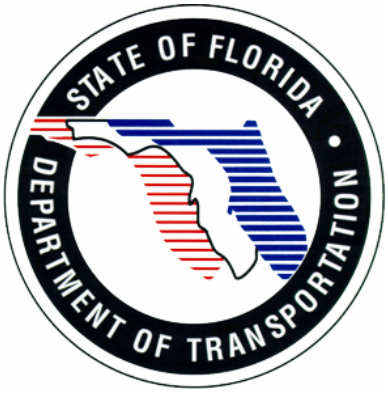
Florida Traffic Incident Management Program Reference Document

February 2006



Prepared for:

Florida Department of Transportation
Traffic Engineering and Operations Office
Incident Management and Commercial Vehicle Section
605 Suwannee Street, M.S. 90
Tallahassee, Florida 32399-0450
(850) 410-5600

DOCUMENT CONTROL

File Location:

Created By:	Charles Wallace, PBF
Date Created:	1/31/05
Version Number:	2 (Earlier draft reviewed internally by Office of Traffic Engineering and Operations, Incident Management Section
Reviewed By:	John O'Laughlin, Ted Smith, Buddy Cloud, Tracey Allen, PBF
Date Reviewed:	11/4-3/06, final 4/20/06
Modified By:	Charles Wallace, PBF
Date Modified	3/28/-6/9/05-1-3/06, 4/21/06

TABLE OF CONTENTS

APPENDICES

FIGURES

TABLES

Florida Traffic Incident Management Program
Reference Document

1. INTRODUCTION

Traffic incidents are responsible for approximately 50-60% of the delays[1] motorists encounter on the nation's (and likely Florida's) roadways every day. Responders to these incidents routinely face dangers from other traffic and are sometimes victims of secondary crashes, as are other travelers. The economic impact, increased air pollution, motorist frustration, and general quality of life impact of traffic incidents are substantial and must be addressed with a strategic approach.

Working with other public safety partners, such as the Florida Highway Patrol (FHP); local law enforcement, fire rescue, and emergency medical services; and the towing and wrecker industry, the Florida Department of Transportation (FDOT) has made excellent progress toward better management of all types of traffic incidents. In just six short years Florida's traffic incident management (TIM) efforts have risen from a decentralized, uncoordinated effort to an organized, statewide program that has become a model for many other states. The Florida TIM Program has realized this growth through the dedicated efforts of many people in the afore-named, and other public safety and transportation organizations, with a limited amount of consultant support modestly funded by the Central Office and several districts.

Good traffic incident management is very important to the public. In a 2003 survey of customers, Florida's Turnpike Enterprise got 90% approval ratings for the delivery of services in all areas except for management of traffic incidents. That rating of less than 50% prompted the FDOT and FHP Turnpike staff to undertake a review of their TIM program and several innovative programs have since been implemented to improve the delivery of these services. Those improvements are part of the program to make similar improvements throughout the State of Florida.

There are many reasons why multi-agency, coordinated traffic incident management is important, but simply stated, clearing incidents faster saves lives, time and money in all sectors. While managing traffic incidents is the primary focus of the program, the same coordination and communication lessons are essential to successfully managing large-scale emergencies, such as wildfires, severe weather, or national security threats, as well as special events, such as sporting, entertainment, political, tourist, and commercial activities.

In 2001 FDOT made a commitment to formalize the TIM Program and make it a recognized long-term commitment. To do that, they allocated funding to develop a Statewide TIM Strategic and Business Plan. The FDOT Districts, Regional TIM Teams, and statewide TIM Steering Committee members contributed their inputs to develop a roadmap for the TIM Program in Florida. The Traffic Incident Management Strategic

[1] "Traffic Incident Management Handbook," Federal Highway Administration, Publication No. DOT-T-01-01, November 2000.

Plan will address all of these foregoing issues. This document is a precursor to the actual Strategic and Business Plan (referred to simply as the "TIM Strategic Plan" hereinafter). It establishes the foundation for the actual plan, setting the stage by defining the current status of the TIM Program in Florida and then developing—through a goal and objective-building process—a set of potential actions to take the program to the next levels in the coming years.

The Statewide Traffic Incident Management Strategic Plan is a separate document that reports the top priorities derived from this TIM Reference Document. Some portions of this TIM Reference Document are naturally repeated in the TIM Strategic Plan.

1.1 Purpose

This document identifies potential actions to sustain and expand the TIM Program in Florida to better meet the needs described in the previous discussion. It serves two primary purposes. The strategic and tactical actions described in Section 5 set forth what might be done to improve and expand the TIM Program as a whole, including the entire TIM community as its "audience". This includes potential expansion of the statewide Road Ranger Program, and the transformation of its primary function to focus on incident management over motorist assistance. The business component in Section 6 sets forth how this might happen, including funding estimates.

The following statements of purpose for the TIM strategic evolution have been derived from stakeholder input and FDOT TIM staff.

Improve the overall management of traffic incidents in the state. This document should provide tools to improve the TIM Program across the state. Consistent policies, guidelines, and procedures; inter-agency training; and application of best practices would allow all responders to work in a safer and more efficient manner.

Increase integration and communication between TIM agencies. Most response agencies are unable to communicate directly with other agencies en route to the scene. Methods should be used to make sure that all responders are kept up to date with accurate and timely information, For example, it would be useful for law enforcement personnel already on-scene to inform the ambulance or wrecker operator to take an appropriate alternate route, and further to avoid such exchanges of information having to go through separate dispatch centers. FDOT can exert its unique role of integration and information sharing for TIM to achieve this end.

Improve consistency of incident management operations across the state. Regions in Florida have varying levels of traffic incident management coordination. Some of the TIM Programs in the state involve agencies carrying out their own responsibilities with little coordination with the other agencies involved. In other regions, there is excellent inter-agency coordination. Improved coordination and consistency across the state will improve the safety and efficiency for all agencies involved.

Raise the profile of TIM as a tool for managing the State Transportation System. Transportation agencies have typically focused on highway construction and maintenance, not traffic operations. Similarly, public safety agencies have focused on their specific role in dealing with incidents, while often inadvertently exacerbating the situation. They too, have not considered the broader issue of traffic operations. In the end, however, it is traffic operations that have the greatest impact on the public.

Support funding for personnel, equipment, and training. Formalizing the Traffic Incident Management and Road Ranger Programs, along with a significant statewide multi-agency training effort, will assist in gathering additional support and documentation for costs and benefits. This will "mainstream" the program making it easier for future funding consideration.

Provide recommendations for changes in laws and/or policies. As technologies and methodologies change for traffic incident management, policies and procedures can become outdated and even impede agencies from being more efficient. This document will identify recommended changes to existing policies.

1.2 Benefits of Traffic Incident Management

There is a strong role for TIM in economic growth and benefits to the State Transportation System, particularly on the Florida Intrastate Highway System (FIHS). Incidents cause a significant impact on the state's transportation system and lead to loss of life, injuries, and destruction of commercial goods. They lead to costly delays, air pollution, and wasted fuel. As such, they substantially reduce the mobility of the traveling public and commercial traffic. These are all worsened by all-too-common secondary incidents, which create a spiraling affect on the public and economy.

The most recent Urban Mobility Report by the Texas Transportation Institute (TTI)[2] says that (freeway) incident management can be one of the most effective tools for reducing urban congestion, with benefit cost ratios ranging from 3:1 to 10:1 for freeway service patrols alone. Current projects nationally are estimated to save 170 million hours of delay at a cost benefit to the public of $3.031 billion, which is more than any other operational strategy listed. If good TIM practices were ubiquitous in the nation, TTI estimates a saving of 239 million hours of unnecessary delay. Considering the number of motorists that are impacted, it is easy to see the debilitating impact on safety and mobility.

The anticipated specific benefits of a well-coordinated TIM Program can be described as follows:

Minimize hazard to travelers and responder personnel. Management of freeway traffic incidents is extremely dangerous for motorists and responders alike. Indeed, more responders are injured and/or killed responding to or managing the scene of traffic incidents than by any other means. Emergency workers cannot help anyone if they

[2] Schrank, D., and T. Lomax, "2004 Urban Mobility Report," Texas Transportation Institute, September 2004.

become involved in an incident or are injured themselves. Clearly, better incident management can and does save lives while reducing pain, suffering, and economic loss.

Minimize travel and shipping delays. With good information about an incident, motorists can either delay their trips or take an alternative route, and the incident responders have less congestion to manage. This reduces delay to travelers and to commercial interests. Improved incident management will save million of dollars in lost time and missed deliveries.

Improve tourist access. If tourists have an unpleasant experience trying to access vacation destinations, they will be unlikely to return and might make disparaging comments to others, which will damage the livelihood of Florida's businesses.

Improve the stability of travel and delivery times. An effective incident management program greatly reduces the negative impact of incidents on the free flow of traffic. The USDOT estimates around $200 billion per year is wasted nationally as a result of nonrecurring congestion. As the forth largest state, and, as recently experienced, a highly storm-prone state, this translates into billions of dollars lost to Floridians, our visitors, and our industries. Our increasingly "just-in-time" society must have a more reliable travel experience for all, and travelers and shippers need to more reliably predict trip times, thus stabilizing the economic ramifications.

Reduce environmental impacts and energy use. In the State of Florida, air quality is adversely affected more by vehicle emissions than by those from industrial sources. A major portion of vehicle emissions are a result of non-recurring congestion, which is generally caused by traffic incidents. Faster clearance of incidents saves the traveling public time and money, but also means the government will need to provide less environmental mitigation.

Increase the institutional and public support for TIM. An improved TIM Program will naturally gain increasing support by the traveling public and commercial enterprises. This will lead to stronger support for TIM within responder agencies, thus elevating TIM to a more prominent role within the organizations, and ensuring continued, and even enhanced, institutional support. A net result should include the institutionalization of TIM as a multi-agency operational necessity.

1.3 Plan Development Methodology

The foregoing has laid the groundwork for a dynamic Traffic Incident Management Strategic Plan for Florida. This is how the plan was developed. First, the current state of the Florida TIM Program is described in Section 2 of this report. This includes verifying the current list of TIM stakeholders, identifying current TIM issues, and a review of the Federal Highway Administration (FHWA) TIM self-assessment findings that were completed by a number of regional TIM Teams in 2003. Next, the TIM mission, vision, and goals and objectives are presented in Section 3. Section 4 defines the critical performance measures by which the TIM and Road Ranger Program should be

evaluated. Then in Section 5 we develop a set of potential actions to achieve these goals and objectives. This includes a renewed effort to gain input and support of an expanded list of stakeholders. We used these stakeholders to gain input to determine the recommendations and priorities for implementation of the program. This section supplies the core actions later selected for the actual TIM Strategic Plan.

Section 6 then establishes a business model for conducting the TIM Program and provides cost estimates for FDOT's planning purposes.

Finally, Section 7 summarizes the key recommendations that carry forward to the TIM Strategic Plan itself.

1.4 Scope of Commitment to the TIM Strategic Plan

The TIM Strategic Plan was commissioned and adopted by the Florida Department of Transportation. The TIM Steering Committee and the multi-agency statewide and regional TIM Teams have reviewed and commented on the plan. However, unless otherwise expressly stated, only FDOT is obligated to this plan, particularly the business part (Section 6).

FDOT appreciates the partnering of all federal, other state, and local government agencies; Expressway Authorities; and the private sector that is engaged in traffic incident management. These agencies, jurisdictions, associations, and industries are invited to indorse the precepts of the plan, cooperate and contribute to its implementation, and join FDOT in its fulfillment.

Together we can make Florida's transportation system—specifically the highway-based modes—among the safest in the nation, while providing the highest quality of service to our citizens, visitors, and commercial enterprises.

2. CURRENT STATUS OF TRAFFIC INCIDENT MANAGEMENT IN FLORIDA

The State of Florida has been actively participating in incident management planning since the late 1980s, forming regional freeway incident management (FIM) teams initially in South Florida. Subsequently, the number of (now all called) TIM Teams has grown throughout much of the state. The Road Ranger Program, which began in 1999, is a major element in incident management and, has likewise spread across the state. The Road Ranger Program is not a "stand alone" program but actually supports the Traffic Incident Management Program as it assists stranded or disabled motorists and provides assistance to the other responders during incidents on our highways. The Road Rangers provide a safety zone for other responders and help relieve the congestion caused by the incident, which greatly lowers the potential for secondary crashes.

What became the statewide TIM Team formally met for the first time in January 2001, established the four sub-teams with mission statements, and began regular meetings that year.

2.1 Summary of Progress to Date

In recent years Florida has become a leader in promulgating multi-agency agreements and pilot studies concerning traffic incident management. This includes the following highly significant achievements:

- Open Roads Policy (ORP), signed by the FDOT Secretary and Director of the FHP in November 2002. This was only the fifth ORP in the nation and only the second to have a quantitative goal for quick clearance of traffic incidents. Several FDOT districts are in the process of implementing local versions of the ORP.

- I-95 Corridor Coalition, this is a traffic management coalition that includes every state through which I-95 runs, from Florida to Maine, plus New Brunswick, Canada. Florida joined in January 2003. In a compendium of best practices prepared for the Coalition, there were more examples of best practices from Florida than any other single state.[3]

- Guidelines for the Mitigation of Motor Vehicle Fluids (Non-Cargo), adopted by FDOT in June 2004,[4] which encourages responders to clean up minor non-cargo vehicle fluid spills, rather than waiting for a hazardous material handler, which would significantly delay incident clearance.

- Heavy Duty Towing Incentive Program, Rapid Incident Scene Clearance (RISC), which was initiated by Florida's Turnpike Enterprise (FTE) in February 2004. This is nationally a unique program that rewards heavy towers for quick clearance by paying them financial incentives for meeting the criteria set out by the FTE. As of this writing, in the vast majority of cases when the RISC program kicked in, the quick-clearance goal has been met.

- The Statewide TIM Team will be developing a set of Median Cross-over Guidelines that ultimately will be provided to the FDOT State Design Office for use in future highway design to ensure adequate cross-over capability for TIM. Additionally, a Median Cross-over Plan was developed by District 1, in close coordination with the FHP and local public safety agencies, particularly fire rescue, which included an explicit plan for locating median cross-overs for I-75 in southwest Florida to provide better accessibility for emergency vehicles. The plan must first be approved by FHWA before it can be implemented. Once approved, some will be implemented in the near term, while others will be implemented during widening of I-75.

- Roadway Location Reference Marker Pilot Project, on I-595 in District 4, which will be a test of the cost effectiveness of installing location reference

[3] "Quick Clearance and 'Move-It' Best Practices," I-95 Corridor Coalition, September 2003.
[4] At this writing there remains an unresolved issue concerning this guideline, so it has not been fully approved throughout the state. This is expected to be resolved in the near future. Most jurisdictions are following the guideline already.

markers (LRMs) along the freeway so that motorists and responders alike can more accurately identify incident locations, particularly in high-incident zones. The Turnpike Enterprise is planning to deploy LRMs as a pilot in the area of the I-595/Turnpike interchange in Broward County to address some recent incident location issues. District 2 also innocuously marks median cross-overs in advance for the benefit of responders.

- An 800 MHz Radio Pilot Project conducted in the Orlando area was an experiment that enabled direct communication between State Law Enforcement and TIM personnel utilizing state 800 MHz radios. Improved inter-agency communications provides for faster and more effective incident management, while maintaining the integrity and security of the law enforcement communications. The pilot demonstrated the usefulness of this common communications system and the minimal impact on law enforcement communications traffic, thus leading to a decision to allow Road Rangers to join the State Law Enforcement Radio System (SLERS) statewide.

- Use of technology for crash scene clearance is allowing a much faster documentation of critical measurements for fatal crashes. Florida's Turnpike Troop was the first in the state to adopt "iWitness" photogrammetry software to map crash scenes with digital cameras. This 2004 software is designed specifically for police use and allows officers to save one or more hours in documenting measurements. Other areas of the state including Sarasota and Volusia Counties have already started their use of this program with others scheduled to follow. The FDOT TIM Section in the Central Office has equipped the FHP statewide.

- The Statewide Traffic Management Center Software Library System, or SunGuide^{sm} Software, has extensive functionality that supports both TIM and Emergency Management. Potential improved requirements for these functions are being coordinated with the TIM community.

- District 4 has deployed the Severe Incident Response Vehicle (SIRV), a specially equipped unit for dealing with major incidents. Florida's Turnpike Enterprise has deployed the "Eye in the Sky for Traffic Management Vehicle Pilot Program" that allows a high-level camera view of an incident and transporting video and other data directly from an incident scene to their TMCs.

- FDOT District 5 led the state in implementing a memorandum of understanding with a Medical Examiner that enables responders to remove deceased victims from the roadway under certain conditions. Other districts are planning to follow this example.

A more comprehensive summary of Florida's major TIM activities is illustrated in the timeline that is shown in the TIM Strategic Plan document. A brief description of these activities is included in Appendix A of this document.

2.2 Current Traffic Incident Management Organization

The Statewide TIM Program organization is shown in Figure 2-1.

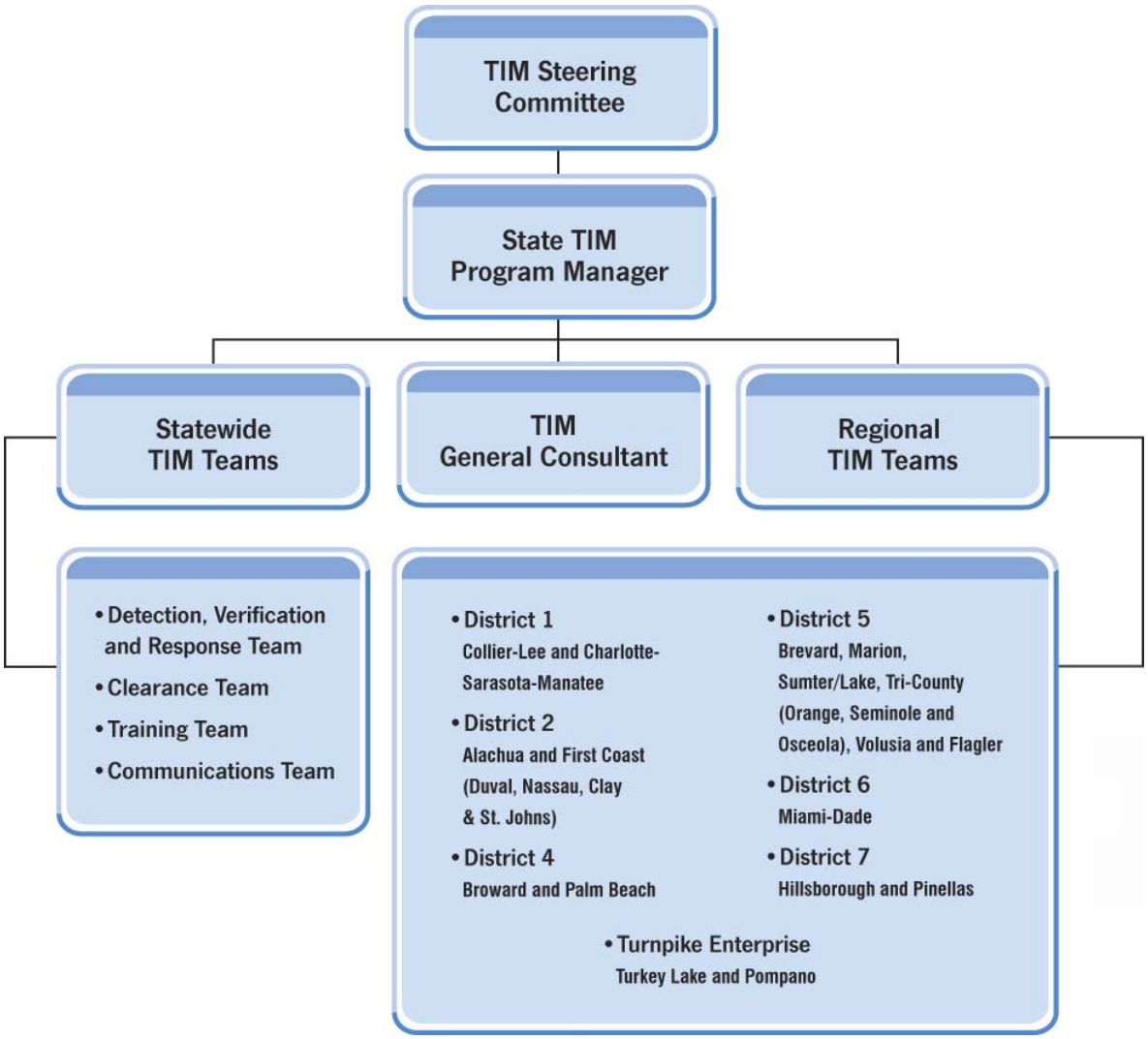


Figure 2-1 Statewide Traffic Incident Management Organization

The Steering Committee is led by the FDOT State Traffic Operations Engineer and is a senior-level group that formulates policies and establishes programmatic goals. This committee should meet semiannually.

The Central Office TIM Section staff provides leadership, general direction, and management of the Statewide TIM Program. It develops and promulgates policy, procedures, guidelines, and standards through the Statewide TIM Teams and

particularly the Steering Committee. It provides resources, including financial, technical assistance, and training.

The four functional TIM Teams are the operating core of the TIM Program. These teams meet both jointly and individually on a quarterly basis and carry out the business of their individual teams or joint activities. The major documents and pilot projects mentioned in the foregoing sections were all products of one or more of these teams.

Membership in the four teams comes from federal, state, local, academic, and private-sector organizations from throughout the state. The leader of the collective four teams is the Sate Traffic Incident Manager in the Traffic Engineering and Operations Office in Tallahassee. Each team has a chairperson from a practicing agency, and a facilitator/recorder, who takes notes of the individual team meetings.

2.2.1 Current Traffic Incident Management Stakeholders

The current list of stakeholders that are active in the TIM Teams is as follows:

- Florida Department of Transportation, Central Office and District Traffic Operations and Intelligent Transportation Systems (ITS) Sections, Motor Carrier Compliance Office, and District Maintenance and Safety;
- Florida Highway Patrol Regional Communications Centers and District Headquarters;
- Department of Environmental Protection*;
- Federal Highway Administration, Florida Division;
- Asset Management contractors (Road Ranger service and maintenance);
- County and city traffic engineering and public works departments;
- County and city law enforcement, fire rescue, and emergency medical and HAZMAT services;
- County Medical Examiners (District 5);
- Metropolitan Planning Organizations (MPOs)*;
- Expressway Authorities*;
- Professional Wrecker Operators of Florida (PWOF) and affiliated companies;
- Information Service Providers (ISPs)*; and
- Media*.

*These may not participate on a routine basis, but do certain specific activities.

This list will be expanded upon later in Section 5.

The TIM General Consultant assists the TIM Program across the board. The consultant tasks are as follows:

1. Statewide TIM Strategic/Business Plan, this current document being the basis for the primary product of this task,
2. Project Management,
3. Technical Support, which includes support to the Statewide and District TIM Teams,
4. TIM Team Meetings, which includes facilitation of the Statewide TIM Teams,

5. Outreach and Training, primarily to the regional TIM Teams, but also to the public and other associations, and
6. Road Ranger Support, which is primarily classroom and on-the-job training.

The contract was for 2.5 years, by which time it is anticipated that FDOT will have secured more stable funding. Then a longer-term general consultant support contract will be possible.

2.2.2 Regional Traffic Incident Management Teams

TIM Teams have demonstrated their value in improving communication, cooperation, coordination, and commitment (the "4-Cs") among responder agencies and providing improved TIM services to the public. Regional TIM Teams currently exist in the following regions (also see Figure 2-1):

- District 1: Collier-Lee and Charlotte-Sarasota-Manatee;
- District 2: First Coast (Duval, Nassau, Clay, and St. Johns) and Alachua;
- District 4: Broward and Palm Beach;
- District 5: Brevard, Marion, Sumter-Lake, Tri-county (Orange, Seminole, and Osceola), Volusia, and Flagler;
- District 6: Miami-Dade;
- District 7: Hillsborough and Pinellas; and
- The Turnpike Enterprise has two internal TIM Teams, Turkey Lake and Pompano, and they also participate in the local TIM Teams in Districts 4, 5, 6 and 7.

There are gaps in the state, particularly rural and interurban sections. Several of the Expressway Authorities participate actively in regional teams (notably in Miami and Orlando), while other authorities are not as active.

Part of this disparity is due to the lack of an adequately funded and structured statewide program.

2.2.3 Road Ranger Program

The first "road service patrol" was on Alligator Alley in the 1980s. The more formalized Road Ranger Program has been operating since 1999. It started with coverage of 96 miles of the Miami expressway system. The objective of the first program was to assist travelers in need of minor roadside vehicle assistance, such as changing flat tires, jumping dead batteries, or providing enough gasoline for them to reach a filling station. Besides helping stranded motorists, the Road Rangers help remove dangerous roadway debris.

The initial Road Ranger success led to expansion of the program and the Road Rangers currently operate 125 units to patrol 1,064 centerline miles as shown in Table 2-1.

Table 2-1 Road Ranger Operations Statewide

FDOT District	No. of Units	Centerline Miles Served	Highways Served
1	18	241	I-75 and I-275, and I-4
2	8	102	I-10, I-95, and I-295, and J. Turner Butler Blvd.
3	4	20	I-10 and I-110 (interchange construction contract)
4	23	111	I-75, I-95, and I-595
5	12	74	I-4, plus the Orlando-Orange County Expressway Authority (OOCEA), facilities, State Roads (SRs) 408, 417, 429, and 528
6	36	98	I-75, I-95, I-195, I-395, SR 826, and SR 5/US 1 from SW 17 Ave. to SW 112 St. (all District 6); plus Miami-Dade Expressway Authority (MDX) facilities, SRs 112, 836, 874, 878, and 924
7	7	60	I-4, I-75, I-275, and SR 60
FTE	18	368	Turnpike mainline and the Sawgrass Expressway, and operates a joint program with Orlando-Orange County Expressway Authority (OOCEA) that includes: • East-West Expressway (State Road 408) from Florida's Turnpike to the State Road 50 exit, • Central Florida Greenway (State Road 417, aka Southern Connector) I-4 east to International Drive, • Central Florida Greenway (State Road 417) from the Orange-Seminole County line north to I-4, • The Bee Line Expressway (State Road 528) I-4 east to Boggy Creek Road
Totals	125	106	

There are no permanent Road Rangers in District 3[5], and there remain many freeway segments statewide where they do not operate. The ultimate success of the program will depend on its expansion statewide.

The Road Rangers provide a valuable service as they provide support to the incident management program; however, there is also a wide variation in the way they operate from region to region. In some jurisdictions, the Road Rangers are more proactive in actual incident management, such as assisting with traffic control at incident scenes; however, this is inconsistent around the state. In order for the Road Ranger Program to

[5] At the present time, District 3 does have a service patrol vehicle being provided on approximately 20 miles as part of the Construction, Engineering and Inspection (CEI) contract for I-10/I-110 Interchange reconstruction in Pensacola, but this will end at the completion of this contract.

be even more successful, the operation should be analyzed to make sure it is as effective as possible in all areas. New technologies in mission-essential equipment and on-board vehicle systems should be studied to make sure the operations are optimal. The FTE recently completed a five-year plan for the Road Ranger Program that will change the primary function of the Road Rangers to that of incident management instead of strictly roadside assistance. The Turnpike's plan could be applicable to other parts of the state. Expansion of the areas and hours covered by the Road Rangers may be among the best solutions to improve TIM in Florida.

2.3 Stakeholder Input

One continuous aspect of the TIM Program has been the invaluable information provided by the participants from all the agencies. Stakeholders share specific information about their duties and concerns related to TIM with the other stakeholders and as a result the mutual understanding of priorities of each group is dramatically improved.

Program improvements now in place are the result of cooperative efforts of all the stakeholders. The following issues, with explanations, are ongoing concerns of the stakeholders that they would like to see addressed in the strategic planning process.

2.3.1 Improve Responder and Motorist Safety

Nationally 42,815 people lost their lives in motor vehicle crashes in 2002, and about three million were injured, resulting in $230.5 billion of human and material losses.[6] Florida had 3,132 fatalities and the economic losses were $14.4 billion. Florida is above the national average (1.76 versus 1.5) in fatalities per 100M VMT (vehicle miles of travel). While the national trend is improving in terms of fatal crashes, Florida's has been increasing annually since 1996. Clearly, traffic safety is a major concern to transportation and public safety leaders, as well as practitioners in this state.

Traffic crashes affect responders, too. Over 10,000 responders are injured and approximately 15,000 responder vehicles are struck annually. Traffic incidents are the number one cause of work-related deaths among police officers, Department of Transportation workers, and towing personnel. Three Florida Road Rangers have been struck and killed while assisting motorists in the past three years. Traffic incidents are the second leading cause of death for firefighters, behind heart attacks. Paramedics and other motorists are also injured or killed at incident scenes while trying to manage traffic or assist victims in the damaged vehicles.

Both travelers and responders are too often injured or killed in secondary incidents. These are incidents that are caused directly by an existing incident on the highway. Often a minor incident can be followed by a major crash—even a fatality—if steps are not taken to warn oncoming traffic soon enough for them to slow down properly before reaching the backup. These are most often crashes, but can be other incidents as well, such as overheated cars standing in queue then stalling and further reducing highway capacity and exacerbating the queuing. Secondary incident prevention is too often not

[6] Source: National Highway Safety Administration, State Traffic Safety Information (STSI) Web site.

considered by response agencies, but has recently become more of an issue for liability reasons. States have been sued for failing to take proactive steps to prevent secondary crashes.

2.3.2 Reducing Incident Durations

Reduced detection time and response times have had a positive impact on the management of incidents. Clearance times can also be improved and will have the largest positive impact on traffic. When traffic volumes are high, incidents generally take 3-5 times longer to recover than the incident duration itself. The use of better incident management techniques and technology to improve management of incidents will reduce delay and secondary crashes. Technologies also can help identify incidents in low-traffic areas that may have otherwise remained undetected.

2.3.3 Variation in Multi-agency Traffic Incident Management Training

The State of Florida has a number of different agencies from different disciplines that respond to traffic incidents. Too often these have their own departmentalized training, which often do not consider the priorities of other agencies or the public. It is conceivable that they could actually be training at cross purposes. A standardized multi-agency training program that includes policy clarification and common management strategies and tactics would build consistency and understanding between agencies and reduce confusion, thus significantly reducing incident duration. Such an approach includes clearly defining each agency's role and explains how the agencies can most effectively work together. Following this approach, combined with tactics like joint training exercises, after-action analyses, and regular and effective communication, will lead to increased trust and respect among partner agencies. This is also the approach suggested by the recent National Incident Management System directive.

2.3.4 Obsolete Policies and Procedures

Policies and procedures in each of the agencies may be outdated and not compatible with quick clearance legislation. These policies and procedures should be updated to reflect best practices and proper use of technology, before the multi-agency training program is completed. The towing and motor carrier industries should be involved in developing standards for training in recovery and removal of overturned trucks. The early success of the heavy-duty truck crash-clearance program on the Turnpike could be the model for a statewide program.

2.3.5 Methods Needed for Tracking Traffic Incident Management

Emergency response agencies often document response times, but not clearance or recovery times. Better documentation will help determine the desired level of improvement, and will assist senior leadership in justifying resource needs. The various stage times of incidents should be recorded by dispatchers, in the CAD (computer-aided dispatch) system, and/or in a traffic management center (TMC) log as incident progress is reported.

In order to determine realistic performance goals, agencies must establish baselines against which to compare. Each response agency should track detection, verification,

response, clearance, and even recovery times for traffic incidents so that performance can be tracked.

The FDOT Traffic Engineering and Operations Office has conducted a study to develop TIM performance measures and there is an ongoing study to develop ITS performance measures that have some applicability to TIM. These are presented later in Section 4.

2.3.6 Focus Traffic Management Centers on Incident Management

Intelligent Transportation Systems (ITS) can greatly transform the way response agencies operate. Although ITS technologies are most heavily utilized in detection, verification, and motorist information, some can be applied to aid in response, incident scene management, and traffic management. As responders, including Road Ranger operations, use TMCs as full partners in traffic incident management, the safety and effectiveness of all agencies involved will improve, particularly when the TMCs are jointly operated–or well integrated–with law enforcement and Road Ranger dispatch.

Dynamic message signs (DMS) are an outstanding tool for the prevention of secondary crashes. They must be activated quickly after incidents occur to be most effective. Staffing and hours of operation limitations can adversely impact the quick and proper use of these signs.

2.3.7 Communications Among Agencies Needs improvement

Most agencies are unable to communicate directly with other agencies en route to, or even at, incident scenes. Methods are needed to make sure that all responders are kept up to date with accurate and timely information. Many agencies have found creative ways around this problem by using wireless telephones or pagers and by cross-installation of radios among response vehicles, but there is no consistent approach statewide.

Similarly, agencies typically are not readily sharing data and information. This is more often a technology or policy issue than a lack of willful cooperation. This situation is particularly true for secondary responders, who are called to the scene by the first responders. These typically include FDOT, towing and recovery companies, and hazardous material handlers. Huge delays can occur when information is not passed along to these agencies timely, or when they have insufficient information and respond with the wrong assets. Incident status information should ideally be provided to these agencies in real time.

2.3.8 Motorist Information Needs

Response agencies must give the motorists timely and accurate information, and as much early warning of traffic incidents as possible. Before motorists reach the incident or the queue backed up from the incident, they should be made aware of the incident by one or more means as soon as possible. Part 6, Chapter 6I of the Manual on Uniform Traffic Control Devices (MUTCD) addresses this issue quite well. A well-informed public can help clear a well-managed incident even faster. Taking away the need to make panic stops at the end of queues is a noteworthy goal of motorist information.

Public-private efforts are necessary in this area due to the reliance of the public on commercial radio for traffic information. The statewide 5-1-1 system will also help with this process. Where 5-1-1 is already fully operational, such as Orlando, Tampa Bay, and Southeast Florida, it is an excellent source of motorist information.

2.3.9 No Long-term Statewide Funding Source

There is currently no dedicated funding expressly for TIM in Florida. Several Districts and the FTE have on-going TIM Programs with consultant support to assist them. In all other cases, the TIM support is limited to the Road Ranger Program and participation in regional TIM Teams. For long-term success, the program must have consistent staff and budgetary support.

Other states, such as New Jersey, Virginia, California, Washington, and Tennessee have formalized this program and have budgeted for full time staff support, vehicles, training, and program management.

Funding may be obtained from sources that should be available in the next six-year federal transportation cycle.

Successful applications for funding will be enhanced when multiple agencies work together to seek support to solve common problems. Federal emphasis on interoperability has increased since the tragic events of September 11, 2001, and grants will most likely be given priority to multi-agency solutions addressing communications and data exchange challenges.

2.4 Current Traffic Incident Management Issues

Section 2.1 identified the significant achievements to date for the Florida TIM Program. The following is a summary of key issues at the threshold of the TIM Strategic Plan.

2.4.1 Strategic Issues

The major issues confronting the program are summarized below:

- Get top management “on board” with TIM and the Road Ranger Program in particular. The support enjoyed at the executive level of both Central Office and the Districts and the decision to fund the TIM General Consultant contract are positive indicators that there is already very strong support for the program within FDOT. Similar support needs to be assured within other agencies. These agencies support the TIM Teams, but have not made substantial contributions of financial or material resources. An outreach program for top management of stakeholder organizations is also critical to the long-term success of TIM statewide.

- Expand the Road Ranger Program statewide and change its principal mission to traffic incident management, with motorist/roadside assistance being secondary. This will require a substantial reconfiguration of the program and statewide financial support on an on-going basis.

- Truly localize TIM, down to the beat officer and fireman. The Open Road Policy needs to become second nature to all responders. The Guidelines for the Mitigation of Accidental Discharges of Vehicle Fluids (Non-Cargo), which were approved by FDOT June 25, 2004, need to be more widely disseminated, and adopted and fully supported by all agencies. Central Florida has taken the lead by having a localized version of the ORP adopted by a total of 23 local agencies, FDOT, and the local FHP Troop in the Greater Orlando region. A separate interagency agreement has been consummated in this region under which the County Medical Examiner agreed to allow responders to remove a deceased body from the roadway under conditions stated in the agreement[7], thus dramatically reducing the incident duration.

- Engage TMCs directly in TIM. Traffic management centers have not traditionally played a strong role in TIM, since most responsibility for incident management fell to the FHP, and they were generally located in separate facilities. Again, Central Florida has led the way with a long-running joint Regional TMC in which FDOT and FHP work together to improve TIM. District 6's new TMC is also a joint operation, District 7's TMC will have immediately adjacent locations, District 1 is planning a joint operation, and District 2 is now more tightly linked with the Law Enforcement Regional Communications Center and the City of Jacksonville traffic control center (TCC), FDOT has recently placed TMC operators in the Jacksonville FHP Regional Communications Center for night-time and weekend operation of its ITS. So this trend is improving. Indeed, *the TIM Program is logically the home for TMC operations*, which focus on the stages of an incident detection, verification, response, clearance, and recovery, and in which TMCs have a proactive role.

- Institutionalize quick clearance. Through policy, training, best practices, and after-action debriefs, all responders agencies need to treat TIM—specifically quick clearance—as their second priority, following only the immediate safety of the travelers and themselves at incident scenes. A second important part of this process is reducing the number of lanes impacted at incident scenes through better coordination and management of assets by all response agencies.

- Use technologies more effectively for TIM. ITS is a great tool for TIM and needs to be integrated more than ever—not just the TMCs as described above, but other technologies as well. Common communications systems, live streaming video from responders and Road Ranger operators, and possibly some day even unmanned aerial vehicles should become standard

[7] Inter-agency Agreement (Addendum to the State of Florida Open Roads Policy) between the Office of the Medical Examiner for Orange and Osceola County [sic], Florida and the Florida Department of Transportation (District 5), the Florida Highway Patrol (Troops D and K), and Florida's Turnpike Enterprise, last dated March 16, 2004.

operating procedures. On the law enforcement side, technologies like photogrammetry for crash-scene investigation have proven to be considerably faster, and in the long run more useful than traditional survey-based or manual measurement methods.

2.4.2 Strategic Alliances

To address these issues, new and improved alliances need to be made. The following actions are currently perceived as needed:

- Expand TIM Teams. As noted earlier, there are areas not "covered" by TIM Teams. These need to be addressed by the TIM Strategic Plan.

- Outreach to responder agencies and associations. Buy-in from all responder agencies depends very much on the support of their professions. The TIM Strategic Plan needs to provide for outreach to the professional societies that responders belong to so that they become champions of TIM. A leader in this regard already is the Professional Wrecker Operators of Florida (PWOF), which has been a very active player both on the Statewide TIM Teams (particularly the Clearance Team), and striving to get progressive towing and recovery legislation.

- Seek positive media involvement. FDOT was the subject of negative publicity when the early dynamic message signs would not work properly on Miami-Dade and Orange County freeways. Long closures for incidents have also resulted in negative articles. Even in the case of relatively "minor" crashes, the media can take one negative aspect and by emphasizing it, negate the value of a mostly positive effort. TIM agencies need to get the media on their side to get more balanced reporting, but more significantly that the media become a positive outreach conduit to the public, which can thus be better educated about positive TIM actions. Today we see very positive press reports throughout Florida, so this trend is improving as well.

2.4.3 Strategic Challenges

Incidents, and even more so, major emergencies, such as those Florida recently experienced when five major storms—Bonnie, Charley, Frances, Ivan, and Jeanne—slammed into, or at least seriously impacted, virtually all parts of the state within two months (August 12-September 15, 2004). Key strategic challenges are identified below:

- A review of the pertinent statutory provisions [Title XXVI, § 334-349, Fla. Stat. (2004)] places the responsibility for the maintenance and operation of the roads in this state on the Florida Department of Transportation and local governments for the roads within their respective jurisdictions. This places the primary responsibility for incident management on FDOT and its local transportation agency counterparts.

- The National Incident Management System (NIMS), now mandated by Presidential Directive to be used in "incident management," imposes new requirements on agencies who manage "incidents." While the primary targeted incident type was the class of events commonly referred to as "Homeland Security" incidents, NIMS is not restricted to these. Thus, it must be assumed that TIM would be subject as well, but the details of its impact are yet to be thoroughly flushed out.

- The need to establish performance measures and collect the data. A key to success of the foregoing challenge will be to identify measurable performance indicators, the accumulation of the data, and wide reporting.

- The need to conduct cost effectiveness analysis to demonstrate value. Taking the performance measures one step further, a cost effectiveness analysis would provide decision makers with the quantitative justification that proves the value of this modest financial investment, which is so successful because it leverages a large body of human investments.

- The challenge of selling TIM to management, the traveling public, and elected officials. In reality, TIM sells itself when it is successful. The challenge will be to outreach to these sectors to ensure that they are well informed, and to maintain a consistently competent TIM Program.

- How do we pay for TIM? It will be important to get TIM, including the Road Ranger Program, into the FDOT Work Program as a line item to sustain the growth and improvement experience of the last four years.

2.5 Traffic Incident Management Self-Assessment

During calendar year 2003, seven regional TIM Teams completed the FHWA TIM Program Self Assessment survey[8]. This survey consisted of 34 questions for which TIM Teams and similar units were asked to assess their own status in three basic areas:

1. Program and institutional issues,
2. Operational issues, and
3. Communication and technology issues.

The self ratings were based on a scale of 0 to 4, as follows:

0 = No progress in this area.
1 = Very little being done in this area.
2 = Efforts in this area are moderate—some good processes exist, but they may not be well integrated/coordinated—results are mixed.
3 = Efforts in this area are strong and results are promising; however, there is still room for improvement.

[8] "Traffic Incident Management (TIM) Self Assessment: National Detail Summary Report," Federal Highway Administration, Office of Operations, October 2003.

4 = Efforts in this area are outstanding. There is good integration/coordination with good to excellent results.

Table 2-2 summarizes the macroscopic results of the national assessment as a simple average of the seven Florida assessments.

Table 2-2 Traffic Incident Management Self-Assessment Scoring

Section	Number of Questions	Highest Possible Score	Nat'l Mean Score	FL Mean Score
Program and Institutional Issues	12	30%	11.0%	12.3%
Operational Issues	14	40%	22.9%	22.0%
Communication and Technology Issues	8	30%	12.5%	9.2%
Overall Total	**34**	**100%**	**46.5%**	**43.6%**

Mathematically, the Florida TIM Teams judged themselves slightly ahead in the program and institutional issues section and slightly behind in the other two; however, since this is all very subjective, it is safe to say that Florida is about equal with the rest of the nation. It is not known how many of the others among the 82 total responding TIM groups had formal TIM Teams that meet regularly. Since Florida scored itself 3.5 (two of the teams only having recently been formed), and the national response to that specific question was less than 2, it would seem that Florida is in fact ahead of the nation in organizing its TIM Program. With formally organized teams, it is possible, but admittedly speculation, that the Florida teams were less generous with themselves, particularly when two of the seven had only recently been formed and rated themselves 17.6% and 22.1%, compared to the state average of 46.5%.

More profound, however, is the clear recognition by the TIM Teams that there is ample room for improvement, and the TIM Strategic Plan should focus on the areas needing improvement.[9]

3. MISSION, VISION, AND GOALS AND OBJECTIVES

This section presents the mission, vision, and goals and objectives of the Florida TIM Program. Before presenting these, however, there are several guiding principles that shape the program.

3.1 Guiding Principles

FDOT and its partners have reached a milestone where it has an enormously successful TIM Program and the Department can now provide a new level of leadership and vision. The program's future success will be built on this success and include understanding of stakeholder needs, a statewide and national perspective on transportation management and operations, and the credibility to lead the incident

[9] The complete results of the Florida 2003 self assessment and the national report can be found on the FDOT TIM Web site, http://www.dot.state.fl.us/trafficoperations/incidentmanagement/incident_main.htm.

management community forward to achieve new goals. On this premise, FDOT envisions several new themes, based on a national guideline[10]:

- An all-events approach: the expanding definition of "incidents" introduces efficiencies and safety benefits to combining TIM best practices and special needs of emergency transportation operations.
- Recognition of multiple objectives: public safety agencies have their own values and procedures and must be integrated more fully into incident management and emergency transportation operations.
- Structured process: systematic pre-event preparations are essential for efficient and effective response and management.
- Performance-driven approach: improvement depends on (appropriate) performance measurement and management.
- Formalization: "institutionalizing" best TIM practices through joint procedures, legislation, interagency agreements, and innovative contracting, so that TIM is prominent within each organization.

As with any program, the regional incident management program must be tailored to the needs, resources, capabilities, and priorities of the region and the participating organizations. The program will reflect the technical and institutional realities of the region's transportation network, authorities, and travel conditions.

3.2 Traffic Incident Management Mission and Vision

The mission and vision for Florida's TIM Program define what the program is committed to doing and creating a horizon to seek. They are expressed as follows:

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

Vision: 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.

3.3 Traffic Incident Management Goals and Objectives

The specific goals of the program adopted by the Statewide TIM Teams were derived from the Statewide ITS Strategic Plan[11], which in turn derived its goals from the 2020 Statewide Florida Transportation Plan (FTP)[12]. The objectives were derived from these

[10] Guide for Emergency Transportation Operations, Volume 6, National Cooperative Highway Research Program, NCHRP Report 525, 2005.
[11] "Florida's Intelligent Transportation System Strategic Plan, Final Report," Florida Department of Transportation, August 1999.
[12] "2020 Florida Transportation Plan" Florida Department of Transportation, December 2000.

documents and were heavily influenced by the ITS America/USDOT ITS National Program Plan.[13] These final goals and objectives were further derived from a set prepared originally for District 1.[14]

The Florida Statewide TIM goals and objectives are presented as follows:

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

TIM Objectives:

1.1. Maximize the coverage and consistency of the TIM Program statewide by enhancing and expanding the effectiveness of the Statewide and Regional TIM Teams and Road Ranger Program.
1.2. Minimize detection, verification, and response times for incidents by implementing proactive multi-jurisdictional, multi-agency traffic incident management programs.
1.3. Minimize incident clearance times through TIM programs emphasizing improved incident scene management, quick vehicle spill clean-up, incentives for tower and recovery companies, and other innovative practices.
1.4. Minimize incident recovery times by applying technologies to manage traffic and inform travelers.
1.5. Minimize secondary incidents by rapid handling of traffic incidents, improved traffic management and improved motorist information.
1.6. Improve Road Ranger operations by implementing more consistent training policies and procedures.
1.7. 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:

2.1. Provide leadership in incident and emergency management statewide.
2.2. Integrate incident and emergency management into operation of the State Highway System, including planning, design, construction, and operations.
2.3. Maximize TIM through performance measure tracking.
2.4. Protect the public safety and private investments through equitable regulation of traffic and incident management service providers.
2.5. Protect responders and their organizations from liability for performing these practices to maximize "open roads."

[13] "National Intelligent Transportation Systems Program Plan: A Ten-Year Vision," ITS America, in cooperation with the U.S. Department of Transportation, January 2002.
[14] "Technical Memorandum 28.1, Task 1: FDOT District 1 ITS Committee Workshop," Florida Department of Transportation District 1, August 2003.

2.6. Assist in providing safe and efficient maintenance of traffic during project construction by deploying smart work zone monitoring systems and real-time traveler information systems.
2.7. Minimize institutional barriers to successful incident and emergency management.
2.8. Provide for appropriate deployment and operations funding for TIM (including the Road Ranger Program) and emergency management.

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

TIM Objectives:

3.1. Maximize communications between and among the network of traffic management centers (TMCs), law enforcement joint regional communications centers (JRCCs), state and county emergency operations centers (EOCs), local traffic control centers (TCCs), transit operations centers (TOCs), and other appropriate TIM centers.
3.2. Maximize the role of TMCs and Road Rangers in traffic incident management.
3.3. Identify needed changes in State Statutes, agency policies and procedure, guidelines, and practices.

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

TIM Objectives:

4.1. 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.
4.2. Reduce energy use and environmental degradation by means of integrated ITS and TIM "systems management."
4.3. Improve service for special traveler needs in emergencies through the use of ITS applications.
4.4. Reduce energy use and delay associated with major incidents through ITS applications, synergistic management, orderly maintenance of traffic (MOT), and judicious, preplanned route diversion.

4. PERFORMANCE MEASURES

As Florida's Traffic Incident Management Program moves to the next level, it will be imperative to measure its progress. Thus, TIM performance measures will play an increasingly vital role. The need for performance measures can be summarized as follows:

- To improve the effectiveness of the program and enable tracking the improvement,

- To serve as a basis for upper management support, which affects the funding available for TIM activities,
- To foster public support of the program, and
- To satisfy increased federal emphasis in operations and management.

FDOT is particularly concerned about performance measures because of its accountability to the Legislature, the Florida Transportation Commission, and the public at large. This background material summarizes prior research efforts on TIM (and related) performance measures and serves as a basis for the measures adopted in the TIM Strategic Plan. It defines the key terms that are germane to TIM performance measures.

4.1 Definition of Incident

For the purpose of this discussion, we define a traffic incident as any non-recurrent event, such as a vehicle crash, vehicle breakdown, or other special event, that causes a reduction in highway capacity and/or an increase in demand. Further, 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.

A secondary incident is one that occurs as a direct or indirect result of a previous incident. For example, if a crash occurs in the queue expanding from an initial incident (of any kind)—for example, one car not being able to slow down sufficiently and rams the car in the back of the queue—this is a secondary incident. Most are generally crashes, but can be other incidents, such as a car overheating and stalling because it is sitting idle in the queue rather than moving. These sometimes led to tertiary incidents, but all are referred to as “secondary.”

4.2 Incident Timeline

The core of TIM performance measures is derived from the anatomy of an incident. Figure 4-1 illustrates a typical “incident timeline,”[15] namely the common steps of an incident. All of the steps might not occur in a particular incident, and there may be other interwoven relationships, but this represents the typical sequence for most incidents. The steps are shown in a staggered fashion simply to illustrate that the incident timeline is not uniform; however, the time increments are purely relative. The duration of particular events will be noted as letter pairs in the discussions below. For example, the actual incident duration would be A-M, as shown in Figure 4-1(a), while the total influence time of the incident is A-N, as shown in Figure 4-1(b).

The durations of the common phases of an incident would thus be as follows:

- Detection that an incident has occurred: A-B;
- Verification that the incident has occurred, determining its location, and having sufficient information to enable an appropriate response : B-C;

[15] Immediate source: "Quick Clearance and ‘Move-It’ Best Practices, Final Report," I-95 Corridor Coalition, September 2003. Originally adapted from and earlier version of “Traffic Incident Management (TIM) Performance Evaluation for Florida,” Florida Department of Transportation, draft September 2004.

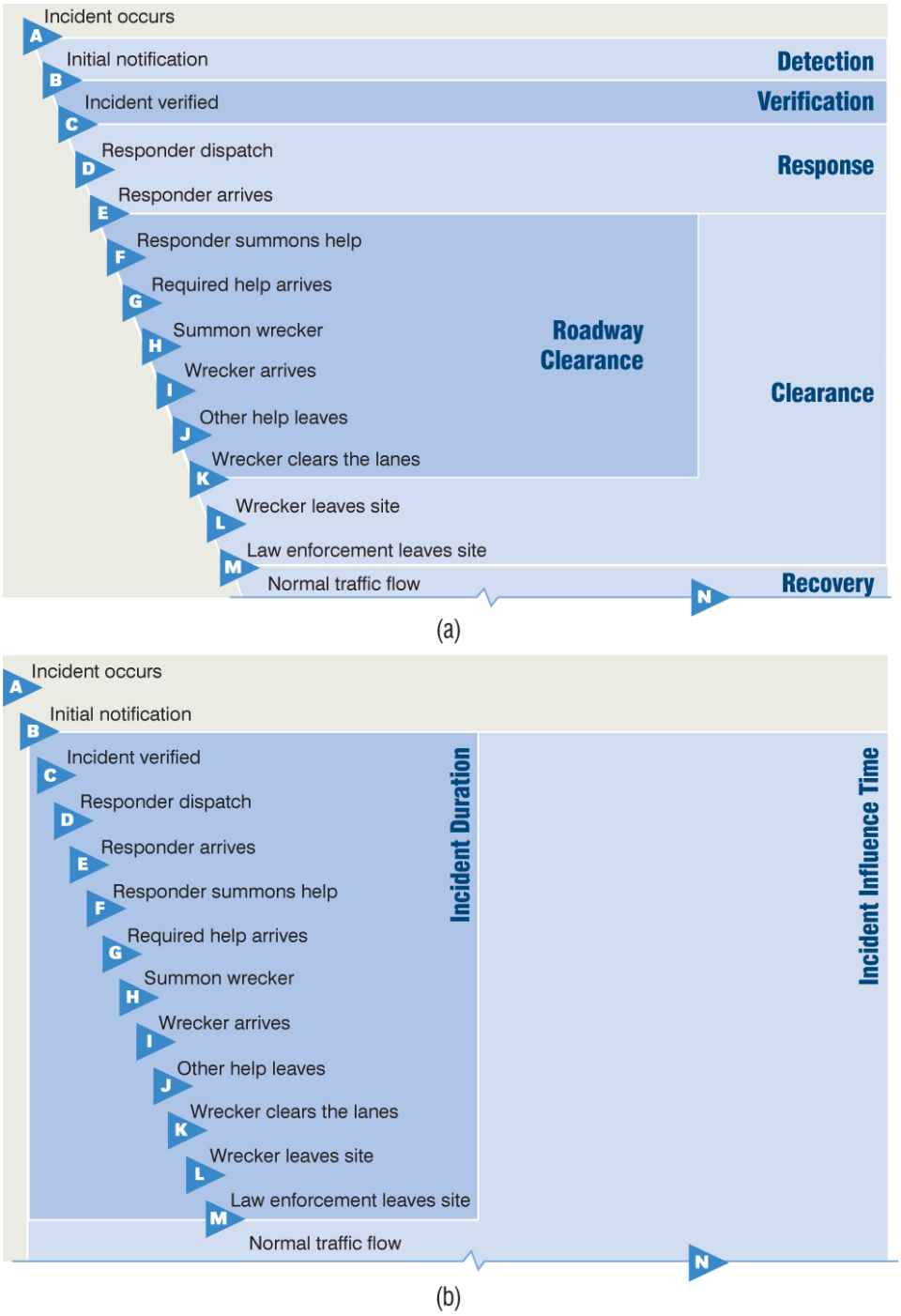


Figure 4-1 Incident Timeline Illustration

- Response by dispatching appropriate assets to resolve the incident: C-E;
- Clearance, or the removal of the vehicles, damaged property, and victims from the incident scene, and complete reopening of any blocked lanes: E-M (with roadway clearance as a subset, E-K); and
- Recovery to normal traffic flow: M-N.

The recovery time (the difference between the total incident influence time and the duration) can be 3-5 times longer that the actual incident duration.

Note that at points D and E, the first responder has not been identified. While this is often law enforcement, in areas with Road Rangers, it is often the latter, and law enforcement would be one of the "secondary" responders (in time, not importance).

Further, this graphic presumes a sufficiently serious incident that a full range of incident management services will be required, almost certainly law enforcement; possibly fire rescue, emergency medical, and hazardous material handling; and wrecker(s). Thus, it likely represents a Level 2 or Level 3 incident. Level 1 incidents generally do not require most of these services.[16]
With these definitions in mind, the TIM performance measures are offered in the following subsections.

4.3 Performance Measure Definitions

The primary sources for the TIM performance measures are a study conducted for FDOT by the Center for Urban Transportation Research (CUTR)[17] and one initially done for the Florida Transportation Commission and now being extended by FDOT[18].

4.3.1 TIM Performance Measures Study

The first study recommended the following short-term performance measures, namely ones that can be supported now with current data collection capabilities, again referring to Figure 4-1:

- Response time: C-E,
- Roadway clearance time as defined in the Open Roads Policy: E-K,
- incident clearance time: E-M, and
- Incident duration: A-M.

[16] The incident levels are 1: no lane blockage, minor traffic impact, and less than 30-min total duration; 2: roadway blockage and traffic impact 30-min or greater; and 3: full directional closure or traffic impact 2 hours or greater. "Impact" refers to traffic queue clearance, not just the incident itself.
[17] "Best Practices for Traffic Incident Management in Florida," Florida Department of Transportation, draft April 2005.
[18] "Statewide ITS Performance Measures, Final Report," Florida Transportation Commission and Florida Department of Transportation, November 2004, and "Recommendation of Florida Statewide ITS Performance Measures," Florida Department of Transportation, March 3, 2005. A subsequent study of data collection requirements is underway by the same team as the previous.

For most first-response agencies, their response time is their primary measure of performance. Fire departments typically keep very good records of their response times. Most of the other response times for other responders are noted, or can be noted by the other responders. In the case of FHP, most of the time their dispatcher calls the next tow operator from the rotation list, so they know when they were dispatched. The officer on the scene knows when they arrive, so that time can be entered into the CAD application as a note so that the wrecker times can be tracked.

The "clearance time" is defined in the Open Roads Policy as the elapsed time from the arrival of the first responding officer until all lanes are cleared. Since FDOT and FHP are the primary signatories to the policy, it is presumed that this means the time from the arrival of the FHP Trooper until all lanes are cleared. This would be the duration of E-K only if the first responder is a FHP Trooper, otherwise the Trooper is a "secondary responder." In District 5 (and soon elsewhere), however, many other agencies have also signed on to the Open Roads Policy. It could therefore be argued that the clearance time clock would then start ticking whenever the first responder from any agency arrived on the scene (thus point E in all cases). For statewide application and uniform reporting though, a consistent definition should be used. Thus it was recommended in the research that the reported clearance time consistently be defined as the time from the arrival of the FHP until all lanes are cleared.

Incident clearance time is defined as the time from the arrival of the first responding officer until all of the responders have left the scene, again, E-M. When the responders are on scene with lights flashing, even if they are not blocking a lane, it creates a capacity reduction. The site clearance time reflects the time when there should be no other incident related disturbance to the scene—the scene now looks just like it did before the incident.

The incident duration is defined as the time from the occurrence of the incident until all responders have left the scene. It is the detection time plus the response time plus the incident clearance time. This measure is intended to measure the amount of time that there is some capacity restriction or disturbance in the roadway. Unfortunately, in most cases it is difficult to determine precisely when an incident actually occurs. As ITS becomes more prevalent, the accuracy of this will improve. Meanwhile incident duration should be defined as beginning when the incident first comes to the attention of traffic managers or responders, namely when first note is made of a potential incident (B).

The following were proposed in the same study as long-term performance measures, since additional data collection capability will be needed:

- Recovery time: M-N,
- Incident influence time: B-N,
- Incident-related delay: the cumulative delay caused directly by the incident,
- Queue extension: lane-miles of backup, and
- Secondary crash rate: some measure of the rate of secondary crashes (see below).

The recovery time is a long-term measure that will be one of the most difficult to clearly ascertain. The recovery time (also known as queue dissipation time) is the amount of time it takes for “normal” traffic flow to return after all responders have left the scene. The recovery time will not be apparent at the scene, but at some point that might be several miles away from the incident, when the queue that has built up from the incident has completely cleared. Measuring this time will require a fully instrumented highway so that conditions miles away from the incident can also be monitored and tracked. A further consideration is the fact that an incident might transcend the off-peak into the peak period, when recurring congestion is “normal.” Thus the “end time” of an incident must take into account the normal conditions that prevail at that time of day.

The incident influence time is simply the incident duration plus the recovery time. The incident influence time will give an indication of the total impact of an incident. If this can be properly tracked and monitored, the data obtained may help advanced traveler information system (ATIS) operators to display more reliable messages about incident-related delays and durations on DMS boards.

Another long-term measure that will be of interest will be the amount of queuing, measured as the total lane-miles of backup related to incidents, to its farthest upstream point. This will also help in estimating delays and incident-related costs to the motoring public.

Ideally, we should strive to estimate secondary collision rates related to incidents. This also is a very difficult measure to track. Not only should we consider incidents that occur in the queue of traffic behind the incident, but incidents that occur on other roads that are loaded with traffic that has diverted away from the incident must also be examined. Reasonably accurate secondary collision rates will typically require a consolidated effort of multiple law enforcement jurisdictions in accurately reporting crash data.

It is expected that much of the data for measuring incident performance will be obtained through a linkage to the FHP Computer Aided Dispatch. The CAD application captures all of the data related to the incident that is entered into the database by the FHP dispatcher and/or the officer on the scene. It also includes any information regarding citations issued, background information on all of the people involved in the incident, and other highly sensitive information that is intended for law-enforcement personnel only. For the linkage to FDOT, none of the identifying information about the drivers or the sensitive law-enforcement information would be available. Through the deciphering of the various signal codes and the notes appended to the records in CAD, an analyst can typically get a pretty good indication of the events that transpired. Since all of these items are time-stamped when entered into the system, it creates a very good time history for the incident. This type of tracking of the incident can occur at any time after the incident.

For the more advanced TMCs, a better tracking of incident data can be achieved using other data sources to supplement the FHP CAD records. Road Rangers can be used to

provide updates on changes to incident conditions. Districts 4 and 6 are currently experimenting with using PDAs for the Road Rangers to assist them in logging events as they occur. TMC operators can also timestamp events that they observe via the traffic monitoring cameras. District 4 is currently keeping a very detailed database of all incidents based on data they are receiving from a variety of sources.

It is critical that FDOT establish the link to FHP's CAD data. This represents the best source of traffic incident-related time-stamped data that is available statewide. The interface would best be accomplished by creating a separate data network in the FHP headquarters in Tallahassee where all of the live data from all of the Troops is consolidated and published onto the FHP Web site. This would involve close coordination with FHP and their CAD contractor to create the data connections through the FHP firewall, and to block any of the sensitive information from being accessed from the FDOT side. For timely tracking of traffic incident data, it is essential that FHP not be tasked with providing data. In the data collection phase of the above research project, the researchers had to interact directly with a number of people from various FHP stations. While they were very cooperative and supportive, having to rely on the duty officers to run reports created a significant time delay. The officers have numerous responsibilities, and often not enough resources to handle additional information requests.

4.3.2 TIM-Related ITS Performance Measures Study

The second study cited previously was to develop performance measures for FDOT's ITS program. This study concluded that the following measures would be recommended:

- Incident duration as these researchers called it, but it was defined it is the incident influence time as defined above (B-N),
- Congestion and reliability, which are outcomes of good traffic management, but have not yet been explicitly defined, and
- Customer satisfaction, which is a measure of the perception of the traveling public about the service and how well it meets their needs or expectations, usually measured by public opinion surveys.

The ITS performance measure report defines total incident duration (aka incident influence time) as the public's perception of how long an incident lasts. Total incident duration is made up of component time increments that include: 1) detection time, 2) verification time, 3) response time, 4) incident clearance time, and 5) traffic queue clearance time. Each one of these incident duration time components can be impacted by ITS deployment, some more than others. In other words, with the proliferation and integration of ITS deployment, we should expect total incident duration to be reduced over time."[19]

[19] This and the subsequent quotes in this subsection are from the previously cited ITS performance measures report.

Of course the first of these is entirely consistent with the earlier TIM performance measures study. The next two (three if one separates congestion and reliability) are outcomes of TIM as well as ITS; indeed, there is considerable overlap between that whose performance is being measured.

4.3.3 Road Ranger Performance Measures

FDOT tracks Road Ranger performance at the statewide and District levels. The Road Ranger operations measures that are in place in several districts, thus suggested for short-term performance measures consideration are as follows:

- Road Ranger response time,
- Number of Road Ranger stops by type,
- Number of TIM services by type (e.g., debris removals, move-it assists, etc.),
- Number of motorist assists by type (e.g., battery jumps, gasoline, minor repairs, etc.), and
- Duration of stop.

Longer-term performance measures for suggested Road Ranger and/or—as they come on line—Incident Response Vehicle operations, include the number of TIM assists by type (e.g., prior list, plus physical vehicle removals and recoveries, final MOT set-up, extrications, HAZMAT treatments, and others).

4.3.4 TIM Program-level Performance Measures

It is equally important to track TIM Program-level performance measures as it is incident management measures like those above. The suggested measures in this area are as follows:

- Incident detection source, namely the original source of the incident detection: TMC CCTV, TMC sensors, Road Ranger, other responder, motorist cell call, 9-1-1 transfer, or other); and
- Similarly the source of Road Ranger calls for assistance: TMC, Road Ranger, other responder, motorist cell call, 9-1-1 transfer, or other.

Districts will undoubtedly track other measures that are more specific to their needs, but these are the minimum suggested on a statewide basis.

The final full set of recommended performance measures are summarized in Section 7, since these are proposed for FDOT action**.**

5. TRAFFIC INCIDENT MANAGEMENT STRATEGIC PLANNING

5.1 Stakeholders

Section 2.2 identified the stakeholders who are currently active in the state's TIM Program. As the program takes on a more strategic posture, it is only natural to first look to expand the participation to embrace other stakeholders. Table 5-1 lists the

Table 5-1 TIM Stakeholders

Category	Stakeholder
Federal Agencies	Federal Highway Administration (FHWA)
	Federal Emergency Management Agency (FEMA)
State Agencies	Florida DOT (and neighboring states in certain regions):
	Traffic Engineering Operations Office and ITS Section
	Planning Office
	Maintenance Office
	Safety Office
	Motor Carrier Compliance Office
	Florida Highway Patrol (FHP)
	Florida Department of Law Enforcement (FDLE)
	Department of Environmental Protection (DEP)
	Division of Emergency Management (DEM)
	Joint [Telecommunications] Task Force
Local Agencies	Law enforcement (police and sheriffs)
	Fire rescue
	Emergency medical services (EMS)
	Metropolitan Planning Organizations (MPOs)
	Medical Examiner/Coroner
	City and county public works and traffic engineering
	Emergency Operation Centers (EOCs)
	County 9-1-1 Public Safety Answering Points (PSAPs)
	Transit agencies
Authorities	Expressway Authorities
	Transportation Authorities
Private Partners	Towing and recovery operators
	HazMat contractors
	Insurance industry
	Information Service Providers (ISPs)
	Traffic media
Associations	Professional Wrecker Operators of Florida (PWOF)
	Florida Independent Towing and Recovery Association (FITRA)
	Technical societies (ITS Florida, Florida Section ITE)
	American Automobile Association (AAA)
	Community Traffic Safety Teams (CTSTs)
	Chambers of Commerce
	Associations of Cities, Counties, Sheriffs, Police, EMS, etc.
Other	Floridians for Better Transportation (FBT)
	Citizens' groups

Stakeholders grouped by category to illustrate the breadth and depth of the group. A more detailed listing is included in Appendix B, which summarizes the roles and responsibilities of each stakeholder in traffic incident management.

It will be a major goal of the Statewide TIM Program to engage all of these stakeholders, as well as others, in the TIM process.

5.2 Actions to Achieve Goals and Objectives

In order to achieve the goals and objectives identified in Section 3, a series of short- and long-term actions are needed. This would include continued policy decisions; improvements in interagency cooperation, operational integration, and training; and ultimately changes in legislation.

At this point it is worthwhile to recall the mission and vision as well. In order to "provide safe, efficient, coordinated, and consistent traffic incident management practice across the state that will sustain the reliability of the transportation network," the program must strengthen its resolve for excellence and careful planning and execution of the TIM Program.

Looking to the future, the ultimate vision to "develop an institutionally integrated and fully cooperative association of all public agency and private industry traffic incident management stakeholders" requires a concerted application of the 4-Cs for all phases of traffic incident management in the state, and with our neighbors.

Some of the essential strategic actions to ensure success of this plan are summarized as follows, first statewide:

- Ensure that the TIM community, including the Road Rangers, is organized in a manner that can both provide effective traffic incident management, but also satisfy the mandate placed on the Florida DOT as the responsible agency for highway operations, including incident clearance.
- Comply with the relevant portions of the National Incident Management System as required by law.
- Improve organization and coordination–internal agency restructuring to respond to program requirements as well as equivalent commitments and formal agreements among agencies.
- Predict/detect/deter–improvement in prediction, detection, and warning so that potential incident impacts can be mitigated by protection, deterrence, or predetermined responses.
- Deploy technology/equipment–deployment of best available technology, equipment, and supplies to accommodate all hazards and to minimize the time and cost of key emergency response activities and improve its effectiveness.
- Enhance field response and procedures–clarified policies on appropriate authorities, effective command, and coordination. Develop pre-established protocols for effective and timely scene management, MOT, and clearance.

- Conduct training–continue, indeed expand, joint training in general, MOT, and hazard-specific procedures both in headquarters and in the field.

  A second overarching effort of the plan would be to transform TIM in the regions from a largely discipline-specific orientation to a fully integrated, multi-agency orientation driven by the 4-Cs. The following strategic principles would apply:

- Focus traffic incident management in the TMCs, which should be the centroid of TIM activities.
- Apply the all-events approach combining the best practices from traffic incident management and the range of emergency transportation operations into a single comprehensive framework.
- Recognize the need for multiple objectives in traffic incident management and emergency transportation operations.
- Use a structured process that focuses on preparations that support more efficient and effective steps in the response process based on cooperative preparation and planning of protocols, new technology, and equipment.
- Base all TIM on performance-driven objectives to achieve continuous improvement towards policy objectives of efficiency and effectiveness.
- Adopt a formal program approach to joint procedures and protocols as well as policies, interagency agreements, innovative contracting, and other institutional measures.

This section outlines the specific actions needed to achieve success of the program.

5.2.1 Implementation Strategy

The implementation strategy explicitly addresses the goals and objectives identified in Section 3. This includes specific actions directed at achieving the statewide goals and objectives, measurable performance indicators for the specified action, target success levels, and an evaluation plan for monitoring implementation. Section 6 lays out the roadmap to achieve these objectives.

The implementation strategy is presented in the form of a table that includes the elements mentioned above; see Table 5-2. The columns are described as follows:

- Goal: the four goals defined by the FDOT Strategic Plan,
- Objective: the objectives identified in Section 2,
- Action: specific actions to be undertaken by FDOT and/or its partners (recall the opening paragraph of section 1.4),
- Term: the time frame (indicated by Short-, Medium-, or Long-term),
- Performance Indicator: the method of tracking the action, and by whom,
- Target Level: the target to achieve for success for the action, and
- Evaluation: the method of assessing success of the action.

The “terms” can generally be classified as follows:

Table 5-2 Traffic Incident Management Strategic Implementation Options

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
1. Provide safe transportation for residents, visitors, and commerce.	1. Maximize the coverage and consistency of the TIM program statewide by enhancing and expanding the effectiveness of the Statewide and Regional TIM Teams and Road Ranger Program.	1. Create an expanded TIM Steering Committee	S	Diversity of Steering Committee membership	Include all key stakeholder sectors	Steering Committee track committee membership and active participation
		2. Foster outreach and information sharing with peer agencies	S	Number of national ex-perts consul-ted and Florida advisories given	Minimum of four in key TIM areas (engineering, enforcement, EMS, and education– the "4-Es" of safety)	Program Manager track outreach
		3. Develop guidelines for TIM Team formation	S	Published guideline	Comprehensive guideline	Program Manager verify publication
		4. Present Executive Forums and TIM workshops in areas not covered by TIM Teams	M	TIM Team location	Full coverage throughout the state (priorities District 3 and bridge corridors between all districts)	Program Manager track Team formation
		5. Strengthen bond between statewide and regional TIM Teams	M	Joint SOPS, guidelines, etc. shared	Tracking of statewide procedures to regions	Program Manager track progress

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
		6. Develop standardized guidelines for Road Ranger Program statewide	S	Published guideline	Comprehensive guideline	Program Manager verify publication
		7. Expand statewide coverage of the Road Ranger Program	L	Regions served by Road Rangers	Full coverage throughout the state (priorities District 3, I-75 in Districts 2 and 5, and bridge corridors between all districts)	Program Manager track Road Ranger formation
		8. Develop guidelines to standardize the Road Ranger Program, while retaining special needs	S	Consistency in operations, SOPs, etc.	Full coverage throughout the state, as applicable	Program Manager track progress
		9. Engage Road Rangers more actively in TIM	L	Level of involvement in TIM	Initiate new policy, cont-racts, and training in proactive TIM	TIM Team track progress

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
		10. Improve controlled use of emergency lighting by law enforcement and other responders	S	Published policy	Full coverage throughout the state, as applicable	FHP track progress
	2. Minimize detection, verification, and response times for incidents by implementing proactive multi-jurisdictional, multi-agency traffic incident management programs.	1. Use ITS to detect incidents	S	Minutes to detect	Reduce detection time by 20% or more	TMC operations
		2. Use ITS to verify incidents	S	Minutes to verify	Reduce verification time by 20% or more	TMC operations
		3. Use ITS to improve first response to incidents	S	Minutes to respond	Reduce response time by 20% or more	TMC operations
		4. Improve public awareness of the Move-It Law	S	Number of voluntary moves from roadway	Improvement by 20% per year for at least three years	TIM Team track progress
		5. Improve responder understanding and use of Move-It Law	S	Number of agency moves from roadway	Improvement by 20% per year for at least three years	TIM Team track progress
		6. Improve public awareness of Move-Over Law	S	Number of voluntary moves from adjacent lane or slow down	Improvement by 20% per year for at least three years	FHP track progress by observation

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
		7. Responders issue cards to explain "Move" Laws	S	Publication of cards	All responders have cards	TIM Team track progress
	3. Minimize incident clearance times through aggressive TIM programs emphasizing improved incident scene management, quick vehicle spill clean-up, incentives for towing and recovery companies, and other innovative practices.	1. Use ITS to reduce incident clearance time	S	Minutes to clear	Reduce clearance time by 40% or more	TMC operations
		2. Use ITS to improve secondary response to incidents	S	Minutes to respond with correct assets	Reduce response time by 30% or more and no improper assets	TMC operations
		3. Improve minor spill cleanup by applying approved guidelines	S	Minutes to clear	No waiting for contractors	Clearance Team monitors application
		4. Reduce unnecessary equipment at the scene	S	Number of superfluous vehicles	No such vehicles	Clearance Team monitors application
		5. Responders proactively remove deceased victims	S	Number of fatalities removed	Full coverage statewide	Clearance Team monitors application
		6. Provide emergency access via median cross-overs	L	Number of cross-overs and response time	Unnecessary travel limited to 5 minutes	Clearance Team monitors application

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
		7. Provide preplanned diversion routes	L	Coverage of diversion routes	100% of freeways have preplanned diversion routes	Clearance Team monitors application
		8. Provide incentives to towing and recovery companies for quick clearance (expand RISC program to freeways)	M	Centerline miles covered by RISC Program	100% of freeways have RISC coverage	Clearance Team monitors application
		9. Strictly enforce RISC program to ensure effectiveness	S	Percentage of RISC activations that are successful and collection of liquidated damages (LD) for failures	100% success rate, but 100% of qualifying LDs assessed	Clearance Team monitors application
		10. Provide incentives to TIM providers	S	Awards and recognition for outstanding practice	Statewide program	Program Manager take lead role
		11. Provide for more positive access by responder vehicles, including helicopters	L	Presence of landing zones and emergency access points	Full coverage statewide	TIM Team develop standards and track progress

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
		12. Provide well-designed incident investigation areas off the roadway and out of sight	L	Number of sites	Full coverage statewide	TIM Team develop standards and track progress
		13. Use ITS to provide timely and accurate information to motorists impacted by incidents	S	Key role for traveler information in TMCs	Full coverage statewide	TIM Team develop standards and track progress
	4. Minimize incident recovery times by applying technologies to manage traffic and inform travelers.	1. Provide timely information to motorists to avoid incidents	S	Volume passing incidents	Reduce by 10% annually	Clearance Team monitors application
		2. Conduct awareness campaign to avoid rubbernecking	S	Duration of recovery	Reduce primary direction by 20% and secondary direction by 40%	Clearance Team monitors application
	5. Minimize secondary incidents by rapid handling of traffic incidents.	1. Inform motorists of incident in route	S	DMS, HAR, IM signage, and other messages posted	Real time updates	TIM Team monitors applications

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
		2. Responders provide warnings to back of queue	S	Presence of responders and IM signage	100% coverage in Levels 2 and 3 incidents	Clearance Team monitors application
		3. Manage diversion routes	S	Secondary crashes	Minimize crashes	TIM Team monitors statistics
		4. Provide improved signal timing on diversion routes	M	Deployment of signal plans	Near real time deployment	TIM Team monitors actions by local TCCs
	6. Improve Road Ranger operations by implementing more consistent training, policies, and procedures.	1. Road Rangers assume increased role in TIM	M	Number of incidents served in TIM role	Road Ranger participate in 100% of Level 2 and 3 incidents	Clearance Team monitors application
		2. Provide expanded Road Ranger training in TIM	M	Number of “qualified” operators	100% of Road Ranger operators trained in TIM	TIM Team monitors progress
		3. Initiate a formal qualification program for Road Ranger operators	M	Number of operators passing qualification exams	25% of Road Ranger operators qualified annually	TIM Team monitors progress
		4. Provide Road Ranger Dispatchers in TMCs or Law Enforcement Dispatch Centers	M	Regions having Road Ranger Dispatchers	All regions covered	TIM Program manager track progress

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
		5. Provide more formal recognition of Road Ranger operators by public by issuing badges	S	Approve and fund badges	100% of qualified operators carry badges	TIM Team monitors progress
		6. Evaluate other service patrol models	L	Staff study	Recommendations to Steering Committee	Program Manager supervise study
	7. Improve management of major evacuations by coordinating interagency communication systems and real-time traveler information systems.	1. Provide timely notification of responsible agencies	S	Key personnel notified	100% of key personnel	TIM Team track progress
		2. Conduct pre-evacuation planning and resource identification	S	Evacuation plans on time and updated per incident	Wide-spread dissemination of updates	TIM Team track progress
		3. Support command and control for evacuation	S	Effective C&C	100% cooperation with C&C	TIM Team track progress
		4. Support evacuation guidelines, including contraflow	S	SOPs in place	Real time updates	TIM Team track progress
		5. Support evacuation routing, including contraflow	S	Routing plans	Real time updates	TIM Team track progress

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
		6. Participate in post-evacuation debriefs	S	Debriefs and SOP updates	100% of evacuations assessed	DVR and Clearance Committees track progress
	8. 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.	1. Provide automated data logging and communications system for Road Ranger operators	M	Number of deployed units	100% coverage of Road Ranger operators	Program Manager monitors progress
		2. Provide common interagency-communications system for all TIM personnel	L	Number of deployed units	100% coverage	TIM Team monitors progress
		3. Provide common interagency-communications system for all emergency management personnel	L	Number of deployed units	100% coverage	TIM Team monitors progress
	9. Increase institutional commitment to minimize total incident duration and impact	1. Change Open Road Policy (ORP) goal to begin upon verification of the incident	M	Replacement ORP	FDOT, FHP, and local agencies	Steering Committee track progress

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
		2. Reconcile ORP and incident levels	S	Incident thresholds	Consistent thresholds	Steering Committee track progress
		3. Provide inter-agency training for purposes of cross-training	S	Number of responder trained	100% of responders trained	TIM Team monitor progress
		4. Initiate multi-agency post-incident debriefs for all Level 3 and selective Level 2 incidents, and all evacuations	S	Number of qualifying incidents debriefed	100% of qualifying incidents	Communication Team track progress
		5. Follow the criteria and agreements for discontinuing toll collection on all expressways during emergencies	S	Cessation of toll collection	Consistent policy	Steering Committee track progress
		6. Develop operations agreements with other impacted agencies (Medical Examiners, hospitals, HAZMAT handlers, etc.)	M	Signed agree-ments	Full state coverage	Program Manager track progress

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
2. Provide protection of the public's investment in transportation.	1. Provide leadership in incident and emergency management statewide.	1. Conduct TIM Master Plans in each FDOT District, major urban region, and/or interurban corridor	L	Number of plans developed	Full state coverage	Steering Committee track progress
		2. Develop interagency agreements for TIM mutual support	L	Number of MOUs signed	Full state coverage	Steering Committee track progress
		3. Encourage co--location of FDOT TMC and Law Enforcement Dispatch Centers	L	Number of joint centers	Full state coverage	Steering Committee track progress
		4. Provide statewide traffic condition system	S	Availability of statewide data and info	Full state coverage	TIM Team track progress
		5. Determine legal responsibility for TIM and clearing highways	S	Clarification of legal liability	Corrective/ clarifying legislation	Steering Committee track progress
		6. Conform to National Incident Management System	M	Adaptation of NIMS standards	100% conformity	Steering Committee track progress
		7. Florida join National Traffic Incident Management Coalition	S	Join coalition	Become proactive member	Program Manager take lead role

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
	2. Integrate incident and emergency management into operation of the State Highway System/FIHS, including planning, design, construction, and operations.	1. Plan and program for TIM operations	M	TIM included in STIP	Annual inclusion	Steering Committee track progress
		2. Include TIM in highway designs	M	Include median cross-overs and special access points	Full coverage on FIHS and all other limited access highways	Program Manager take lead role
		3. Apply unified command system in TIM	S	Training sessions offered	Full coverage statewide	Program Manager take lead role
	3. Maximize TIM through perform-ance measure tracking.	1. Develop performance measures and data collection methods for each stage of an incident	S	Publish TIM performance measure guidelines	Initially response and clearance, eventually all stages	Program Manager approve publication
		2. Develop Road Ranger performance measures	S	Publish Road Ranger perfor-mance measure guidelines	Initially assists, ultimately TIM/MOT and times	Program Manager approve publication
		3. FDOT Districts collect, analyze and report performance measures	I	Publication of performance measure reports	Full coverage of performance measures statewide	Program Manager track progress
		4. Report TIM/Road Ranger performance tracking	M	Quarterly reports to agency management	100% of reporting agencies	Steering Committee track progress

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
	4. Protect the public safety and private investments through equitable regulation of TIM service providers.	1. Change clearance compensation policies to be performance based, not time based	M	Changed tower/wrecker contracts	Full coverage statewide	Clearance Team track progress
		2. Update towing regulations to improve the equipment needs	M	Changed tower/wrecker contracts	Full coverage statewide	Clearance Team track progress
		3. Require qualification/certification of wrecker services	M	Deploy qualification program	Full coverage statewide	Clearance Team track progress
	5. Protect responders and their organizations from liability for performing these practices to maximize “open roads.”	1. Support laws limiting liability to all responders for actions taken while engaged in TIM quick clearance	M	Liability law(s) passed	Full coverage statewide and industry wide	Steering Com-mittee take lead

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
	6. Assist in providing safe and efficient maintenance of traffic during project construction by deploying smart work zone monitoring systems and real-time traveler information systems.	1. Maintenance of Traffic plans include TIM	M	Explicit inclusion of TIM in MOT	Full coverage in FIHS	Program Manager take lead role
	7. Minimize institutional barriers to successful incident and emergency management.	1. Outreach to all stakeholders with TIM and EM guidelines	M	Expanded regional TIM Teams	Full coverage statewide	Program Manager take lead role
		2. Localize statewide policies with TIM Team input	M	Signed local versions	Full coverage statewide	Program Manager take lead role
		3. Expand joint operations agreements	M	Signed JOAs	Full coverage statewide	Program Manager take lead role

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
	8. Provide for appropriate deployment and operations funding for TIM (including Road Rangers) and emergency management.	1. Include TIM as a priority line item in the FDOT Work Program	M	TIM have line item in Work Plan	Annual allocation	Steering Committee track progress
	9. Improve procurement practices to gain the greatest benefits from funds expended on TIM	1. Determine the optimal approach to procuring TMC operations	M	Optimal method	Adopt a consistent, but not mandated, approach	Program Manager take lead role
		2. Determine the optimal approach to procuring Road Rangers	M	Optimal method	Adopt a consistent, but not mandated, approach	Program Manager take lead role
		3. Districts should determine the appropriate role of Asset Managers in TIM	M	Optimal method	Adopt a consistent, but not mandated, approach	Program Manager take lead role
	10. Identify other uses of ITS devices to support TIM partners in their missions	1. Identify applications to CCTV in law enforcement	M	Published MOU	Adopt a consistent, but not mandated, approach	Program Manager take lead role
		2. Identify applications to CCTV in EMS	M	Published MOU	Adopt a consistent, but not mandated, approach	Program Manager take lead role

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
		3. Improve role of DMS in alerts, including Amber Alerts	M	Published MOU	Adopt a consistent, but not mandated, approach	Program Manager take lead role
		4. Improve role of HAR in alerts, including Amber Alerts	M	Published MOU	Adopt a consistent, but not mandated, approach	Program Manager take lead role
	11. Protect the transportation infrastructure	1. Identify ITS applications to preserve and protect the highway infrastructure	M	Published SOPs	Adopt consistent, but not mandated, approaches	Program Manager take lead role
		2. Vigorously pursue quick clean-up of minor vehicle spills	S	Adopt Guidelines for the Mitigation of Motor Vehicle Fluids (Non-Cargo)	All levels of state	Clearance Team monitor progress
		3. Develop an incentive program for HAZMAT clean-up	M	Implement a RISC-like program	Adopt statewide	Steering Committee develop program

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
3. Provide an interconnected transportation system that enhances Florida's economic competitiveness	1. Maximize communications between and among the network of regional traffic management centers (RTMCs), law enforcement regional communications centers (RCCs), state and county emergency operations centers (EOCs), local traffic control centers (TCCs), transit operations centers (TOCs), and other appropriate TIM centers.	1. Develop a Joint Operations Manual that is in full conformance with the National Incident Management System	M	Publish signed multi-agency agreement	Signed by FDOT, FHP and as many local responder agencies as possible	Program Manager steers development, Steering Committee tracks progress
		2. Provide for integration of TMC and law enforcement CAD systems	M	Interfaces in SunGuide Software and CAD Software	100% coverage	TIM Team monitors progress (ITS Section implements SunGuide modification)
	2. Maximize the role of TMCs in traffic incident management by making the TMCs the focal point for TIM.	1. Develop a Statewide Concept of Operations with TMCs having a primary role in TIM	M	Publication of ConOps	Adoption statewide	TIM Team tracks progress

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
	3. Identify needed changes in State Statutes, agency policies and procedure, guidelines, and practices.	1. Review all applicable laws, regulations, policies and procedures	M	Changes identified and executed	Adoption statewide	Steering Committee track progress
4. Provide travel choices to ensure mobility, sustain the quality of the environment, preserve community values and reduce energy consumption.	1. Improve citizen and tourist mobility and access to safe havens during emergencies through the use of specialized traveler information systems and Road Rangers.	A number of other actions				
	2. Reduce energy use and environmental degradation by means of integrated ITS and TIM "systems management."	A number of other actions				

Goal	Objective	Action	Term	Performance Indicator	Target Level	Responsibility
	3. Improve service for special traveler needs in emergencies through the use of ITS applications.	1. Deploy "My SunGuide" as a personalized Web service	L	Deployed Web server	Full coverage statewide	Program Manager take lead
	4. Reduce energy use and delay associated with major incidents through ITS applications, synergistic management, orderly maintenance of traffic (MOT), and judicious, preplanned route diversion.	A number of other actions				

- Short: up to one year from adoption of the TIM Strategic Plan,
- Medium: one to two years, and
- Long: over two years.

The actions are based on the discussions in the foregoing sections, and through the TIM Strategic Plan development process. Most are self explanatory, but a few deserve elaboration. This is done in the first subsection below. For referencing purposes, the goal-objective-action combination can be identified by their unique number strings, such as "1.2.3."

Table 5-3 is compressed and sorted by the estimated term of the actions in Table 5-2. A brief overview of the short-, medium-, and long-tern actions are provided in the next subsections.

5.2.1.1 Short-Term Actions

The significant actions in the short term are summarized as follows:

- Expand the TIM Steering committee to include more active stakeholders;
- Create a more formalized outreach of TIM experts to share best practices;
- Develop a statewide Standard Operating Procedure (SOP) for TIM;
- Initiate a public awareness campaign;
- Strengthen the existing policies, such as the Open Road Policy, to be stronger;
- Complete the TIM performance measures analysis and adopt PMs for statewide use; and
- Become more proactive in TIM coalition affairs.

5.2.1.2 Mid-Term Actions

The significant medium-term actions are summarized as follows:

- Expand the TIM Team program to span the state, filling all gaps;
- Expand and reemphasize the primary function of the Road Rangers Program as each contract ends.
- Strengthen the coordination among TIM Teams, statewide and regional;
- Create qualifications for Road Ranger operators, wrecker operators, and other TIM providers;
- Expand the SOP to include more far-reaching activities;
- Develop a Joint Operations Agreement (JOA) that embodies many of the multi-agency cooperative actions;
- Initiate a statewide TIM performance measure tracking program;
- Initiate performance-based compensation for towers and wreckers;
- Implement an incentive program for towing and wrecker and HAZMAT handlers statewide;
- Become fully compliant with the National Incident Management System; and
- Continue review and encouraging changes in laws, regulations, policies and guidelines as needed.

Table 5-3 Timing and Responsibility for Actions

Term	Action	Responsibility	Description/Comment
S	1.1.1. Create an expanded TIM Steering Committee	Steering Committee track committee membership and active participation	Invite representatives from other agencies, such as Fire and Police Chiefs' Associations, AAA, etc.
S	1.1.2. Foster outreach and information sharing with peer agencies	Program Manager track outreach	Suggested peer visits by national experts in TIM, TMC, law enforcement, and fire rescue operations, as well as Florida experts outreaching to others to share expertise.
S	1.1.3. Develop guidelines for TIM Team operations	Program Manager verify publication	A section in a proposed new TIM Program Standard Operating Procedure (SOP, or TIM/SOP).
S	1.1.6. Develop standardized guidelines for Road Ranger Program statewide	Program Manager verify publication	This would be a section in the TIM/SOP.
S	1.1.8. Develop guidelines to standardize the Road Ranger Program, while retaining special needs	Program Manager track progress	FDOT Road Ranger Program Operations Procedure in preparation.
S	1.1.10. Improve the controlled use of emergency lighting by law enforcement and other responders	FHP track progress	This would be a provision in the proposed Joint Operations Agreement (JOA).
S	1.2.1. Use ITS to detect incidents	TMC operations	A provision in the proposed JOA.
S	1.2.2. Use ITS to verify incidents	TMC operations	A provision in the proposed JOA.

Term	Action	Responsibility	Description/Comment
S	1.2.3. Use ITS to improve first response to incidents	TMC operations	A provision in the proposed JOA.
S	1.2.4. Improve public awareness of Move-It Law	TIM Team track progress	This would be an element of a TIM public awareness campaign.
S	1.2.5. Improve responder understanding and use of Move-It Law	TIM Team track progress	A provision in the proposed JOA.
S	1.2.6. Improve public awareness of Move-Over Law	FHP and TMCs track progress by observation	An element of a TIM public awareness campaign.
S	1.2.7. Responders issue cards to explain “Move” Laws	TIM Team track progress	A provision in the proposed JOA.
S	1.3.1. Use ITS to reduce clearance time	TMC operations	A provision in the proposed JOA. MOU with Medical Examiners required.
S	1.3.2. Use ITS to improve secondary response to incidents	TMC operations	A provision in the proposed JOA.
S	1.3.3. Improve minor spill cleanup by applying approved guidelines	Clearance Team monitors application	A provision in the proposed JOA.
S	1.3.4. Reduce unnecessary equipment at the scene	Clearance Team monitors application	A provision in the proposed JOA.

Term	Action	Responsibility	Description/Comment
S	1.3.5. Responders proactively remove deceased victims	Clearance Team monitors application	A provision in the proposed JOA.
S	1.3.9. Strictly enforce RISC program to ensure effectiveness	Program Manager take lead role	A provision in the proposed JOA.
S	1.3.10. Provide incentives to TIM providers	TIM Team track progress	Find ways to recognize other TIM responders who exercise quick clearance.
S	1.3.13. Use ITS to provide timely and accurate information to motorists impacted by incidents	Program Manager take lead role	A provision in the proposed JOA.
S	1.4.1. Provide timely information to motorists to avoid incidents	Clearance Team and TMCs monitor application	A provision in the proposed JOA.
S	1.4.2. Conduct awareness campaign to avoid rubbernecking	Clearance Team monitors application	An element of a TIM public awareness campaign.
S	1.5.1. Inform motorists of incident in route	TIM Team monitors applications	A provision in the proposed JOA.
S	1.5.2. Responders provide warnings to upstream queue	Clearance Team and TMCs monitor application	A provision in the proposed JOA.
S	1.5.3. Manage diversion routes	TIM Team monitors statistics	A provision in the proposed JOA.
S	1.6.5. Provide more formal recognition of Road Ranger operators by public by issuing	TIM Team monitors progress	A future element of the TIM Program General Consultant contract.

Term	Action	Responsibility	Description/Comment
	badges		
S	1.7.1. Provide timely notification of responsible agencies	TIM Team track progress	A provision in the proposed JOA.
S	1.7.2. Conduct pre-evacuation planning and resource identification	TIM Team track progress	A provision in the proposed JOA.
S	1.7.3. Support command and control efforts for evacuation	TIM Team track progress	A provision in the proposed JOA.
S	1.7.4. Support evacuation guidelines, including contraflow	TIM Team track progress	A provision in the proposed JOA.
S	1.7.5. Support evacuation routing, including contraflow	TIM Team track progress	A provision in the proposed JOA.
S	1.7.6. Participate in post-evacuation debriefs	Steering Committee track progress	A provision in the proposed JOA.
S	1.8.1. Provide automated data logging and communications system for Road Ranger operators	TIM Team monitors progress	A provision in the proposed JOA.
S	1.9.2. Reconcile ORP and incident levels	Steering Committee track progress	Policy change.
S	1.9.3. Provide inter-agency training for purposes of cross-	TIM Team monitor progress	A provision in the proposed JOA.

Term	Action	Responsibility	Description/Comment
	training		
S	1.9.4. Initiate multi-agency post-incident debriefs for all Level 3 and selective Level 2 incidents, and all evacuations	Communication Team track progress	A provision in the proposed JOA.
S	1.9.5. Follow the criteria and agreements for discontinuing toll collection on all expressways during emergencies	Steering Committee track progress	A provision in the proposed JOA.
S	2.1.4. Provide statewide traffic condition system	TIM Team track progress	This is already included in the iFlorida project.
S	2.1.5. Determine legal responsibility for TIM and clearing highways	Steering Committee track progress	This would require legal review by FDOT and FHP legal staffs.
S	2.1.7. Florida join National Traffic Incident Management Coalition	Program Manager take lead role	This is currently a somewhat closed coalition, but has potential values in leveraging national standards, and should be considered by FDOT.
S	2.2.3. Apply unified command system in TIM	Program Manager take lead role	A provision in the proposed JOA.

Term	Action	Responsibility	Description/Comment
S	2.3.1. Develop performance measures and data collection methods for each stage of an incident	Program Manager approve publication	Complete the TIM Performance Measures Study currently underway in the Traffic Engineering and Operations Office. Also coordinate it with the recently approved PMs for ITS.
S	2.3.2. Develop Road Ranger performance measures	Program Manager approve publication	Adopt the performance measures study being conducted by the Traffic Engineering and Operations Office.
S	2.11.2. Vigorously pursue quick clean-up of minor vehicle spills	Clearance Team monitor progress	A provision in the proposed JOA.
M	1.1.4. Present Executive Forums and TIM workshops in areas not covered by TIM Teams	Program Manager track Team formation	An element of the TIM Program General Consultant contract.
M	1.1.5. Strengthen bond between statewide and regional TIM Teams	Program Manager track progress	An element of the TIM Program General Consultant contract.
M	1.3.8. Provide incentives to towing and recovery companies for quick clearance (expand RISC program to freeways)	Clearance Team monitors application	Will require a cost-benefit study for FDOT, or Legislative, approval.
M	1.5.4. Provide improved signal timing on diversion routes	TIM Team monitors actions by local TCCs	A provision in the proposed JOA.

Term	Action	Responsibility	Description/Comment
M	1.6.1. Road Rangers assume increased role in TIM	Clearance Team monitors application	A section of the SOP. The task force mentioned in 1.1.7 should consider other SP models, such as the GDOT HERO, Caltrans' FSP Program, and IDOT's Minutemen in Chicago.
M	1.6.2. Provide expanded Road Ranger training in TIM	TIM Team monitors progress	A section of the SOP.
M	1.6.3. Initiate a formal qualification program for Road Ranger operators	TIM Team monitors progress	A future element of the TIM Program General Consultant contract.
M	1.6.4. Provide Road Ranger Dispatchers in TMCs or Law Enforcement Dispatch Centers	TIM Program Manager track progress	Preference is LEDC, but if not, then TMC. Must align with other FDOT Dispatch as well.
M	1.9.1. Change Open Road Policy (ORP) goal to begin upon verification of the incident	Steering Committee track progress	This would be a policy change.
M	1.9.6. Develop operations agreements with other impacted agencies (Medical Examiners, hospitals, hazardous materials handlers, etc.)	Program Manager track progress	An element of the TIM Program General Consultant contract.
M	2.1.6. Conform to National Incident Management System	Steering Committee track progress	A provision in the proposed JOA.

Term	Action	Responsibility	Description/Comment
M	2.2.1. Plan and program for TIM operations	Steering Committee track progress	A provision in the proposed JOA.
M	2.2.2. Include TIM in highway designs	Program Manager take lead role	FDOT should adopt a policy.
M	2.3.4. Report TIM/Road Ranger performance tracking	Program Manager track progress	A follow-on to 2.3.1 & 3 and should be a provision in the proposed JOA. All appropriate agencies should log and report their TIM performance measures. TMCs should include these in their performance tracking.
M	2.4.1. Change clearance compensation policies to be performance based, not time based	Clearance Team track progress	A provision in the proposed JOA.
M	2.4.2. Update towing regulations to improve the equipment needs	Clearance Team track progress	A provision in the proposed JOA.
M	2.4.3. Require qualification/certification of wrecker services	Clearance Team track progress	A provision in the proposed JOA.
M	2.5.1. Support laws limiting liability to all responders for actions taken while engaged in TIM quick clearance	Steering Committee take lead	Will require legislative action.
M	2.6.1. Maintenance of Traffic plans include TIM	Program Manager take lead role	FDOT should adopt a policy.
M	2.7.1. Outreach to all stakeholders with TIM and EM guidelines	Program Manager take lead role	A provision in the proposed JOA.

Term	Action	Responsibility	Description/Comment
M	2.7.2. Localize statewide policies with TIM Team input	Program Manager take lead role	A provision in the proposed JOA.
M	2.7.3. Expand joint operations agreements	Program Manager take lead role	A provision in the proposed JOA.
M	2.8.1. Include TIM as a priority line item in the FDOT Work Program	Steering Committee track progress	FDOT should adopt a policy.
M	2.9.1. Determine the optimal approach to procuring TMC operations	Program Manager take lead role	Will require a cost-benefit study for FDOT approval.
M	2.9.2. Determine the optimal approach to procuring Road Rangers	Program Manager take lead role	Will require a cost-benefit study for FDOT approval.
M	2.9.3. Districts should determine the appropriate role of Asset Managers in TIM	Program Manager take lead role	Will require a cost-benefit study for FDOT approval.
M	2.10.1. Identify applications to CCTV in law enforcement	Program Manager take lead role	A provision in the proposed JOA.
M	2.10.2. Identify applications to CCTV in EMS	Program Manager take lead role	A provision in the proposed JOA.
M	2.10.3. Improve role of DMS in alerts, including Amber Alerts	Program Manager take lead role	A provision in the proposed JOA.

Term	Action	Responsibility	Description/Comment
M	2.10.4. Improve role of HAR in alerts, including Amber Alerts	Program Manager take lead role	A provision in the proposed JOA.
M	2.11.1. Identify ITS applications to preserve and protect the highway infrastructure	Program Manager take lead role	FDOT should adopt a policy.
M	2.11.3. Develop an incentive program for HAZMAT clean-up	Steering Committee develop program	A provision in the proposed JOA.
M	3.1.1. Develop a Joint Operations Manual that is in full conformance with the National Incident Management System	Program Manager steers development, Steering Committee tracks progress	This is the proposed JOA.
M	3.1.2. Provide for integration of TMC and law enforcement CAD systems	TIM Team monitors progress (ITS Section implements SunGuide modification)	A provision in the proposed JOA. This will require software changes to both the SunGuide^{sm} Software and CAD software. FDOT's TEOO is currently negotiating this with FHP.
M	3.2.1. Develop a Statewide Concept of Operations with TMCs having a primary role in TIM	TIM Team tracks progress	The proposed JOA would be based upon this ConOps.
M	3.3.1. Review all applicable laws, regulations, policies and procedures	Steering Committee track progress	This would be an outcome of the TIM Strategic Plan, plus a number of other actions included in this plan.
L	1.1.7. Expand state-wide coverage of the	Program Manager track Road Ranger formation	The Steering Committee should create a special task force to study this and recommend specific actions.

Term	Action	Responsibility	Description/Comment
	Road Ranger Program		
L	1.1.9. Engage Road Rangers more actively in TIM	TIM Team track progress	A provision in the proposed JOA.
L	1.3.6. Provide emergency access via median cross-overs	Clearance Team monitors application	Adapt the District 1 median cross-over study to a statewide program, which should be incorporated into ongoing construction plans when applicable and special projects when the foregoing is not practical. FHWA concurrence needed.
L	1.3.7. Provide preplanned diversion routes	Clearance Team monitors application	A project of each regional TIM Team.
L	1.3.11. Provide for more positive access by responder vehicles, including helicopters	TIM Team track progress	The TIM Team should create guidelines, including emergency helicopter landing zones, special access ramps or barriers gates, and coordinated with the median cross-over study (1.3.6) and accident investigation sites study (1.3.12).
L	1.3.12. Provide well-designed incident investigation areas off the roadway and out of sight	Program Manager take lead role	See 1.3.11.
L	1.6.6. Evaluate other service patrol models	Program Manager supervise study	
L	1.8.2. Provide common interagency communications system for all TIM personnel	TIM Team monitors progress of pilot in District 5 and elsewhere	A provision in the proposed JOA and may ultimately require legislative action.

Term	Action	Responsibility	Description/Comment
L	1.8.3. Provide common interagency-communications system for all emergency management personnel	TIM Team monitors progress	Same as 1.8.2.
L	2.1.1. Conduct TIM Master Plans in each FDOT District, major urban region, and/or interurban corridor	Steering Committee track progress	These would be fed by the Statewide ConOps.
L	2.1.2. Develop interagency agreements for TIM mutual support	Steering Committee track progress	A provision in the proposed JOA.
L	2.1.3. Encourage co--location of FDOT TMC and Law Enforcement Dispatch Centers	Steering Committee track progress	This would pertain primarily to new TMC, but statewide this existing policy should be revisited.
L	2.3.3. FDOT Districts collect, analyze and report performance measures	Steering Committee track progress	FDOT should adopt a policy.
L	4.3.1. Deploy “My SunGuide” as a personalized Web service	Program Manager take lead	This should be investigated by the SunGuide^{sm} Software Committee. GDOT's MyNaviGAtor serves as a potential model.

5.2.1.3 Long-Term Actions

Finally, the significant long-term actions are summarized as follows:

- Expand the Road Ranger Program to span the state, filling all gaps, and change their modus operandi to focus on TIM with motorist assistance a secondary duty;
- Implement improved access for TIM vehicles, including more median cross-overs, special access ramps, helicopter landing zones, etc.;
- Conduct TIM Master Plans in each region;
- Implement mutual-aid agreements statewide;
- Continue co-locating TMCs with FHP Communications Dispatch Centers and others as practical; and
- Implement a personalized "My SunGuide" service for motorists to use for both traveler information and in response to incidents.

6. TRAFFIC INCIDENT MANAGEMENT BUSINESS PLANNING

6.1 Purpose of the Business Plan

The previous section presented a proposed multi-agency TIM Program that will appeal to a wide number of transportation, public safety, and information service providers. This section presents the Business Plan expressly for the Florida Department of Transportation. The Business Plan should provide a basis for implementing, controlling, and evaluating the performance of the program from the Department's perspective for those elements for which it has statutory and/or customary responsibility.

The Florida DOT, like most State DOTs, is primarily oriented toward highway construction and maintenance. Traffic operations, per se, have not traditionally been a primary mission focus. For example, a look at FDOT's home page on its Web site suggests a strong focus on the highway infrastructure part of the mission, with traffic operations' assignment as "oversees studies and projects related to roadway signs, traffic signals, pavement markings, speed limits, school zones, and improved highway safety." The larger purpose of truly operating a transportation system, including all modes and applying technology and real-time management is largely missing. To truly operate a transportation system, FDOT needs to measure traffic operations in real time, establish performance goals for operations, and hold staff accountable for achieving these goals.

The net result of this paradigm change would be to consider outcomes of the Department's efforts, as opposed to the outputs of programs. Reduced incident rates, severity, and accompanying delay; reduced secondary incidents; and overall improved quality of travel should be primary metrics of performance of the Department, not just miles of asphalt laid or resurfaced. Traffic incidents create the vast majority of the inefficiencies in the transportation system, not capacity constraints per se, except in a few obvious locations. *Thus traffic incident management should be a primary focus of the Department.*

The key to this is strong support for TIM at the executive level. There are five basic areas where executive-level support is crucial to develop a formal program approach and to ensure that the responsibilities and resources are mobilized and targeted. These include:

- Develop Florida DOT policy through a mission, vision, goals, objectives, and strategic actions that appropriately positions TIM as an agency priority eligible for support and management. These have been outlined in the preceding sections.
- Develop a program with appropriate structure, organization, and plan to fulfill the identified objectives. This and the next three bullets constitute the main purpose of this section.
- Establish performance reporting and accountability through continuous performance improvement support.
- Ensure adequate and sustainable resource support for the program.
- Charge lead agency liaison to develop appropriate policy and working relationships with TIM partners and other key players.

Finally, Traffic Incident Management has not been well funded within FDOT and that accounts for the sporadic success rate of initiatives. For consistent performance improvement and longevity, staffing and funding must be stabilized.

6.2 Preferred Traffic Incident Management Policies and Procedures

Section 5 suggested modifications to several current policies. Clearly, some of these will require reciprocation by other agencies, but these are the specific options that the Department should consider.

Following are some suggested revised and new laws, Departmental policies and procedures, and guidelines (cross referenced to the actions from Section 5 in parentheses).

6.2.1 Potential Legislative Changes

These are legislative changes the FDOT could champion to the Florida Legislature. Recognizing the limitation placed on public agencies in the numbers and types of legislation they can introduce, an expanded steering committee may be helpful in getting legislation introduced and their continued support will be crucial for success.

1. Direct changes in the FHP authorized wrecker program to create a RISC class of wrecker responses on Interstate corridors and Expressways. It should include detailed equipment and operator standards. It could also provide incentives to towing and recovery companies for quick clearance, that is, expand RISC program to freeways (Action 1.3.8). This might require legislative approval to use public funds for incentive purposes.

2. Participate in a common interagency communications system for all TIM personnel (1.8.2). This might require legislative action to overcome security barriers of shared telecommunications resources, and financial assistance for some agencies. Emergency agencies are already developing and implementing joint communications capability due to homeland security concerns and transportation agencies have not been included.

3. Offices concerned with incident management and quick clearance of our highways, such as construction, maintenance, safety, public transportation, and legal, as well as the legislative support office, should be made aware of the liability issue and the impact it has on TIM. Once support is gathered, efforts should be made to encourage a law limiting liability to all responders and operations personnel for actions taken while engaged in quick clearance activities (2.5.1). This has been championed by the Professional Wrecker Operators of Florida in the past several sessions. While this was passed in the 2005 Session, the Governor vetoed it. FDOT might consider strengthening its support of the legislation in the future.

6.2.2 Potential FDOT Policy Changes

These are policy changes the FDOT could make unilaterally and/or champion among stakeholders.

1. Initiate a focus on highway and traffic operations as a primary responsibility of the Florida DOT. This would place traffic management and operations as a principal executive paradigm within the Department.

2. Change the Open Roads Policy to measure performance from the time the incident is verified by a responsible TIM official (1.9.1). This change would place Florida in the forefront of leaders in aggressive quick-clearance practices, along with the State of Washington The FDOT/FHP policy is as follows:

   *Roadways will be cleared as soon as possible. It is the goal of **all agencies that all incidents be cleared from the roadway within 90 minutes of the arrival of the first responding officer** [emphasis is in the policy statement itself]. This goal being made with the understanding those more complex scenarios may require additional time for complete clearance.*

   Washington State's Joint Operations Policy states:

   The WSP [Washington State Patrol] and WSDOT [Washington State DOT] will collaborate to respond to incidents and coordinate all public and private resources in this effort to work toward clearing incidents within 90 minutes. It is the policy of WSP and WSDOT to effectively use resources to expedite responding to incidents, efficiently and effectively conduct

needed investigations, and reduce highway lane and state designated ferry route closures to a minimum.

Absent the qualifier that is in Florida's, one could reasonably assume that Washington's time begins when the incident is verified.

Similarly, The Arizona DOT has the goal (for itself) for incidents to which it responds, to clear the roadway (same end-point as Florida's) within 120 minutes from the time the incident is verified.[20] Since this includes response time, the actual quantified goal is similar to Florida's, but response time is explicitly included, which is the recommendation above.

The suggested change would make Florida's ORP consistent with Arizona and Washington State, and if the 90-minute time was retained, it would be equally challenging to Washington's. Naturally, it will be necessary to obtain FHP concurrence in this change, as well as those local agencies who have adopted the ORP within their jurisdictions.

3. Include TIM explicitly in highway designs (2.2.2). Examples of TIM elements to be included in the design plans are emergency cross-overs, location reference markers, and emergency access. Such a policy, enforced by TIM sign-off of plans and specifications, would help ensure that TIM has been adequately considered in appropriate designs.

4. Ensure that Maintenance of Traffic (MOT) plans include TIM (2.6.1). Similar to the above, MOT plans should be particularly sensitive to TIM requirements, for example portable DMSs, temporary crash investigation areas, etc.

5. Provide TIM as a priority in the FDOT Work Program (2.8.1), including Road Ranger operations. This policy change would ensure ongoing and stable funding support for TIM.

6. Identify ITS applications to preserve and protect the highway infrastructure (2.11.1). This would ensure that mission-critical TIM infrastructure would be adequately monitored. It would better protect the infrastructure from Homeland Security threats as well.

7. Encourage co-location of FDOT RTMCs and Law Enforcement Dispatch Centers (2.1.3). There is already a FDOT/FHP agreement to this affect in place, but it has not been widely followed. The Department should step up its support of co-location and aggressively pursue partnerships with FHP, counties, cities, and other TIM and traffic management stakeholders.

8. Make TMCs the home for TIM. The TMC, hopefully in partnership with co-located law enforcement, should be the focal point for TIM (Action 3.2.1). This will enable all

[20] "Arizona Statewide Incident Management Plan," Arizona Department of Transportation, July 2000.

of the steps of TIM—detection and verification, response, clearance and scene management, traveler information, and recovery—to all be undertaken in a manner than can be managed, documented, and supported by technology, with FDOT involvement throughout the incident.

9. Transform the primary mission of the Road Rangers from motorist assistance to traffic incident management (Action 1.6.1) and establish Road Ranger Dispatch positions within the TMCs so that response times can be shortened. This would arm FDOT with the best resources to meet the obligation to respond to, clear, and restore the highway as quickly as possible.

10. Re-examine the practice of including TIM operations in Asset Management contracts. These contracts in general do not adequately address TIM—in most case they refer more to the purely maintenance aspects of reacting to incidents. Indeed, the fundamental principle of Asset Management—that is the transfer of maintenance risk to a contractor working at a fixed price—could be counterintuitive to improved TIM.

6.2.3 Potential FDOT Procedural Changes

Following are suggested procedural changes the FDOT could make unilaterally and/or champion among stakeholders.

1. Develop a new TIM Program Standard Operating Procedure (SOP, or TIM/SOP) to define the roles and responsibilities of FDOT Traffic Engineering and Operations (including ITS), TMCs, TIM Teams, Road Rangers, and other FDOT assets (a number of specific actions would be covered by this SOP).

2. Champion a new Joint Operations Agreement (JOA) that would be jointly signed by FDOT, FHP, local law enforcement, fire rescue, EMS, Medical Examiners, and other TIM stakeholders (again, a number of specific actions would be covered by this JOA).

6.2.4 Potential FDOT Guideline Changes

Finally, these are suggested changes to FDOT guidelines, either changed unilaterally and/or championed among stakeholders. Note that the aforementioned SOP will contain a number of guidelines, such as TIM Team creation (1.1.3) and Road Ranger (1.1.6), but these are formal FDOT or multi-agency guidelines. These will be covered generally in the JOA, but there needs to be more details, thus separate, formal guidelines that would be referred to in the JOA, and perhaps appended thereto.

1. Strengthen the support for reducing minor spill cleanup by more strictly applying the already approved guideline (1.3.3). The current “Guidelines for the Mitigation of Accidental Discharges of Motor Vehicle Fluids (Non-cargo),” approved by FDOT in June 2004, has yet to be widely adopted and rigorously applied. FDOT should “champion” its use.

2. Support evacuation guidelines, including contraflow (1.7.4). FDOT, in cooperation with its partners, should develop more comprehensive guidelines for emergency evacuation, particularly utilizing ITS where it is available.

3. Provide guidelines for more positive access by responder vehicles, including helicopters (1.3.6 and 11). These guidelines should cover crash investigation sites, median cross-overs, special access ramps at strategic locations, predetermined helicopter landing zones wherever practical, and guidelines for lane closures for emergency vehicle access.

6.3 Traffic Incident Management Initiatives

This section presents high-level initiatives for managing the TIM Program statewide, again from FDOT's perspective.

6.3.1 Roles and Responsibilities in Traffic Incident Management

First, what are the roles and responsibilities for TIM in Florida, and how should they change, if any?

6.3.1.1 Central Office and Districts

The current roles and potential changes are summarized as follows:

- The Central Office provides leadership, general direction, and management of the Statewide TIM Program. It develops and promulgates policy, procedures, guidelines, and standards through the Statewide TIM Teams (see next), and particularly the Steering Committee. It provides resources including financial, technical assistance and training. In general, no substantive changes are envisioned, except in the area of funding. It is highly desirable that dedicated funding for the statewide TIM Program be explicitly added to the FDOT Work Program (more details are given later in this section).

- The Districts operate the Road Ranger Program, with guidance from the Traffic Engineering and Operations Office, Incident Management Section. In some cases the Districts use direct contracts to towing or other companies, and in some cases they obtain these services through their Asset Management contracts. If there were no change in current policy, all Road Ranger units will, at a minimum, have to be re-equipped to meet the requirement of the MUTCD, at least for interim MOT. Ideally, however, the primary mission of the Road Rangers will change from motorist assistance to TIM as "job one," which will require a number of both hardware and human resource changes. Further, it has been suggested that Road Ranger coverage be expanded to statewide, at least on the FIHS and other key limited-access highways. Current funding is inadequate for even existing operations, so substantial new resources will be needed to move the program to the needed level.

6.3.1.2 Statewide and Regional Traffic Incident Management Teams

The TIM Teams follow the patterns of the roles of the Central Office and Districts, namely the Statewide TIM Teams are the primary forums for innovation, collaboration, and development of the TIM tools that are put into practice by the Regional TIM Teams.

It also is suggested that the Regional TIM Teams more explicitly engage the statewide tools. A good example is the "localization of the ORP" that was led by the District 5 TIM Teams. If incident management is to truly be effective, it has to be practiced. The Statewide Teams cannot effectively engage the actual responders—only the regional teams can do this. Thus they need to be much more proactive in making TIM best practices a total reality. In the context of this section, FDOT at the District level should be proactive in leading its partners in this direction.

The Regional TIM Teams can and do initiate best practices as well. For example, the local agreement with the Central Florida Medical Examiners is an outstanding tool that needs to be carried statewide. Similarly, District 4's Incident Tracking System and District 6's planned use of personal digital assistants (PDAs) for incident logging are prime examples.

What does make this work so well is the fact that the Statewide TIM Teams are in fact made up of Regional TIM Team members or at least responders at the local level if a TIM Team does not exist in a particular region.

6.3.1.3 Transportation Management Centers

As the TMCs are coming on line around the state, it is critical that they become the focal point for TIM in action, particularly when the TMC is jointly operated with the FHP. The vision of the future is that the TMC is the focal point for TIM and that TIM is their "Job 1!" To do this effectively will require considerable outreach to work closer with the 9-1-1 centers and emergency agencies that respond on Florida highways. Data sharing, video sharing and improved communications will be necessary to make measurable improvements in multi-agency TIM performance.

6.3.1.4 Other Organizations

In the context of the FDOT TIM Business Plan, "other" organizations are those that provide support services to the TIM Program and are highly influenced by FDOT as a major stakeholder. Examples are summarized as follows:

- Community Traffic Safety Teams (CTSTs) are local, multi-agency teams that address general safety issues confronting Florida's communities, including seniors issues, schools, pedestrian and bicycle challenges, and of course traffic safety. FDOT should be more active in the CTSTs in all areas. The Statewide and Local TIM Teams need to be more interactive and helpful to the CTSTs. There are currently 59 CTSTs in 54 counties statewide; this is a tremendous resource for good in traffic incident management practices. The CTSTs can be a primary channel for "localizing" TIM. These teams should also be invited to the Statewide TIM Team meetings and Traffic Incident Management Conferences.

- Professional Associates, such as the Institute of Transportation Engineers (ITE, and its Florida Section, FSITE), ITS Florida, Associations of Police and Fire Chiefs, wrecker associations, and other responders' associations are all valuable channels for outreach and promulgation of best practices, and most important, constituent support of the TIM Program.

- Auto clubs (like AAA) and insurance companies can assist the TIM Program in several ways. First, they can assist politically in support of TIM-friendly legislation. Secondly, they can assist in public awareness by promoting good TIM practices on the part of their customers through their newsletters, magazines, and direct mailings. They should be approached, for example, to help spread the word among the driving public about the Move-It and Move-Over laws. They should be a supporter of higher standards for towing equipment and operator competency.

6.3.2 Potential Structure for Traffic Incident Management Section

FDOT has clearly made a strong commitment to improved TIM both within the organization, as well as in partnership with its public safety colleagues. FDOT needs to consider whether it serves the Department and traveling public better to retain the TIM Program within the Traffic Engineering and Operations Office or to create a separate office. Arguments to the later option include the interdisciplinary nature of TIM coupled with the expanded scope of the program.

The program has, however, grown strong and stable within TEOO, and given the inclusion of the ITS Section within the office, there appears to be no pressing reason to change at this time. The recent reorganization of the TEOO that created a new position of Deputy State Traffic Engineer for Incident Management and the filling of the vacated Manager for Incident Management and Road Rangers position would seem to satisfy much of the immediate needs for staffing changes in the Central Office. However, the TIM Section feels they need another position for training, management and operations, quality assurance reviews, etc.

If, additionally, the primary mission of the Road Ranger Program is changed statewide to TIM support, there will be a need for a new FDOT manager to oversee this program. The position would reside in the TEOO's TIM Section.

The anticipated growth and expanded roles of TIM in the Department's operational context, coupled with the need for increased liaison with law enforcement, suggest the need to a FHP liaison officer, likely located within the TEOO to work with the other FDOT TIM/Road Ranger managers. This is discussed in greater detail in Section 6.3.4.

In those Districts having TIM Teams and/or Road Rangers, the provision of one fulltime person to cover TIM and/or Road Rangers may be adequate. District 5 with six TIM Teams (Brevard, Marion, Sumter/Lake, Tri-county, Volusia, and Flagler); plus a strong Road Ranger Program; and several special pilots, might be taxing the endurance of

outstanding TIM Managers like Jennifer Heller, so support for this position might be warranted. In those Districts yet to have TIM services, or not having a formal TIM Manager assigned, it is suggested that they create at least one fulltime position for their TIM and Road Ranger Programs. In some Districts there also might be a need for additional resources as the scope and mission of TIM and Road Ranger change. Details are provided below.

The success of the TIM Program has certainly provided a positive momentum; however, FDOT needs to reenergize the top-level support. It is suggested that the TIM Steering Committee resume regular meetings to guide the program with all the initiatives included in the TIM Strategic Plan

Accordingly, the following suggestions are made for consideration with respect to organizational and staffing changes, all of which are illustrated in Figure 6-1.

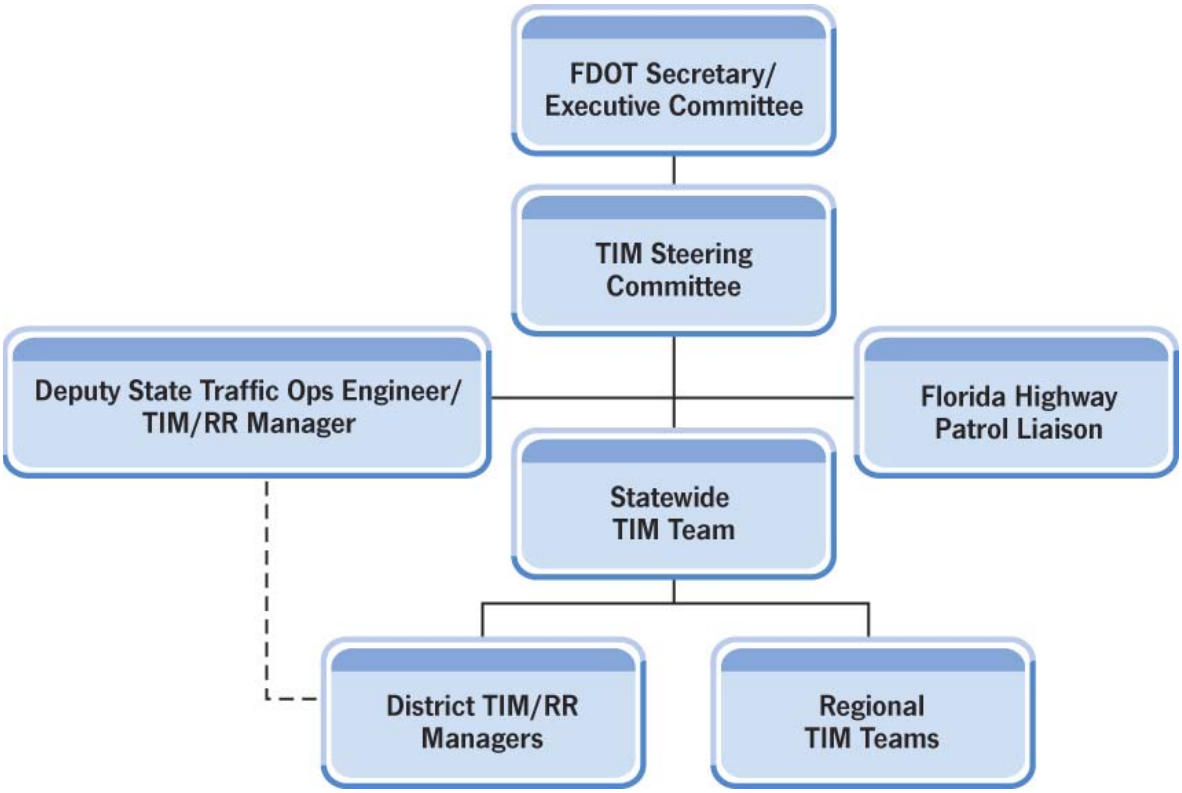


Figure 6-1 Proposed Statewide Traffic Incident Management Organization

1. Create an expanded TIM Steering Committee (Action 1.1.1). The current TIM Steering Committee is composed of senior managers of FDOT and FHP. Several other agencies have been invited, but have generally not participated. The Steering Committee might consider expanding to include more stakeholders, such as AAA, Fire and Police Chiefs' Associations, etc.

2. Foster expert outreach for the exchange of best practices (1.1.2). This would be a two-way exchange, Florida sharing its expertise and experiences with others nationally and Florida learning from others as well. This can be facilitated through forums such as the I-95 Corridor Coalition's Highway Operations Groups (HOGs). Florida and Georgia have exchanged peer groups in the past year or so. The FHWA peer-to-peer program has supported Florida TIM personnel visits to other states, such as Utah and Washington, and visa versa, as was the case for Transpo2004, to which California Highway Patrol and Caltrans TIM leaders participated.

3. Suggested staffing levels in the Districts as follows:

    - For Districts having one or two TIM Teams and Road Rangers, consider a fulltime TIM Manager to handle the TIM Teams and Road Ranger contracts.
    - For Districts with three or more TIM Teams and two or more Road Ranger contracts, consider a fulltime TIM Manager to manage the TIM Program and a separate Road Ranger Manager.

Of course, some of these functions are currently being handled by personnel with other duties and/or supplemented by consultant support. The former would be relieved to concentrate on other operations functions by the suggested new positions, which would report to the District Traffic Operations Offices. In the latter case, several districts have benefited from consultant support at the district level. It is suggested that additional consultant support be initiated as discussed in the next subsection.

6.3.3 Consultant Support of the Statewide Traffic Incident Management Program

In April 2004 FDOT initiated the first formal general consulting contract for TIM support. This 2.5-year contract included as Task 1 the production of this Strategic/Business Plan as well as general support to the Statewide TIM Program, as described in Subsection 2.2.1. Clearly there will be a continuing need for this support in the future. Further, as noted above, it has been demonstrated that consultant support has been very effective in Districts 1, 4, 6, 7 (to launch the teams, although they do not have continuing consultant support), and the FTE.

In addition to assisting the Central Office, Statewide TIM Teams, and District TIM Teams in "routine" TIM activities, the next few years will see a series of new challenges that expert consultant support will be needed to bring to bear. Some of these are as follows:

- Assisting the Department in transforming its transportation paradigm from one of capacity improvements and sustenance to one of management and operations of the transportation system.
- Transforming TIM in the regions from a largely discipline-specific orientation to a fully integrated, multi-agency orientation driven by the 4-Cs.

This subsection deals with these two levels of support.

6.3.3.1 Statewide Program

It is suggested that FDOT continue the practice of securing qualified consultant support on a continuing basis to assist the Incident Management Section of the TEOO in managing its TIM Program.

6.3.3.2 Regional Programs

It is further suggested that additional consultant or other TIM support be considered in the following Districts, either through the statewide consultant contract or by district contracts:

- District 2 to assist the TIM Teams and expand the Road Ranger Program into the rural areas and coordinate with Georgia on I-75 and I-95.
- District 3 to facilitate a new TIM Program and to help start up a Road Ranger Program.
- District 5 to assist the FDOT TIM Manager(s) and expand outside of the Orlando region, particularly the I-4 Corridor and Daytona Beach region.
- District 7 to assist in their ever-expanding regional development and connections to the adjacent Districts, and expansion of the Road Ranger Program onto all controlled-access facilities.

6.3.4 Florida Highway Patrol Liaison to Florida Department of Transportation

Much has been made for the need for interagency communications, cooperation, and coordination, particularly between the major transportation and law enforcement responders, namely FDOT and FHP. With the proliferation of TMCs statewide, several of which have co-location of FDOT and Joint Regional Communications Dispatch Centers, and even FHP District Headquarters, it becomes more imperative to improve the 4-Cs between these state agencies.

A FDOT-FHP liaison position is proposed. It is particularly recommended that a FHP officer be assigned on a continuing basis to this position and that he or she reside in the Traffic Engineering and Operations Office in the Central Office in Tallahassee.

Since by State Statute, FDOT is principally responsible to clear the highway to recover from traffic incidents—yet FHP plays a vital role in this process—it would be appropriate for FDOT to fund this position and as mentioned above, provide accommodations in the FDOT Traffic Engineering and Operations Office. The FHP officers would act as “TIM Program Co-manager” and would assist, or assume a number of the responsibilities attributed to the TIM Program Manager in Table 5-3, particularly given the expanded role and focus of TIM and the Road Ranger Programs.

Fulltime police liaison positions already exist in numerous states and are funded by the transportation agencies. California has over 30 CHP officers that supervise the freeway service patrols, work as liaisons to TMCs, and provide a consistent link between the two agencies. Maryland, New Jersey, and New York have similar programs funded through their transportation agencies.

If this position cannot be created as described, it is recommended that a new staff position for a separate Road Ranger Manager be created in the TEOO.

6.4 Traffic Incident Management Program Qualifications and Assessment

To truly raise the bar for TIM, it has been proposed that the TIM Program be performance-based, namely that the entire program be subjected to a set of performance measures (see Goal 2.3 in Tables 5-2 and 3). What is germane to the TIM Strategic Plan is the need to create the performance measures, mandate the collection of performance data, and provide for an annual assessment.

To complement the assessment process, and to ensure a top quality TIM Program, a "qualification/certification"[21] process should be instituted for TIM, particularly for Road Ranger operators (see Action 1.6.3) and tower/wrecker operators (see Action 2.4.3).

These are discussed further in the following subsections.

6.4.1. Performance Measures and Monitoring

As noted earlier in Section 4, a key to success and on-going sustainability of the program will be the creation of TIM performance measures (2.3.1-3). The previously referenced studies to develop such performance measures serve as a basis for this. The TIM performance measures recommended for the TIM Strategic Plan are summarized in Section 7.

6.4.2 Qualification and Training

It is proposed that the Statewide TIM Team consider developing a Statewide Traffic Incident Management Training and Qualification Program (TIMTQP) functionally similar to the FDOT Construction Training/Qualification Program (CTQP). While this program covers construction materials, this same type of program could easily be adapted to other areas of endeavor. Nonetheless, this would need a FDOT Task Manager to oversee, at least for the initial 2-3-year start-up period. This would also be an ideal opportunity for the FHP liaison to help develop the training for emergency responders consistent with the general goals of safely clearing incidents of all types through better site management and clearance procedures.

6.4.2.1 Traffic Incident Management Training/Qualification Program

The proposed process to create and launch the program is as follows:

[21] Note: in Florida, true "certification" by any state agency is a rule-making process, so unless an external entity can certify subjects, FDOT typically used the term "qualification" to qualify subjects for such purposes to avoid a rule change any time the qualification requirements change.

1. Determine which specific jobs will require qualification (initially at least Road Ranger and wrecker operators);
2. Form task forces from the TIM Teams, Road Ranger Managers and contractors, and wrecker association members to create the standards for qualifications;
3. Determine whether any existing certification or qualification programs would be acceptable;
4. Task forces develop basic training curricula and testing criteria;
5. Formalize the TIMTQP qualifications, training sessions, and tests; and
6. Initiate the program.

Several factors will have significant bearing on this issue. First is the direction that the Road Ranger Program will take, namely whether it will continue to be mostly a motorist assistance program, or, as recommended, become more of a true incident management resource. If the program moves more into the latter direction, the training and qualification requirements will increase substantially. For example, current Road Ranger training for the road-side assistance program can be accommodated with about one day's training by TIM professionals, plus the internal training provided by the contractors themselves (which varies based on the prior experience of the employees and the company's training standards).

At the other extreme, we can look to the Georgia HERO (Highway Emergency Response Operator) Program as a good example. The "basic" training requirements for HERO operators totals 338 hours of instructional training in topics ranging from defensive driving and crash victim extrication, to risk management/crime scene analysis and infectious control (blood-borne pathogens), and all skills related to TIM and incident scene management. Then follows a minimum 200 hours of on-job training (i.e., "ride-alongs") with HERO supervisors, for a total of 538 hours. Each operator subsequently requires 48 hours of re-training annually for re-certification.

6.4.2.2 Operation of a Traffic Incident Management Training/Qualification Program

It is likely that a contractor would be needed to implement and management all aspects of administering the suggested qualification program, the needed training and testing, maintaining all records in a FDOT-approved database management system, notifying operators when renewals are needed, and all other aspects. The system must accommodate individuals from any organization or company, thus should exist outside FDOT's internal Training Records Evaluation, and Scheduling System (TRESS), but be able to supply data to TRESS for FDOT employees.

The University of Florida operates the similar CTQP Program for the FDOT's FHWA-mandated highway construction and maintenance programs using a database management system called the Training/Qualification Database System (TQDBS), which could serve as a model.[22]

6.5 Traffic Incident Management Resources

[22] See http://ctt.ce.ufl.edu/.

Several major decisions need to be made before the equipment and other TIM resource needs are known. Some of the possibilities are summarized as follows:

1. If interagency telecommunications becomes a reality, there will obviously need to be a large-scale acquisition of radio equipment.

2. If the decision is taken to change the primary function of the Road Rangers to traffic incident management, instead of motorist assistance, which would continue but as a secondary role, the Road Ranger units will need to be substantially upgraded—both the vehicles, as well as the standard on-board gear and appurtenances. Whether this is a capital investment by FDOT (or others), or continues to be a contractor function will need to be determined. (As previously mentioned, this change could substantially change the training and qualification requirements for Road Ranger operators as well.) A model set of equipment was developed by representatives from four states that will be a good starting point for FDOT.

3. At a minimum, even if the role of the Road Rangers does not change substantially, there are new standards for warning materials that require temporary signage with vibrant new colors. Indeed, just to meet the requirements of the Florida Department of Transportation Design Standards, or the revised MUTCD, in areas not covered in the Florida Department of Transportation Design Standards. Road Rangers and other responders, particularly those who have to establish an incident scene to the same standards as a work zone, will need a substantial amount of new signs, barricades, cones, flares, etc.

4. As other quick clearance best practices become more widespread, incidental equipment and materials will be needed, such as more minor spilled fluid clean-up materials and better crash debris removal equipment.

The full impact of these requirements will take more detailed analysis. For the purpose of this Business Plan, a broad estimate is included for certain upgrade requirements, which is included in the financial plan that follows.

6.6 Financial Estimates

Table 6-1 contains estimates of both capital and operational requirements to upgrade and maintain the TIM Program for all actions suggested herein. Monetary outlays for purchases, consultant and contractor costs, and the like are provided in dollars, both for initial expenditures, and for an estimated annual operating budget. State agency staffing estimates for new resources are given in FTEs (full-time equivalents). This table is also available as an Excel spreadsheet.

Those actions recommended for immediate implementation in accordance with the TIM Strategic Plan are summarized in the next section.

7. RECOMMENDATIONS FOR THE TIM STRATEGIC PLAN

Traffic incident management must be improved and must be part of a FDOT's formal operations program. This is critical to the long-term success of the agency. As noted in the beginning, Florida's Turnpike Enterprise found in a survey of its customers that 90% approved of all aspects of their operations except for the handling of incidents. Only 46% of those polled thought they were handled adequately. The Turnpike is striving to improve all aspects of TIM services, as are all Districts.

Florida has one of the highest fatality rates in the nation at 1.76 per million miles driven; nearly twice as high as the best states that are under 1 per million miles driven. When secondary crashes with fatalities occur, FDOT may have been able to prevent them through better response and management of the previous incidents.

Table 6-1 Capital and Operational Estimates to Upgrade and Maintain TIM Program

				Current Priority		Future Implementation					
Term	**Action**	**Responsible Unit**	**FDOT FTEs**	**Est. Initial Cost**	**Est. Annual Cost**	**Est. Initial Cost**	**Est. Annual Cost**	**Funding Source**	**Monitoring Respon-sibility**	**Description/ Comment**	**Basis**
	Administrative Actions										
M	6.2.3-1. Develop a new TIM Program Standard Operating Procedure	Statewide TIM Teams		$50,000						Consultant support in developing document.	Estimated consultant fee
M	6.2.3-2. Champion a new Joint Operations Agreement	Statewide TIM Teams		$150,000						Consultant support in developing document.	Estimated consultant fee
M	6.3.2-1. Create expanded TIM Steering Committee	TIM Steering Committee									
M	6.3.2-3. New staff positions:	FDOT									
	Central Office: fulltime Assistant TIM/RR Manager	FDOT	1								
	District 1: fulltime TIM Manager	D1	1								
	District 3: fulltime TIM/RR Manager	D3	1								
	District 5: assistant TIM Manager for RR	D5	1								
M	Turnpike Enterprise (TPE): fulltime RR/RISC Manager										Estimated cost for consultant person

M	6.3.4. FHP liaison to FDOT	FDOT/FHP		$10,000	$81,900					Set up liaison office, pay salary (ext. $60K, plus fringe and OH)	
S	6.3.3.1. Statewide TIM consultant support:	OTEO		$200,000	$210,000			Ongoing TIM General Consultant support	Current contract, expanded		
L	6.3.3.2. Regional TIM support:	FDOT									
	District 1	D1		$200,000	$210,000						
	District 2	D2		$200,000	$210,000					TIM facilitation, training, and outreach (2 Teams)	D1 Contract
	District 3	D3		$200,000	$210,000						
	District 4	D4	1	$200,000	$210,000					TIM Team formation (2) facilitation, training, and outreach	D1 Contract
	District 5	D5		$200,000	$210,000					TIM facilitation, training, and outreach (6 Teams)	D1 Contract
	District 6	D6		$200,000	$210,000						
	District 7	D7		$200,000	$210,000					TIM facilitation, training, and outreach (2 Teams)	D1 Contract
M	6.4.2.1. Create TIM Qualification program	OTEO		$150,000					TIM Program Manager/TIMTQP Manager	Set up TIMTQP qualifications	
L	6.4.2.2. Operate TIM Training/Qualification Program	OTEO	1		$350,000				TIMTQP Manager	Annual cost is estimate for training FDOT RR personnel	

L	6.5-2. Convert Road Rangers to TIM Operations (equipment/personnel)	FDOT		$10,125,000	$2,025,000				RR Program Manager	Purchase and O&M of 135 RR units for TIM operations in current RR areas, plus D3 and I-4, estimated at $75,000 each, then 20% O&M, and supersedes current operations	Georgia HERO units
					$6,750,000					Contract operators for 135 units as above, based on an average cost of $50,000 (or about $20/hour).	Georgia base salaries for trained operators
M	6.5-3. Equip Road Rangers with Current Appurtenances	FDOT		$67,500	$13,500				RR Program Manager	Purchase and O&M of materiel, estimated at $500 each for 135 units, then 20% O&M	
M	6.5-4. Expanded Materiel for TIM Responders	FDOT		$300,000	$60,000				RR Program Manager	Purchase and O&M of materiel, estimated at $300 each for 1000 units, then 20% O&M	
	Specific Actions										
S	1.1.1. Create an expanded TIM Steering Committee	FDOT							Steering Committee track committee membership and active participation	Invite representatives from other agencies, such as Fire and Police Chiefs' Associations, AAA, etc. (See 5.3.2.1.1 above.)	
S	1.1.2. Foster outreach and information sharing with peer agencies	FDOT							TIM Program Manager tracks progress	Participate actively in I-95 Corridor Coalition HOGs and National Traffic Incident Management Coalition	

S	1.1.3. Develop guidelines for TIM Team operations	Statewide TIM Teams							Program Manager verify publication	Ultimately a section in a proposed new TIM Program Standard Operating Procedure (SOP, or TIM/SOP). A statewide Road Ranger Procedure is in preparation.	
S	1.1.4. Present Executive Forums and TIM workshops in areas not covered by TIM Teams	FDOT		Included in consulting costs					Program Manager track Team formation	An element of the TIM Program General Consultant contract.	
S	1.1.5. Strengthen bond between statewide and regional TIM Teams	Statewide TIM Teams							Program Manager track progress	An element of the TIM Program General Consultant contract.	
S	1.1.6. Develop standardized guidelines for Road Ranger Program statewide	Statewide TIM Teams/RR Coordinators							Program Manager verify publication	This would be a section in the TIM/SOP.	
S	1.1.8. Develop guidelines to standardize the Road Ranger Program, while retaining special needs	Statewide TIM Teams							Program Manager track progress	TIM Section is drafting a statewide Road Ranger Procedure.	
S	1.1.10. Improve the controlled use of emergency lighting by law enforcement and other responders	FHP, local law enforcement, fire rescue, etc.							FHP track progress	This would be a provision in the proposed Joint Operations Agreement (JOA).	
S	1.2.1. Use ITS to detect incidents	FDOT							TMC operations	A provision in the proposed JOA.	

S	1.2.2. Use ITS to verify incidents	FDOT							TMC operations	A provision in the proposed JOA.	
S	1.2.3. Use ITS to improve first response to incidents	FDOT							TMC operations	A provision in the proposed JOA.	
S	1.2.4. Improve public awareness of the Move-It Law	Statewide TIM Teams		$15,000	$5,000				DVR and Clearance Teams track progress	This would be an element of a TIM public awareness campaign.	Estimated printing costs; District 7 prepared the flier
S	1.2.5. Improve responder understanding and use of Move-It Law	Statewide TIM Teams							DVR and Clearance Teams track progress	A provision in the proposed JOA.	
S	1.2.6. Improve public awareness of Move-Over Law	Statewide TIM Teams				$15,000	$3,000		FHP and TMCs track progress by observation	Potentially an element of a TIM public awareness campaign.	Estimated PR costs
S	1.2.7. Responders issue cards to explain “Move” Laws	FDOT		$10,000	$2,000				Communications Team track progress	A provision in the proposed JOA.	Printing estimate
S	1.3.1. Use ITS to reduce clearance time	FDOT							TMC operations	A provision in the proposed JOA.	
S	1.3.2. Use ITS to improve secondary response to incidents	FDOT							TMC operations	A provision in the proposed JOA.	
S	1.3.3. Improve minor spill cleanup by applying approved guidelines	FDOT		$15,000					Clearance Team monitors application	A provision in the proposed JOA. Will require internal training.	Printing estimate

S	1.3.4. Reduce unnecessary equipment at the scene	FDOT/FHP/Others							Clearance Team monitors application	A provision in the proposed JOA. Will require internal training.	
S	1.3.10. Provide incentives to TIM providers	FDOT				$5,000	$2,500		Program Manager take lead role	Find ways to recognize other TIM responders (FDOT and Road Rangers) who exercise quick clearance.	Estimated at $10 each for 500, then 50% thereafter
S	1.3.13. Use ITS to provide timely and accurate information to motorists impacted by incidents	FDOT							Program Manager take lead role	A provision in the proposed JOA.	Included in TMC costs
S	1.4.1. Provide timely information to motorists to avoid incidents	FDOT							Clearance Team and TMCs monitor application	A provision in the proposed JOA. While no costs are listed here, there are naturally deployment costs.	
S	1.4.2. Conduct awareness campaign to avoid rubber-necking	Statewide TIM Teams		$30,000	$6,000				Clearance Team monitors application	An element of a TIM public awareness campaign.	
S	1.5.1. Inform motorists of incident in route	FDOT							Communications Team monitors applications	A provision in the proposed JOA.	
S	1.5.2. Responders provide warnings to back of queue	FDOT/FHP/Others							Clearance Team and TMCs monitor application	A provision in the proposed JOA.	
S	1.5.3. Manage diversion routes	FDOT/FHP/Others							DVR Team monitors statistics	A provision in the proposed JOA.	

S	1.6.5. Provide more formal recognition of RR operators by public by issuing badges	FDOT		$12,500	$2,500				Training Team monitors progress	A future element of the TIM Program General Consultant contract.	Estimated at $25 each for 500, then 20% thereafter
S	1.7.1. Provide timely notification of responsible agencies	FDOT/FHP/Others							Communications Team track progress	A provision in the proposed JOA.	
S	1.7.2. Conduct pre-evacuation planning and resource identification	FDOT/FHP/Others							Communications Team track progress	A provision in the proposed JOA.	
S	1.7.3. Support command and control efforts for evacuation	FDOT/FHP/Others							Communications Team track progress	A provision in the proposed JOA.	
S	1.7.4. Support evacuation guidelines, including contraflow	FDOT/FHP/Others							Communications Team track progress	Included in the State Comprehensive Emergency Evacuation Plan. Also a provision in the proposed JOA.	
S	1.7.5. Support evacuation routing, including contraflow	FDOT/FHP/Others							Communications Team track progress	A provision in the proposed JOA.	
S	1.7.6. Participate in post-evacuation debriefs	FDOT/FHP/Others							Steering Committee track progress	A provision in the proposed JOA.	
S	1.8.1. Provide customized data logging/ communications system for RR operators	FDOT/RRs		$750,000	$75,000				Communications Team monitors progress of pilot in District 5 and elsewhere	A provision in the proposed JOA. Purchase of 200 units statewide.	Current equipment procurement activity, plus 10% O&M annually.

S	1.8.2. Provide common interagency communications system for all TIM personnel	FDOT/FHP/ Legislature		$1,250,000	$250,000					Purchase and O&M of M/A-COM radios, estimated for 200 mobile units at $4700 each, and 16 dispatch units at $7600 each, then 20% O&M and replacement cost	
S	1.9.2. Reconcile ORP and incident levels	FDOT/FHP/Others							Steering Committee track progress	Policy change.	
S	1.9.4. Initiate multi-agency post-incident debriefs for all Level 3 and selective Level 2 incidents, and all evacuations	FDOT/FHP/Others							Communication Team track progress	A provision in the proposed JOA.	
S	1.9.5. Follow the standardized criteria and agreements for discontinuing toll collection on all expressways during emergencies	FDOT/Authorities							Steering Committee track progress	A provision in the proposed JOA.	
S	2.1.3. Encourage collocation of FDOT TMC and Law Enforcement Dispatch Centers	FDOT/FHP/Others		Included in TMC construction costs					Steering Committee track progress	This would pertain primarily to new RTMC, but statewide this existing policy should be revisited.	

S	2.1.4. Provide statewide traffic condition system	FDOT				Included in iFlorida			Communications Team track progress	Will require a cost-benefit study for FDOT, or Legislative, approval. Basic program is already included in the iFlorida project. Estimate is to modify SunGuide Software interface.	Estimated initial with 10% O&M
S	2.1.5. Clarify legal responsibility for TIM and clearing highways	FDOT/Secretary of State							Steering Committee track progress	This would require legal review by FDOT and FHP legal staffs.	
S	2.1.7. Florida join National Traffic Incident Management Coalition	FDOT							Program Manager take lead role	This is currently a somewhat closed coalition, but has potential values in leveraging national standards, and should be considered by FDOT.	
S	2.2.3. Apply unified command system in TIM	FDOT/FHP/Others							Program Manager take lead role	A provision in the proposed JOA.	
S	2.3.1. Develop performance measures and data collection methods for each stage of an incident	Statewide TIM Teams							Program Manager approve publication	Complete the TIM Performance Measures Study currently underway in the Office of Traffic Engineering and Operations. Also coordinate it with the recently approved PMs for ITS.	

S	2.3.2. Develop Road Ranger performance measures	Statewide TIM Teams							Program Manager approve publication	Adopt the performance measures study being conducted by the Office of Traffic Engineering and Operations.	
S	2.11.2. Vigorously pursue quick clean-up of minor vehicle spills	FDOT							Clearance Team monitor progress	A provision in the proposed JOA.	
M	1.3.6. Provide emergency access via median crossovers	FDOT		Included in construction costs					Clearance Team monitors application	Develop a statewide policy between FDOT and FHWA on the frequency, location, and design of median crossovers.	
M	1.3.8. Provide incentives to towers and recovery companies for quick clearance (expand RISC program to freeways)	FDOT		$150,000	$500,000				Clearance Team monitors application	Assume wrecker associations will provide some outreach and training.	Costs based on FTE program.
M	1.3.9. Strictly enforce RISC program to ensure effectiveness	FDOT							Clearance Team monitors application	Will require a cost-benefit study for FDOT, or Legislative, approval.	
M	1.5.4. Provide improved signal timing on diversion routes	FDOT/Local Traffic Operations							Communications Team monitors actions by local TCCs	A provision in the proposed JOA.	
M	1.6.1. Road Rangers assume increased role in TIM	FDOT		Included in 6.5-2					Clearance Team monitors application	A section of the SOP.	

M	1.6.2. Provide expanded Road Ranger training in TIM	FDOT		Included in 6.5-2					Training Team monitors progress	A section of the SOP.	
M	1.6.3. Initiate a formal qualification program for RR operators	FDOT		$1,920,000	$453,600				Training Team monitors progress	Startup based on $300K program initiation and course development, plus training coast of 400 hours based on $39/hr. Continuing assume 20% replacements and 40 hours refresher.	CTQP
M	1.6.4. Provide RR Dispatchers in TMCs or Law Enforcement Dispatch Centers	FDOT	36						TIM Program Manager tracks progress	Staffing changes in Districts.	Assuming each TMC/LEDC will need 6 FTEs to cover 24/7 operations in a total of 12 TMCs eventually, but currently based on 6.
M	1.9.1. Change Open Road Policy (ORP) goal to begin upon verification of the incident	FDOT/FHP/Others							Steering Committee track progress	This would be a policy change.	

M	1.9.6. Develop operations agreements with other impacted agencies (Medical Examiners, hospitals, hazardous materials handlers, etc.)	FDOT/FHP/Others							Program Manager track progress	An element of the TIM Program General Consultant contract.	
M	2.1.6. Conform to National Incident Management System	FDOT/FHP/Others							Steering Committee track progress	A provision in the proposed JOA.	
M	2.2.1. Plan and program for TIM operations	FDOT							Steering Committee track progress	A provision in the proposed JOA.	
M	2.2.2. Include TIM in highway designs	FDOT							Program Manager take lead role	FDOT should adopt a policy.	
M	2.3.4. Report TIM/RR performance tracking	FDOT							Steering Committee track progress	A follow-on to 2.3.3 and should be a provision in the proposed JOA. All appropriate agencies should log and report their TIM performance measures. TMCs should include these in their performance tracking.	
M	2.4.1. Change clearance compensation policies to be performance based, not time based	FDOT							Clearance Team track progress	A provision in the proposed JOA.	

M	2.4.2. Update towing regulations to improve the equipment needs	FDOT/FHP/Others							Clearance Team track progress	A provision in the proposed JOA.	
M	2.4.3. Require qualification/certification of wrecker services	FDOT/FHP/Others							Clearance Team track progress	A provision in the proposed JOA. Direct costs covered by wrecker associations.	
M	2.5.1. Support laws limiting liability to all responders for actions taken while engaged in TIM quick clearance	FDOT/Legislature							Steering Committee take lead	Will require legislative action.	
M	2.6.1. Maintenance of Traffic plans include TIM	FDOT							Program Manager take lead role	FDOT should adopt a policy.	
M	2.7.1. Outreach to all stakeholders with TIM and EM guidelines	Statewide TIM Teams							Program Manager take lead role	A provision in the proposed JOA.	
M	2.7.2. Localize statewide policies with TIM Team input	Statewide/Regional TIM Teams							Program Manager take lead role	A provision in the proposed JOA.	
M	2.7.3. Expand joint operations agreements	Statewide TIM Teams							Program Manager take lead role	A provision in the proposed JOA.	
M	2.8.1. Include TIM as a priority line item in the FDOT Work Program	FDOT							Steering Committee track progress	FDOT should adopt a policy.	

M	2.9.1. Determine the optimal approach to procuring TMC operations	FDOT							Program Manager take lead role	Will require a cost-benefit study for FDOT approval.	
M	2.9.2. Determine the optimal approach to procuring Road Rangers	FDOT							Program Manager take lead role	Will require a cost-benefit study for FDOT approval.	
M	2.9.3. Determine the appropriate role of Asset Management in TIM	FDOT			$50,000				Program Manager take lead role	Will require a cost-benefit study for FDOT approval.	Consultant fee
M	2.10.1. Identify applications to CCTV in law enforcement	FDOT/FHP/FDLE/ Local Law Enforcement							Program Manager take lead role	A provision in the proposed JOA.	
M	2.10.2. Identify applications to CCTV in EMS	FDOT/EMS							Program Manager take lead role	A provision in the proposed JOA.	
M	2.10.3. Improve role of DMS in alerts, including Amber Alerts	FDOT/FHP/FDLE/ Local Law Enforcement							Program Manager take lead role	A provision in the proposed JOA.	
M	2.10.4. Improve role of HAR in alerts, including Amber Alerts	FDOT/FHP/FDLE/ Local Law Enforcement							Program Manager take lead role	A provision in the proposed JOA.	
M	2.11.1. Identify ITS applications to preserve and protect the highway infrastructure	FDOT							Program Manager take lead role	FDOT should adopt a policy.	
M	2.11.3. Develop an incentive program for HAZMAT clean-up	FDOT							Steering Committee develop program	A provision in the proposed JOA.	

M	3.1.1. Develop a Joint Operations Manual that is in full conformance with the National Incident Management System	FDOT/FHP/Others		Included in 5.2.3.2					Program Manager steers development, Steering Committee tracks progress	This is the proposed JOA.	
M	3.1.2. Provide for integration of TMC and law enforcement CAD systems	FDOT/FHP/FDLE/ Local Law Enforcement		To be covered in SunGuide Software enhancements					Communications Team monitors progress (ITS Section implements SunGuide modification)	A provision in the proposed JOA. This will require software changes to the SunGuide(sm) Software. FDOT's OTEO is currently negotiating the CAD side with FHP.	
M	3.2.1. Develop a Statewide Concept of Operations with TMCs having a primary role in TIM	FDOT/FHP/Others		$200,000					Steering Committee track progress	The proposed JOA would be based in part on this ConOps. Funding source to be determined.	Estimated consultant cost
M	3.3.1. Review all applicable laws, regulations, policies and procedures	Statewide TIM Teams							Steering Committee track progress	This would be an outcome of this Strategic Plan, plus a number of other actions included in this plan.	
M	3.3.2. Perform benefit-cost analysis to justify changes in laws, policies, etc., and continued funding of TIM/RR	FDOT				$175,000			Program Manager oversee consultant	Consultant study.	
L	1.1.7. Expand statewide coverage of the Road Ranger Program	FDOT		Assumed to be superseded by statewide RR Program					Program Manager track Road Ranger formation	The Steering Committee should create a special task force to study this and recommend specific actions.	

L	1.1.9. Engage Road Rangers more actively in TIM	FDOT		Assumed to be superseded by statewide RR Program					DVR and Clearance Teams track progress	A provision in the proposed JOA.	
L	1.3.5. Responders proactively remove deceased victims	FDOT/FHP/Others							Clearance Team monitors application	A provision in the proposed JOA. MOU with Medical Examiners required. Will require internal training.	
L	1.3.7. Provide preplanned diversion routes	FDOT/Regional TIM Teams							Clearance Team monitors application	A statewide project monitored by each regional TIM Team. Use FDOT's mapping system. Coordinate between OTEO and the Survey and Mapping Office.	
L	1.3.12. Provide well-designed incident investigation areas off the roadway and out of sight	FDOT		Included in highway construction costs					Program Manager with General Consultant	The Statewide TIM Team should create guidelines and coordinate with the median crossover study (1.3.6) and special access study, (1.3.11).	
L	1.6.6. Evaluate other service patrol models	FDOT				$150,000			Program Manager with General Consultant	Consultant study of other FSP programs nationally.	Estimated consultant costs
L	1.8.3. Provide common interagency-communications system for all emergency management personnel	FDOT/FHP/Others		Further study needed					Communications Team monitors progress	Same as 1.8.2.	

L	2.1.1. Conduct TIM Master Plans in each FDOT District, major urban region, and/or interurban corridor	FDOT				$1,200,000			Steering Committee track progress	These would be fed by the Statewide ConOps.	Estimated consultant costs, assuming 8 regions
L	2.1.2. Develop interagency agreements for TIM mutual support	FDOT/FHP/Others							Steering Committee track progress	A provision in the proposed JOA.	
L	2.3.3. FDOT Districts collect, analyze and report performance measures	FDOT							Steering Committee track progress	FDOT should adopt a policy.	
L	4.4.1. Deploy "My SunGuide" as a personalized Web service	FDOT				$2,500,000	$625,000		Program Manager take lead	This should be investigated by the SunGuide(sm) Software Committee. GDOT's MyNaviGAtor serves as a potential model.	Estimated development costs plus 30% O&M
	Totals		42	$16,805,000	$12,304,500	$4,045,000	$630,500				

Finally, strong TIM programs are a visible, popular method for FDOT to gain stronger public support for other program improvements. Washington State was successful in getting a statewide voter-approved 5 cent increase in gas taxes and they attribute part of that success to their highly successful statewide TIM Program.

The recommendations in this report are consistent with and based on the best practices found in several states. Florida has already achieved significant success in TIM initiatives and a consistent program will put FDOT in the enviable position of being one of the top programs in the nation.

This section summarizes the specific recommendations to carry forward in the TIM Strategic Plan. The leadership of the Steering Committee and statewide TIM Team considered the foregoing information and selected these from among the myriad of actions proposed. The decisions were based on the determination that the primary focus of the TIM Program for the next few years should be on *maximizing mobility*, which is achieved by minimizing incident duration, and *minimizing secondary crashes*.

Additionally, there are two areas of support that are needed: institutional changes to effect the enhancement of the program and performance measures to assess the progress. These are covered in the following subsections.

7.1 Priority Strategic Directions and Actions

As noted above, the priority strategic objectives selected by FDOT are maximizing mobility and minimizing secondary crashes. A number of actions have been suggested that support one or both of these—indeed there is overlap in actions that benefit each objective. The action list in Table 5-2 has nearly 110 specific actions. Additionally, other potential actions of a more general nature were identified in Section 6. Clearly the TIM Program cannot tackle all of these at one time. The summary of recommended actions below represents the sets that are viewed as having the best “bang for the buck” in terms of having a decisive impact on TIM in Florida. As the program continues, the remaining actions serve as a pool that can be addressed as resources are available.

The specific TIM actions that are the basis for the TIM Strategic Plan are identified in the following two subsections.

7.1.1 Actions to Maximize Mobility

The actions listed below are focused on the maximization of mobility (or minimization of congestion) objective. Only the reference numbers and action titles are listed here. Readers may refer to Tables 5-2 and 5-3 for more details.

1.2.1. Use ITS to detect incidents
1.2.2. Use ITS to verify incidents
1.2.3. Use ITS to improve first response to incidents
1.2.4. Improve public awareness of the Move-It Law
1.2.5. Improve responder understanding and use of Move-It Law
1.2.7. Responders issue cards to explain “Move” Laws

1.3.1. Use ITS to improve incident clearance time
1.3.2. Use ITS to improve secondary response to incidents
1.3.3. Improve minor spill cleanup by applying approved guidelines
1.3.5. Responders proactively remove deceased victims
1.3.7. Provide preplanned diversion routes
1.4.1. Provide timely information to motorists to avoid incidents
1.4.2. Conduct awareness campaign to avoid rubber-necking
1.7.1. Provide timely notification of responsible agencies
1.7.3. Support command and control efforts for evacuation
1.7.4. Support evacuation guidelines, including contraflow
1.7.5. Support evacuation routing, including contraflow
1.1.7. Expand the Road Ranger Program
1.1.9. Engage Road Rangers more actively in TIM
1.3.6. Provide emergency access via median cross-overs
1.9.5. Follow the criteria and agreements for discontinuing toll collection on all expressways during emergencies
2.1.4. Provide statewide traffic condition system
2.6.1. Maintenance of Traffic plans include TIM

7.1.2 Actions to Minimize Secondary Crashes

The actions listed below are focused on the objective to minimize secondary crashes. Again, refer to Tables 5-2 and 5-3 for more details.

1.1.10. Improve the controlled use of emergency lighting
1.3.4. Reduce unnecessary equipment at the scene
1.5.1. Inform motorists of incident in route
1.5.2. Responders provide warnings to back of queue
2.11.2. Vigorously pursue quick clean-up of minor vehicle spills

7.2 Institutional Actions

These are actions of an institutional nature from Table 5-2, plus others suggested in Section 6. They are separated into those that will focus on the Central Office and/or statewide TIM Team and district/regional.

7.2.1 Statewide/Central Office

1.1.1. Create an expanded TIM Steering Committee
1.1.2. Foster outreach and information sharing with peer agencies
1.1.8. Develop guidelines to standardize the Road Ranger Program, while retaining special needs
1.3.8. Provide incentives to towing and recovery companies for quick clearance (expand RISC program to freeways)
1.6.2. Provide expanded Road Ranger training in TIM
1.6.3. Initiate a formal qualification program for Road Ranger operators
1.8.2. Provide common interagency communications system for all TIM personnel
1.8.3. Provide common interagency communications system for all emergency management personnel

1.9.1. Change Open Road Policy (ORP) goal to begin upon verification of the incident
1.9.2. Reconcile ORP and incident levels
1.9.3. Provide inter-agency training for purposes of cross-training
1.9.4. Initiate multi-agency post-incident debriefs for all Level 3 and selective Level 2 incidents, and all evacuations
2.1.3. Encourage co-location of FDOT TMC and Law Enforcement Dispatch Centers
2.2.3. Apply unified command system in TIM
2.1.6. Conform to National Incident Management System
2.1.7. Florida join National Traffic Incident Management Coalition
2.4.2. Update towing regulations to improve the equipment needs
2.4.3. Require qualification/certification of wrecker services
2.8.1. Include TIM as a priority line item in the Work Program
3.1.1. Develop a Joint Operations Manual that is in full conformance with the National Incident Management System

7.2.2 Regional/District Level

1.1.3. Develop guidelines for TIM Team operations
1.1.6. Develop standardized guidelines for Road Ranger Program statewide
1.1.4. Present Executive Forums and TIM workshops in areas not covered by TIM Teams
1.1.5. Strengthen bond between statewide and regional TIM Teams
1.6.1. Road Rangers assume increased role in TIM
1.6.4. Provide Road Ranger Dispatchers in TMCs or Law Enforcement Dispatch Centers
1.6.5. Provide more formal recognition of Road Ranger operators by public by issuing badges
1.7.6. Participate in post-evacuation debriefs
1.8.1. Provide automated data logging and communications system for Road Ranger operators
1.9.6. Develop operations agreements with other impacted agencies (Medical Examiners, hospitals, hazardous materials handlers, etc.)
2.1.2. Develop interagency agreements for TIM mutual support
2.1.3. Encourage co-location of FDOT TMC and Law Enforcement Dispatch Centers
2.7.2. Localize statewide policies with TIM Team input
2.7.3. Expand joint operations agreements
2.9.3. Districts should determine the appropriate role of Asset Managers in TIM
3.1.2. Provide resources for integration of TMC and law enforcement CAD systems
3.2.1. Develop a Statewide Concept of Operations with TMCs having a primary role in TIM

7.2.3 Recommended Changes in Laws, Policies, and Procedures

One specific action, “review all applicable laws, regulations, policies and procedures (3.3.1),” is, in part being accomplished by this Strategic Planning process. Section 6.2.1 suggested three possible changes in the law. Two (incentive program and interagency communications) will need further study. The third (the liability issue) was actually

addressed, at least in part, by the 2005 Legislative Session; however, the Governor vetoed the Bill.

The following additional policy changes discussed in Subsections 6.2.2 and 6.4, and not included in the specific actions above, are recommended to the Strategic Plan:

- Increase the focus on operations as a primary FDOT mission.
- While full implementation of Action 2.2.2 is not recommended at this time, it is recommended that a plan for emergency cross-overs be developed and implemented.
- Re-examine the practice of including TIM operations in Asset Management contracts.
- Create a TIM Training/Qualification Program as outlined in Subsections 6.4.2 and 3.

Both procedural changes suggested in Section 6.2.3 are recommended, namely the development of both TIM Program Standard Operating Procedures and TIM Joint Operations Agreements.

7.2.4 Recommended TIM Management Initiatives

Sections 6.3 and 6.5 recommended a number of TIM management initiatives. The following are recommended to the TIM Strategic Plan:

- Affect full, stable funding for TIM statewide, including the resources identified in Section 6.5.
- Transform the primary role of the Road Ranger Program from motorist assistance to TIM and secure the funds to do so.
- Proactively engage the statewide TIM “tools” at the local level.
- Make TMCs the focal point for TIM and ensure at least integration with other support centers if agencies cannot co-locate in the TMC.
- Expand the collaboration between the traditional TIM community and other safety and professional groups.

These explicit recommendations are made with respect to the TIM Program management:

- Expand the TIM Steering Committee to include more stakeholders and encourage the committee to be more proactive in overseeing the TIM Program is TIM activities play a more vital role in the Department’s affairs.
- Ensure adequate staffing within all districts to manage the TIM Program in general and the Road Ranger Program in particular.
- Provide continuing support to all TIM Teams and the statewide and district TIM Programs they represent.
- Create a FHP Liaison position within the TIM Section of Traffic Engineering and Operations Office, which should be staffed by a FHP officer, but funded by FDOT.

7.3 Performance Measures

Four specific actions dealt with the need for TIM performance measures in general, as follows:

2.3.1. Develop performance measures and data collection methods for each stage of an incident
2.3.2. Develop Road Ranger performance measures
2.3.3. FDOT Districts collect, analyze and report performance measures
2.3.4. Report TIM/Road Ranger performance tracking

Based on the discussions in Section 4, the following performance measures, from FDOT's perspective, are recommended. Figure 4-1(a) is repeated here as Figure 7-1 for ease of reference.

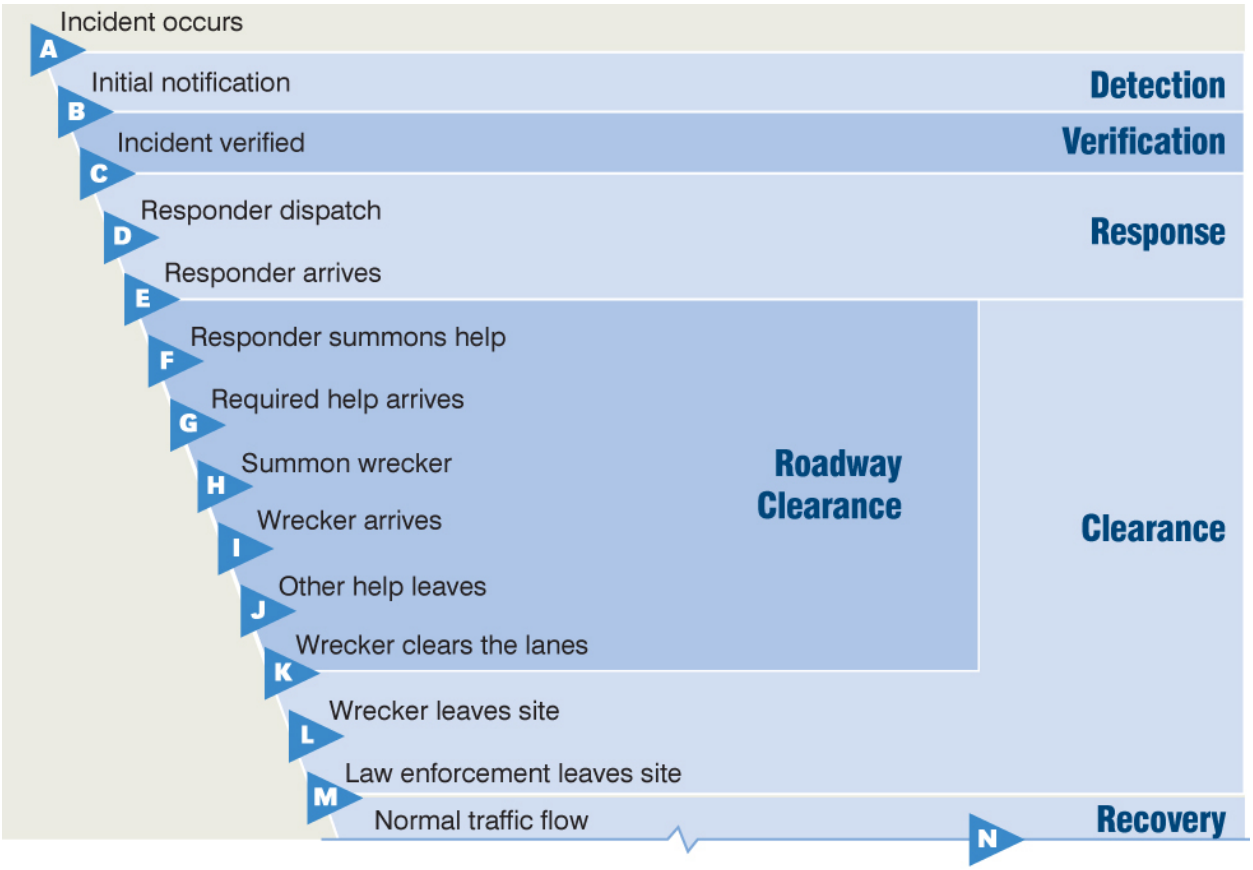


Figure 7-1 Traffic Incident Timeline

- Short-term performance measures for TIM in general and for each responder agency for self-evaluation:

  - Verification time from initial notification until responder notified (B-C),
  - Response time, from responder notification to arrival of responder (C-E),

  - Roadway clearance time, from arrival of first responder until the lanes are clear (E-K),
  - Incident clearance, or the removal of the vehicles, damaged property, and victims from the incident scene, complete reopening of any blocked lanes, and departure of all responders: E-M, labeled “Clearance” in Figure 6-1 and includes Roadway Clearance, and
  - Incident duration, the accumulation of all the above (B-M).

- Short-term performance measures for Road Ranger operations:

  - Number of Road Ranger stops by type,
  - Number of TIM services by type (e.g., debris removals, move-it assists, etc, and
  - Number of motorist services by type (e.g., battery jumps, gasoline, minor repairs, etc.)

- Long-term performance measures for TIM in general:

  - Recovery time, from the last time above until traffic is completely restored to normal (M-N),
  - Incident influence time the accumulation of incident duration and recovery time (B-N),
  - Incident-related delay throughout the incident,
  - Lane-miles of backup, and
  - Secondary crash rates.

- Long-term performance measures for Road Ranger (or Incident Response Vehicle) operations, including the number of TIM services by type (e.g., prior list, plus physical vehicle removals and recoveries, final MOT set-up, extri-cations, and HAZMAT treatments).

- TIM Program-level performance measures as follows:

  - Aggregate “scores” on FHWA TIM Self-assessment Survey taken biennially by the regional TIM Teams,
  - Incident detection source (e.g., TMC CCTV, TMC sensors, Road Ranger, other responder, motorist cell call, 9-1-1 transfer, or other), and
  - Road Ranger assist detection source (e.g., TMC, Road Ranger, other responder, motorist cell call, 9-1-1 transfer, or other).

The foregoing are the minimum statewide performance measures desired. Districts are encouraged to gather more to suit their needs.

It has already been proposed that the definition of “clearance time” in the Open Roads Policy be changed to start when the first responder from any agency arrives on the scene. This is consistent with District 5 (and soon elsewhere), where many other

agencies have also signed on to the ORP. For statewide application and uniform reporting though, a consistent definition should be used.

For most first-response agencies, their response time is their primary measure of performance. Fire departments typically keep very good records of their response times. Most of the other response times for other responders are noted, or can be noted by the other responders. In the case of FHP, most of the time their dispatcher calls the next tow operator from the rotation list, so they know when they were dispatched. The officer on the scene knows when they arrive, so that time can be entered into the law enforcement Computer Aided Dispatch (CAD) as a note so that the wrecker times can be tracked.

It is expected that much of the data for measuring incident performance will be obtained through a linkage to the FHP CAD. For the more advanced TMCs, a better tracking of incident data can be achieved using other data sources to supplement the FHP CAD records. Road Rangers can be used to record time-stamped changes to incident conditions. District 6 is using personal digital assistants (PDAs) for Road Rangers to assist them in logging events as they occur (District 4 is considering a similar test, but is still in the planning stage). TMC operators can also timestamp events that they observe via the traffic monitoring cameras. District 4 is currently keeping a very detailed database of all incidents based on data they are receiving from a variety of sources.

Recommended Actions 2.3.1-4 will lead to standards and guidelines for performance measures, data collection, and performance monitoring.

7.4 Concluding Recommendation

Finally, we come to the recommendation that traffic operations, and particularly traffic incident management, be recognized as a priority function of FDOT and have a permanent line item in the FDOT Work Program. Capacity improvements and maintenance of the physical infrastructure have been the traditional keystones of the Department's Work Program. They will, of course, continue to be so; however, FDOT is rapidly realizing that the operation of the transportation system is of equal, if not more significant importance. Even substandard infrastructure has to be optimally operated—indeed, in this case it is arguably more important. In July 2004, the FDOT Executive Committee made a bold step in the recognition of the key role of operations by granting Work Program status to ITS/TMC operations and ITS replacement costs, initially to the tune of $140 million ($98 million and $44 million, respectively) over the next 10 years. As is often the case, Florida led the nation in this decision, for this is, as well as we know, a unique commitment to operational excellence in the nation.

Now the same bold decision is needed to ensure the effectiveness of that part of system management and operations that eats most heavily into the economic viability of our transportation system on almost a daily basis—traffic incidents.

The collective actions recommended in this section will demand additional resources. Table 6-1 presented earlier is available in a separate spreadsheet that permits dynamic accumulation of the costs associated with applicable actions. As a result, it is strongly

recommended that FDOT commit an initial sum of $16,815,000 to bring the TIM Program up to its full potential over a two-three year period, and further commit up to (initially) $12,299,500 per year for its continuing improvement, expansion, and sustenance over the next years.

These funds are staged as follows:

- Short-term actions: $2,0282,500 direct cost, with estimated annual costs of $550,500,
- Medium-term actions: $3,007,500 and $1,154,000, and
- Long-term actions: $11,525,000 and $10,595,000.

Such bold actions by the Department of Transportation and its partners will ensure the safest possible travel environment for Florida's citizens, our visitors, and our commercial carriers, thus enhancing the economic welfare of our state.

LIST OF ACRONYMS

AAA ..... American Automobile Association
ATIS ..... Advanced Traveler Information System
CAD..... Computer Aided Dispatch
CTQP ..... Construction Training/Qualification Program
CTST..... Community Traffic Safety Team
CUTR ..... Center for Urban Transportation Research
DEM ..... Division of Emergency Management
DEP..... Department of Environmental Protection
DMS ..... Dynamic Message Signs
EMS ..... Emergency Medical Services
EOC ..... Emergency Operation Center
FBT ..... Floridians for Better Transportation
FDLE ..... Florida Department of Law Enforcement
FDOT ..... Florida Department of Transportation
FEMA ..... Federal Emergency Management Agency
FHP ..... Florida Highway Patrol
FHWA..... Federal Highway Administration
FIM ..... Freeway Incident Management
FSITE ..... Florida Section, Institute of Transportation Engineers
FTE ..... Florida's Turnpike Enterprise
FTP ..... Florida Transportation Plan
HERO..... Highway Emergency Response Operator
HOG ..... (I-95 Corridor Coalition's) Highway Operations Group
ISPs..... Information Service Providers
ITE..... Institute of Transportation Engineers
ITS..... Intelligent Transportation Systems
JOA ..... Joint Operations Agreement
JRCC..... Joint Regional Communications Center
LRM..... Location Reference Marker
MOT ..... Maintenance of Traffic
MPO ..... Metropolitan Planning Organization
MUTCD ..... Manual on Uniform Traffic Control Devices
NIMS ..... National Incident Management System

OOCEA ..... Orlando-Orange County Expressway Authority
ORP ..... Open Roads Policy
PSAP ..... Public Safety Answering Point
PWOF ..... Professional Wrecker Operators of Florida
RISC ..... Rapid Incident Scene Clearance
SIRV ..... Severe Incident Response Vehicle
SLERS ..... State Law Enforcement Radio System
TCC ..... Traffic Control Center
TEOO ..... Traffic Engineering and Operations Office
TIMTQP ..... Traffic Incident Management Training and Qualification Program
TMC ..... Traffic Management Center
TOC ..... Transit Operations Center

APPENDIX A
TRAFFIC INCIDENT MANAGEMENT MILESTONES

Late 1980s	First formal traffic incident management activities in SE Florida
March 1998	Orlando RTMC became operational
July 1998	FDOT District 4 contracts with first FIM Team Consultant, which began support and facilitation of Broward and Palm Beach County FIM Teams in August 1998
September 1998	Development of the Traffic Incident Impact Levels, which have since been adopted for statewide use and are used by FHWA and the MUTCD
November 1998	District 4 FIM Teams developed the “First Responder Checklist”
February 1999	Consultant Team conducted a comprehensive review and de-briefing of major incidents on I-95
June 1999	Completed “FIM Notification and Agency Resource Guide” for Broward County, which has become a national model
July 1999	FDOT District 4 developed long-range TIM recommendations
October 1999	Consultant Team conducted a series of five NHI TIM Workshops in Orlando, Jacksonville, Tampa, Miami, and Ft. Lauderdale for FHWA
December 1999	Road Ranger Program began
January 2000	District 1 completed the Incident Management and ITS Master Plan for I-75 in Collier and Lee Counties
February 2000	Consultant Team presented an Executive Briefing to Secretary Tom Barry and FDOT top leadership on traffic incident management, outlining early recommendations for Florida to implement
April 2000	Consultant Team conducted a briefing to the Florida Transportation Commission on TIM and included recommendations that were made to FDOT for their support and backing
January 2001	District 1 completes ITS Master Plan and Traffic Incident Management Plan for Charlotte, Sarasota and Manatee Counties

July 2001	Consultant Team presented TIM recommendations to Miami-Dade Expressway Authority for MDX expressways
October 2001	Statewide TIM kick-off, Steering Committee formed
October 2001	District 4 developed the Incident Tracking Data Base System
Jan. 2002	Statewide TIM Teams formed
April 2002	TIM Team leadership met with Professional Wrecker Operators of Florida, FDOT Motor Carrier Compliance Office, and Chairman of the Senate Transportation Committee to discuss legislation favorable to TIM
November 2002	“Open Roads” Policy, written by TIM Clearance Committee signed by FDOT and FHP
January 2003	Consultant Team conducted Executive Level Workshops on TIM in Hillsborough and Pinellas Counties
January 2003	Florida joins I-95 Corridor Coalition
February 2003	Consultant Team assisted District 7 in form two new TIM Teams
March 2003	Turnpike Traffic Incident Management Enhancements (TIME) program begins
March 2003	Trained FHP Troopers on the Turnpike in photogrammetry
June 2003	District 5 conducted Road Ranger Training
July 2003	Consultant Team facilitated a forum on TIM for Orange County Commissioners in Orlando
September 2003	I-95 Corridor Coalition publishes study on “Quick Clearance/Move-It Best Practices," which features Florida practices prominently
September 2003	District 4 developed a proto-type handheld PDA for Road Ranger Incident Reports
November 2003	Turnpike Enterprise conducts a public Demonstration on “Quick Clearance” and the Turnpike’s new “Towing and Recovery Incentive Program”
December 2003	Local Tri-County "Open Roads Policy" signed in District 5

February 2004	Florida's Turnpike Enterprise launches its "Rapid Incident Scene Clearance" (RISC) recovery incentive program
March 2004	Updated the Turnpike Troopers with the new software "iWitness" training
March 2004	Hosted Georgia DOT TIM managers at Palm Beach County and Orlando RTMC and Statewide TIM Team meeting
March 2004	Inter-agency Agreement between Medical Examiner for Orange and Osceola Counties, and FDOT (District 5), FHP (Troops D and K), and Florida's Turnpike Enterprise
April 2004	FDOT awards two-year TIM General Consultant contract to develop TIM Strategic Plan and to support the Statewide TIM Program
June 2004	Guidelines for the Mitigation of Accidental Discharges of Motor Vehicle Fluids (Non-Cargo) developed by TIM Clearance and approved by TIM Team
October 2004	Florida's Turnpike Enterprise publishes its "Turnpike Incident Management Enhancements (TIME), Road Ranger Vision"
December 2005	FDOT publishes an update of the ITS Strategic Plan, which now has a TIM component
February 2006	FDOT publishes the first TIM Strategic Plan

APPENDIX B
TRAFFIC INCIDENT MANAGEMENT STAKEHOLDERS

Traffic incident management involves a large group of agencies and disciplines. Table B-1 summarizes the key roles and responsibilities of each stakeholder. Below the table are short descriptions of expanded responsibilities for TIM in Florida.

Table B-1 Stakeholder Roles and Responsibilities

Category	Stakeholder	Roles										Prime Responsibility
		Funding	TIM Planning	Operations & Maint.	Law Enforcement	Fire Rescue	EMS	HAZMAT	Outreach	Training	Other	
Federal Agencies	Federal Highway Administration (FHWA)	P	S						S	P		Aids operation of highways, sets standards, publishes "best practices" and planning guides.
	Federal Emergency Management Administrating (FEMA)	S	S					P	S	P		Manage national emergencies & hazards, federal response and recovery efforts, initiates proactive mitigation activities, trains first responders, and manages the National Flood Insurance Program and the U.S. Fire Administration

Category	Stakeholder	Roles										Prime Responsibility
		Funding	TIM Planning	Operations & Maint.	Law Enforcement	Fire Rescue	EMS	HAZMAT	Outreach	Training	Other	
State Agencies	Florida DOT (and neighboring states in certain regions):											Operates & maintains state highway system, overall planning and implementation of TIM programs, operates traffic management centers (TMCs), and manages service patrols
	Traffic Engineering Operations Office and ITS Section	P	P	P					P	P		Operate ITS and TMCs, set standards for traffic devices, in some areas operate Road Rangers
	Planning Office	S	S									Plan transportation improvements
	Maintenance Office	P		P								Maintain infrastructure, in some areas operate Road Rangers
	Safety Office	S	S						S	S		Set safety standards, goals, and practices
	Motor Vehicle Compliance Office	S			P					S		Regulate and enforce commercial motor carriers

Category	Stakeholder	Roles										Prime Responsibility
		Funding	TIM Planning	Operations & Maint.	Law Enforcement	Fire Rescue	EMS	HAZMAT	Outreach	Training	Other	
	Florida Highway Patrol (FHP)	S	P		P				P	P		Manage the majority of freeway incidents in Florida, involved in all aspects of TIM, dispatch federal and state law enforcement
	Florida Department of Law Enforcement (FDLE)	S			S					S		Criminal investigations, including traffic incidents
	Department of Environmental Protection (DEP)							P			P	Lead agency for environmental management; administers regulatory programs and issues permits for air, water, and waste management; operates “Clean Air Florida” program
	Division of Emergency Management (DEM)											Ensures state is prepared to respond to emergencies, recover from them, and mitigates their impacts

Category	Stakeholder	Roles										Prime Responsibility
		Funding	TIM Planning	Operations & Maint.	Law Enforcement	Fire Rescue	EMS	HAZMAT	Outreach	Training	Other	
	Joint [Telecommunications] Task Force			P	P							State Law Enforcement Radio System, also participate in the Regional Law Enforcement Dispatch Centers (13 members, including several of the foregoing)
Local Agencies	Law enforcement (police and sheriffs)	S			P				P	S		Conduct TIM on arterial and local (and some freeway) systems
	Fire rescue	S	S			P	S	P	S	S		Primary emergency response/incident command agency for fire suppression, hazardous materials spills, rescue, and extrication of trapped crash victims, some EMS
	Emergency medical services (EMS)						P					Primary EMS, if separate from fire rescue, triage, treatment, and transport of crash victims
	Medical										P	Investigate traffic crash

Category	Stakeholder	Roles										Prime Responsibility
		Funding	TIM Planning	Operations & Maint.	Law Enforcement	Fire Rescue	EMS	HAZMAT	Outreach	Training	Other	
	Examiner/Coroner											deaths
	City and county public works and traffic engineering	S	S	P					S	S		Operate and maintain local highways and streets and utilities
	Transit agencies	S	S	P							P	Operate and maintain public transportation systems (may be private, too)
Authorities	Expressway Authorities	P	P	P					S		S	Operate and maintain toll roads
Private Partners	Towing and recovery operators		S	P								Removal of wrecked or disabled vehicles and debris from incident scenes
	HazMat contractors							P				Clean up and dispose of toxic or hazardous materials
	Motor carriers								S			Inform public of good TIM practices
	Insurance industry								P	S	P	Insure vehicles, promote safe practices
	Traffic media								P			Report incidents, alert motorists, provide alternate route information

Category	Stakeholder	Roles										Prime Responsibility
		Funding	TIM Planning	Operations & Maint.	Law Enforcement	Fire Rescue	EMS	HAZMAT	Outreach	Training	Other	
Associations	Technical societies (ITS Florida, Florida Section ITE)		S						S	S		Assist agencies, support TIM programs, provide training
	American Automobile Association (AAA)		S						P			Assist agencies, support TIM programs, inform motorists
	Community Traffic Safety Teams (CTSTs)		P						P	S		Assist agencies, support TIM programs, provide safety programs
	Chambers of Commerce								S			Assist agencies, support TIM programs
	Associations of Cities, Counties, Sheriffs, Police, EMS, etc.		S						S			Assist agencies, support TIM programs
Other	Floridians for Better Transportation (FBT)								S			Assist agencies, support TIM programs
	Citizens' groups								S			Assist agencies, support TIM programs

EXPANDED RESPONSIBILITIES

Federal Agencies

Federal Highway Administration (FHWA)
While the FHWA does not own or operate roads, they are tasked with aiding the intelligent operation of those facilities by the agencies that do own and operate them. The FHWA publishes "best practices" and planning documents to demonstrate what is being done around the country, including traffic incident management.

Federal Emergency Management Agency (FEMA)
FEMA leads the effort to prepare the nation for all hazards and effectively manage federal response and recovery efforts following any national incident. FEMA also initiates proactive mitigation activities, trains first responders, and manages the National Flood Insurance Program and the U.S. Fire Administration.

State Agencies

Florida DOT (and neighboring states in certain regions)
The DOT is responsible for the operations and maintenance of the roadway system. They normally conduct overall planning and implementation of traffic incident management programs. In some districts they are also involved in the development, implementation, and operation of the traffic management center (TMC), as well as the management of service patrols.

Florida Highway Patrol (FHP)
The FHP is the largest traffic law enforcement agency in the state. They are responsible for management of the majority of freeway incidents in Florida. They are involved in all aspects of TIM from incident detection to clearance.

Florida Department of Law Enforcement (FDLE)
As indicated in the table, FDLE’s role in TIM is generally confined to criminal investigations.

Department of Environmental Protection (DEP)
The Florida Department of Environmental Protection is the lead agency in state government for environmental management. The department administers regulatory programs and issues permits for air, water and waste management. They also operate the “Clean Air Florida” program.

Division of Emergency Management (DEM)
The Division of Emergency Management ensures that Florida is prepared to respond to emergencies, recover from them, and mitigates their impacts.

Joint [Telecommunications] Task Force
Operate the State Law Enforcement Radio System, who also participates in the State Law Enforcement Dispatch Centers (13 members, including several of the foregoing).

Local Agencies

Law Enforcement (Police and Sheriffs)
Generally, limited access roadways are part of the national transportation system and are primarily patrolled and responded to by the Highway Patrol. However, some limited access routes within the local municipality city limits are the responsibility of the city police. General law enforcement traffic incident management responsibilities are:

- Assist in incident detection
- Secure the incident scene
- Assist disabled motorists
- Provide emergency medical assistance until help arrives
- Direct traffic through/around the incident
- Conduct accident investigations
- Serve as incident commander
- Safeguard personal property
- Supervise scene clearance

Fire Rescue
Fire and rescue services are provided by local fire departments, and by surrounding fire departments through mutual aid agreements. The fire department is the primary emergency response incident command agency for fire suppression, hazardous materials spills, rescue, and extrication of trapped crash victims. General fire department traffic incident management responsibilities include:

- Protect the incident scene
- Provide traffic control until police or DOT arrival
- Provide emergency medical care
- Provide initial HAZMAT response and containment
- Fire suppression
- Rescue crash victims from wrecked vehicles
- Rescue crash victims from contaminated environments
- Arrange transportation for the injured
- Serve as incident commander
- Assist in incident clearance

Emergency Medical Services (EMS)
The primary responsibility of EMS is the triage, treatment, and transport of crash victims. Private companies many times provide patient transport under contract. Typical traffic incident management roles and responsibilities assumed by EMS can include:

- Provide advanced emergency medical care
- Determine destination and transportation requirements for the injured

- Coordinate victim evacuation with fire, police and ambulance or airlift
- Serve as incident commander for medical emergencies
- Determine approximate cause of injuries for the trauma center
- Remove medical waste from incident scene

Medical Examiner/Coroner
By law, Medical Examiners (or coroners) are responsible for investigating deaths that result from anything other than natural causes. As such, they play an important role in investigating fatal accidents that occur on roadways.

City and County Public Works and Traffic Engineering
City and county transportation agencies have similar roles to Florida DOT. They are responsible for the roadways not included under the state's highway system.

Private Partners

Towing and Recovery Operators
Towing and recovery service providers are responsible for the safe and efficient removal of wrecked or disabled vehicles, and debris from the incident scene. Their typical responsibilities include:

- Remove vehicles from incident scene
- Protect victims' property and vehicles
- Remove debris from the roadway
- Provide transportation for uninjured vehicle occupants

Towing and recovery companies that respond to highway incidents are indispensable components of all traffic incident management programs. Even programs that include service patrols with relocation capability depend on towing and recovery service providers. Challenges facing the towing and recovery industry are unique.

HAZMAT Contractors
Hazardous materials contractors are hired by emergency or transportation authorities to clean up and dispose of toxic or hazardous materials. Their traffic incident management role and responsibilities include:

- Determine proper/prudent method of hazardous material cleanup and disposal
- Dispose hazardous materials or provide on-site clean up
- Serve as incident commander for hazardous materials cleanup/disposal

Motor Carrier Companies
Motor carriers, particularly through their professional and trade associations can improve awareness of good TIM practices to their drivers, such as assisting in quick clearance, which can lead to better incident management overall.

Insurance Industry

Insurance companies have a vested interest in improve TIM. They can help the cause by informing their customers of good TIM practices, such as including information in mailings about the Move-It Law.

Traffic Media

The media informs the public of topics that affect the public. This includes traffic related incidents. The typical roles and responsibilities of the media as they relate to traffic incident management activities include:

- Report detected traffic incidents
- Broadcast information on incidents and delays
- Provide alternate route information
- Update incident status frequently
- Provide video or photography services

Associations

These organizations can be champions or catalysts for worthy causes. The associations most potentially interested in TIM are listed as follows:

- Technical societies (ITS Florida, Florida Section ITE)
- American Automobile Association (AAA)
- Community Traffic Safety Teams (CTSTs)
- Chambers of Commerce
- Associations of Cities, Counties, Sheriffs, Police, EMS, etc.

Other

These are groups that represent citizens or special interests and include:

- Floridians for Better Transportation (FBT)
- Citizens' groups

REFERENCES

The documents below are good references for traffic incident and emergency management.

Hagen, L. and M.C. Pietrzyk, “Best Practices for Traffic Incident Management in Florida,” Florida Department of Transportation, draft April 2005.

"Incident Management: Detection, Response, and Operations—State-of-the-Practice Report for I-95 Corridor Coalition Agencies," I-95 Northeast Consultants, October 1994.

Latoski, S.P. and W.M. Dunn, "Safe and Quick Clearance of Traffic Incidents," National Cooperative Highway Research Program, NCHRP Project 20-5, Synthesis Topic 33-05, 2003.

“Measuring and Communicating the Effects of Traffic Incident Management Improvements,” Transportation Research Board, Research Results Digest, Number 289, May 2004.

“MUTCD Millennium Edition, Proposed Revision No. 2, 5/21/2002,” Washington, D.C., 2002.

“National Incident Management System,” Department of Homeland Security, March 1, 2004.

“Recommendation of Florida Statewide ITS Performance Measures,” Florida Department of Transportation, draft, March 3, 2005.

“Statewide ITS Performance Measures, Final Report,” Florida Transportation Commission and Florida Department of Transportation, November 2004.

“Traffic Incident Management Handbook,” Federal Highway Administration, Publication DOT-T-01-01, November 2000.

Wallace, C.E., et al., “Quick Clearance/Move-It Best Practices,” I-95 Corridor Coalition, September 2003.