras, are directly controlled by the RTMC. Non-ITS inputs, such as information from PIOs; construction and maintenance offices; emergency management agencies; police scanners; mobile units; et cetera, will supplement this information. Quality standards/metrics will need to be established for when traveler information from these inputs meets a "good" level of quality and can be disseminated. The RTMC will be responsible for performing all functions of data collection, verification, and validation. The RTMC will also be responsible for coordination (i.e., no double reporting of incidents) with other reporting agencies, such as other District RTMCs).

To minimize the RTMC workload, there will be automated interfaces between the data fusion subsystem and the RTMC operating software, such as SunGuide℠ or SunNav.[11] Note that while this interface will be automated, human intervention will still be needed to verify and validate the information. The video from each RTMC will be handled automatically by a future VAS. Some special information, such as bilingual floodgate messages, will still be required and will probably not be automated.

Consistency in data collection and reporting will be key to the success of the future statewide ATIS. Each District and FTE is unique (e.g., status of the current ATIS, methods of collecting ATIS data, et cetera, and needs to be analyzed in detail.

The future FTE 511 system is reviewed in the following sections. This review will help clarify the impact a future statewide ATIS will have on FTE

3.3.1.3 Overview

In the future state (2008), FTE's ATIS role is expanded from purely data collection to owning and managing all the content on its roadways. There will be increased responsibility to collect data on more roadways; to verify and validate data from more sources; and to input data into the centralized statewide ATIS. The two FTE RTMCs will serve as the information hub for ATIS data that will be disseminated to the centralized statewide data fusion and dissemination subsystems. Florida's Turnpike Enterprise will be responsible for all roadway sections maintained by its RTMCs and coordinate those conditions that are close or impact coverages with Districts 1, 4, 5, 6, and 7.

Appendix B shows the list of roadways that will be covered in the future system by the two RTMCs in FTE.

[11] SunGuide is a service mark of the Florida Department of Transportation. More information regarding the SunGuide software project is available online at http://sunguide.datasys.swri.edu/.

Figure 3.2 shows the current thought of what the future state of FTE might look like. This figure shows the data flows (i.e., inputs/outputs) that will occur in FTE with respect to the new statewide approach to ATIS in 2008.

3.3.2 Inputs

3.3.2.1 Overview

As seen in Figure 3.2, all the inputs into FTE'S RTMCs remain the same. (Refer to Figure 3.1.) The only difference that might occur is that some inputs (notably the FHP CAD input) might be automated in the future.

3.3.3 Operations

3.3.3.1 Overview

As seen in Figure 3.2, the RTMCs will act as the information hub for all traveler information on the roadways covered by FTE. In 2008, it is assumed that FTE's RTMCs will still be utilizing SunNav, and there will probably be a need for the creation of an automated interface between SunNav and the new centralized statewide data fusion subsystem. There will be an automated interface from the FHP CAD system into SunGuide and an automated feed from SunGuide into the statewide data fusion subsystem.

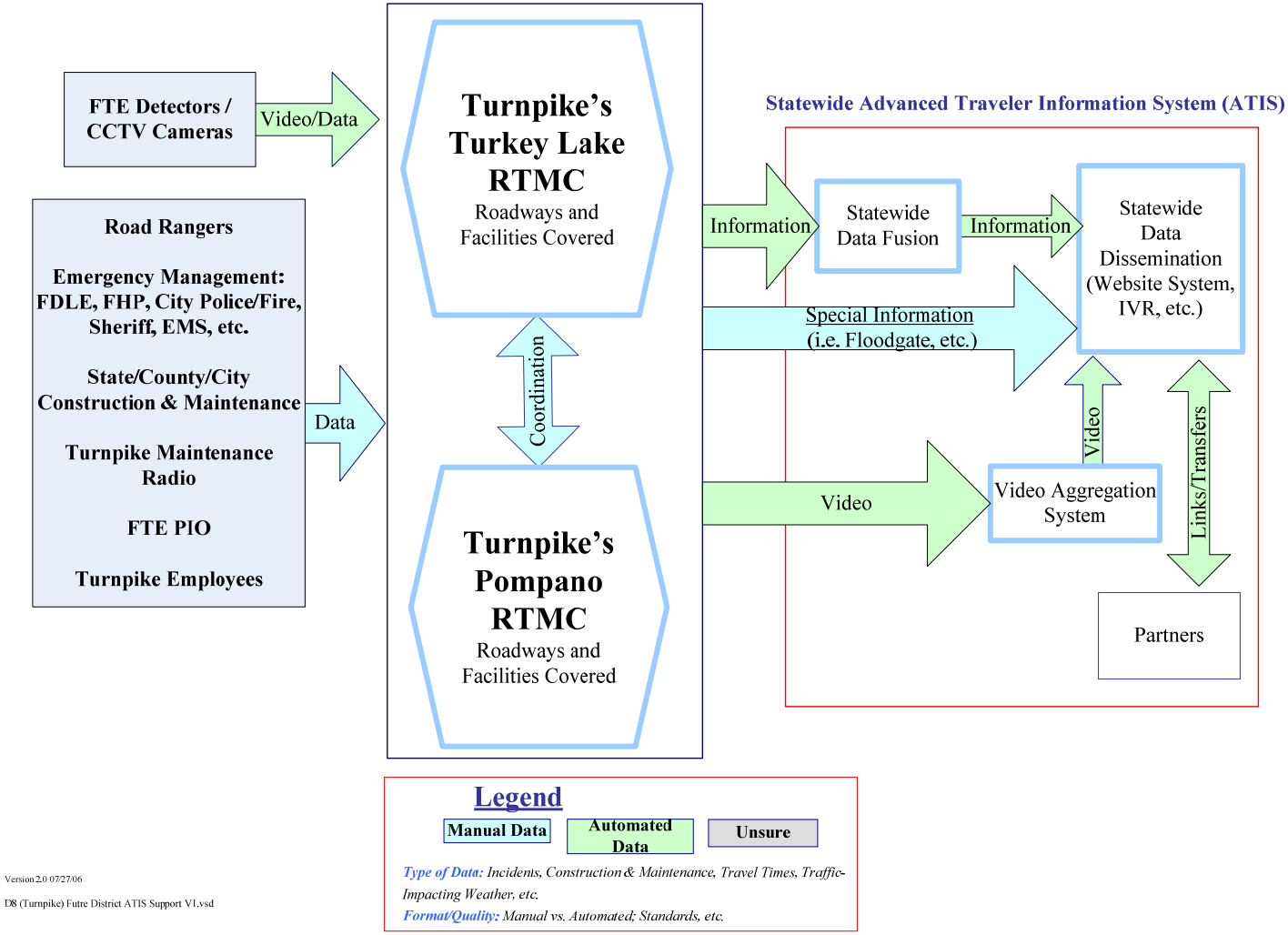
The new responsibilities imposed on FTE's RTMCs will not be that extensive. As mentioned previously, most if not all of the ATIS inputs will already be monitored by the RTMCs as part of normal operations. In addition, interfaces from the RTMC operating software to the statewide data fusion subsystem will be automated to assist with data transfer. To assist with understanding the impact of the new statewide approach, the potential additional staffing and roadway responsibilities are highlighted below. Note that after discussions with FTE, it is believed that any potential additional workload as a result of the new future statewide approach to ATIS will not necessitate an increase in RTMC staff.

3.3.3.2 Additional Staffing Responsibilities

Some of the additional tasks that the RTMCs will have to perform as a result of the new statewide approach are detailed below.

- Potential Coverage of Additional Roadways — Currently, FTE does not collect ATIS information on District 7 roadways, for example. Florida's Turnpike Enterprise does plan to add additional ITS equipment to these roadways, which will allow it to collect this ATIS information in the future. See *Appendix B* for the additional roadways that will be covered by FTE.

Figure 3.2 – Florida's Turnpike Enterprise's Future Advanced Traveler Information System Support



- Verification and Validation of ATIS Information — The RTMCs will need to ensure that the data/information being supplied is consistent, timely, and at a "good" quality level as defined in *Closing the Data Gap: Guidelines for Quality ATIS Data*, which was developed by the Intelligent Transportation Society of America (ITS America™).[12, 13]

- Coordination with other Districts, especially Districts 4, 5, 6, and 7, and partner agencies with respect to ATIS information to avoid redundant reporting, which is a rare occurrence

- Additional inputs into the new statewide data dissemination subsystem, such as bilingual (i.e., English/Spanish) floodgate messages into the IVR subsystem

- Additional Inputs into the Statewide Data Fusion Subsystem — The extent of these inputs depend on how well the automated interface between SunNav and the new statewide data fusion subsystem works and whether SunNav collects all the inputs needed.

- Collect Performance Measurements — The new statewide system will be performance driven, which will require the collection of performance metrics. This function will be automated as much as possible.

3.3.3.3 Additional Roadway Responsibilities

In order to avoid duplication of effort and coverage among other Districts, FTE's roadway coverage is not going to exceed the list of roadways detailed in *Appendix B*.

3.3.4 Outputs

3.3.4.1 Overview

As seen in Figure 3.2, the statewide data fusion subsystem will fuse all data from FTE with data from other sources, such as the other Districts. After integrating national, state, and District data, the statewide data fusion subsystem sends information to the statewide 511 IVR subsystem, the statewide 511 Web site, and a third party feed. These user interfaces will be supplied with the same information to provide consistent, relevant, and complementary information to the user (i.e., one voice/one visual). The statewide 511 IVR subsystem and 511 Web site will be bilingual. The statewide 511 system will cover, at a minimum, the SIS and emerging SIS roadways for the entire state.

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[12] ITS America, *Closing the Data Gap: Guidelines for Quality Advanced Traveler Information System (ATIS) Data* (Version 1.0, September 2000), Electronic Document Library (EDL) No. 13580. Available online at http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPT_MIS/13580.html.

[13] ITS America is a trademark of the Intelligent Transportation Society of America.

The current concept for the next-generation statewide ATIS also includes a VAS that will gather the video from FTE along with the other Districts across the state and FTE.

For more information on the statewide system, please refer to the *Statewide ATIS Concept of Operations* referenced in *Section 2*.

3.3.4.2 Data Fusion Subsystem

The future data fusion subsystem will be a centralized system that will fuse data from across the state. It will perform the following functions:

- Gather data from a variety of sources, including:
  - Automated traffic detection systems
  - Construction management systems
  - Law enforcement systems
  - Weather reporting systems
  - Other District systems
- Match the data with the appropriate source
- Ensure that all data is represented in the same temporal and geographic frames of reference
- Address and repair anomalies or inconsistencies between data sources
- Put the data from various sources into one standard output stream
- Estimate the current state of the system from the available data
- Provide a way to assess the quality of the fused data and the fusion processes

3.3.4.3 Interactive Voice Response Subsystem

The future statewide 511 IVR subsystem will be a centralized system that can support the total call volumes from across the state. It is estimated that this could potentially be as high as 10 million calls per year, which would require approximately 400 ports.

In the future statewide IVR subsystem, all callers entering the system will have immediate access to all information at the main menu. In this new statewide system, users will no longer have to transfer to regional systems to obtain more detailed information for a particular region or District as they do today.

The future statewide IVR subsystem will continue to provide information on:

- Covered roadways
- Public transit
- Other services that are to be determined

3.3.4.4 Web Site

The future statewide 511 Web site will be a centralized system with separate page views for each District. It is estimated that the Web site will have to support total web hits as high as 20 million Web hits per year.

The future statewide 511 Web site will continue to provide:

- Traveler information on covered roadways
- Personalization
- Video
- Public transit information

3.3.4.5 Video Aggregation Subsystem

The future statewide VAS will receive disaggregated video from all seven District RTMCs, FTE's RTMCs, and potentially other Partners. While there will be almost 1,600 CCTVs available from the FDOT's RTMCs in 2008, the current thought is that only 600 of these will be utilized. The VAS will translate/convert and aggregate selected video streams to a format that can be displayed as video on the statewide Web site.

3.3.4.6 Third Party Feed

The statewide system will have a third party feed that will have a published interface, and will be used by both the public and private sector.

3.3.4.7 Partners

The list of partners, such as transit agencies, airports, et cetera, for the future needs to be determined by FTE.

Appendix A

Florida's Turnpike Enterprise Roads Covered by the Current Advanced Traveler Information System

Table A.1 lists the roads currently covered by FTE's existing ATIS and shows the type of coverage that the District uses to obtain traveler information on each particular roadway. These coverage types are explained below.

- **Closed-circuit Television (CCTV) –** CCTV cameras allow ATIS operators to monitor travel conditions.
- **Automated ITS Sensors –** Sensors on roadways allow ATIS operators to monitor travel conditions.
- **Incident-related CAD Data –** Data obtained by ATIS operators from emergency management agencies' CAD Web sites allow ATIS operators to monitor incidents.
- **Agency Calls / Electronic Mail (Email) on Incidents –** Calls are made or email notices are sent to or by ATIS operators to emergency management and other agencies to monitor incidents.
- **Scanner Monitoring –** Incident information is obtained by ATIS operators from monitoring frequency scanners on frequencies used by emergency management and other agencies.
- **Internet Construction / Work Zone (WZ) Reports –** Information is obtained by ATIS operators on scheduled construction areas and WZs by monitoring county or city construction office Web sites.
- **County / City Construction / WZ Calls and Emails –** Reports on scheduled construction areas and WZs are obtained by ATIS operators from county or city construction offices that provide regular updates via telephone calls or emails.
- **Road Ranger Reports –** Incident or travel information reports are received by ATIS operators from Road Rangers that have been contracted to drive the covered roadways; respond to certain types of incidents; and report incidents or travel information on a regular basis to the RTMC.
- **Mobile Data Collection and Tip Line –** Information is received by ATIS operators either from drivers contracted to drive the roadways to monitor incidents and travel conditions, or by noncontracted roadway users who volunteer information through a tip line setup for traveler feedback.
- **Permits –** Information is received by ATIS operators from the District permitting office on permits issued for events that would impact travel conditions on roadways.

In 2003, the FDOT established Florida's SIS, which identifies specific ports, terminals, and roadways as high priority transportation facilities throughout the state. As part of the vision for the future statewide system, it was determined that each District would cover, at a minimum, the SIS and emerging SIS roadways in their District.

To assist with that, Table A.1 identifies the SIS and emerging SIS roadways that belong to FTE. Those SIS roadways that are not currently being covered by FTE's ATIS are highlighted in yellow.

Table A.1 – Florida's Turnpike Enterprise Roads Covered by the Current Advanced Traveler Information System

FDOT District	FDOT County	Road	Between		Direction	CCTV	Automated ITS Sensors	Incident-related CAD Data	Agency Calls / Emails on Incidents	Scanner Monitoring	Internet Construction / WZ Reports	County / City Construction / WZ Calls and Emails	Road Ranger Reports	Mobile Data Collection and Tip Line	Permits
District 5	Orange	Beachline Expressway / Toll 528	I-4	McCoy Road		-	-	-	-	-	-	-	-	-	-
District 4	Broward	Homestead Extension of Florida's Turnpike (HEFT)	Milepost 39	Milepost 48		-	-	-	-	-	-	-	-	-	-
District 6	Miami-Dade	HEFT	Milepost 0	Milepost 39		-	-	-	-	-	-	-	-	-	-
District 1	Polk	Polk Parkway	I-4 West	I-4 East		-	-	-	-	-	-	-	-	-	-
District 4	Broward	Sawgrass Expressway	I-595/I-75	Turnpike Mainline		-	-	-	-	-	-	-	-	-	-
District 5	Osceola, Seminole	Toll 417 (Seminole Expressway / Central Florida GreeneWay / Southern Connector Extension				-	-	-	-	-	-	-	-	-	-
District 7	Hernando, Hillsborough, Pasco	Toll 589 (Veterans Expressway)	Milepost 0	Milepost 16		-	-	-	-	-	-	-	-	-	-
	Hernando, Hillsborough, Pasco	Toll 589 (Suncoast Parkway)	Milepost 14												
District 1	Okeechobee	Turnpike Mainline				-	-	-	-	-	-	-	-	-	-
District 4	Broward, Martin, Palm Beach, St. Lucie	Turnpike Mainline													
District 5	Lake, Orange, Osceola, Sumter	Turnpike Mainline				-	-	-	-	-	-	-	-	-	-
District 6	Miami-Dade	Turnpike Mainline				-	-	-	-	-	-	-	-	-	-
District 5	Osceola, Orange	Western Beltway / Toll 429	I-4	Seidel Road		-	-	-	-	-	-	-	-	-	-

Appendix B

Florida's Turnpike Enterprise Roads to be Covered by the Future Statewide Advanced Traveler Information System

Table B.1 lists the roads that will be covered by District 1's future statewide ATIS and shows the type of coverage that the District will use to obtain traveler information on each particular roadway. These coverage types are explained in *Appendix A*.

In 2003, the FDOT established Florida's SIS, which identifies specific ports, terminals, and roadways as high priority transportation facilities throughout the state. As part of the vision for the future statewide system, it was determined that each District would cover, at a minimum, the SIS and emerging SIS roadways in their District.

To assist with that, Table B.1 identifies the SIS and emerging SIS roadways that belong to Florida's Turnpike Enterprise. Those SIS roadways that are not currently being covered by the District's ATIS are highlighted in yellow.

Table B.1 – Florida's Turnpike Enterprise Roads to be Covered by the Future Statewide Advanced Traveler Information System

FDOT District	FDOT County	Road	Between		Direction	Direction	CCTV	Automated ITS Sensors	Incident-related CAD Data	Agency Calls / Emails on Incidents	Scanner Monitoring	Internet Construction / WZ Reports	County / City Construction / WZ Calls and Emails	Road Ranger Reports	Mobile Data Collection and Tip Line	Permits
District 5	Orange	Beachline Expressway / Toll 528	I-4	McCoy Road			-	-	-	-	-	-	-	-	-	-
District 4	Broward	HEFT	Milepost 39	Milepost 48			-	-	-	-	-	-	-	-	-	-
District 6	Miami-Dade	HEFT	Milepost 0	Milepost 39			-	-	-	-	-	-	-	-	-	-
District 1	Polk	Polk Parkway	I-4 West	I-4 East			-	-	-	-	-	-	-	-	-	-
District 4	Broward	Sawgrass Expressway	I-595 / I-75	Turnpike Mainline			-	-	-	-	-	-	-	-	-	-
District 5	Osceola, Seminole	Toll 417 (Seminole Expressway / Central Florida GreeneWay / Southern Connector Extension)					-	-	-	-	-	-	-	-	-	-
District 7	Hernando, Hillsborough, Pasco	Toll 589 (Veterans Expressway)	Milepost 0	Milepost 16			-	-	-	-	-	-	-	-	-	-
	Hernando, Hillsborough, Pasco	Toll 589 (Suncoast Parkway)	Milepost 14													
District 1	Okeechobee	Turnpike Mainline					-	-	-	-	-	-	-	-	-	-
District 4	Broward, Martin, Palm Beach, St. Lucie	Turnpike Mainline														
District 5	Lake, Orange, Osceola, Sumter	Turnpike Mainline					-	-	-	-	-	-	-	-	-	-
District 6	Miami-Dade	Turnpike Mainline					-	-	-	-	-	-	-	-	-	-
District 5	Osceola, Orange	Western Beltway / Toll 429	I-4	Seidel Road			-	-	-	-	-	-	-	-	-	-