



District Wide Traffic Incident Management Strategic Plan

Florida Department of Transportation
District 4

October 2009



Executive Summary

The District Wide Traffic Incident Management (TIM) Strategic Plan was prepared to provide a roadmap for the Florida Department of Transportation (FDOT) District 4 to advance their current TIM program to be a national leader by the year 2010. This is critical as traffic incidents continue to account for up to 60% of congestion delays that motorists encounter along our highways. Coordinated traffic incident management is a tool to achieve and maintain public safety, travel efficiency and air quality standards by reducing the impacts of these incidents.

FDOT District 4 has maintained a TIM Team program since the late 1980s. This program was formerly known as “Freeway Incident Management” with the focus on interstate highways. In recent years, the program has expanded to provide coverage of the arterial roadways in taking a system perspective; therefore, the program is currently referred to as TIM.

FDOT District 4 currently facilitates TIM Teams in Broward and Palm Beach Counties. The membership of these teams include representatives of various traffic and emergency response agencies, including Florida Highway Patrol (FHP), FDOT, city police and fire-rescue departments, emergency operations centers, county and city traffic departments, towing companies, and many others who all play an important role in TIM. The primary goals of the TIM program is to detect, verify, respond and clear incidents as quickly as possible to reduce traffic congestion, reduce the probability of secondary crashes and to provide a safer working environment in allowing emergency responders to conduct their roles and responsibilities.

In recent years, FDOT District 4 has migrated to a proactive approach to the TIM Team meetings. During the past three years, the TIM Team meetings were organized to include direct input from the attendees in the development of products that has advanced the FDOT TIM Program. Recent accomplishments of the District 4 TIM program include the following: development of the Palm Beach County Incident Response Manual; development and deployment of the successful Severe Incident Response Vehicle (SIRV) program in Broward County; development and application of the SMART (System Management for Advanced Roadway Technologies) software, which was subsequently integrated into the statewide SunGuide software, to improve the tracking of incidents; development and implementation of an e-mail incident alert system; Road Ranger audits and assessment; design, procurement and installation of personal data devices for collecting real-time Road Ranger data; and many other initiatives.

While FDOT District 4 is proud of its accomplishments, there is more work to be done. This District Wide TIM Strategic Plan provides specific recommendations to advance the program using input from the TIM Teams and the following resources as guidelines: “Florida TIM Program Strategic Plan” (Reference 1); “FDOT District 4 ITS Strategic Business Plan” (Reference 2); and the “Federal Highway Administration’s (FHWA) TIM Self Assessment Methodology” (Reference 3). The strategic plan timeframe covers the years 2007-2010. Based on this approach, the following recommendations are made to support the District 4 TIM Strategic Plan:

- SIRV Program – Funding should be identified to support a SIRV program to cover Palm Beach County, similar to the coverage provided in Broward County, in taking a leadership role in serving as the on-scene FDOT representative in coordinating incident management with emergency responders.



- Interagency Agreements – Memoranda of Understanding (MOUs) and Joint Operating Policies (JOPs) should be developed and executed among the key TIM Team agencies.
- Incident Clearance Policies - New policies should be implemented to reflect best practices for incident clearance.
- Northern Counties – A new TIM Team should be formed to provide coverage of Martin, St. Lucie and Indian River Counties. A satellite control room is needed to support incident management activities within the Northern Counties.
- Communications – Communications should be improved between Transportation Management Centers (TMCs), Road Rangers and SIRV operators through technology upgrades (i.e., voice, data, GPS).
- Training – Training programs should be more robust and conducted with other partners (i.e., TMC Operators, SIRV drivers, FHP). Road Ranger training should include “National Wrecker Certification”.
- Road Ranger Program – A baseline level of service should be established for Road Ranger operations. Road Ranger Standard Operating Guidelines (SOGs) should be developed and provide input into Road Ranger contract modifications. FDOT District 4 should begin planning for the expansion of Road Ranger service into Martin, St. Lucie and Indian River Counties.

More detailed actions and strategies are identified in the main body of this document. The estimated costs to fund these TIM programs are summarized in the exhibit below.

TIM Program Costs

TIM Program Initiative	Annual Costs in \$2006
SIRV Program – Broward County	\$638,000
SIRV Program – Palm Beach County	\$562,000
Road Rangers – Broward County	\$2,500,000
Road Rangers – Palm Beach County	\$1,800,000
TIM Consultant – District Wide	\$400,000
Total Cost Estimate	\$5,900,000

In addition, a future Road Ranger program for the Northern Counties may need additional funding. Currently, \$1,000,000 is programmed for this service beginning in FY 2009 / 2010.

The recommendations included in the District Wide TIM Strategic Plan should be monitored to track the progress in implementing these strategies and actions. The “FHWA TIM Self Assessment” tool should continue to be utilized by the TIM Teams to serve this function.

In summary, the District Wide TIM Strategic Plan provides the structure to incrementally improve the program to comply with the Open Roads Policy and become one of the best in the nation by the year 2010 while providing a more efficient transportation system to our residents, visitors and commerce partners.



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Glossary of Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ATMS	Advanced Traffic Management System
AVL	Automated Vehicle Location
BCTED	Broward County Traffic Engineering Department
CAD	Computer Aided Dispatch
CCTV	Closed Circuit Television
CIRT	Critical Incident Response Team
DMS	Dynamic Message Sign
FDOT	Florida Department of Transportation
FHP	Florida Highway Patrol
FHWA	Federal Highway Administration
FUSION	Florida's Uniform Statewide Integrated Operations Network
GIS	Geographical Information System
GPS	Geographical Positioning System
HAZMAT	Hazardous Materials
HOG	Highway Operating Group
ITMS	Interim Traffic Management System (Palm Beach County)
ITS	Intelligent Transportation System
JOP	Joint Operating Policy
MOT	Maintenance of Traffic
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MUTCD	Manual of Uniform Traffic Control Devices
NIMS	National Incident Management System
NTIMC	National Traffic Incident Management Coalition
PIA	Post Incident Analysis
PSAP	Public Safety Answering Point
SEFRTOC	South East Florida Regional Traffic Operations Committee
SIRV	Severe Incident Response Vehicle
SMART	System Management for Advanced Roadway Technologies
SOG	Standard Operating Guidelines
TIM	Traffic Incident Management
TIP	Transportation Improvement Program
TMC	Transportation Management Center
VII	Vehicle Infrastructure Integration

1.0 INTRODUCTION

The *Florida TIM Program Strategic Plan* was developed by FDOT Central Office "... to identify programs and actions to sustain the commitment to – and expand - the TIM Program in Florida to better meet our travel needs." While the focus of this statewide strategic plan is on managing traffic incidents, the same practices can be applied to large-scale emergencies (e.g., hurricanes, wild fires, national security threats, special events) at a regional or statewide level. The *Florida TIM Program Strategic Plan* provides a statewide framework to accomplish the following:

- Improve the overall management of traffic incidents in the state;
- Increase integration and communication between TIM agencies;
- Improve consistency of incident management operations across the state;
- Raise the profile of TIM as a tool for managing the State Transportation System;
- Support funding for personnel, equipment and training; and
- Provide recommendations for changes in laws and / or policies.

The *Florida TIM Program Strategic Plan* indicates that we should "*Think globally (e.g., statewide), plan regionally (FDOT District 4) and practice locally (countywide).*" The District 4 TIM Strategic Plan was prepared to focus on district wide needs within the five-county region (i.e., Broward, Palm Beach, Martin, St. Lucie and Indian River Counties). The District 4 TIM Strategic Plan is compatible with the recommendations of the *Florida TIM Program Strategic Plan* and the *District 4 ITS Strategic Business Plan*.

The FHWA TIM Self Assessment methodology has been used by the Broward and Palm Beach County TIM Teams over the past two years in monitoring the performance of these programs. The assessment criteria used in this methodology provides the basis for the District 4 recommendations. The District 4 TIM Strategic Plan is formatted in accordance with the following sections:

1. Introduction – Section 1 discusses the intent of the District 4 TIM Strategic Plan as well as an overview of each section.
2. Strategic Plan – Section 2 provides the mission, goals and objectives which are consistent with the *Florida TIM Program Strategic Plan*. It also provides a vision of the District 4 TIM program in the year 2010.
3. Business Plan – Section 3 provides specific recommendations for each aspect of the TIM program, including program and institutional issues; operational issues; communications and technology issues; and the Road Ranger program.
4. Performance Measurement – Section 4 summarizes the actual scores, reported by the Broward and Palm Beach County TIM Teams, using the FHWA TIM Self-Assessment tool for the years 2004 and 2005. This is compared to national averages as well as 2010 targets.

5. Marketing Plan – Section 5 provides a marketing plan, inclusive of proposed initiatives, to achieve the commitment and funding support in implementing the recommendations of this Strategic Plan.
6. Future Directions – Section 6 focuses beyond the year 2010 in proposing initiatives that would further advance the TIM program.

The reader of this document is expected to have a general understanding of TIM, and the general activities that have occurred within Florida during recent years. Therefore, a detailed description of the past is not provided in this document. If the reader desires to obtain historical information of the FDOT District 4 TIM program, please refer to the list of references at the end of this document or information contained on the web site: www.smartsunguide.com.

2.0 STRATEGIC PLAN

The “strategic plan” encompasses the mission, goals, objectives and vision of the District 4 TIM program as presented at a high-level in this section.

2.1 Mission

The Broward and Palm Beach TIM Teams within District 4 have adopted the statewide TIM mission as presented in the *Florida TIM Program Strategic Plan*. The mission is:

“Provide efficient, coordinated, and consistent traffic incident management across the state that will improve the safety and reliability of the transportation network.”

2.2 Goals and Objectives

The goals and objectives contained in the *Florida TIM Program Strategic Plan* were adopted by the TIM Teams in District 4. These goals and objectives are as follows:

Goal 1: Provide safe transportation for residents, visitors and commerce.

TIM objectives pertaining to District 4 include the following:

- Maximize the coverage and consistency of the TIM program district wide by enhancing and expanding the effectiveness of the TIM Teams and Road Ranger program.
- Minimize detection, verification, and response times for incidents through proactive multi-jurisdictional, multi-agency TIM programs.
- Minimize incident clearance times through TIM programs emphasizing improved incident scene management, quick vehicle spill clean-up, incentives for towing and recovery companies and other innovative practices.
- Minimize incident recovery times by applying technologies to manage traffic and inform travelers.
- Minimize secondary incidents by rapid handling of traffic incidents, improved traffic management and improved motorist information.
- Improve Road Ranger operations by implementing more consistent, training, policies and procedures.
- Improve incident and emergency management communications by coordinating interagency communication systems and real-time traveler information systems for incidents, evacuations, major route closings, re-routings or other restrictions.

Goal 2: Provide protection of the public's investment in transportation.

TIM objectives pertaining to District 4 include the following:

- Provide leadership in incident and emergency management district wide.
- Integrate incident management into operation of the State Highway System, including planning, design, construction and operations.
- Maximize TIM through performance measure tracking.
- Make recommendations for safe and efficient MOT during project construction by deploying smart work zone monitoring systems and real-time traveler information systems.
- Minimize institutional barriers to successful incident management.
- Provide for appropriate deployment and operations funding for TIM (including the Road Ranger and SIRV programs).

Goal 3: Provide an interconnected transportation system that enhances Florida's economic competitiveness.

TIM objectives pertaining to District 4 include the following:

- Maximize communications between and among the network of TMCs, law enforcement joint regional communications centers, state and county emergency operations centers, local traffic control centers, transit operations centers and other appropriate TIM centers.
- Maximize the role of the TMCs, SIRV and Road Rangers in traffic incident management.

Goal 4: Provide travel choices to ensure mobility, sustain the quality of the environment, preserve community values and reduce energy consumption.

TIM objectives pertaining to District 4 include the following:

- Improve citizen and tourist mobility and access to safe havens during emergencies, particularly evacuations, through the use of specialized traveler information systems and Road Rangers.
- Improve service for special traveler needs in emergencies through the use of ITS applications.
- Reduce energy use and delay associated with major incidents through ITS applications, synergistic management, orderly MOT, and judicious, preplanned route diversion.

2.3 Vision

The Broward and Palm Beach TIM Teams within District 4 have also adopted the statewide TIM vision as presented in the *Florida TIM Program Strategic Plan*. The vision is:

“Develop an institutionally integrated, fully cooperative association of all public agency and private industry traffic incident management stakeholders to improve the safety and reliability of the Florida Transportation system and maintain Florida’s status as a national leader in TIM programs.”

This vision is further articulated in the balance of this section by providing detail on how the vision relates specifically to District 4. The vision provides a scenario of the TIM program in the year 2010. This vision assumes that many, if not all, of the recommendations presented in Section 3 are implemented during the next few years. The vision and recommendations are structured in the same format as the National Traffic Incident Management Coalition’s (NTIMC) *“nine keys to success for TIM programs”* which is consistent with the *Florida TIM Program Strategic Plan*.

2.3.1 Program and Institutional Issues

Program and institutional issues address the organization of the TIM program, its objectives and priorities, agency roles and relationships, resource allocation and performance measurement. The year 2010 vision is described below.

- Formal TIM Programs – The TIM Teams in Broward and Palm Beach Counties have advanced their program activities and deliverables in accordance with the specific recommendations of the *District 4 TIM Strategic Plan*. Furthermore, the new TIM Team in the Northern Counties (i.e., Martin, St. Lucie and Indian River Counties) is well established with active participation by FDOT, the three counties, FHP, local police fire-rescue and towing companies. The Strategic Plan is updated to provide new directions for continued improvement for years to come. The MOU, executed in 2007 between the TIM Team agency partners, provided the framework for developing and signing JOPs to support specific program activities and actions in achieving the “Open Roads Policy” as well as other TIM goals. Field-level personnel are playing a more integral role in the development and implementation of these plans and agreements.
- TIM Administrative Teams – TIM Team participation is more structured since migrating from an *“institutional”* to *“operational”* format. Participation in the TIM Team meetings has also become more efficient since the signing of the JOP requiring mandatory participation and allocating sufficient resources to prepare for meetings as well as conducting follow-up assignments. Simulation software is being used as part of the Post-Incident Analyses in providing a database of recommendations to improve incident management. TIM has also become a key player on the statewide Florida’s Uniform Statewide Integrated Operations Network (FUSION) committee in collaborating on planned special events as well as emergencies (e.g., hurricanes).
- Performance Measurement – Performance measures have been expanded to be closely tracked with the multi-agency agreements that have been executed to ensure

that the intent of the JOPs is being achieved. In addition, the performance measures (and targets) are more specifically defined and are quantitative in nature. The SunGuide software, inclusive of the SMART software integration, collects, processes and reports on multi-agency performance measures by the various TIM Team agencies.

The FHWA TIM Assessment tool continues to be used to provide a periodic review of progress and to define future programs and actions to continuously improve the District 4 TIM program.

2.3.2 Operational Issues

Operational issues address the policies, procedures, and processes used in the field while responding to an incident. This includes: procedures for major incidents; responder and motorist safety; and response and clearance policies and procedures. The year 2010 vision is described below.

- Procedures for Major Incidents – Incident Response Manuals are updated on an annual basis and now include a Geographic Information System (GIS) – based map indicating where resources are located. Gaps in locating these resources have since been closed. Pre-staging of equipment is more consistent in the utilization of resources provided by the SIRV, Road Rangers, Construction Contractors and Asset Management Contractors.
- Responder and Motorist Safety – MOT training has been expanded to include other TIM agency partners by using standard training materials provided by FDOT Central Office and using agency representatives to conduct the training to other staff within their agencies. One TIM Team meeting each year is dedicated to conducting “On-Scene Traffic Control Procedures” training in accordance with the MOT standards developed by Road Ranger / SIRV personnel included in the Incident Response Manuals. Road Rangers and SIRV are also working with TMC operations staff to use their vehicle-mounted Dynamic Message Signs (DMSs) to provide advanced information to enhance safety at the end of the incident queues. Policies and laws are now in effect in providing clear and consistent procedures for equipment staging and emergency lighting.
- Response and Clearance Policies and Procedures – Road Rangers have received National Incident Management System (NIMS) training and certification. FHP is using photogrammetry for investigations of fatal crashes. Diversion routes are now made accessible through electronic medium by all responding agencies. An effective public outreach program currently exists throughout District 4 in educating motorists and responders on quick clearance policies. Multi-agency JOPs document policies and procedures that result in coordinated incident management. Towing companies are certified based on equipment and capabilities, including heavy wrecker equipment.

2.3.3 Communications and Technology Issues

Communication, and the technology to facilitate it, is a critical part of any TIM Program. Communication and technology issues include integrated interagency communications; transportation management systems; and traveler information. The year 2010 vision is described below.

- Integrated Interagency Communications – The SIRV program has been expanded to cover Broward and Palm Beach Counties. They continue to provide radios for on-scene communications for responders without access to mutual aid frequencies. TMC-CAD integration now provides a robust informational source for sharing real-time incident information among the various TIM agency partners.
- Transportation Management Systems – The SMART SunGuide TMC, located in Broward County, continues to take a leadership role in coordinating incident notification and response within District 4. This TMC is assisted by the Palm Beach SunGuide TMC and the Northern Counties Incident Management Support project. While the Intelligent Transportation System (ITS) infrastructure within Broward County is operational, the ITS deployments within Palm Beach, Martin, St. Lucie and Indian River Counties are still under construction. TMCs begin to implement procedures for corridor management in lieu of solely freeway management. Diversion routes have been clearly established and approved by the TIM Team agencies. Special signal timing plans have been developed for implementation along these diversion routes when applicable.
- Traveler Information – The 511 system has matured and provides more accurate, reliable, timely and useful traveler information based on data being populated by local TMC staff. District 4 has developed closer relationships with the media to educate and inform them about the public information resources available. Travel time estimates are posted on DMSs, web sites and 511.

2.3.4 Road Rangers

The Road Ranger program is not a “stand alone” program but actually supports the TIM program as it assists stranded or disabled motorists and provides assistance to the other responders during incidents along the highways. Road Rangers provide a safety zone for other responders and help relieve the congestion caused by the incident, which greatly reduces the potential for secondary crashes. The Road Ranger program has also been improved over the years to address deficiencies identified as part of the routine audit process. The year 2010 vision is described below.

- Road Ranger Coverage – Road Ranger service is being expanded to provide coverage along I-95 within the Northern Counties as well as along critical arterials.
- Road Ranger Operations – Road Rangers now provide service in accordance with structured SOGs. They also play a more proactive role in TIM through joint training programs with TMC staff. Road Ranger contracts are structured based on providing improved levels of service. Road Ranger training and certifications are now mandatory and implemented using “train-the-trainer” and web-based methods.

- Road Ranger Performance – The Road Rangers are inputting data directly in the field via the personal data devices installed in the vehicles. This initiative, combined with camera images monitored at the TMCs and the Automated Vehicle Location (AVL) equipment installed on the vehicles, result in improved accuracy and efficiency in processing the data as well as improved operations. Customer and agency complaints are now processed electronically, with recurring complaints reviewed by management to determine areas needing improvement.

Standard performance measures have been established to compare Road Ranger performance within District 4 as well as with other similar service patrols nationwide.

The 2010 vision presented herein will be achieved by implementing the recommendations included in Section 3.

3.0 BUSINESS PLAN

The “business plan” provides specific recommendations to support the District 4 TIM program goals. It is structured in accordance with the FHWA TIM Self Assessment. The three primary areas include: program and institutional issues; operational issues; and communication and technology issues. In addition, “Road Rangers” was added as a fourth area due to the integral role that Road Rangers play as part of the TIM program. Recommendations are provided in Sections 3.1, 3.2, 3.3 and 3.4, while specific actions are provided in the “TIM Implementation Plan” presented in Section 3.5.

3.1 Program and Institutional Issues

Program and institutional issues include formal TIM programs; TIM administrative teams; and performance measurement.

3.1.1 Formal TIM Programs

The *Florida TIM Program Strategic Plan* was developed by FDOT Central Office during February 2006. This document provides the framework for the District 4 TIM Strategic Plan, inclusive of the following recommendations:

- TIM Program Strategic Plan – This document, presented herein, serves as the initial version of the District 4 TIM Strategic Plan. The plan should be updated in conjunction with annual FHWA TIM Self Assessments. Specific recommendations, particularly those requiring funding support, should be presented to the relevant Metropolitan Planning Organizations (MPOs) for approval and inclusion in their 5-year Transportation Improvement Programs (TIPs) as well as Long-Range Transportation Plans.
- Interagency Agreements – Currently, the “Open Road Policy” serves as the only formal agreement regarding TIM activities between interagency partners (i.e., FDOT and FHP). Interagency agreements are needed between the TIM partners to address the incident command structure, equipment staging, traffic control, hazardous materials incident issues and procedures, crash investigation procedures, quick clearance procedures and many other issues. Short-term action items include the need for local TIM partners to sign the Open Roads Policy as well as develop and execute other relevant interagency agreements.
- Field-level Input and Awareness – It is critical that those responsible for implementing the formal TIM plans are directly involved in their development. There needs to be an increase in the number of workshops that involve all levels of TIM (i.e., field-level personnel as well as mid-level managers). Supporting materials need to be developed that each agency representative can present on their own at internal meetings with their staff.

Formal TIM programs will need to be developed with input and commitment by both executive management and field personnel to be successful. While the role of executive management is

to set policy and establish commitment, field personnel will be responsible for the plan implementation.

3.1.2 TIM Administrative Teams

Supporting the formal goals of a TIM program requires coordination and cooperation among the administrative levels of the participating agencies. The established TIM Teams in Broward and Palm Beach Counties provide this function. Specific recommendations for District 4 include the following:

- TIM Team Meetings – Currently, TIM Team meetings are held bi-monthly and attendees actively work on relevant issues. This may require the signing of a MOU by executive management from each agency to secure this level of commitment. In addition, TIM management needs to reach out to agencies that do not attend, or attend on an irregular basis, to establish consistent participation (e.g., county medical examiner’s offices; county traffic engineering departments; municipal fire-rescue and police departments).
- TIM Training – A TIM Training program needs to be developed and implemented that includes a NIMS module. The training program should promote the importance of TIM training to other agency (e.g., fire-rescue) field personnel. At least one TIM Team meeting should be dedicated to training all responders in the latest MOT guidelines. Regular table-top exercises should be conducted as part of the training program. A review of earlier cross training programs should be conducted for feedback on methods to improve multi-agency TIM training. A “train the trainer” program should be implemented so that TIM representatives can train their own staff. This type of training should be integrated as part of existing agency training programs (e.g. police academies) and should be coordinated on a statewide basis.
- Post Incident Analyses (PIA) – A MOU should be developed to standardize the multi-agency PIA process. The discussion of recent incidents needs to focus on lessons learned from incidents and methods to improve incident management procedures. These lessons learned should be included in a structured database, then used to identify improvements in TIM operational procedures.
- Special Events – The Southeast Florida Regional TMC Operations Committee (SEFRTOC) has taken a lead role in increasing coordination for special events (i.e., construction, hurricanes, brush fires). The TIM Team should support this committee as well as plan for special event incident response (e.g., major sporting events, concerts, conventions) within the region. This level of coordination needs to continue between FDOT construction, maintenance and TMC operations as well as with local governments and TIM Team members.

The Broward and Palm Beach TIM Teams currently meet separately every other month. Joint meetings between the District 4 and District 6 TIM Teams occur on a quarterly basis. This TIM Team meeting format should continue as is.

3.1.3 Performance Measurement

An important aspect in advancing TIM programs is the ability to accurately measure their effectiveness. Evaluation metrics provide the necessary feedback to TIM agencies to allow them to improve performance. Specific recommendations pertaining to District 4 include the following:

- Multi-agency Agreements on Performance Measures – The SunGuide software collects multi-agency data on incidents responded to by SIRV within Broward County. Performance measures need to be developed to include other responding agencies. A multi-agency TIM MOU needs to be developed and executed regarding general support for incident management. Subsequently, specific performance measures need to be identified and agreed upon by TIM member agencies.
- Collection and Analysis of Performance Data – Currently, only one multi-agency agreement exists (i.e., Open Roads Policy between FDOT and FHP) with one defined performance measure (i.e., open lanes within 90 minutes after the first responder arrives on the scene). There is a need to establish a standard procedure for tracking and reporting multi-agency performance measures. The SunGuide software should initially be integrated into the ITMS, then subsequently into the new Palm Beach SunGuide TMC.
- Targets for Performance – Currently, only broad targets are established between FDOT and FHP via the Open Roads Policy. The District-wide TIM MOU will need to be amended to identify specific performance measures. Furthermore, this agreement needs to be expanded to include other agencies and the various types of incident scenarios.
- Periodic Review of Progress – The FHWA TIM Self Assessment is currently used to provide this function. It is recommended that this process continue with the intent on making performance measures more quantitative whenever feasible.

In addition to using performance measures to track the progress of the TIM program in achieving specific goals and objectives, they also provide decision-makers with the data to demonstrate the value of TIM activities and justify their related costs.

3.2 Operational Issues

Operational issues include procedures for major incidents; responder and motorist safety; and response and clearance policies and procedures.

3.2.1 Procedures for Major Incidents

Procedures for major incidents need to address criteria for “major incidents”; a pre-identified (approved) contact list of resources (including special equipment) for incident clearance and

hazardous materials response; contact list of resources; and pre-staging of response equipment.

- Definition of Incident Levels or Severity – Currently, there are three levels of incidents based on traffic impacts. Level 3 incidents should be sub-divided into more detailed classifications (e.g., truck roll-overs, fatalities, hazmat spills, brush fires, etc.) to improve the ability to analyze these different scenarios.
- Major Incident Response Teams – Currently, high-ranking agency members are available on a 24/7 basis and they do respond. While the Department has a five-year commitment for SIRV operation within Broward County (2007 – 2011), SIRV should take a leadership role in existing Major Incident Response Teams. A similar commitment to initiate SIRV operation within Palm Beach County should be pursued.
- Resource Lists – Currently, a comprehensive contact list of resources exist in both Broward and Palm Beach Counties. These lists need to be updated on a periodic basis. A GIS-based map should be prepared indicating where existing resources are located in order to identify gaps. A plan should then be developed for closing these gaps.
- Pre-staged Equipment – In Broward County, SIRV, Road Rangers and Asset Management Contractors provide some level of pre-staging of equipment on the trucks. An inventory of current pre-staged equipment needs to be conducted and a strategy needs to be developed in providing a more consistent program. In addition, funding needs to be identified for emergency MOT for roadways not covered by Asset Management contracts.

While the District 4 TIM Teams are well organized in terms of procedures for major incidents, a commitment to a “continuing improvement program” needs to be made particularly in preparing for major hurricanes.

3.2.2 Responder and Motorist Safety

Responder and motorist safety are critical as emergency responders are at risk from adjacent traffic flow as they work an incident scene. Formalized procedures are needed for managing traffic flows through and around an incident area; ensuring responders have adequate training in emergency traffic flow management, proper use of emergency lighting, and emergency vehicle positioning; and, ensuring they have and use reflective clothing and traffic diversion devices such as flares and cones.

- Train All Responders in Traffic Control Procedures – While training programs are currently conducted for Road Rangers, SIRV operators and approximately half of the towing companies, these MOT training programs need to be expanded to make them available to other agencies. This should be conducted via a “train-the-trainer” program. The MOT standards, being developed by SIRV / Road Rangers, should be included as part of these training programs.
- Use MUTCD Traffic Control Procedures – While traffic control training is available for certain individual agencies, there is no consistency across all the agencies. At least

one TIM Team meeting should be dedicated to providing “On-Scene Traffic Control Procedures” training on an annual basis. In addition, specific traffic control standards need to be inserted into the Incident Response Manuals and have the responders certified.

- Traffic Control at the End of the Queue – FDOT District 4 uses both overhead and portable DMSs mounted on the Road Ranger vehicles. FDOT is in the process of installing Closed Circuit Television (CCTV) cameras to provide the ability to monitor the end of queues. A procedure needs to be developed for using Road Ranger vehicle-mounted DMSs and / or identify additional resources for additional MOT at end of queues. As more ITS field devices are deployed, coverage for advance warning at end of queues should be expanded.
- Equipment Staging and Emergency Lighting Procedures – Staging procedures are important for arriving vehicles and equipment so that the equipment can be accessed, be used at the scene, and be removed when no longer needed to open traffic lanes when safe. Procedures for the use of emergency lighting on-scene should be developed reducing the use of emergency lighting as much as possible while still providing adequate warning to approaching motorists. Existing policies and laws should be collected, reviewed, and coordinated with responder agencies, in order to develop clear and consistent procedures for equipment staging and emergency lighting.

Motorists moving through and upstream from a traffic incident site are also vulnerable to secondary incidents caused by sudden slowing of traffic, lane changes, and the situation or movement of emergency vehicles. Proper traffic control procedures at the site and upstream can significantly reduce the chances of secondary incidents.

3.2.3 Response and Clearance Policies and Procedures

Response and clearance policies and procedures address the TIM Team’s utilization of the “Incident Command System”; fatal accident investigation; hazardous materials response; quick clearance policies; towing and recovery operators; and use of Road Rangers.

- Incident Command - The Incident Command System provides the framework for the command, control and coordination of resources at the scene of an emergency; and, provides a management tool consisting of procedures for organizing personnel, facilities, equipment, and communications at the scene of an incident. It is recommended that JOPs be developed to identify the roles of Road Rangers and SIRV as part of the Incident Command System.
- Investigation of Fatal Crashes - Investigation of fatal incidents can result in delayed roadway openings. Existing policies may require certification of death by a medical examiner before bodies can be moved and the scene cleared. Careful planning and mutually accepted policies and procedures for fatal crash investigation can translate to a reduction in scene clearance time and traffic flow restoration, while protecting the scene for investigation and respecting the rights of the deceased and their families. FHP is beginning to use photogrammetry for investigations statewide. The TIM

Teams should continue to monitor its progress and incorporate it into District wide policies and procedures.

- Hazardous Materials Procedures - Effective first response to an incident involving hazardous materials (hazmat) is critical to minimizing the impacts of the incident in terms of public and responder safety, environmental degradation, and costs for clean up. Well-defined hazmat response policies and procedures and responder training allow first responders to accurately identify the hazardous material and direct further response. For certain spills, equipment carried in the first response vehicles can be used to contain the spills until the fire department or hazmat contractor can arrive at the scene. FDOT District 4 Maintenance has hazmat contracts in place and a Spill Mitigation Policy. Coordination meetings among SIRV and hazmat contractors should occur on a regular basis. Asset Management contractors provide a swift, efficient clean-up and handling of hazmat spills. The implementation of “Guidelines for the Mitigation of Accidental Discharges of Motor Vehicle Fluids (Non-cargo)” should be monitored. The SIRV incident report database form should be updated to support environmental reporting within District 4 and measure the effective use of the current guidelines.
- Quick Clearance Policies - Quick clearance policies generally focus on the timely and prudent clearance of incidents involving commercial vehicles. Quick clearance policies can also include immediate tow-away policies to ensure the timely removal of disabled vehicles from roadway shoulders. The TIM Team should support the District 4 TMC Marketing Manager in developing and implementing a public outreach program for the “Move-It” law.
- Towing and Recovery - Towing and recovery operations clear the roadway of disabled or damaged vehicles and their cargoes restoring the roadway to its full capacity. Timely dispatch of appropriate towing and recovery assets to an incident scene can be facilitated through a contact list of towing and recovery companies who have been pre-approved regarding equipment and capabilities. The statewide effort to establish a new wrecker classification should be monitored and supported.
- Road Rangers – Road Ranger programs exist in both Broward and Palm Beach Counties. A Road Ranger assessment study was conducted to identify improvements in the program. Preliminary recommendations are provided regarding the Road Ranger program, based on “best practices” research conducted during 2005 (see Section 3.4).

Response and clearance policies and procedures are perhaps the most important aspect of incident management as these two components have the potential of providing a significant contribution to achieving the Open Roads Policy at the least cost as compared to other TIM strategies.

3.3 Communications and Technology Issues

Communication and technology issues include integrated interagency communications; transportation management systems; and traveler information.

3.3.1 Integrated Interagency Communications

At an incident site, voice communications among the diverse response agencies have historically been hampered by lack of direct connectivity between their discrete communications systems. Methods of integrating these communications systems to allow on-site direct communications between incident responders, regardless of their legacy systems, are advancing. Trunked radio systems provide a partial solution to this problem. In recent years a large number of options have become available for sending voice and free text messages over a host of media including radio, cellular telephone and Internet services.

- Two-Way Voice Communications – In Broward County, existing mutual aid radio frequencies exists and SIRV operators have radios for on-scene communications for responders (e.g. towing companies, Road Rangers) without access to mutual aid frequencies. It is recommended that the SIRV program be expanded to cover Palm Beach County in providing the same function.
- TMC-Computer Aided Dispatch (CAD) Integration: Data and Video - Most traffic incidents are first detected by means of a cellular telephone call that is received at a Public Safety Answering Point (PSAP). There is strong interest and some actual progress being made in data integration between TMC databases and public safety CAD databases, working through the data security issues to provide true two-way data communication among public safety and transportation agencies. In Broward County, the SMART SunGuide TMC provides real time video, DMS and active traffic event / incident data along major roadways. The SMART SunGuide TMC also communicates with and monitors incident management partners' websites, including FHP, 511, Palm Beach Interim Traffic Management System (ITMS) TMC, and the District 6 SunGuide TMC. As FDOT and the Broward County Traffic Engineering Department (BCTED) are both located in the SMART SunGuide TMC, and share a common video wall, they each receive CCTV camera video images from multiple agencies. In Palm Beach County, they use a list of agency websites (e.g., FHP, ITMS) for data sharing. An outreach campaign should be implemented with other agencies to inform them of SMART SunGuide TMC's available resources (e.g., TMC websites and e-mail text message alerts) that provide traffic data and video information along Broward County's major roadways (i.e., I-95, I-595 and I-75). Similar efforts should be expanded to Palm Beach County and the Northern Counties in the future.

By virtue of enhanced two-way interagency voice communications and data / video information transfer between agencies, the TIM program will become more effective in making critical decisions in a timely manner based on accurate and up-to-the-minute information.

3.3.2 Transportation Management Systems

The use of technology for the detection, verification, and clearance of highway incidents has increased dramatically over the last decade. District 4's deployment of ITS will reduce the time to detect and verify an incident.

- Transportation Management Centers – The SMART SunGuide TMC (Broward County) and ITMS TMC (Palm Beach County) serve as the primary facilities to coordinate incident notification and response. Currently, the SMART SunGuide TMC has two-way communications with Road Rangers, SIRV, 511, other control centers within the region and FHP. The TIM Teams should monitor plans for collocation of partners (e.g., FHP) in the SMART SunGuide TMC and the new Palm Beach SunGuide TMC under construction. Development of diversion routes should include input from the TIM Team members. Diversion routes should be made accessible through electronic form by all responding agencies.
- Technical Infrastructure for Surveillance and Detection – The ITS deployments in Broward and Palm Beach Counties provide the technical infrastructure for surveillance and incident detection. In Broward County, CCTV cameras and vehicle detectors are being permanently installed along I-95, I-595 and I-75. In Palm Beach County, these same devices are attached to portable devices until the I-95 Reconstruction project is completed in the year 2009. Afterwards, the cameras and detectors will be replaced with permanently installed devices. A similar program of CCTV cameras and detectors will provide coverage of I-95 within the Northern Counties scheduled for completion in 2011. TIM Team members should be able to provide input into the planning and design of future ITS deployments.
- Traffic Management Policies and Procedures for Traffic Incidents - There are many traffic management options to consider after the occurrence of an incident, not only to manage traffic immediately impacted by the incident, but also to manage traffic in a wider area that may be ultimately impacted. These options also are important to responders, both to enable their response and to manage the incident scene more effectively. In Broward County, traffic signal timing plans exist for diversion routes and procedures are in-place for implementing them from the SMART SunGuide TMC. In Palm Beach County, policies are in-place to share information between the ITMS TMC and Palm Beach County TMC. These traffic signal timing plans and procedures need to be updated and maintained, then distributed to TIM Team members.

As District 4 has an aggressive ITS work program to be integrated with the TMCs in Broward and Palm Beach Counties, the communication and technology infrastructure will be in-place to serve both short and long-term TIM needs.

3.3.3 Traveler Information

Providing incident information to the motoring public can dramatically reduce the impact of highway incidents on traffic movement by allowing motorists to take alternate travel routes, change departure times, or otherwise modify their travel plans to avoid incidents.

- Use of Information from Multiple Sources - The ability to collect and fuse traffic data from a number of sources and provide a coherent picture to travelers is important to a TIM program. The existing 511 service provides this function within Southeast Florida. In Broward County, SIRV collects data from responding agencies and enters it into the SMART database for tracking incident data. In Palm Beach County, traffic and incident data is shared via agency websites. It is recommended that SIRV

be expanded to Palm Beach County to provide the same function and that a program be developed to collect incident data from other agencies for minor incidents that are responded to by SIRV.

- Real-time Motorist Information System with Incident Specific Information - Real-time motorist information should provide information about what facilities are impacted and how serious that impact is. District 4 currently has the following real-time information sources: 511, TMCs, websites, DMSs, and an e-mail text message alert system. District 4 should build closer relationships with the media to educate and inform them about the public information resources available.
- Provide Travel Time Information – In District 4, discussions are underway with regards to posting travel time estimates on DMSs, 511 and websites. This will require that vehicle detection systems that collect travel time and speed data be implemented in advance. The TIM Team members should monitor the progress of these activities and identify the methods for utilizing travel time information for improved incident response.

District 4's ITS program is well on its way of developing a robust traveler information system that will provide the traveler with the basic information they need to make smart decisions regarding alternative routes, modes and schedules based on accurate, reliable, useful and timely information.

3.4 Road Ranger Program

Road Rangers play an integral role in the TIM program. Road Rangers provide mobile service patrols that travel the highways and render assistance where needed. The service patrols often push disabled vehicles off the road, provide gasoline, change flat tires, or provide minor repairs to allow the motorist to safely drive the vehicle from the highway. If the vehicle cannot be moved, the service patrols can contact tow companies for the motorist. Although the FHWA TIM Self Assessment addressed "service patrols" in Section 3.2.3 - Response and Clearance Policies and Procedures, the recommendations deserve a separate section based on the recommendations from a study conducted in October 2005 entitled: "FDOT District 4 Road Ranger Service Patrol Operations Assessment" (Reference 4).

- Road Ranger Coverage – Road Rangers are currently providing full coverage of the interstate system within Broward and Palm Beach Counties. It is recommended that Road Ranger service coverage be expanded to include I-95 through Martin, St. Lucie and Indian River Counties. Furthermore, Road Ranger coverage along critical arterials should be tested as part of a pilot program along selected diversion routes (e.g., US 27) to determine its viability. Response times and staffing levels should be evaluated to improve Road Ranger level of service.
- Road Rangers Operations - SOGs need to be developed for the Road Ranger program. The SOG Manual should be consistent with any multi-agency JOPs developed among the Road Rangers, SMART TMC / ITMS Operations, SIRV, FHP and other local agencies. This effort should be coordinated through the TIM Team to establish a management level adoption to effectively operate as a coordinated incident

management team in the field. The JOP can be used to support the development of multi-agency performance measures for incident management.

- Road Ranger Contract Procurement - The language that exists in the current Road Ranger contract should be modified in the contract re-advertisement to define the level of coverage required in lieu of the number of trucks required. The scope of services needs clarification to address coverage during shift changes. Currently, the scope of services identifies “no lapse in coverage” during shift changes, but does not address if the same level of coverage during the shift is required. District 4 should discuss with the contractor an alternate method of compensation (e.g., time & materials) that would improve the maintainability of trucks. This would introduce flexibility to accommodate the fluctuations in commodity prices and allow the contractor to focus more of their time on the services. Also, internal resources within District 4 should be examined to take advantage of pricing power in achieving lower cost for equipment supplies and maintenance. In addition, a “time and materials” type method of compensation would enable FDOT to be more flexible in defining the necessary equipment to be stored on the trucks. The feasibility of introducing performance-based incentives and disincentives to the contract should also be considered. Contract incentives have been shown to improve production and quality of services on other contracts and are applicable to the Road Ranger program. The incentives should be tied to Road Ranger program goals and within the control of the contractor.
- Road Ranger Training - In July 2006, District 4 conducted its initial “SMART Road Ranger / TMC Operator Joint Training” session. This was useful in providing a common training platform while fostering the exchange of information, issues and concerns so that each TIM partner can better understand the roles and responsibilities of each other. This joint training program should be continued on a bi-annual basis with participation open to other TIM Team members. The Road Ranger scope of services does not require the contractor to provide any form of driver training. The training that is required is the responsibility of FDOT and is not provided on a regular basis. A comprehensive training program should be developed and instituted using a “train-the-trainer” approach. Road Ranger supervisors should be trained to conduct training on new drivers. The training program should include a combination of web-based interactive training, classroom training and field training. All training should conclude with a certification process. In addition, annual certifications should be established that would include a refresher class. The expanded training should address the new systems coming online (e.g., Road Ranger personal data devices, radio system). Furthermore, it is recommended that Road Rangers receive NIMS training and certification.
- Road Ranger Performance Monitoring - With the deployment of cameras, the Road Ranger personal data devices and a new AVL system, the SMART TMC operators will be able to closely monitor Road Ranger activity and improve the quality of data collected. The Road Ranger personal data devices units should be used for collecting Road Ranger data. Existing inspections and audits should continue to be performed by SIRV staff augmented with roving spot checks. While patrolling they can observe the Road Rangers in action and assess their performance by observing MOT set-ups, stopping and talking with the motorists and encouraging the motorists to complete the comment card. As the SMART TMC deploys more CCTV cameras, the SMART TMC operators will be able to monitor Road Ranger activities. Specific guidelines should be developed for the SMART TMC operators for monitoring Road Rangers. They can also be used by ITMS operators, but to a lesser extent because of the lack of CCTV

camera coverage. The guidelines will need to educate the operators on what to look for and how to communicate it to the Road Rangers. While monitoring the Road Rangers is beneficial, guidelines need to be developed so as not to overburden the operators and take them away from their primary responsibilities. The AVL system should be upgraded to help monitor Road Ranger activity and coverage. An electronic documenting process should be implemented for tracking customer complaints and expanded to include other agencies that interact with the Road Ranger program (e.g., FHP, SMART TMC, ITMS and any other agencies) filing a formal complaint about Road Rangers. The customer / agency complaint form should be converted into an MS Access database so that reports can be produced and information easily retrieved. This may be used by the FDOT Project Manager to track recurring complaints on specific drivers and used for disciplinary actions, as needed. If the recurring complaints are related to operational procedures, then SOGs can be modified to address common complaints.

- ➔ Road Ranger Performance Measures – Research is needed to compare the District 4 Road Ranger program with Road Ranger programs in other FDOT districts as well as similar programs in other states. This research needs to focus on consistent performance measures in terms of data collection, interpretation and reporting. This will enable the District 4 Road Ranger program to be compared against its peers in identifying lessons learned and best practices for continuous improvement in terms of traffic incident management as well as customer service.

FDOT District 4 has made a significant investment in the Road Ranger program. While the public feedback has been excellent, the aforementioned recommendations should be considered in making it one of the best service patrol programs in the nation.

3.5 TIM Implementation Plan

The “TIM Implementation Plan” (Exhibit 1) provides a recommended timeline of specific actions that need to be accomplished in supporting the recommendations presented in Sections 3.1, 3.2, 3.3 and 3.4.

Exhibit 1 - TIM Implementation Plan

TIM Action	2007	2008	2009	2010
Program and Institutional Issues				
Formal TIM Programs				
	Adopt the District 4 TIM Strategic Plan.	Annual update of the District 4 TIM Strategic Plan.	Annual update of the District 4 TIM Strategic Plan.	Annual update of the District 4 TIM Strategic Plan.
	Develop list of TIM interagency agreements to be developed. Prepare / execute 25% of the agreements.	Prepare / execute 50% of the agreements.	Prepare / execute 75% of the agreements.	Prepare / execute 100% of the agreements.
		Develop multi-agency workshop curriculum involving field-level personnel.	Conduct initial multi-agency workshop involving field-level personnel.	Conduct follow-up multi-agency workshop involving field-level personnel.
TIM Administrative Teams				
	Meet one-on-one with each TIM member agency to determine methods to improve the TIM program.			
	Develop the structure of a PIA database of lessons learned.	Populate PIA database of lessons learned; then update policies and procedures as part of interagency agreements, SOGs and training programs.	Populate PIA database of lessons learned; then update policies and procedures as part of interagency agreements, SOGs and training programs.	Populate PIA database of lessons learned; then update policies and procedures as part of interagency agreements, SOGs and training programs.

Exhibit 1 - TIM Implementation Plan (continuation)

TIM Action	2007	2008	2009	2010
	Utilize MOU to obtain commitment from agencies' management to mandate participation in TIM meetings.	Establish Northern Counties TIM Team.	Support District 4 TMC Marketing Manager in preparing a brief video to illustrate the SIRV program to be used as part of outreach activities.	
Performance Measurement				
	Develop multi-agency performance measures.	Adopt and populate selected multi-agency performance measures.	Populate, analyze and report performance measures; then recommend improvements.	Populate, analyze and report performance measures; then recommend improvements.
	Implement SunGuide software as part of ITMS operations.	Amend the District 4 TIM MOU to include specific performance measures.		
	Conduct annual FHWA TIM Self-Assessment in Nov / Dec.	Conduct annual FHWA TIM Self-Assessment in Nov /Dec.	Conduct annual FHWA TIM Self-Assessment in Nov / Dec.	Conduct annual FHWA TIM Self-Assessment in Nov / Dec.
Operational Issues				
Procedures for Major Incidents				
	Establish classifications for Level 3 incidents (i.e., fatalities, truck rollovers, hazmat, brush fires, etc.).	Utilize SunGuide to analyze various Level 3 classifications; then make recommendations.	Utilize SunGuide to analyze various Level 3 classifications; then make recommendations.	Utilize SunGuide to analyze various Level 3 classifications; then make recommendations.
	Prepare map showing location of existing FDOT resources.	Update resource lists.		Update resource lists.
			Develop a plan to provide a more consistent strategy for pre-staged equipment.	Identify funding for emergency MOT for roadways not covered by Asset Management contracts.



Exhibit 1 - TIM Implementation Plan (continuation)

TIM Action	2007	2008	2009	2010
Responder and Motorist Safety				
	Develop and implement a procedure for using Road Ranger vehicle-mounted DMSs at the end of queues.			
	Reach out to emergency agencies to assess policies on equipment staging and emergency lighting.	Review policies and laws in developing consistent procedures for equipment staging & emergency lighting.	Implement consistent procedures for equipment staging & emergency lighting.	
Response and Clearance Policies				
	Update the Palm Beach Incident Response Manual to include Road Ranger MOT standards. Develop the Broward Incident Response Manual.		Develop JOPs to identify Road Ranger / SIRV as part of the Incident Command System.	
	Update the SIRV incident database report forms to support the District 4 environmental department reporting.	Work with the District 4 TMC Marketing Manager to develop a public outreach program for the "Move-It" law.		
	Monitor the progress of the new FHP wrecker classification.	Develop a Rapid Incident Scene Clearance Program.		



Exhibit 1 - TIM Implementation Plan (continuation)

TIM Action	2007	2008	2009	2010
Communications / Technology Issues				
Integrated Interagency Communications				
	Develop methodology for automating TMC-CAD data sharing.	Propose changes to the SunGuide Software Change Management Board for automating TMC-CAD data sharing.	Implement TMC-CAD automated data sharing.	
	Develop a public outreach program to inform other agencies on available incident information to exchange.	Implement a public outreach program to inform other agencies on available incident information to exchange.		
Transportation Management Systems				
	Invite District 4 ITS GEC to TIM meetings for input into developing diversion routes.	Distribute diversion route plans, prepared by the District 4 ITS GEC, to the TIM Team members.	Make diversion routes accessible through an electronic medium for all responding agencies.	
	Monitor progress of SERFTOC, FUSION and ITS deployments.	Monitor progress of SERFTOC, FUSION and ITS deployments.	Monitor progress of SERFTOC, FUSION and ITS deployments.	Monitor progress of SERFTOC, FUSION and ITS deployments.
Road Ranger Program				
	Evaluate staff turn-over and make recommendations. Analyze hours worked per employee; level of absenteeism; relief factor; and level of staffing requirements.			



Exhibit 1 - TIM Implementation Plan (continuation)

TIM Action	2007	2008	2009	2010
Road Ranger Program				
	Develop specific guidelines for the TMC operators to monitor the Road Rangers using CCTV cameras and AVL.			
	Develop comprehensive Road Ranger Standard Operating Guidelines.			
	Update contract language for the re-advertisement of the Road Ranger contract to make it performance-based. Utilize findings from the Road Ranger Assessment document.			
	Develop an electronic documenting process for tracking customer complaints on the Road Ranger program.	Utilize the electronic documenting system for tracking Road Ranger complaints in taking the appropriate actions.		
	Conduct research in developing Road Ranger performance measures that can be used to provide comparisons against similar programs nationwide.	Utilize Road Ranger performance measures to identify and implement best practices, if feasible. Also, identify the level of service requirements for Northern Counties.	Secure funding requirements for Road Ranger expansion into Northern Counties.	



Exhibit 1 - TIM Implementation Plan (continuation)

TIM Action	2007	2008	2009	2010
	Evaluate beats by establishing a baseline based on # assists; time of day; and response time. Adjust beats and shifts to provide more resources in high activity areas.	Evaluate beats annually.	Evaluate beats annually.	Evaluate beats annually.
	Develop training curriculum. Utilize a combination of CD interactive training, classroom training, observations, hands-on training, ride-alongs and certifications. Include NIMS.	Conduct joint training with FHP, TMC Operators, Road Rangers and SIRV drivers.	Conduct joint training with FHP, TMC Operators, Road Rangers and SIRV drivers.	Conduct joint training with FHP, TMC Operators, Road Rangers and SIRV drivers.



3.6 Cost Estimates

The estimated costs to fund the recommended TIM programs and actions are summarized in Exhibit 2 below.

Exhibit 2 - TIM Program Costs

TIM Program Initiative	Annual Costs in \$2006
SIRV Program – Broward County	\$638,000
SIRV Program – Palm Beach County	\$562,000
Road Rangers – Broward County	\$2,500,000
Road Rangers – Palm Beach County	\$1,800,000
TIM Consultant – District Wide	\$400,000
Total Cost Estimate	\$5,900,000

In addition, a future Road Ranger program for the Northern Counties may need additional funding. Currently, \$1,000,000 is programmed for this service beginning in FY 2009 / 2010.

4.0 PERFORMANCE MEASUREMENT

As indicated in the *Florida TIM Program Strategic Plan*, performance measures are needed for the following reasons:

- To improve the effectiveness of the TIM program and enable tracking the improvement;
- To serve as a basis for upper management support and commitment of funding available for TIM activities;
- To foster TIM member agency support of the program; and
- To satisfy increased federal emphasis in operations and management.

The TIM program should be assessed on an annual basis in terms of “outcomes” and “outputs”. The FHWA TIM Self Assessment methodology should continue to be used to measure performance of the TIM Teams’ progress in terms of “outcomes”. The results of the past two years, nationwide averages and District 4 targets for the year 2010, are presented in Exhibit 3. Checklists for recommended actions, indicating the year to be implemented and the owner of each action, are presented in the Appendix.

Exhibit 3 – TIM Team Performance Measurement (Outcomes)

TIM Performance Measure	TIM Team Performance Score						
	National	Broward County TIM Team			Palm Beach County TIM Team		
	Average* (2005)	2004	2005	2010	2004	2005	2010
Program and Institutional Issues (30%)	12.9	16.1	21.3	30.0	15.0	20.8	30.0
Formal TIM Programs	1.9	1.2	2.3	4.0	1.3	2.2	4.0
Develop TIM Program Strategic Plan	1.6	1.0	2.0	4.0	0.0	2.0	4.0
Prepare and Execute Interagency Agreements	2.0	1.5	3.0	4.0	1.8	2.5	4.0
Include Field-level Input into the Plans	2.1	1.0	2.0	4.0	2.0	2.0	4.0
TIM Administrative Teams	2.0	2.3	3.0	4.0	2.3	3.0	4.0
Conduct Multi-agency TIM Team Meetings for Administrative Policy	1.9	3.0	3.2	4.0	3.0	3.5	4.0
Conduct Regular TIM Team Meetings	2.0	3.5	4.0	4.0	3.5	3.5	4.0
Conduct TIM Team Training – Simulation or Field Exercise	1.5	2.0	2.0	4.0	1.0	2.0	4.0
Conduct Post-Incident Analyses	2.0	0.5	3.0	4.0	1.0	3.0	4.0
Conduct Planning for Special Events	2.7	2.3	2.8	4.0	2.8	2.8	4.0
Performance Measurement	1.3	2.8	3.0	4.0	2.3	3.0	4.0
Prepare Multi-Agency Agreements on Performance Measures	1.2	3.0	3.0	4.0	3.0	3.0	4.0
Agree on Methods for Collection and Analysis of Performance Data	1.2	3.0	3.0	4.0	3.0	3.0	4.0
Establish Targets for Performance	1.4	3.0	3.0	4.0	2.0	3.0	4.0
Conduct Periodic Review of Progress	1.2	2.0	3.0	4.0	1.0	3.0	4.0
Operational Issues (40%)	24.5	28.9	31.8	40.0	27.9	30.9	40.0
Procedures for Major incidents	2.6	3.4	3.6	4.0	3.3	3.5	4.0
Establish Criteria for Incident Levels or Security	2.1	3.0	3.5	4.0	4.0	4.0	4.0
Establish Major Incident Response Teams	3.1	4.0	4.0	4.0	4.0	4.0	4.0
Develop Resource Lists	2.9	3.0	3.5	4.0	4.0	4.0	4.0



Exhibit 3 – TIM Team Performance Measurement (Outcomes)

TIM Performance Measure	TIM Team Performance Score						
	National	Broward County TIM Team			Palm Beach County TIM Team		
	Average* (2005)	2004	2005	2010	2004	2005	2010
Pre-stage Equipment	2.4	3.5	3.5	4.0	1.0	2.0	4.0
Responder and Motorist Safety	2.0	1.6	2.3	4.0	1.6	2.1	4.0
Train All Responders in Traffic Control Procedures	2.2	2.5	3.5	4.0	2.5	2.5	4.0
Use MUTCD for Traffic Control Procedures	2.2	3.0	3.0	4.0	2.0	3.0	4.0
Use Traffic Control Procedures at End of Queue	1.9	1.0	2.5	4.0	2.0	3.0	4.0
Equipment Staging/Emergency Lighting Procedures	1.6	0.0	0.0	4.0	0.0	0.0	4.0
Response and Clearance Policies and Procedures	2.7	3.4	3.5	4.0	3.3	3.5	4.0
Utilize the Incident Command System	2.7	3.0	3.5	4.0	3.5	3.8	4.0
Establish Policies and Procedures for Investigation of Fatal Crashes	2.5	3.0	3.5	4.0	2.0	3.0	4.0
Establish Policies and Procedures for Hazardous Materials Incidents	2.7	3.5	3.5	4.0	4.0	4.0	4.0
Establish Quick Clearance Policies	2.4	3.0	3.5	4.0	3.0	3.0	4.0
Establish List of Pre-Qualified Towing and Recovery Operators	2.8	4.0	3.0	4.0	3.0	3.0	4.0
Use Motorist Assistance Service Patrols	2.9	4.0	4.0	4.0	4.0	4.0	4.0
Communication and Technology Issues (30%)	15.0	13.6	23.4	30.0	15.5	18.8	30.0
Integrated Interagency Communications	2.1	1.3	3.5	4.0	1.0	1.5	4.0
Establish Two-way Voice Communications for Emergency Responders	2.1	1.5	3.5	4.0	0.0	1.0	4.0
Provide TMC-CAD Integration: Data and Video	2.0	1.0	3.5	4.0	2.0	2.0	4.0
Transportation Management Systems	2.1	1.7	3.0	4.0	2.7	2.7	4.0
Use TMCs to Coordinate Incident Notification and Response	2.4	3.0	3.5	4.0	3.0	2.0	4.0
Implement a Technical Infrastructure for Surveillance and Detection	2.3	1.0	2.5	4.0	2.5	3.0	4.0
Develop Policies and Procedures for Traffic Management of Incidents	1.7	1.0	3.0	4.0	2.5	3.0	4.0



Exhibit 3 – TIM Team Performance Measurement (Outcomes)

TIM Performance Measure	TIM Team Performance Score						
	National	Broward County TIM Team			Palm Beach County TIM Team		
	Average* (2005)	2004	2005	2010	2004	2005	2010
Traveler Information	1.9	2.3	3.0	4.0	2.2	3.0	4.0
Use of Information from Multiple Sources	1.9	3.0	3.5	4.0	3.5	3.5	4.0
Provide Real-Time Motorist Information with Incident Specific Info	2.3	3.0	3.5	4.0	3.0	3.5	4.0
Provide Travel Time Information	1.5	1.0	2.0	4.0	0.0	2.0	4.0
Total TIM Team Performance Score	52.4	58.6	76.5	100.0	58.3	70.4	100.0

* Reference 5



While the above FHWA TIM Self Assessment table provides a structured process for performance measurement of the TIM program, it does not do an adequate job of measuring the performance of the Road Ranger program. It is suggested that research be conducted on other service patrol programs throughout the state and nation in comparing performance data. Exhibit 4 below provides initial research in this area that needs to be expanded to cover other metropolitan regions as well as other performance measures. In order to provide a fair comparison, performance measures will need to be normalized to adjust to the various attributes of each service.

Exhibit 4 – Comparative Service Patrol Performance Measures

Agency	Assist per Mile per Year	Assist per Truck-Hour	Avg. Miles Covered per Beat ¹	Miles Covered per Truck ²
FDOT District 4	671	0.7	12.22	5.05
Bay Area Freeway Service Patrol	315	1.0	14.23	6.04
Los Angeles Freeway Service Patrol	721	0.8	N/A	N/A
Virginia DOT Hampton Roads	644	0.6	8.25	7.10

1-Includes daytime and nighttime/weekend beats

2-only includes daytime coverage

5.0 MARKETING PLAN

The accomplishments of the District 4 TIM Teams should be shared with other TIM Teams throughout the state and nation in terms of best practices and lessons learned. Furthermore, the services provided should be shared with the local, regional, state and federal officials, as well as the general public, in receiving buy-in to the recommended programs and activities contained in this document. The following marketing plan is presented to achieve these goals:

- Best Practices – Best practices and lessons learned should be shared with other TIM Teams. Specific best practices may include the following: benefits and costs of the SIRV program; experiences in implementing the e-mail incident alert system; experiences with the Road Ranger personal data devices; development and application of the SunGuide software; benefits of the Road Ranger Audit and Assessment program; delivery of the Joint TMC / Road Ranger Training Program; and others.
- Public Information – Public information campaigns should be integrated as part of the overall District 4 ITS marketing plan. Specific areas to emphasize include the following: utilization of the Road Ranger program; compliance with the “Move-It” law; and avoiding rubbernecking. Furthermore, TIM public information activities should piggyback on the District 4 TMC Marketing Manager’s efforts as well as the statewide public awareness program for TIM.
- Annual Reports – TIM Team performance measurement should be reported as part of the District 4 ITS Annual Report. Additional performance analyses should include the number of Road Ranger and SIRV assists; number of hours saved in staff time for other emergency response agencies; and other measures indicated in the *Florida TIM Program Strategic Program* (e.g., verification time; response time; clearance time; Road Ranger response time; incident related delay; lane-miles of backup; secondary crash rates).
- Conferences – FDOT District 4, and their consultants and contractors, should continue to be active in presenting and authoring technical papers at relevant conferences. These conferences include the following: American Association of State Highway and Transportation Officials (AASHTO), Highway Operating Group (HOGs) Committee on System Operation & Management and Transportation Security; Institute of Transportation Engineers; ITS America; Transportation Research Board; ITS World Congress; ITS Florida Working Group meetings; TRANSP0; and others as deemed appropriate. Presentation / publication topics may include the following:
 - The SIRV Program – Best Practices and Lessons Learned
 - Web-based Road Ranger Training Program
 - Multi-agency TIM Performance Measures
 - Shaping TIM Teams of the Future
 - Road Ranger Contracting – Lessons Learned

This would provide an opportunity to gain feedback on TIM programs and activities in identifying methods for enhancements.

- Awards – Although District 4 is still in its infancy stage of ITS deployment and operations, they have already been recognized as an industry leader through numerous awards. This recognition has included the TIM program. Each year, Prudential Financial recognizes a state agency for their role in developing partnerships that result in improved productivity. This year, the 2006 Davis Productivity Award was presented to the District 4 in recognition of the very successful SIRV program. District 4 should continue to apply for these type of awards for specific accomplishments in other aspects of the TIM program (e.g., Road Rangers; MOU / Partnerships; etc.).
- Agency Presentations – Presentations should be made to the various agencies that are existing TIM members, as well as other agencies that should be recruited, to explain the benefits of the program to their agencies in terms manpower relief during major incidents; quicker clearance of incidents from the roadways; and sharing of resources during major incidents (i.e., planned and unplanned). The agencies should be afforded an opportunity to share their specific needs and how TIM may support them. These agency presentations should also be conducted in support of developing and executing multi-agency agreements. Specific targets include local police and fire-rescue departments; county and city traffic departments; emergency operations centers; etc.
- Funding Commitments – The most important aspects of an effective marketing plan is to gain the commitment from the participating agencies in developing, executing and enforcing interagency agreements as well as providing a strong foundation for funding support. Funding justification should be provided in terms of quantifiable benefits (i.e., travel time savings; secondary crash savings; emergency responder staff savings; air pollution emission savings; energy savings) versus costs.

The marketing program should be implemented as a component of the District 4 ITS Marketing Program with specialized support from the District 4 TIM Consultant contract. Presentations, brochures and videos should be consistent with statewide public information pieces as well as District 4 ITS marketing materials.

6.0 FUTURE DIRECTIONS

This District 4 TIM Strategic Plan provides a roadmap on how to improve the program during the next few years based on a vision for the year 2010. This section – “Future Directions” - addresses recommended strategies that should be considered by District 4 in providing a continuous TIM improvement program beyond the year 2010.

6.1 Program and Institutional Issues

The TIM program should be mainstreamed into District 4’s business model. Policies, procedures and protocols should continue to be integrated as part of the ITS program while funding should be programmed as part of statewide as well as district initiatives.

- Formal TIM Programs – The *District 4 TIM Strategic Plan* will need to be updated to incorporate “future directions” presented herein. JOPs will need to be updated to address how incident management policies and procedures will have changed by virtue of having the ITS infrastructure completed and with the integration of FHP staff situated in the TMCs. These program improvements may warrant a revision of the “Open Roads Policy” to be more aggressive (i.e., less than 90 minutes incident clearance time).
- TIM Administrative Teams – The “Data Visualization Simulator”, an interactive video that enables role-playing by different emergency response agencies in a simulated environment, may be useful for TIM Teams during future table-top exercises. This simulation software should be used as part of the PIAs to provide the basis for identifying new initiatives in further reducing incident durations in a safe and efficient manner. Simulation software upgrades should be developed to estimate delay savings, secondary crash savings as well as benefits and costs.
- Performance Measurement – SunGuide software upgrades will be required to reflect standard multi-agency TIM performance measures adopted by FHWA and FDOT. All efforts should be made to automate the data collection, processing and reporting of the performance measures to minimize the impact on TMC operations staff, Road Rangers, SIRV staff as well as TIM Team agency members.

In summary, the TIM Teams should continually strive to operate as a cohesive team in accordance with the statewide TIM mission and vision as described in Section 2. The multi-agency performance measures will provide a valuable tool in monitoring the continuous progress beyond the scoring methods of the FHWA TIM Self-Assessment.

6.2 Operational Issues

As indicated in previous sections of this document, the TIM program is transitioning from an “institutional” to an “operational” format. As the SIRV program evolves during the next few

years, SIRV management should take a more leadership role in collaborating with the TIM agency partners in the field as well as at TIM Team meetings and at the executive level.

- Procedures for Major Incidents – SIRV should take a lead role in coordinating the pre-staging of equipment among the Road Rangers, Asset Management contractors and other TIM Team members.
- Responder and Motorist Safety – MOT Training should be web-based to make it available to TIM Team members anytime, anywhere. The MOT training should be made mandatory with testing and certifications at various levels.
- Response and Clearance Policies and Procedures – Deployment of diversion routes, and revised signal timings, should be performed as part of a more formalized “Integrated Corridor Management” plan for critical segments of the interstate system. This may include contra-flow operations along certain corridors or the use of reversible lanes (e.g., I-595) when they become available.

As TIM Teams identify better methods for improving the operational aspects of the TIM program in the field, these best practices should be converted to revised procedures and standards, then incorporated into the training programs.

6.3 Communications and Technology Issues

The TIM program will continuously benefit by advances in communications and technology. These technologies should be leveraged in providing a closer bond between the multi-agency responders in the field with the operations staff in the TMCs.

- Integrated Interagency Communications – A common interagency communications system should be provided for all emergency management personnel. It is recommended that the lessons learned from the “800 MHz Radio Pilot Project” in the Orlando area be applied within District 4 to enable direct communications between State Law Enforcement and TIM personnel utilizing the State Law Enforcement Radio System. As the funding requirements of this communication system is likely beyond budgets available for the District 4 TIM program, this should be a statewide initiative.
- Transportation Management Systems – As the ITS deployments in each of the five counties within District 4 is completed, research should be continued to identify methods to utilize this infrastructure for further reducing incident durations. In addition, with the completion of the countywide Advanced Traffic Management System (ATMS) programs, the true intent of “Traffic” Incident Management can be achieved on a system scale (i.e., freeways and arterials).
- Traveler Information – As the 511 system becomes more mature, it is envisioned that information service providers will provide premium services which are more customized for travelers’ needs. Furthermore, the “Vehicle Infrastructure Integration” (VII) initiative will take telematics to the next level in terms of sharing incident information between vehicles.

TMCs should continue to serve as the primary notification and response point for traffic incident management. Center-to-center communications, as well as collocation of multi-agency staff within the TMC, will enable the optimization of sharing critical information in real-time in reducing incident durations in a safe and efficient manner.

6.4 Road Rangers

Road Rangers continue to be an important component of the TIM program. While the recommendations presented in Section 3 will improve the program, the following “future directions” are suggested to further improve the quality of service provided.

- Road Ranger Coverage – Expansion of Road Ranger coverage, beyond the interstate system, should be considered based on pilot programs conducted along selected arterials on a limited basis. If warranted, the priority for arterial application should be along designated diversion routes.
- Road Ranger Operations – As the Road Ranger service is expanded throughout the District, consideration should be made to requiring that the new drivers be EMT certified. This will enable them to serve as potential first responders to serious incidents, thereby reducing incident clearance times. An assistant would ride along with the EMT driver to provide traditional Road Ranger service while the EMT is attending to those injured.
- Road Ranger Vehicles – In recognition of the rising insurance premiums, the trade-offs in FDOT procuring the vehicles directly, and providing insurance coverage, should be assessed as an alternative to having the contractor provide the vehicles and insurance. In addition, the Road Ranger vehicles should be redesigned to be able to accommodate additional MOT devices and first-aid equipment.

Additional improvements in the Road Ranger program should be made based on best practices and lessons learned from similar operations throughout the state and nation. This information may be garnered from federal research initiatives (e.g., FHWA “TMC Pooled Fund” Program) as well as statewide resources (e.g., FDOT Central Office “TIM Program Consultant” contract).

REFERENCES

1. Florida Department of Transportation, "Florida Traffic Incident Management Program Strategic Plan", February 2006.
2. Florida Department of Transportation, District 4, "FDOT District 4 ITS Strategic Business Plan", April 2006.
3. Federal Highway Administration, "Traffic Incident Management Self-Assessment Guide", 2002.
4. Florida Department of Transportation, District 4, "FDOT District 4 Road Ranger Service Patrol Operations Assessment", October 2005.
5. Federal Highway Administration, Office of Transportation Operations, "Traffic Incident Management Self-Assessment, 2005 National Report", November 2005.

**APPENDIX
ACTION ITEM CHECKLISTS (OUTPUTS)**

YEAR 2007

Recommendation	Action Taken	Owner
Program and Institutional Issues		
Formal TIM Program		
Adopt the District 4 TIM Strategic Plan.		FDOT D4 Freeway Ops Manager
Develop list of TIM interagency agreements to be developed. Prepare / execute 25% of the agreements.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
TIM Administrative Teams		
Meet one-on-one with each TIM member agency to determine methods to improve the TIM program.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Develop the structure of a PIA database of lessons learned.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Utilize MOU to obtain commitment from agencies' management to mandate participation in TIM meetings.		FDOT D4 Freeway Ops Manager with support from the TIM Team Agencies
Performance Measurement		
Develop multi-agency performance measures.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Implement SunGuide software as part of ITMS operations.		FDOT D4 Operations Manager with support from the FDOT D4 Software Consultant
Conduct annual FHWA TIM Self-Assessment in Nov / Dec.		FDOT D4 Freeway Ops Manager with support from the TIM Team members



**APPENDIX (continuation)
ACTION ITEM CHECKLISTS (OUTPUTS)**

YEAR 2007

Recommendation	Action Taken	Owner
Operational Issues		
Procedures for Major Incidents		
Establish classifications for Level 3 incidents (i.e., fatalities, truck rollovers, hazmat, brush fires, etc.).		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Prepare map showing location of existing FDOT resources.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Responder and Motorist Safety		
Develop and implement a procedure for using Road Ranger vehicle-mounted DMSs at the end of queues.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Reach out to emergency agencies to assess policies on equipment staging and emergency lighting.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Response and Clearance Policies		
Update the Palm Beach Incident Response Manual to include Road Ranger MOT standards. Develop Broward Incident Response Manual.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Update the SIRV incident database report forms to support the District 4 environmental department reporting.		FDOT D4 Operations Manager with support from the FDOT D4 Software Consultant
Communications and Technology Issues		
Integrated Interagency Communications		
Develop a public outreach program to inform other agencies on available incident information to exchange.		FDOT D4 Operations Manager with support from the FDOT D4 TMC Marketing Manager



**APPENDIX (continuation)
ACTION ITEM CHECKLISTS (OUTPUTS)**

YEAR 2007

Recommendation	Action Taken	Owner
Transportation Management Systems		
Invite District 4 ITS GEC to TIM meetings for input into developing diversion routes.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Monitor progress of SERFTOC, FUSION and ITS deployments.		FDOT D4 Freeway Ops Manager
Road Ranger Program		
Evaluate staff turn-over and make recommendations. Analyze hours worked per employee; level of absenteeism; relief factor; and level of staffing requirements.		FDOT D4 Freeway Ops Manager
Develop specific guidelines for the TMC operators to monitor the Road Rangers using CCTV cameras and AVL.		FDOT D4 Operations Manager with support from the FDOT D4 TMC Manager.
Develop comprehensive Road Ranger Standard Operating Guidelines.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Update contract language for the re-advertisement of the Road Ranger contract to make it performance-based. Utilize findings from the Road Ranger Assessment.		FDOT D4 Freeway Ops Manager
Develop an electronic documenting process for tracking customer complaints on the Road Ranger program.		FDOT D4 Operations Manager with support from the FDOT D4 Software Consultant
Conduct research in developing Road Ranger performance measures that can be used to provide comparisons against similar programs nationwide.		FDOT D4 ITS Program Manager with support from the Florida International University.
Evaluate beats by establishing a baseline based on # assists; time of day; response time. Adjust beats and shifts to provide more resources in high activity areas.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Develop training curriculum. Utilize CD interactive training, classroom training, observations, hands-on training, ride-alongs and certifications. Include NIMS.		FDOT D4 Freeway Ops Manager supported by TIM Consultant



**APPENDIX (continuation)
ACTION ITEM CHECKLISTS (OUTPUTS)**

YEAR 2008

Recommendation	Action Taken	Owner
Program and Institutional Issues		
Formal TIM Program		
Annual update of the District 4 TIM Strategic Plan.		FDOT D4 Freeway Ops Manager
Prepare / execute 50% of the agreements.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Develop multi-agency workshop curriculum involving field-level personnel.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
TIM Administrative Teams		
Populate PIA database of lessons learned; then update policies and procedures as part of interagency agreements, SOGs and training programs.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Establish Northern Counties TIM Team.		FDOT D4 Freeway Ops Manager
Performance Measurement		
Adopt and populate selected multi-agency performance measures.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Amend the District 4 TIM MOU to include specific performance measures.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant

**APPENDIX (continuation)
ACTION ITEM CHECKLISTS (OUTPUTS)**

YEAR 2008

Recommendation	Action Taken	Owner
Operational Issues		
Procedures for Major Incidents		
Utilize SunGuide to analyze various Level 3 classifications; then make recommendations.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Update resource lists.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Responder and Motorist Safety		
Review policies and laws in developing consistent procedures for equipment staging & emergency lighting.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Response and Clearance Policies		
Work with the District 4 TMC Marketing Manager to develop a public outreach program for the "Move-It" law.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TMC Marketing Manager
Develop a Rapid Incident Scene Clearance Program.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Communications and Technology Issues		
Integrated Interagency Communications		
Propose changes to the SunGuide Software Change Management Board for automating TMC-CAD data sharing..		FDOT D4 Operations Manager with support from the FDOT D4 Software Consultant



**APPENDIX (continuation)
ACTION ITEM CHECKLISTS (OUTPUTS)**

YEAR 2008

Recommendation	Action Taken	Owner
Transportation Management Systems		
Distribute diversion route plans, prepared by the District 4 ITS GEC, to TIM Team.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Monitor progress of SERFTOC, FUSION and ITS deployments.		FDOT D4 Freeway Ops Manager
Road Ranger Program		
Utilize the electronic documenting system for tracking Road Ranger complaints in taking the appropriate actions.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Utilize Road Ranger performance measures to identify and implement best practices, if feasible. Also, identify the level of service requirements for Northern Counties		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Evaluate beats annually.		FDOT D4 Freeway Ops Manager
Conduct joint training with FHP, TMC Operators, Road Rangers and SIRV drivers.		FDOT D4 Freeway Ops Manager

**APPENDIX (continuation)
ACTION ITEM CHECKLISTS (OUTPUTS)**

YEAR 2009

Recommendation	Action Taken	Owner
Program and Institutional Issues		
Formal TIM Program		
Annual update of the District 4 TIM Strategic Plan.		FDOT D4 Freeway Ops Manager
Conduct initial multi-agency workshop involving field-level personnel.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Prepare / execute 75% of the agreements.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
TIM Administrative Teams		
Populate PIA database of lessons learned; then update policies and procedures as part of interagency agreements, SOGs and training programs.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Support District 4 TMC Marketing Manager in preparing a brief video to illustrate the SIRV program to be used as part of outreach activities.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TMC Marketing Manager and TIM Consultant
Performance Measurement		
Populate, analyze and report performance measures; then recommend improvements.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Conduct annual FHWA TIM Self-Assessment in Nov / Dec.		FDOT D4 Freeway Ops Manager with support from the TIM Team members



**APPENDIX (continuation)
ACTION ITEM CHECKLISTS (OUTPUTS)**

YEAR 2009

Recommendation	Action Taken	Owner
Operational Issues		
Procedures for Major Incidents		
Utilize SunGuide software to analyze various Level 3 classifications; then make recommendations.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Develop a plan to provide a more consistent strategy for pre-staged equipment.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Responder and Motorist Safety		
Implement consistent procedures for equipment staging & emergency lighting.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Response and Clearance Policies		
Develop JOPs to identify Road Ranger / SIRV as part of the Incident Command System.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Communications and Technology Issues		
Integrated Interagency Communications		
Implement TMC-CAD automated data sharing.		FDOT D4 Operations Manager with support from the FDOT D4 Software Consultant
Transportation Management Systems		
Monitor progress of SERFTOC, FUSION and ITS deployments.		FDOT D4 Freeway Ops Manager
Make diversion routes accessible through an electronic medium for all responding agencies.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant



**APPENDIX (continuation)
ACTION ITEM CHECKLISTS (OUTPUTS)**

YEAR 2009

Recommendation	Action Taken	Owner
Road Ranger Program		
Secure funding requirements for Road Ranger expansion into Northern Counties.		FDOT D4 Freeway Ops Manager
Evaluate beats annually.		FDOT D4 Freeway Ops Manager
Conduct joint training with FHP, TMC Operators, Road Rangers and SIRV drivers.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant

**APPENDIX (continuation)
ACTION ITEM CHECKLISTS (OUTPUTS)**

YEAR 2010

Recommendation	Action Taken	Owner
Program and Institutional Issues		
Formal TIM Program		
Annual update of the District 4 TIM Strategic Plan.		FDOT D4 Freeway Ops Manager
Prepare / execute 100% of the agreements.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Conduct follow-up multi-agency workshop involving field-level personnel.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
TIM Administrative Teams		
Populate PIA database of lessons learned; then update policies and procedures as part of interagency agreements, SOGs and training programs.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Performance Measurement		
Populate, analyze and report performance measures; then recommend improvements.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Conduct annual FHWA TIM Self-Assessment in Nov / Dec.		FDOT D4 Freeway Ops Manager with support from the TIM Team members
Operational Issues		
Procedures for Major Incidents		
Utilize SunGuide software to analyze various Level 3 classifications; then make recommendations.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant



**APPENDIX (continuation)
ACTION ITEM CHECKLISTS (OUTPUTS)**

YEAR 2010

Recommendation	Action Taken	Owner
Update resource lists.		FDOT D4 Freeway Ops Manager with support from the FDOT D4 TIM Consultant
Redesign SIRV vehicles to better accommodate equipment needs. Add equipment (i.e., canopy, vacuum, portable lighting) to SIRV vehicles.		FDOT D4 Freeway Ops Manager
Identify funding for emergency MOT for roadways not covered by Asset Management contracts.		FDOT D4 Freeway Ops Manager
Responder and Motorist Safety		
Implement consistent procedures for equipment staging & emergency lighting.		FDOT D4 Freeway Ops Manager
Response and Clearance Policies		
No Action Items.		
Communications and Technology Issues		
Integrated Interagency Communications		
No Action Items.		
Transportation Management Systems		
Monitor progress of SERFTOC, FUSION and ITS deployments.		FDOT D4 Freeway Ops Manager
Road Ranger Program		
Evaluate beats annually.		FDOT D4 Freeway Ops Manager
Conduct joint training with FHP, TMC Operators, Road Rangers and SIRV drivers.		FDOT D4 Freeway Ops Manager