



SEVERE INCIDENT RESPONSE VEHICLE (SIRV) PILOT PROJECT FINAL EVALUATION REPORT

FLORIDA DEPARTMENT OF TRANSPORTATION DISTRICT IV

BROWARD COUNTY, FLORIDA

INTRODUCTION

Rationale for the SIRV Pilot Program

The Florida Department of Transportation's District IV (FDOT District IV) recognizes the important role traffic incident management plays in reducing delays and improving safety along major thoroughfares. FDOT District IV has taken a lead role in establishing and maintaining traffic incident management (TIM) teams in Broward and Palm Beach Counties. The TIM team meetings have provided a forum for identifying incident management challenges and developing solutions to overcome these challenges. One of the biggest challenges faced by the incident responders is in reducing the amount of time that lanes are blocked, but without sacrificing responder safety. This delicate balance of priorities requires excellent cooperation, coordination, and communication among incident responders.

The FDOT and the Florida Highway Patrol (FHP) have entered into a memorandum of understanding (known as the "Open Roads Policy") to better define their respective roles with regard to incident management statewide. The Open Roads Policy states that both agencies will work together to open travel lanes within 90 minutes after the arrival of the first FHP officer.

With this policy in mind, the Broward TIM identified a need for an FDOT incident coordinator to be present on the scene of all major incidents along I-95, I-595, and I-75 within Broward County. FDOT District IV has translated this need into a pilot project that features the Severe Incident Response Vehicle, more commonly known as an "SIRV."

Report Structure

This report provides a brief overview of the SIRV pilot project and summarizes activities of the SIRV pilot project from its inception through the end of December 2005. These activities are grouped into three main functional areas: responding to major incidents, inspecting Road Ranger units, and conducting a public outreach program. High-level benefits have been estimated, and an independent consultant (Transportations Solutions Inc., or TSI) has conducted an evaluation to assess the value, benefits, and feasibility of continuing the program.

SIRV PILOT PROGRAM OVERVIEW

Preparations for the SIRV pilot project began in September 2004. These preparations included ordering and outfitting the SIRV truck, developing standard operating guidelines, and holding a series of project kickoff meetings with stakeholders. The SIRV pilot project was introduced to the group, and roles and responsibilities were discussed. A series of follow-up meetings with FDOT resources and FHP was conducted to establish protocols for input into the SIRV standard operating guidelines.

The SIRV Program

With its operator acting as an FDOT incident coordinator, the SIRV assists responding agencies, coordinates maintenance of traffic (MOT) activities of the Road Rangers, and provides liaison between other agencies and FDOT resources (such as Maintenance). Other SIRV responsibilities include documenting response and clearance times, participating in TIM team meetings, conducting quality-of-service audits on Road Rangers, and facilitating post-incident analysis meetings.

The SIRV Team

Spearheading the new SIRV program is Mr. Thomas Dickson. Mr. Dickson is the first traffic management specialist assigned to FDOT. He is a graduate of the Law Enforcement Executive Leadership Program at Florida Atlantic University, and has 30 years of law enforcement experience. In addition to his core training and qualifications, Mr. Dickson has additional specialized training in responding to weapons of mass destruction, detection of explosive devices, and hazardous materials response. In 1996 he was selected by the U.S. Olympic Committee to supervise a team of highly trained international police officers at the summer Olympic Games in Atlanta. He spent the past five years commanding the traffic homicide and traffic enforcement divisions of the Fort Lauderdale Police Department.



Another member of the SIRV team is Steve Littlefield. Mr. Littlefield is a graduate of Florida Atlantic University, and he has over 30 years of law enforcement and military experience. Mr. Littlefield also has received training in how to respond to incidents involving hazardous materials and weapons of mass destruction.



The SIRV operators are trained and qualified in the following:

- Incident management and command
- Advanced management of traffic
- Incident clearance procedures
- Severe incident documentation
- Emergency vehicle operation
- First responder functions and responsibilities

The SIRV Vehicle

The SIRV is a specially equipped vehicle that is staffed with emergency response–qualified personnel. The operators are available 24 hours a day, seven days a week; they are dispatched through the SMART SunGuide TMC in Broward County. The vehicle is a Ford F-350 dual-wheel, covered utility body truck equipped with a red strobe light system and siren to facilitate emergency response. There are two telescoping high-intensity floodlights on the front of the truck, and two fixed-mounted, high-intensity floodlights on the rear. A docking station in the driver's compartment facilitates use of a laptop computer to support incident command activities. The onboard digital video camera system, with still-shot capability, allows real-time incident footage to be sent out to other agencies via a wireless Internet system. The self-contained radio system includes portable radios that are distributed to each responding agency's commander, providing a common channel for communication among incident responders. In addition, the truck carries traffic management and hazardous spill equipment such as cones, signs, flares, oil dry, and fuel absorbent.



SIRV PILOT PROJECT ACTIVITIES

Responding To Major Incidents

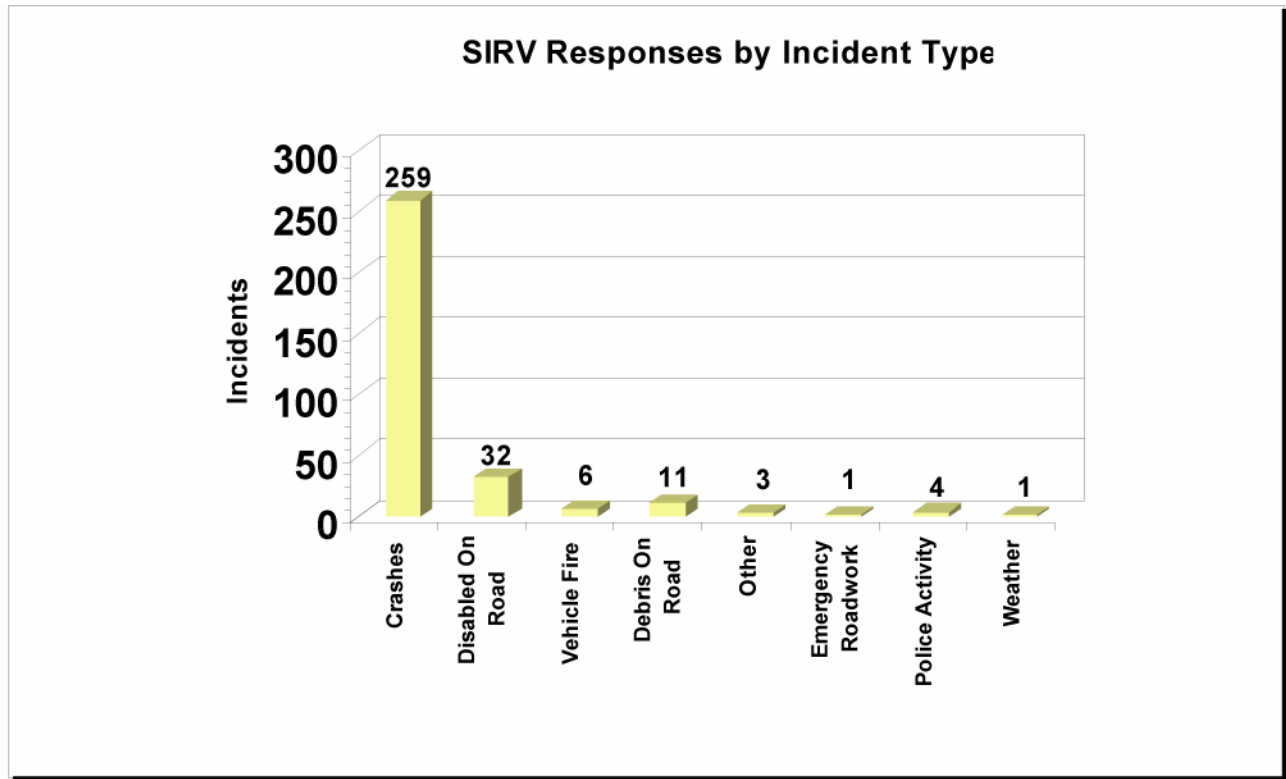
The primary responsibility of SIRV staff is to respond to major incidents along I-95, I-75, and I-595. While on scene, the SIRV staff coordinates FDOT incident resources; improves on-scene safety through enhanced MOT measures; and works with responding agencies to open lanes safely and quickly.



As shown in the graph below, the SIRV staff responded to 317 incidents, of which 259 were crashes. (During its first year of operations, the SIRV also responded to an additional 285 calls that were cancelled before the SIRV arrived on scene.) Four of the 317 incidents were on arterials, even though the SIRV staff is typically not dispatched to such incidents. However, this extra effort resulted in a positive relationship being established with a local law enforcement agency, and it garnered positive feedback from the public.

The SIRV was activated and responded to events immediately after Hurricanes Katrina and Wilma. The SIRV provided much-needed traffic control to support FHP and FDOT Maintenance with clearing the roads, as well as supporting Road Ranger operations.

The SIRV had an average notification time of 26 minutes and average response time of 20 minutes. Of the 26-minute notification time, a total of 16 minutes is consumed by TMC



operators detecting and verifying the incident. The SIRV response time has improved over the year, starting at 30 minutes in January and ending at 16 minutes in December.

In April 2005, the SMART software was updated to include fields that allowed the SIRV operators to enter the type and quantities of equipment used. The table below summarizes the equipment used during the nine-month period. The SIRV began using cold patch to help open the roads quicker, but the amount consumed was not quantified. Miscellaneous items include minor equipment and supplies, such as flashlights, garbage bags, etc.

SIRV Equipment Used from April 2005 to December 2005

| Equipment | Event Count | % | Qty. | Avg. Qty./ Event |
|------------------------|-------------|------|------|------------------|
| Absorbent | 40 | 11.8 | 3330 | 83.2 |
| Cold Patch Asphalt | 2 | 0.6 | 0 | 0 |
| Cones | 58 | 17.4 | 1258 | 21.7 |
| Flare | 19 | 5.6 | 1077 | 56.7 |
| Flood Lamp | 8 | 2.4 | 14 | 1.8 |
| Portland Cement | 16 | 4.7 | 560 | 35 |
| Radio | 16 | 4.7 | 46 | 2.9 |
| Turbo Flare | 10 | 2.9 | 180 | 18 |
| Miscellaneous | 140 | 41.5 | 134 | 2.6 |
| No Assistance Rendered | 29 | 8.5 | 0 | 0 |
| Total | 340 | | | |

In the first three months of the pilot program (January to March), the software was not equipped to capture full usage data. However, available records indicate that the SIRV operators used the following equipment:

- High-intensity lighting – 1 incident
- Flashlights
- Garbage bags – 3
- Radios – 11 radios distributed at 3 incidents
- Cones – 84
- Flares – 3 boxes
- Turbo flares – 8
- Fuel absorbent – 100 pounds

Road Ranger Inspections

The SIRV staff conducts weekly inspections of Broward County Road Ranger contractors. They serve as a Construction Engineering and Inspection (CEI) would on a construction project. They monitor the Road Ranger services and report deficiencies to the FDOT Road Ranger project manager. The inspection process, which has improved the Road Ranger contractor's response to deficiencies, uses a new bi-color, carbonless two-page field inspection form. A copy of the completed field inspection form is provided to the Road Ranger to give to his or her supervisor at the end of the shift. This provides immediate feedback to the Road Ranger and the Road Ranger supervisor, promoting immediate corrective action. As a result, almost all deficiencies are resolved at the end of the Road Ranger shift. Unresolved deficiencies are tracked and discussed during weekly Road Ranger contractor meetings.



Weekly inspection reports are developed and distributed to FDOT and Road Ranger supervisors in preparation of the weekly Road Ranger contractor meetings with FDOT. These meetings provide a forum for discussing inspections, contractor and department issues, complaints, staffing issues, and training. The meetings help to quickly identify, deal with, and resolve any problems or issues brought forward by any of the involved parties. Contractual issues are clarified and resolved. Policy and procedure enhancements are discussed and implemented. As a result of these meetings, the group agreed that the SIRV staff can request that a truck be removed from service if it violates any state statutes that would cause it to be removed by law enforcement.

The SIRV staff conducted 279 inspections during the year. The SIRV detected 74 truck deficiencies and 78 equipment deficiencies. Truck deficiencies represent violations of the truck specifications identified in the Road Ranger contract (such as requirements governing tires, turn signals, head lights, safety lights, power take-off, arrow boards, etc.). Equipment deficiencies are violations pertaining to the contract-required equipment that is to be carried on the truck (e.g., air supplies, first aid supplies, jacks, spill mitigation supplies, tools, and fire extinguishers). The number of Road Ranger violations fluctuated throughout the year. The Road Ranger contractor worked diligently to minimize the violations, but was faced with many challenges. Truck deficiencies were primarily the result of an operational issue: the Road Ranger contractor had suffered an unusual increase in the number of trucks that were destroyed in crashes while providing services.

Many of the equipment deficiencies were detected during inspections involving new Road Rangers; such deficiencies usually occurred only once with any new Road Ranger. Their performance typically improved after receiving an equipment deficiency notice, and significantly fewer deficiencies were detected during October and November. However, there was an increase in December; the Road Ranger contractor had obtained new trucks that were placed in service—minor violations notwithstanding—in order to have the required number of trucks on the road.

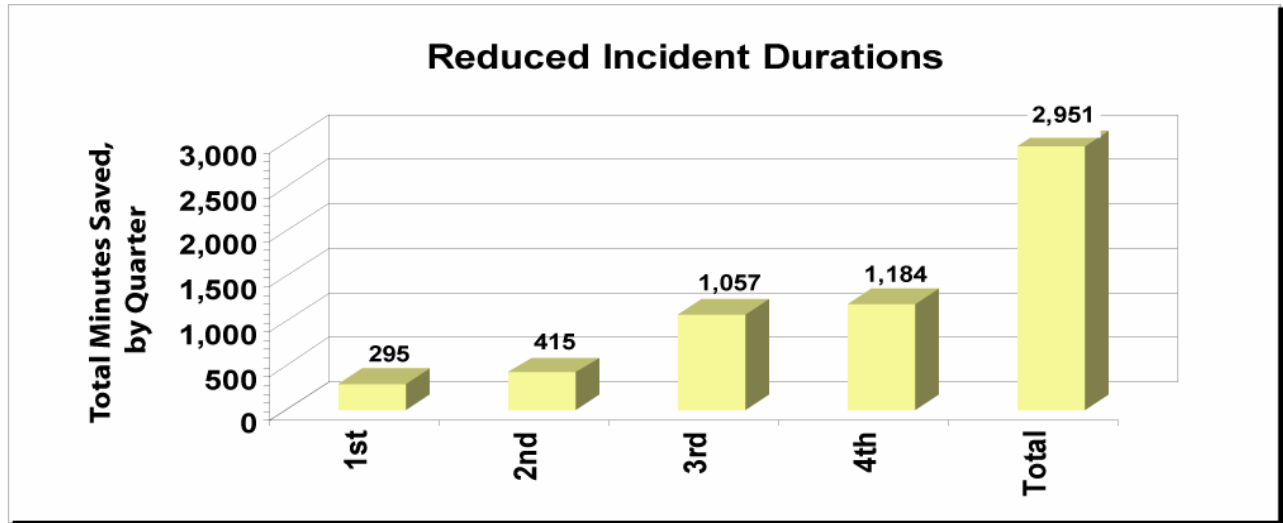
Public Outreach

Public outreach has been a very important part of the SIRV pilot project's early success. As the SIRV staff builds relationships with incident responders, SIRV personnel become more effective as on-scene incident coordinators. The public outreach effort began prior to January 2005, with a series of meetings with FHP, FDOT Maintenance, local police, and local fire rescue units. SIRV staff also attended county, regional, and statewide TIM meetings. The SIRV staff was actively involved with incident management activities at all levels, attending TIM meetings, contributing to Road Ranger training, participating in post-incident analyses, and attending public events at the Broward SunGuide TMC. The following list highlights other SIRV public outreach activities:

- **January 2005**
 - Participated in "Staying Alive on I-95" kickoff
- **February 2005**
 - Provided a representative for a *Palm Beach Post* newspaper Interview in February 2005
- **March 2005**
 - Presentation to the Broward County Environmental Protection Agency
 - Attended the Broward Fire Chiefs Association's monthly meeting
 - Attended a Broward Fire Chiefs charity event
 - Participated in the "Staying Alive on I-95" follow-up presentation
- **April 2005**
 - Attended an outreach meeting with Broward Sheriff's Office district chiefs
- **May 2005**
 - Attended state emergency traffic plan meeting
 - Attended outreach meeting with the National Highway Transportation Safety Administration
 - Promoted outreach at the "Click it or Ticket" media event
- **June 2005**
 - Promoted outreach during DOT district secretaries meeting
 - Attended community traffic safety team meeting
- **August 2005**
 - Provided an SIRV overview presentation to county emergency management personnel during TMC tour
 - Delivered presentations to Broward Sheriff's Office districts
 - Gave an SIRV overview presentation to the Jacksonville-area FDOT during TMC tour
- **September 2005**
 - Attended Broward Metropolitan Planning Organization meeting
- **November 2005**
 - Attended I-595 improvement meeting
 - Made an outreach presentation at Tequesta Middle School
- **December 2005**
 - Attended the "Staying Alive on 95" event in Palm Beach County

SIRV PILOT PROJECT BENEFITS

In the course of responding to 317 incidents, the SIRV staff was directly responsible for reducing the duration of 124 incidents a total of 2,951 minutes. As indicated in the chart below, the SIRV became increasingly effective at reducing incident durations over the



course of the pilot project. Reducing incident duration has direct, beneficial effects to motorists by reducing their costs associated with traffic delays. The overall reduction in traffic delays is estimated to have yielded savings of \$17,101,328 to motorists. The SIRV pilot project costs were approximately \$400,000, which includes initial activities before January 2005, operations, and equipment costs. Therefore, the SIRV pilot project has yielded a **benefit-cost ratio of 42.75** for its one year of operations. The estimated SIRV pilot project savings are conservative, since they don't include any beneficial impacts on traffic traveling in the opposite direction, or the value represented by reduced vehicle emissions. The delay savings ratio only used the following factors and assumptions:

- Delay savings to motorists were calculated on the assumption that “for each minute reduced in incident duration, there is a reduction of three to five minutes in individual vehicle delay.”¹ A three-minute reduction in individual vehicle delay was assumed for off-peak periods, and a five-minute reduction in individual vehicle delay was assumed for peak periods.
- A value of \$13.89 per individual passenger vehicle-hour and \$69 per commercial vehicle-hour was assigned.²
- The number of vehicles affected by an incident was based on location and available hourly and annual daily traffic loads.³

In addition, the SIRV helped relieve congestion by reducing the number of lanes closed during incidents. (However, this does not reduce overall incident duration and was not included in the estimated savings above.)

¹ *Freeway Incident Management Handbook*, FHWA-SA-91-056, Federal Highway Administration (FHWA), U.S. Department of Transportation, 1991.

² Texas Transportation Institute, “Urban Mobility Report,” 2004.

³ Florida Traffic Information 2004 CD, FDOT Transportation Statistics Office.

The reduced incident durations are based on the time SIRV staff provided a service or equipment, thus saving the time it would have taken to dispatch additional resources. On-scene SIRV staff activities that reduced incident durations are described below.

- The SIRV operator contacted an FDOT maintenance supervisor to get a head start on deploying resources. This saved the time it would have taken the FDOT maintenance supervisor to get to the scene and then deploy resources.
- Used fuel spill cleanup material, saving the time it would take to deploy additional fire rescue or maintenance units for cleanup.
- SIRV staff helped clean up debris, reducing the overall time required to open lanes.
- Used radio system for on-scene communications with Road Rangers to remove MOT and open lanes quicker.
- Directed Road Rangers to deploy truck-mounted arrow signs and cones at end of queue to control traffic and warn motorists.
- Explained Florida “Move It” law to responders to expedite opening lanes, instead of waiting for FHP arrival/action.
- Used high-intensity lighting on scene to save time during cleanup. If the SIRV vehicle had not been on scene, the cleanup would have been delayed until more lighting could be dispatched.
- Taking advantage of its relationships with other agencies, the SIRV staff contacted a receiving hospital and confirmed there was no fatality in one particular incident. This eliminated the need to conduct a traffic homicide investigation, expediting the opening of traffic lanes.
- SIRV staff coordinated MOT to open lanes quicker. This did not reduce the overall incident duration, but it did provide some congestion relief.

Another quantifiable benefit the SIRV pilot project has yielded is the “freeing up” of incident responders. The presence of SIRV personnel reduced the need to keep other agency resources on scene, saving the following cumulative staff minutes:

- Road Rangers = 5,270 minutes
- Law enforcement personnel = 4,213 minutes
- FDOT Maintenance / Asset Management Maintenance personnel = 1,225 minutes
- Tow companies = 220 minutes
- Fire rescue personnel = 100 minutes

Sergeant Topping from the Broward County Sheriff’s office expressed his appreciation of this benefit through the following e-mail:

“I want to thank the D.O.T. for their traffic assistance on a fatal crash we had worked on may 28, 2005, on U.S. 27 in the city of Weston. We got assistance from the Road Rangers and the S.I.R.V. unit. Their assistance to me relieved me of the use of my road units for traffic control. Again, thanks for the assist, and we look forward to working with you in the future—hopefully under better circumstances.”

INDEPENDENT EVALUATION

The SIRV pilot program evaluation is based on “pre-pilot” and “post-pilot” survey findings, insights, and recommendations solicited directly from the SIRV operators; firsthand reviews of operator estimates for SIRV “time saved,” and a summary of several other focused activities that were implemented as part of the SIRV pilot program.

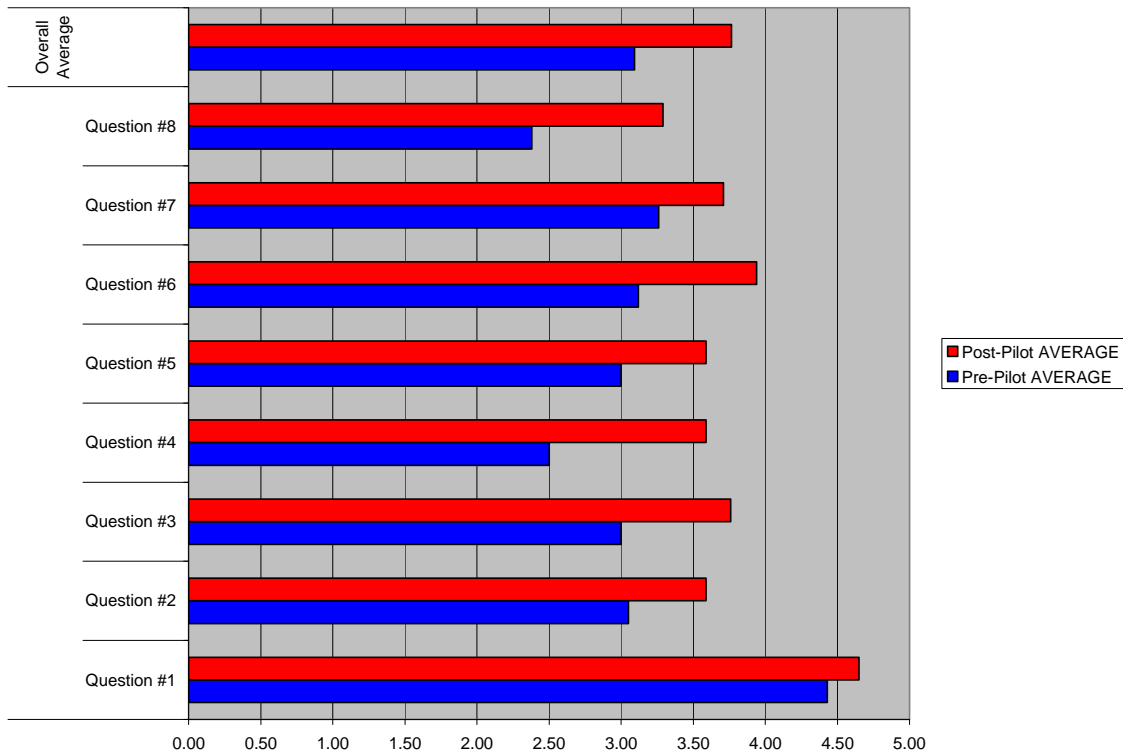
TSI administered a perception survey just prior to the beginning (Nov. 2004) and near the end (Nov. 2005) of the one-year SIRV pilot program. The surveys were directed to Broward County TIM team members and other local area responders, as identified by DMJM Harris. Respondents were asked to rate the SIRV program by assigning a rating of “1” (unacceptable or least favorable) to “5” (excellent or mostly favorable) across the following eight question areas:

1. Need for SIRV Program?
2. Consistency of information source?
3. Timeliness of information received?
4. Knowledge of FDOT resources (“who” and “what” to request on scene for an incident)?
5. Information sharing and on-scene coordination across different agencies?
6. Reliability of information received?
7. Responsiveness of FDOT to major incidents?
8. Multi-agency, post-incident analysis capabilities?

A total of 21 pre-pilot survey responses were received, as well as 17 post-pilot survey responses. (However, 12 of the 17 post-pilot survey responses were from the same individuals who had responded to the pre-pilot survey.) In both surveys, at least one response was received from each general category of responders (FDOT, FHP, police, fire-rescue, sheriff, Road Rangers and Towing companies

As can be observed in the figure on the next page comparing average “pre-” and “post-pilot” ratings across all categories of responders for each question, a more favorable rating was received in each category at the end of the pilot program. Indeed, the *overall* performance rating across all questions and all responses improved almost three-fourths of a point (on a scale of five points). However, the scores on 7 of 8 questions improved to no better than a 3.94 average rating, signifying that as perceived by other first-responder partners, there is still a need for improvement. Most important, though, the overall need for the SIRV program (Question #1) received the highest rating, on a scale of 5, in both the pre-pilot survey (4.43) and the post-pilot survey (4.65).

Comparison of Survey Responses



Within several of the detailed *individual* responses (contained in the overall report appendix), performance ratings actually dropped during the pilot program period, indicating a suggested focus for improvement. Areas of greatest need for improvement are information sharing, consistency and reliability of information across different agencies, and post-incident analysis capabilities.

Input from SIRV Operators

On several occasions during the SIRV pilot program period, TSI solicited opinions directly from the two SIRV operators regarding their perceptions on program obstacles, related changes made during the pilot program, and further recommendations. The following narrative summarizes the extent of this particular feedback, with the intent that these comments may also provide some additional direction for future SIRV program improvements.

Obstacle: Paperwork is fairly time-consuming and never-ending.

Change made during pilot program: SMART system can now generate more detailed reports, reducing the time it takes SIRV operators to do monthly reports.

Obstacle: Operator “burnout” due to having only two SIRV operators on staff for 24/7 operations. This is exacerbated by the extra SIRV responsibilities, such as Road Ranger inspections, public outreach duties, and training requirements.

Changes made during pilot program: None

Further recommendations: Increase staff by hiring another part-time SIRV operator.

Obstacle: Travel time to incidents can be a problem because SIRV base operations are not centrally located in Broward County.

Changes made during pilot program: Road Rangers now have radios, which makes it easier to gather information as the SIRV is en route to an incident. Additionally, SIRV is responding to Level 2 incidents without regard for Road Ranger input as to clearance time (primarily because Road Rangers sometimes underestimate the time it will take to clear lanes).

Further recommendations: Consider the more centrally located I-95/Davie area for a SIRV operations base in the future. Suggest a central patrol zone during rush hours.

Obstacle: Request a change in FHP incident management protocol (similar to the county fire/rescue change suggested below) to include immediate and direct notification of the SIRV operator.

Changes made during pilot program: SIRV and TMC dispatch now have county fire/rescue pagers to get immediate notification of crashes on roadways where the county responds (this has reduced SIRV response time).

Obstacle: The division of FDOT responsibilities between SIRV operators and maintenance supervisors needs to be clarified.

Changes made during pilot program: SIRV now carries specialized spill mitigation chemicals for expediting the cleanup process, and asphalt repair material to expedite lane opening.

Further recommendations: Since SIRV operators have been trained in all areas of FDOT liaison and response, suggest a procedural change to have FDOT maintenance supervisors called out to complete inspection of incident cleanups and repairs. Additionally, the SIRV truck needs to carry more—and admittedly expensive—spill mitigation equipment (leak diverters, drainage hoses, and spill blockers).

Other Recommendations

- Improve capabilities and features of the SIRV truck. Add roll-up doors and rubber matting to protect equipment. Upgrade high-power lighting to increase coverage area. Add an attached roll-up awning for shade.
- In order to better respond to major incident patterns in Broward County and allow the SIRV program to maximize program productivity and responsibility, implement the following changes:
 - (1) Use two shifts for SIRV operations (5 AM – 1 PM and 12 PM – 8 PM)
 - (2) Assign an SIRV manager, and one full-time and two part-time operators
 - (3) Expand program to three SIRV vehicles
 - (4) Have the SIRV manager set up post-incident review meetings, and strongly encourage the involved FHP officers to attend. These meetings should also be agency- and responder-specific (there is no need for everyone on the TIM team to attend).
- In order to have a more distinct and authoritative appearance in the field, SIRV operators should wear lime green safety vests with *Incident Commander* patches.

The two SIRV operators chosen for the Broward County pilot program have unique credentials: they both were previously employed as local law enforcement officers, and

they were already familiar with several responding agencies. This enhanced the ability of the SIRV operators to command respect and obtain cooperation at incident scenes. Every effort should be made to attract and recruit individuals with comparable experience whenever SIRV operators are hired in the future.

Review of Estimates for Time Saved

On August 24, 2005, TSI met extensively with the two SIRV operators for the express purpose of reviewing their basis for determining time saved by the SIRV. Specifically, five incidents (#80500, #28490, #143385, #129088, and #140172) that occurred during the first six months of the SIRV pilot program period were identified in advance of this meeting as case-study examples. These particular incidents were cited as examples in which the SIRV was credited for having saved a significant amount of time; that is primarily why they were selected for review.

TSI assisted DMJM Harris with the development and eventual approval of a realistic benefit-cost estimating model, but it was not readily apparent that the estimates for actual time saved by the SIRV were realistic. This uncertainty motivated the TSI review.

After conducting its review, TSI independently concluded that the basis for determining the time saved by SIRV operators in all five pre-selected incidents was valid, and indeed very much on the conservative side. Therefore, the quarterly time savings attributable to the SIRV (the avoided costs associated with a reduction in incident duration, as documented by DMJM Harris) were also indirectly validated by this review.

According to DMJM Harris's quarterly reports covering the one-year pilot program, the SIRV responded to 317 incidents (272 of which involved some degree of travel lane closure). SIRV intervention yielded a total savings of over \$17 million to motorists in terms of reduced delay time, and a benefit-cost ratio exceeding 84:1 during the fourth quarter alone.

Other SIRV Performance Indicators

As evidence of additional "value added" by the SIRV pilot program, several other factors are summarized in this report:

- Reductions in lane blockage duration
- "Freeing up" time for other responders
- Road Ranger inspections
- Post-incident analysis
- Public outreach

Reduction in Lane Blockage Duration

According to a comparison summary of lane blockage duration from the 2004 Freeway Incident Database System (FIDS) versus the 2005 System Management for Advanced Roadway Technologies (SMART), average lane blockage duration for Level 3 incidents

dropped 27 minutes (or 14 percent) during the SIRV pilot program. As SIRV operations improve, even greater benefit under this indicator can be expected.

“Freeing Up” Time for Other Responders

According to DMJM Harris’s quarterly reports, during the 12-month pilot program almost 160 total hours of other responders’ time was “freed up” by the presence of the SIRV. In fact, about 96 “freed-up” hours were generated during the fourth quarter alone.

Other responders include Road Rangers, law enforcement personnel, fire-rescue personnel, towing companies, and FDOT maintenance units. The majority of “freed-up” hours (55 percent) were attributable to the Road Rangers; as a result of SIRV handling traffic maintenance requirements, the Road Rangers were released sooner from the incident scene, and able to continue roving the freeways to address the needs of other stranded motorists. As SIRV operations improve, even greater benefits under this indicator can be expected.

Road Ranger Inspections

Before the SIRV pilot program was initiated, Road Ranger inspections were conducted on a monthly basis and letter reports were provided to FDOT, but the process for addressing problems was more reactive than proactive. Concurrently with the start-up of the SIRV pilot program, the FDOT Project Manager began weekly Road Ranger Contractor meetings. Under the SIRV pilot program, a copy of the completed inspection form is now given to the driver to turn in to his supervisor following the work shift. Any problems that are identified during inspection are now formally addressed by the Road Ranger contractor during weekly meetings with the SIRV operator. The SIRV operator actively participates with the Road Ranger contractor in developing solutions to problems, which in turn helps the contractor meet its contractual responsibilities. Also, during inspections and at incident scenes, problem vehicles can now be immediately sent back to base by the SIRV operator.

During the SIRV pilot program, 279 Road Ranger inspections were conducted, resulting in 74 detected vehicle deficiencies and 78 equipment deficiencies. There is no doubt that, as a result of inspections by the SIRV operator, safety in Road Ranger operations is improving.

Post-Incident Analysis

Prior to the SIRV pilot program, post-incident meetings of any type rarely took place. During the SIRV pilot program, five incident debriefings occurred. Two types of debriefings have been developed: one is a general overview of events involving the entire Broward TIM team, and the other is a more detailed analysis involving only those who were at the scene.

As a result of the post-incident analyses (PIA), the following operational improvements and procedural enhancements have been implemented:

1. TMC dispatchers will now contact FHP with minimal vehicle information during in-progress emergencies so as to improve FHP responsiveness.
2. Road Rangers have been taught a new method for righting overturned vehicles.

3. SIRV will be notified by FDOT Construction of contractor's clearance responsibilities during construction projects.
4. Having attended PIA meetings, the Superior Towing Company is now able to provide dispatcher communication training to all its new employees, so proper and consistent information can be obtained and shared to improve responsiveness.
5. FHP is now developing a protocol to include SIRV as part of a centralized command post during severe, long-term incidents.

Public Outreach

Public outreach is a vital component of any SIRV program deployment or expansion. Given the uniqueness of the SIRV program, public outreach must also be viewed as a necessary "tool for success." Over 105 hours of public outreach activities occurred during the SIRV pilot program; the DMJM Harris quarterly reports list all of the outreach activities that have taken place.



For the SIRV program to succeed, other responders and the general public must clearly understand the purpose, operational characteristics, capabilities, and expected "value added" that the SIRV offers in terms of improved traffic incident management. To promote this understanding, partners were kept informed of pilot program progress during monthly TIM team meetings in Broward and Palm Beach Counties (as well as at statewide TIM meetings). SIRV operators have also provided assistance in overall TIM program evaluations and development (e.g., participating in the development of new state requirements for rescue-class wreckers that will achieve quicker incident clearance). During meetings with the Broward Sheriff's Office, SIRV operators were given pagers that improved their response times for serious crashes on non-freeways. Outreach meetings with FHP enabled SIRV operators to directly contact upper management when problems arose, and to jointly establish procedures to locate command posts at incident scenes. Meetings with the National Highway Transportation Safety Administration (NHTSA) developed contacts and protocols for NHTSA's response to incidents. Finally, SIRV operators were involved in five media events, one of which was focused only on the SIRV pilot program, while the others utilized SIRV as a backdrop for statewide traffic safety and enforcement events.

Summary of Findings

The three most important findings that emerged during the evaluation of the SIRV pilot program can be summarized as follows:

1. The 2005 SIRV pilot program demonstration in Broward County has clearly shown that there are tangible benefits to be realized in reduction of incident duration (average of 27 minutes for Level 3 incidents) and in overall improved incident management operations (savings to motorists of \$17 million in reduced delay time).

2. A properly implemented SIRV program can be a value-added component of incident management (the SIRV accounted for almost 160 total hours of “freed-up” time for Road Rangers and other responders). Additional benefits include immediate and formalized methods for addressing Road Ranger equipment and vehicle deficiencies, and more comprehensive and improvement-oriented post-incident analyses.
3. As documented by program surveys, the perception of this FDOT pilot program is that while the need for SIRV services is clear, there still are opportunities for improvements and better coordination with other first responders. Such improvements could yield even greater benefits.

As the District IV SIRV program is expanded (and perhaps exported into other FDOT districts and regions of the state), careful consideration must be given to a number of key operating characteristics. The most critical characteristic is the recruitment of SIRV operators, who must be seasoned professionals in law enforcement or have other first-responder experience in order to command the necessary respect and authority on-scene. Standard operating procedures to be developed for each SIRV program must be appropriate for the particular local area. Those implementing procedures should also define the specific purpose of the service, address the intended level of service to be provided, and be fully cognizant of budgetary constraints. This meticulous approach will ensure that hours of operation, program staffing and responsibilities, fleet size, working relationships with Road Rangers and other FDOT responders, and the extent of outreach activities will be both practical and appropriately customized to suit the targeted service area.