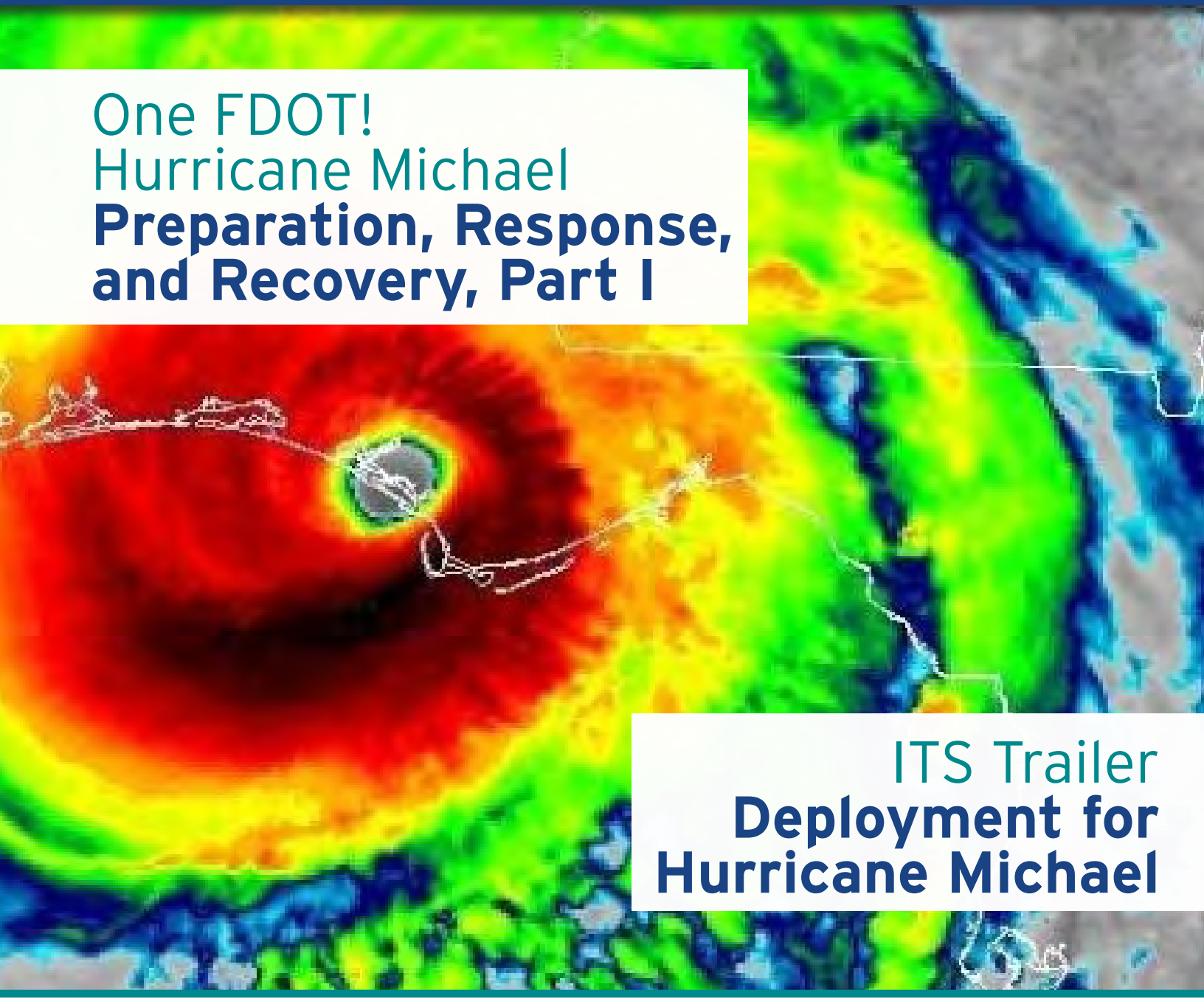
FLORIDA DEPARTMENT OF TRANSPORTATION

TSM&O DISSEMINATOR

TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS

November - December 2018



One FDOT! Hurricane Michael **Preparation, Response, and Recovery, Part I**

ITS Trailer **Deployment for Hurricane Michael**

FLORIDA DEPARTMENT OF TRANSPORTATION'S
TRAFFIC ENGINEERING AND OPERATIONS PUBLICATION

FDOT TSM&O
Transportation Systems Management & Operations

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FDOT TRAFFIC ENGINEERING AND OPERATIONS MISSION AND VISION STATEMENTS

MISSION

Provide leadership and serve as a catalyst in becoming the national leader in mobility.

VISION

Provide support and expertise in the application of Traffic Engineering principles and practices to improve safety and mobility.

LOOKING TO BE A CONTRIBUTOR FOR THE NEXT ISSUE OF THE TSM&O DISSEMINATOR?

Email Jennifer Rich
(Jennifer.Rich@dot.state.fl.us)
with your story subject and title.

We'd love to have your contribution be a part of the next edition.

Photo credits: FDOT, Duke Energy, Gulf Power

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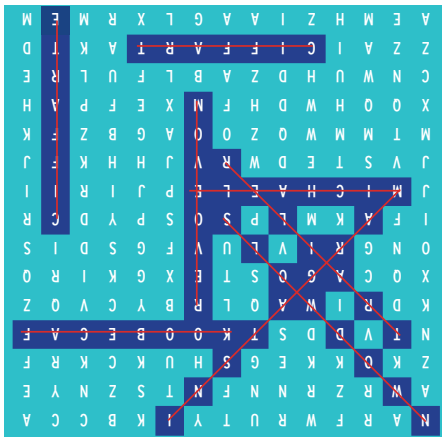

One FDOT! Hurricane Michael Preparation, Response, and Recovery, Part I

By Amy M. DiRusso, District Three, FDOT; Russell Allen and Ron Meyer, Atkins

October 10, 2018, will forever change the landscape of Florida's panhandle and the lives of those who live there. Hurricane Michael was one of the most intense hurricanes to ever make landfall in the United States. The storm struck the Florida panhandle as a high-end Category 4 hurricane with maximum sustained winds of 155 miles per hour (mph) and a minimum central pressure of 919 millibars (mbar), just below Category 5 intensity. Coastal communities from Panama City to Apalachicola and points inland including Wewahitchka, Blountstown, Chattahoochee, Marianna, and Chipley sustained unprecedented damage. Many miles east of the storm, in places such as St. Marks, Crawfordville, and Tallahassee, Hurricane Michael left a trail of damaged buildings, fallen trees, and downed power lines.

Mexico Beach, FL after Hurricane Michael landfall.

Photo courtesy of Duke Energy

Hurricane Michael's most damaging winds, near its center, cut a path of destruction that can be described like the remains of a 50-mile wide tornado. Hurricane Michael tracked north-northeast through the panhandle, decimating Mexico Beach and leaving ruin in its wake as it crossed into Georgia with Category 3 strength winds and rain. The 43 lives claimed by Hurricane Michael is a remarkably low death toll considering the hundreds of buildings that were leveled, the thousands more damaged, and the estimated three million acres of timber damaged (debris often landing on homes).

Our neighborhoods and familiar landmarks were unrecognizable – in some cases completely gone. In a few frightening hours, the landscape of the panhandle changed dramatically, and we were left facing many long roads to recovery. One critical item demanded immediate attention from the Florida Department of Transportation (FDOT) to help start the recovery process for everyone - restoring our transportation network. Fortunately, before, during, and after Hurricane Michael we are One FDOT, "Panhandle Strong," and moving forward to help our citizens return to their everyday lives as safely and quickly as possible.

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One FDOT! Hurricane Michael Preparation, Response, and Recovery, Part I *(continued)*

Preparation

Just three days before landfall, Hurricane Michael was merely a tropical storm. On Sunday, October 7, Florida Governor Rick Scott declared a State of Emergency in 26 counties of north Florida, including the entire panhandle. FDOT critical support functions were called to action at the State Emergency Operations Center to prepare a plan.

During the two days following the declaration, key FDOT District Three staff began preparing for the storm and its impact as Hurricane Michael rapidly strengthened to a Category 3 storm. Crews were on standby, portable generators were strategically staged for post-storm deployment, and operations staff at the Northwest Florida Regional Transportation Management Center (NFRTMC) prepared for impact.

In the next 24 hours as Hurricane Michael prepared to strike Florida's panhandle, it continued to strengthen to a Category 4 hurricane at 155 mph, just two mph shy of a Category 5 storm. This made Hurricane Michael the most powerful storm to impact the Florida Panhandle in recorded history.

Response

Following the landfall on October 10, 2018, there were massive power outages with downed power lines, destroyed traffic signals, and roads blocked due to trees and debris of all origins, shapes, and sizes throughout the panhandle area. Once thriving communities were reduced to rubble and bare land. The level of destruction was that of something you normally just see on television. But this

time it hit home, and damage was far beyond what could be imagined. Michael was a hurricane, but in many areas, the aftermath of damage reflected that of a tornado tens of miles wide with smaller tornadic-like damaged areas around the edges.

Communications to intelligent transportation systems (ITS) infrastructure and devices along Interstate 10 and other state highways was sporadic at best. Traffic signal system infrastructure was devastated in the urbanized areas. Wireless carriers and internet service providers, including FDOT's wireless/cellular and internet service providers — experienced widespread outages. With no critical communications available to or from the NFRTMC, a strategic plan was put into place. Mr. Kevin Mehaffy, the consultant RTMC Manager, graciously offered the use of his personal cell phone on another carrier's network, which still had service. With this phone being the primary form of communications available for operations staff, it quickly became the emergency point of contact for the entire FDOT Management and Operations staff at the NFRTMC. Not only was Mr. Mehaffy's phone used for voice communications, but it was also used to establish a mobile WiFi® hotspot that allowed access to critical email, internet, and other applications. Although bandwidth was limited, it was much better than nothing at that time.

Cut and toss crews began clearing FDOT's roads; generators were being installed at critical intersections; and traffic was starting to flow again. Signalized intersections with little to no damage were brought back up as fueling contractors made their rounds to keep generators providing electricity to the operational signals.

Examples of damage at a signalized intersection in Panama City, FL.
(1) Broken traffic signal mast arm
(2) Knocked down traffic signal cabinet
(3) Damaged traffic signal head
(4) Fallen high voltage power line tower
(5) Misaligned traffic signal head
(6) Fallen tree that was cut away from the road

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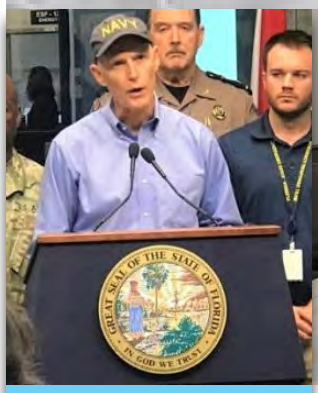
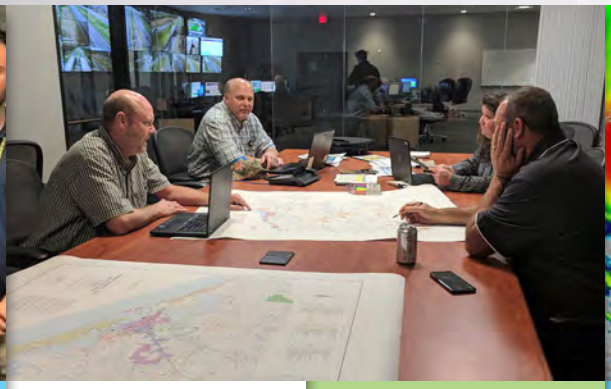
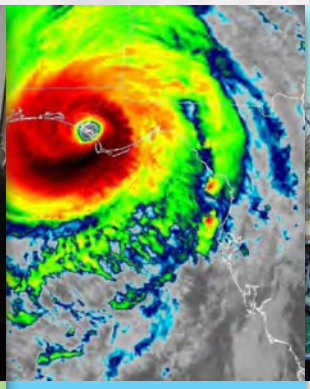
Historical Storm for Panhandle!

Hurricane Mic







Sunday
October 7
Michael is projected to make landfall in Florida's panhandle.

Governor Rick Scott declares a State of Emergency for Tropical Storm Michael in 26 counties in north Florida, including the entire panhandle.

FDOT's critical support functions are called to action.

Monday
October 8
Tropical Storm Michael strengthens to a Category 1 hurricane.

Key District Three staff begin preparing for the storm. Those traveling are ordered to return to the office.

Tuesday
October 9
District Three orders prepositioning for deployment of portable generators at signalized intersections on state highways throughout the District, where needed.

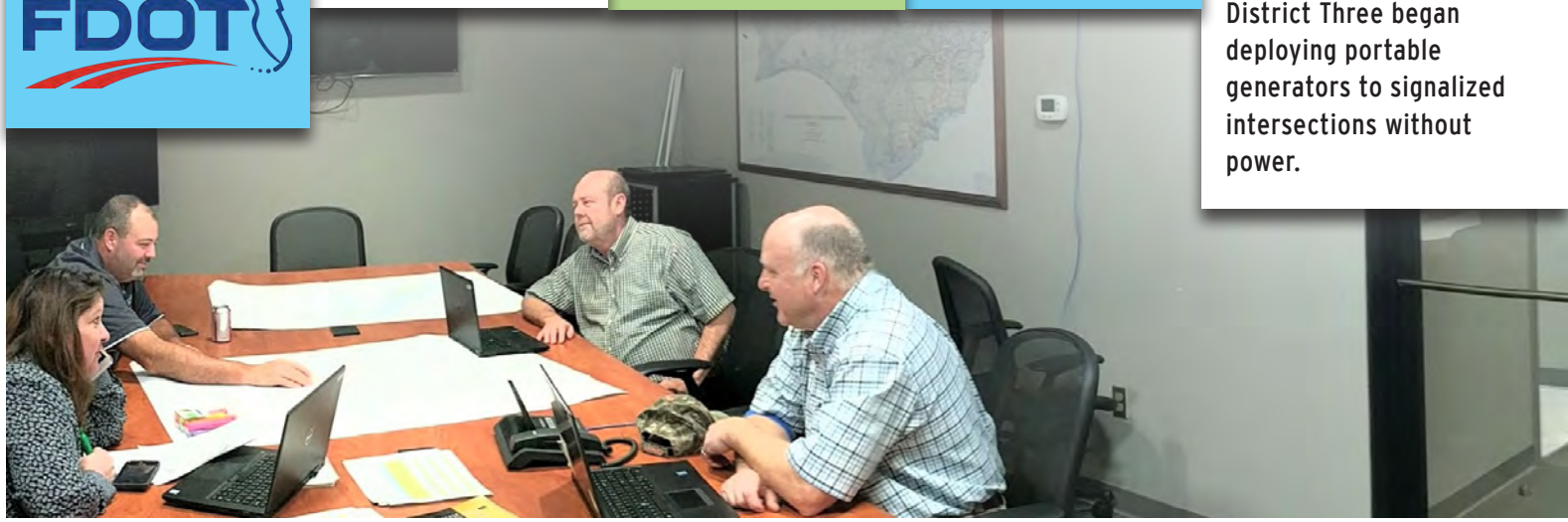
Hurricane Michael strengthens from a Category 2 to a Category 3 within the work day and is still strengthening.

Wednesday
October 10
Hurricane Michael makes landfall as the most powerful storm (Category 4) to impact the Florida panhandle in recorded history. Maximum sustained winds reached 155 mph, just two mph shy of Category 5.

Generators were staged in strategic locations for deployment after Hurricane Michael passed.

Thursday
October 11
Massive power outages throughout the panhandle. The state's wireless provider and it's leased circuit provider also sustained widespread outages, including services to the District Three Headquarters in Chipley and Marianna Field Office. Kevin Mehaffy offers his personal cell phone to be used as emergency communications for RTMC operations.

District Three began deploying portable generators to signalized intersections without power.



hael Timeline

Friday
October 12

Central Office TSM&O Section begins sending teams to District Three to augment initial field damage assessments.

Damage assessments for ITS and traffic signal infrastructure continued daily, and minor repairs and timing adjustments were made by Central Office staff.

Sunday
October 14

Type I Signal Repairs (10/14/18 – 10/23/18)

Crews begin making Type I repairs to traffic signals. A Type I repair is considered as one operational signal head in each direction of travel.

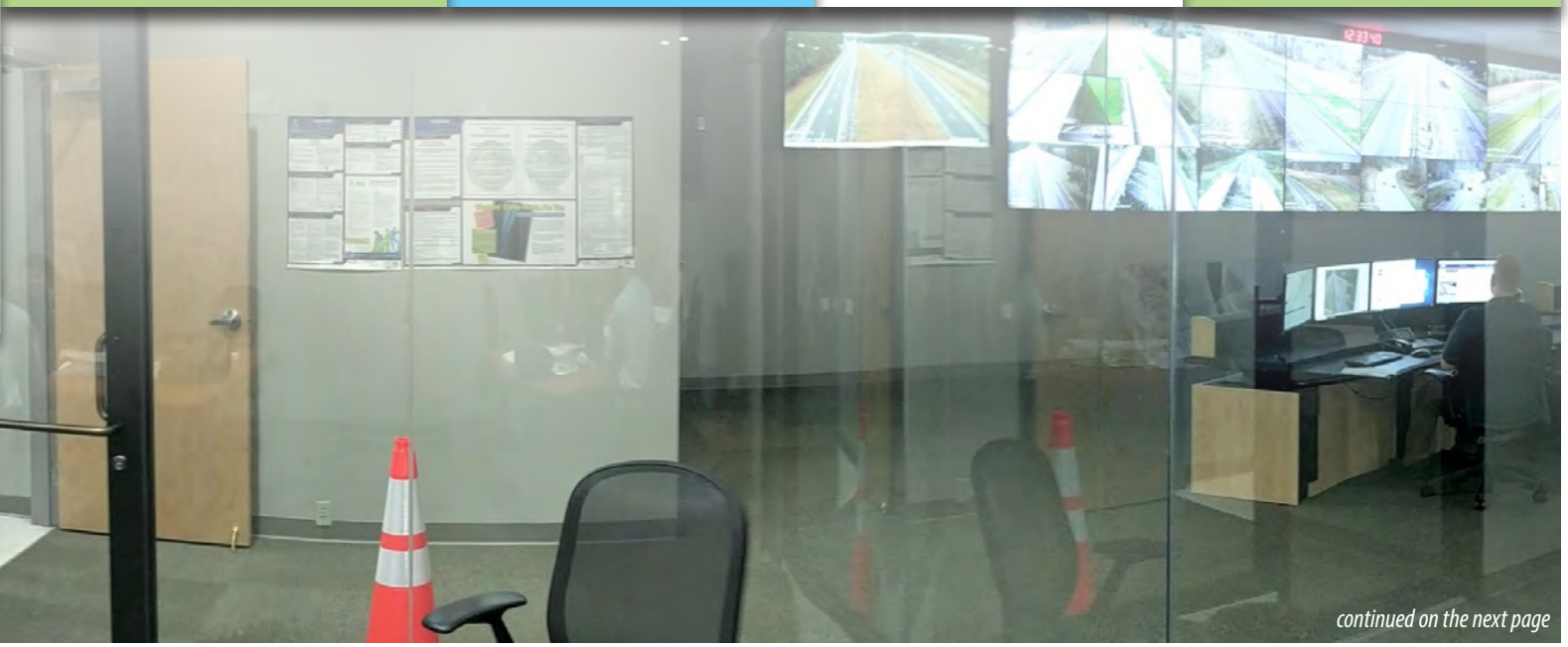
Tuesday
October 23

Type II Signal Repairs (10/23/18 – 12/4/18)

With 167 traffic signals needing Type II repairs, crews from both Traffic Signal Repair contracts worked day and night to bring as many signalized intersections back on line as quickly and safely as possible.

Tuesday
December 4

Ninety percent of the signal repairs were completed by 11/10/18. The final 20 signals were repaired as parts arrived, with the final Type II repair completed on 12/4/18.



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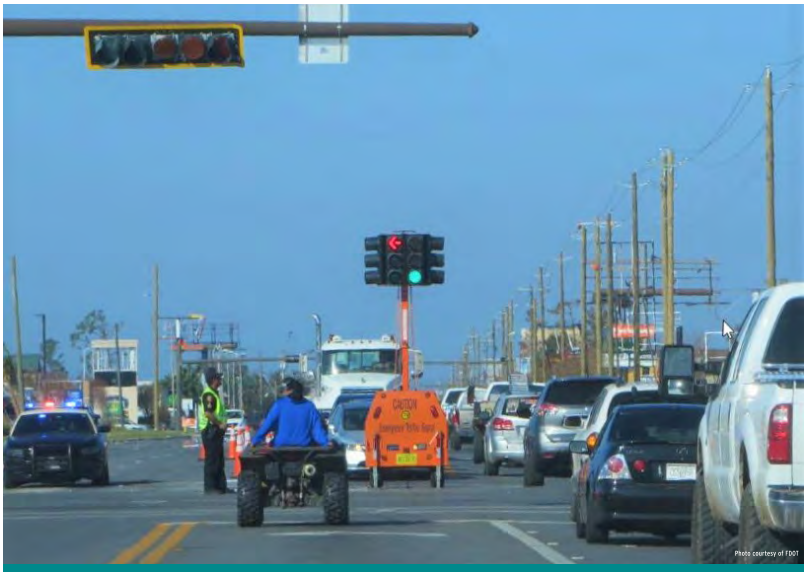
One FDOT! Hurricane Michael Preparation, Response, and Recovery, Part I *(continued)*

Recovery

With critical communications established, District Three Traffic Operations staff was able to communicate with its FDOT, State, and local partners to coordinate recovery efforts. A small percentage of the ITS cameras and network infrastructure were without power, but more than 200 traffic signals were damaged and in need of repair.

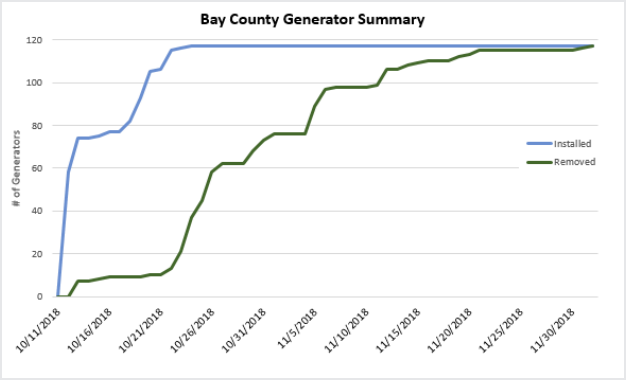
On Friday, October 12, the Central Office sent three consultant crews from Tallahassee towards Chipley to augment damage assessment resources for traffic signals and ITS infrastructure, as well as to support NFRTMC communications and networking as needed. The first crew headed west along US Highway 90, documenting signal head and span wire damage on the way to Chipley. The second crew headed west on State Road 20, documenting signal head and span wire damage on the way to Chipley as well. Once this crew reached US Highway 231, they headed south to check on the staff at the Bay County Traffic Management Center since prior attempts by District Three to establish contact were unsuccessful. A third crew headed directly to the NFRTMC to assist with SunGuide® software and network communications support. The number of crews assisting from the Central Office ranged from one to six per day over the next week as signal damage assessments continued and repairs began.

As traffic signal damage assessments were reported, District Three utilized their Pre-event Traffic Signal Repair contract to deploy crews to make Type I repairs (one signal head operating in each direction). Type I repairs began on October 14; however, the number of damaged signals was overwhelming, and additional personnel were needed. On October 17, the Federal Highway Administration (FHWA) approved the execution of an Emergency H-Contract for a second traffic signal repair contractor to assist with recovery efforts.

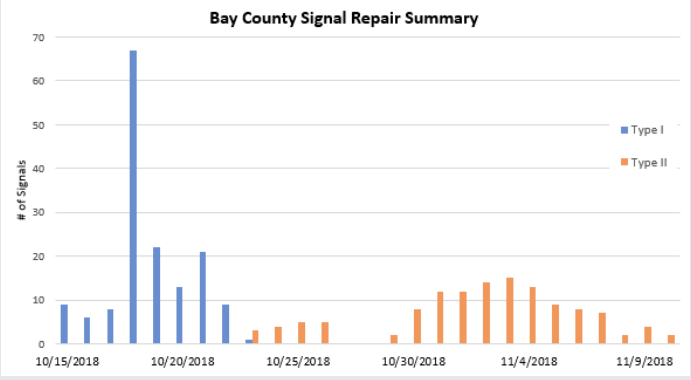


Portable traffic signal in Bay County, provided by District Six

With traffic signals running on generator power and being repaired to Type I status, the roads were crowded with local traffic, repair crews, refueling crews, utility crews, relief workers from out of town, and lots of seasonal traffic wanting to see the devastation firsthand. This made it very difficult for crews to perform restoration efforts. A curfew was put into place to promote public safety, which allowed signal repair crews to work expediently during the night. Repair crews worked day and night to get the signals operational, with as many as 30 crews working within a 24-hour period and up to 19 of those crews at night. With most of the traffic signal damage taking place in Bay County, most of the crews focused on this area. Below are two graphs showing the chronology of generator deployments and recovery and traffic signal repairs, respectively, in Bay County.



FDOT generator deployment and removal efforts at signalized intersections throughout Bay County.



Traffic signal repair efforts (Types I and II) throughout Bay County.

FDOT Meets with FHWA

On October 18, 2018, FDOT District Three and the Central Office met with FHWA at their regional headquarters in Tallahassee to discuss further traffic signal repairs. Given the amount of traffic on the roadways in Bay County during repair efforts, standard Type I repairs were not providing the level of traffic flow and congestion relief that was needed. One of the reasons for this was that left turn phases at major intersections had not been restored. After discussing the issue at hand, FHWA agreed to modify the scope of Type I repairs to include a second signal head at large intersection with turn phases.

FDOT and FHWA discussing needed modifications to Type I signal repairs in Bay County

Finishing Up

Type I traffic signal repairs continued through October 23. On October 22, both traffic signal repair contracts were modified to include Type II repairs (all signal heads operating in each direction) and repairs began the next day. With 167 traffic signals requiring Type II repairs, FDOT contractors worked long and hard. Over 90 percent of all repairs were complete by November 10, with parts scheduled for delivery for the remaining 20 signals in the district. On December 4, 2018, the last Type II repair was made to a traffic signal in Bay County to complete these efforts.

Overall, damage to the Freeway Management System infrastructure was limited to power outages and an occasional damaged cabinet.

Florida's panhandle will be recovering for years to come and it will be a long time before we recognize the north Florida of old. But one thing remains true – FDOT will always be there to help each other and the citizens of the great state of Florida.

Thank you!

District Three would like to thank the following organizations (in-house and consultant/contractor staff) for their help and dedication in helping the people of the state of Florida recover from Hurricane Michael. Efforts included, but are not limited to, cut and toss, network and communications support, portable generators, ITS and traffic signal damage assessment and restoration, portable intersection units, Road Rangers, and Severe Incident Response Vehicles, pacing operations (rolling road blocks), and overall program support:

Federal Highway Administration, FDOT – Central Office, District One, District Two, District Three, District Four, District Five, District Six, District Seven, and Florida's Turnpike Enterprise; the Florida Highway Patrol; Bay County, City of Tallahassee, Albeck Gerken, Atkins, AutoBase, C2S, Florida Safety Contractors, Florida Transportation Engineering, Gannett Fleming, Genesis, Griffin Signalization, HNTB, HSA, Ingram Signalization, Metric, TransCore, Volkert, and World Fiber.

For more information please contact Amy DiRusso at (850) 330-1241 or by email at Amy.DiRusso@dot.state.fl.us.

eTraffic and its Potential for Future Use

By Alan El-Urfali, State Traffic Services Program Engineer, FDOT; Rakesh Sharma, HNTB Corporation

The eTraffic System of Engagement (SoE) is a web-based GIS data collection and sharing platform. eTraffic integrates roadway characteristic data with crash data to perform safety and operational analyses within a state or region for state highway systems (SHS) and local roadway networks. eTraffic is also aligned with the Federal Highway Administration's Every Day Counts - 4 (EDC-4) innovations initiative.

eTraffic is a public application that is accessible to both internal (FDOT offices) and external (local agencies) FDOT partners to support the ongoing traffic operations-related data collection and tracking needs. eTraffic is envisioned to provide a one stop shop for various initiatives at Traffic Operations Office's Traffic Services Division. Some of the elements eTraffic is currently reporting includes the following:

1. FHWA Request to Experiment (RTE) locations in Florida
2. Active MUTCD Interim Approval (IA) locations in Florida
3. Intersection Control Evaluation (ICE) locations in Florida
4. Welcome Center Signs in Florida

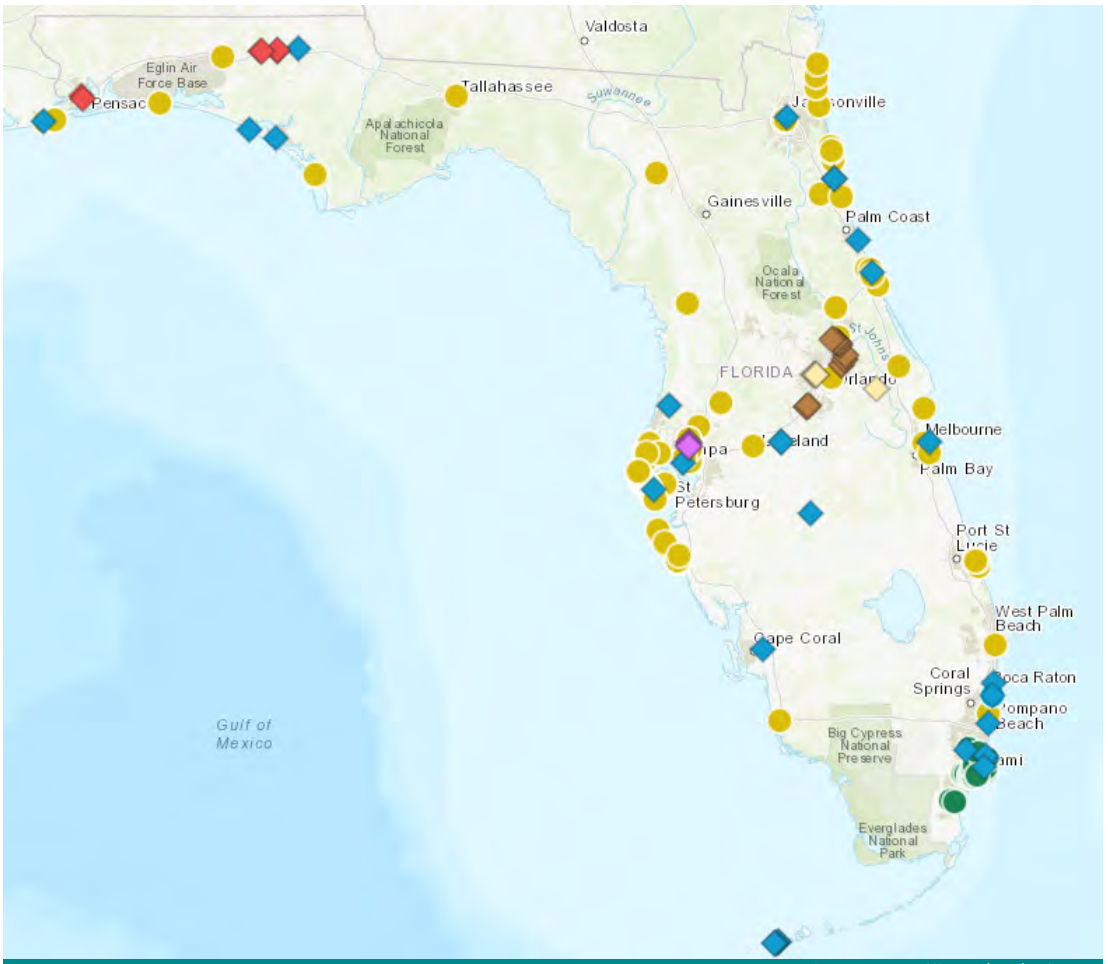
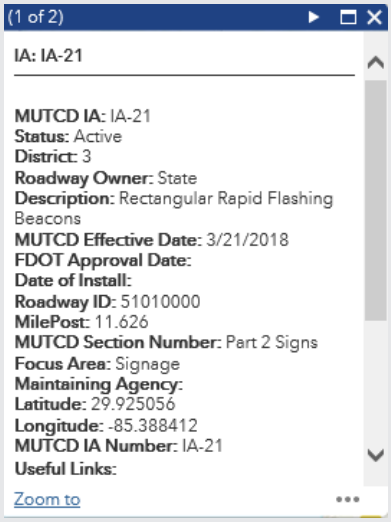


Figure 1. eTraffic Web Interface

These areas of data acquisition are considered as "initial buildouts" for a larger planned eTraffic GIS interface database.

The IA and RTE locations are identified with features such as IA/RTE location, status, roadway ID, mile posts, request date, FHWA approval date, and date of install in addition to other features shown in Figure 2. The RTE locations are coordinated with the districts to provide the date of install and tracking the experiments. Any of this information can be modified and updated by the Central Office or District Staff with appropriate access.

Figure 2. RTE and IA Location Details



The RTEs and IAs currently tracked are:

1. RTE 4(09)-46: Wrong-Way Driving Red In-Roadway Warning Lights on Exit Ramps (FDOT)
2. RTE 4(09)-47: Red Rectangular Rapid Flashing Beacons on Exit Ramps (FDOT)
3. RTE 4(09)-49: Red Rectangular Rapid Flashing Beacons on Exit Ramps (CFX)
4. RTE 4(09)-57: Red Rectangular Rapid Flashing Beacons on State Road 417 Exit Ramps (FDOT)
5. RTE 2(09)-142: In-Street Pedestrian Signs Gateway Installation for MUTCD R1-6a (FDOT)
6. IA-11: Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons - Terminated
7. IA-14: Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes
8. IA-15: Interim Approval for the Optional Use of an Alternative Design for the U.S. Bicycle Route (M1-9) Sign
9. IA-16: Interim Approval for the Optional Use of Bicycle Signal Faces
10. IA-21: Interim Approval for the Optional Use of Pedestrian-Actuated Rectangular Rapid-Flashing Beacons at Uncontrolled Marked Crosswalks

The District ICE locations are also tracked on the eTraffic web-page to identify various features such as date of ICE analysis completed for the three stages, work program expected construction year, and supporting documents and signed forms to build ICE alternative. The intent is to keep all signed ICE forms and concept plans at one place and track ICE deployment progress. ICE locations are divided by the fiscal year when the analysis was completed. For example, currently there are two layers shown on the map, one for 2017/2018 and another for 2018/2019. As Districts identify 2018/19 ICE locations, they can add the ICE locations pins on the map and provide associated information.

Another layer on the eTraffic map is the on-system signs layer. The signs that are specialized or are under evaluation for Florida will be located under this layer. Currently, the layer only shows the Welcome Center signs, but in the future more signs will be added as they are deployed around the state, upon special request.
Other future enhancements may include the following:

1. On-system Traffic Signals and related local agency agreement information (internal to FDOT)
2. On-system intersections and related safety information
3. Pedestrian/bicyclist safety countermeasures
4. Traffic complaint locations (internal to FDOT)
5. Integration of Model Inventory of Roadway Elements (MIRE) 2.0 elements on all layers

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6. eConstruction and eMaintenance platforms providing the ability to automate two key aspects:
   a. Identification of data collection needs for specific locations when maintenance or construction crews are on-site or in proximity or through automated system identification (notifies the user of needed data or missing data during construction close-out or permitting).
   b. Automation of the tracking of changes in roadway characteristic data as they occur, resulting in more-accurately maintained (higher quality) roadway characteristic data, which is a common issue in many states.
7. Truck Lane Restrictions
8. School Zones and Crossings Inventory
9. Signalized intersections on alternative corridors used during Emergency Evacuation

The eTraffic innovation is easy to integrate and requires only internet access to access the file. Some features that are internal to FDOT will be accessible by the FDOT districts and various offices. The eTraffic SoE is a suite of online apps and maps that enable GIS level data collection and analysis through an online system structured to engage a wide range of state and local agency users. Some of the benefits of eTraffic are:

1. Provides a proven, online data warehouse structure with downloadable apps and maps that can be configured to collect and share roadway safety characteristics that follow the FHWA MIRE system. This promotes an evolution for state and local agencies to more accurately collect and maintain roadway characteristics data in an easy to access and understand environment.
2. Establishes an online, easily understood and accessible SoE to collect and analyze MIRE-related roadway characteristics with better, more-complete data from multiple sources, including state departments of transportation and local agencies.
3. Provides a process road map and collective understanding for agencies to start collecting and sharing better, more -complete roadway data that mirrors the FHWA MIRE system.
4. Enables states and other agencies to better analyze system data and implement systemic safety improvements based on higher quality, more-accurate roadway data that is maintained in a collective environment.
5. Enhances the Safety Management Process through creation of an online database that can be used to generate statewide or region-specific safety performance functions and Level of Service Safety (LOSS) measures.
6. Shortens Project Delivery - Creates a sustainable ability to access and process real-time, accurate roadway characteristics data to better predict safety and operational issues, rather than just retroactively responding to historical crash hot spots. A direct example of this benefit would be seen in the delivery and implementation of statewide systemic safety improvement plans.
7. Positively impacts safety, project costs, maintenance, and preservation through the creation of a consistent data collection and sharing architecture that builds upon the MIRE structure, is accessed online.
8. Uses Highway Safety Manual based characteristics to evaluate safety performance.
9. Commercially off-the-shelf apps and online GIS SoE provide consistent framework for sharing data across multiple agencies.
10. eTraffic digital data collection forms, apps and maps created to collect and share roadway data in online GIS format. Districts will be able to access the eTraffic system and upload data. In return, safety performance evaluation results are presented to the local agencies, which includes Highway Safety Manual-based screening and recommendations.

For more information, please contact Alan El-Urfali at (850) 410-5416 or by email Alan.El-Urfali@dot.state.fl.us.

Florida Leads National Effort for TIM Performance Measurement

By Shawn Kinney, FDOT TIM Program Manager; Grady Carrick, Enforcement Engineering, Inc.; Rakesh Sharma, HNTB Corporation

Traffic incidents are dangerous for incident responders and the traveling public as they can adversely impact safety, mobility, commerce, and quality of life. Often traffic incidents will cause secondary crashes, as the dangers of incidents reach far beyond the original scene, endangering motorists who are caught in the traffic congestion. Effective management of incidents is the product of investments, such as the Road Ranger Service Patrol, Regional Transportation Management Center (RTMC), Intelligent Transportation System (ITS), and Traffic Incident Management (TIM) responder training.

The Florida Department of Transportation (FDOT) is participating in the Federal Highway Administration (FHWA) Every Day Counts (EDC) Initiative #4, which promotes several low-cost, off-the-shelf technologies, including integrated computer-aided dispatch (CAD), electronic crash reporting, RTMC software, and various smart devices that make data collection simpler. These tools assist agencies in expanding the amount and quality of data they collect. FDOT is using this data to recognize trends, institutionalize programs, identify areas for improvement, develop consequence modeling, and inform future planning.

Time is critical in reducing congestion and the exposure of responders and motorists to injury. FHWA identified three national TIM performance measures: the time of lane closure or roadway clearance time (RCT), time responders are on-scene or incident clearance time (ICT), and a number of secondary accidents—that states can focus on data collection and reporting. These three measures provide a baseline for comparing TIM program assessments across state and regional boundaries. Various systems help agencies collect TIM data that contributes to understanding these three measures; these include crash reports, RTMC central system software, service patrols, public safety CAD integration, and crowdsourced data.

For the two-year implementation period ending on December 31, 2018, Florida joined 35 other states in implementing innovation to advance the use of TIM data for operational decision support. Florida is the first state to use all these systems to collect all three types of TIM data on a statewide basis. With several years of TIM data collection and millions of data points on hand, data analysis, and use of the data has become the focus of FDOT. For many years, FDOT has produced printed reports that depict charts, graphs, and tables of TIM data from SunGuide® software, comparing several types of events with historical benchmarks. As a part of the EDC-4, FDOT developed an interactive, web-based dashboard to make data easy to use and understand for the end user.

As shown in Figure 1, the dashboard includes all three EDC-4 performance measures along with the fourth measure for Road Ranger average time on scene. The traffic incident data is from FDOT SunGuide central system software and represents a statewide average. The dashboard compares the two years of data as shown in the dials below – the outer band represents the current year and the inner band represents the previous year statewide average. Note the dashboard is a draft version and will be eventually housed in the FDOT TIM website with a regular update of the data.

The TIM data shown includes all types of incidents on freeways. In addition, for data quality comparison, FDOT is comparing this data with the Florida Highway Patrol (FHP) data, which is only crash data; however, it covers all classifications of roadways statewide.

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TIM data collection and analysis holds the promise of helping stakeholders understand incidents and improve performance. Clearing the road, clearing the scene, and preventing secondary crashes minimize the negative impacts of incidents. Targeted data analysis prompts better decision making. Sharing that data and analysis with a wider audience empowers people to make better choices for better outcomes. For an example, when FHP Colonel Gene Spaulding saw the potential of TIM performance measurement, he directed his staff to include the metrics in the agency quarterly CompStat-style managers' meetings. With each FHP troop now looking at RCT, ICT, and secondary crashes, the state of the practice has advanced significantly. Organizational support of TIM is reinforced from the top down and accountability follows the tough questions that accompany performance management.

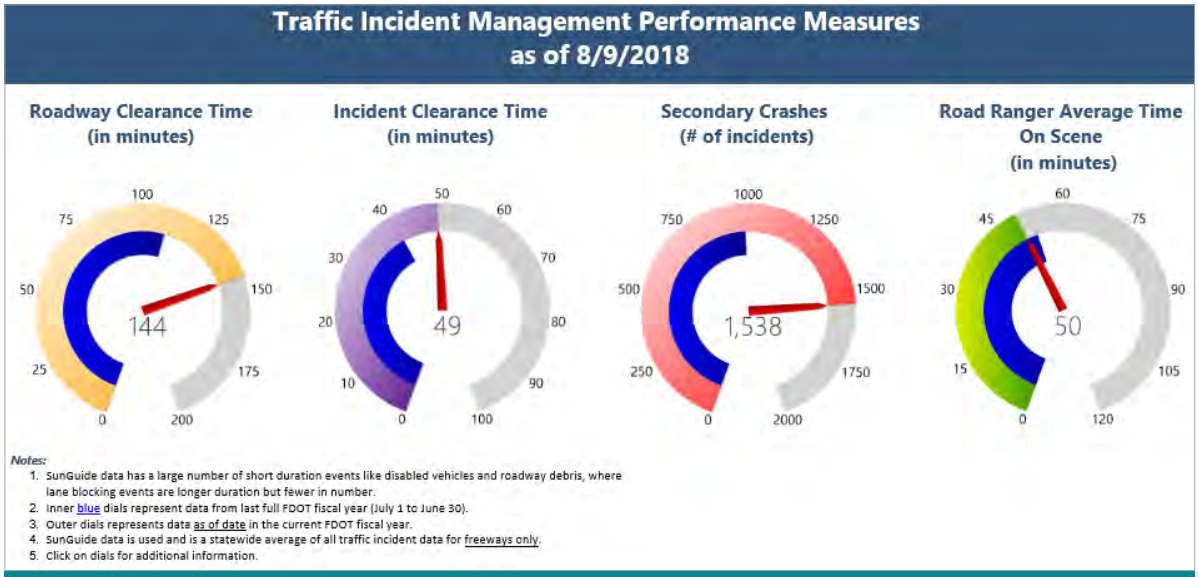

Figure 1. FDOT TIM Dashboard

Shawn Kinney presenting the TIM Strategic Plan at the Big Bend ITE Florida Chapter Annual Meeting in December 2018.

FDOT presented the TIM dashboard at the National Operations Center of Excellence (NOCoE) national presentation in September 2018 as one of the very few states utilizing various data sources and putting the information together seamlessly to make TIM decisions. The presentation was very well received by FHWA and other national state agency peers.

Florida will continue to seek to better collect and analyze the data as a stated goal and work with various data sources to make informed decisions. The state has surpassed its goal and is now one of only a few states that have totally institutionalized the TIM data. Enhancements to data collection and analysis enable more accurate adjustments to staff, operations, and training, which thereby translates to a safer work environment for Florida TIM responders and roadways for drivers. Congratulations to all of Florida's TIM stakeholders for this huge accomplishment!

For more information, please contact Shawn Kinney at (850) 410-5631 or by email Shawn.Kinney@dot.state.fl.us.

ITS Trailer Deployment for Hurricane Michael

By Josh Beizer, Atkins

The Florida Department of Transportation (FDOT) Intelligent Transportation System (ITS) trailer is a mobile platform that supports remote viewing of emergency situations and provides wireless internet connectivity to workers that are in the field. The ITS trailer was commissioned in 2009 as a communications trailer for the department to supply WiFi at rest areas. Over the almost 10 years of service, the ITS trailer has received small repairs and additional equipment, and can now stream video of its three visible spectrum cameras mounted at the top of a 100-foot collapsible tower, along with a single Forward Looking Infrared (FLIR) camera mounted at 25 feet. The ITS trailer has Verizon 4G LTE service, as well as a satellite connection, as a backup to transmit the video from the trailer to the remote user. The cellular and satellite service provides Internet access to local workers via three wireless access points.

Figure 1: ITS trailer

Earlier this year, the ITS trailer was fully upgraded with a focus on improving the trailer's availability for deployment and remote functionality. During the upgrade, the trailer was stripped of all its equipment, including the server rack that originally held all the trailer systems together. The inside of the trailer was lined in 3/4 inch plywood to mount all the equipment. The server rack was abandoned in favor of direct mounting to the plywood walls to allow access to all sides of each piece of equipment, making it easier to replace or repair parts while deployed.

The ITS trailer upgrade included a complete upgrade of the electrical system. The power system design began with calculating the approximate power requirements and leaving room for future upgrades. Equipment was mounted with custom-built cable management. A new generator was purchased and dedicated to the trailer to decrease preparation time for deployment. Finally, as a backup to the generator, a new battery system that can support the trailer for eighteen hours was added to ensure remote availability.

Figure 2: Before and After

In addition to electrical work, new networking equipment and a web server were installed. The web server hosts a dedicated ITS trailer website which allows for remote viewing and pan/tilt/zoom of the four cameras.

After Hurricane Michael, there was limited cellphone and Internet services in affected sections of the Florida panhandle. FDOT and first responders had no communications through phone or email. The ITS trailer was deployed to support

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the Florida Wildlife Commission (FWC) in Carrabelle for five days, before being deployed to the South Gulf County Volunteer Fire Department in Cape San Blas for seven days. While deployed, the ITS trailer provided the only available Internet service to both FWC and the fire station allowing them to access email and other methods of communication. The ITS trailer also provided communications and internet support for District Three in Chipley. For more information on how the ITS trailer was utilized during Hurricane Michael, look in the next TSM&O Disseminator for the article One FDOT! Hurricane Michael Preparation, Response, and Recovery, Part 2.

The FDOT Central Office plans to continue to upgrade the ITS trailer. The trailer will support vehicle detection system using the existing cameras. This will allow for remote counting of vehicles and collecting of vehicle speed data where there is no ITS infrastructure. There are also plans to replace the three visible spectrum cameras from standard definition cameras to high-definition cameras allowing for better vehicle detection.

With the completion of the first hurricane season since the ITS trailers renovation, the ITS trailer will be returned to the Traffic Engineering Research Laboratory (TERL) for a maintenance and to continue upgrades. The ITS trailer was critical in supporting Hurricane Michael in Carrabelle, Cape San Blas, and at the District Three Midway office. The trailer is continuously maintained and stands by to support all emergencies situations as they arise.

For more information, please contact Randy Pierce at (850) 410-5608 or by email at Randy.Pierce@dot.state.fl.us.

Figure 3: ITS trailer at Midway

Florida Well Represented During Incident Response Awareness Week

By Mary Lou Veroline, TSM&O Technical Writer, Florida's Turnpike Enterprise

The Federal Highway Administration designated November 11-17, 2018, as "National Traffic Incident Response Awareness Week" and the State of Florida figured prominently into the safety campaign. Florida's Turnpike Enterprise (FTE) was proud to play an integral role in the state's working group, pushing efforts far beyond the typical DMS and social-media messaging that was done in the past.

Planning meetings for this year's campaign started in the fall. FTE quickly answered the call, brainstorming collateral materials, public service announcements, and public outreach events. The goal entering the third iteration of this awareness week was to humanize incident responders and educate motorists on their roles to keep these men and women safe.

Sample DMS and social media messages used during Incident Response Awareness Week

Key to this effort was the creation of responder trading cards, similar to those found in professional sports. Instead of stats, however, the back side of the responder cards featured a human-interest photo and fact about the responder, highlighting why it is important that he/she goes home safely each day. Cards were created for members of the response community from law enforcement to tow and recovery operators, Road Rangers, and FDOT incident command team members.

While social media and DMS messages have been widely used in the past, Florida went one step further this year, unifying the messaging across most FDOT Districts to drive home the public education aspect. FTE designed the social-media messages used by Central Office and sister districts around the nationally-branded campaign colors and artwork, selecting seven messages (one for each day) that hit the importance of the public's role from every angle. Additionally, handout materials were distributed at Florida Welcome Centers, Service Plazas, and Rest Areas to reach the tourists entering our state that might not be familiar with the Move Over Law.

First Edition of Responder Trading Cards

The awareness week culminated with simultaneous public outreach events at both Florida Turnpike's Pompano Beach and Turkey Lake (Orlando) Service Plazas. Response partners from all disciplines were on-hand with representative vehicles and personnel. Educational materials were handed out along with promotional items; several hundreds of impressions were made at each location. FDOT Districts Four and Five partnered with the Turnpike at the service plaza in their respective regions and the collaboration pushed the impacts even further into the local communities.

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The outreach event in Orlando proved extra fruitful with media attention from local TV and radio stations. Ride-along rides with Road Rangers were given throughout the day and several follow-up interviews with FHP and Turnpike Traffic Management Center staff were conducted.

In all, it is impossible to say just how many people were affected by the various strategies employed throughout the campaign week, but it is easily upwards in the thousands. At the end of the day, if even one responder's life is saved because someone behind the wheel of a car now moves over, and slows down approaching an incident scene, the efforts were a huge success!

Media coverage of outreach events: WFTV Channel 9 Live and TMC Team Manager, Kelly Kinney, being interviewed by FOX 35's Tom Johnson

For more information, please contact John Easterling at (954) 934-1620 or by email at John.Easterling@dot.state.fl.us.

Break Time

N	A	R	F	W	R	U	T	Y	I	K	B	C	C	A
A	W	R	Z	R	N	N	F	N	T	S	Z	N	Y	E
Z	K	O	K	K	E	G	S	H	U	K	C	K	R	F
N	T	V	D	D	S	T	K	O	O	B	E	C	A	F
K	D	R	I	W	A	Q	L	R	B	Y	C	V	Q	Z
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O	N	G	R	I	V	L	U	V	F	G	S	D	I	S
I	F	A	K	M	L	P	S	O	S	P	Y	D	C	R
J	M	I	C	H	A	E	L	E	P	J	I	R	I	I
J	V	S	T	E	D	W	R	V	J	H	H	K	F	J
M	T	M	M	W	Q	Z	O	O	A	G	B	Z	F	K
X	Q	Q	H	W	D	H	F	M	X	E	F	P	A	H
C	N	W	U	H	D	Z	A	B	L	F	U	L	R	E
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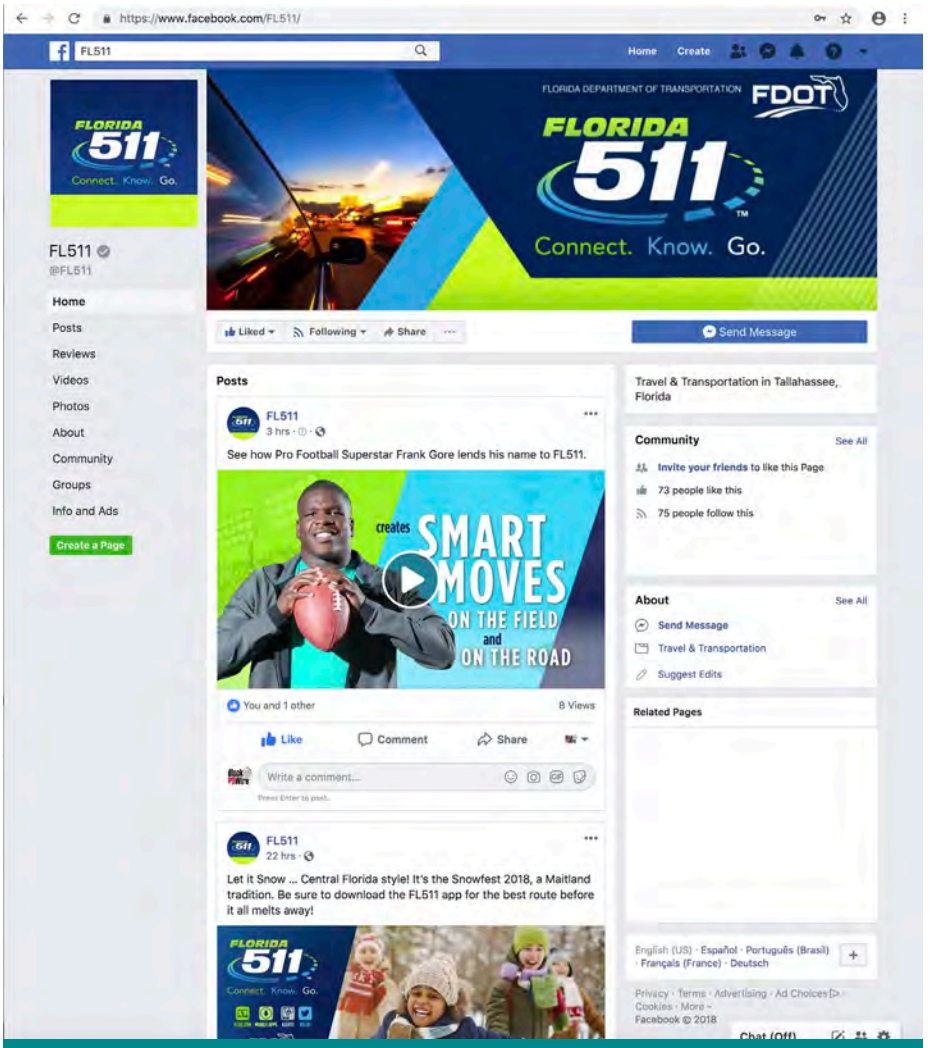
A	E	M	H	Z	I	A	A	G	L	X	R	M	E	M

Michael	eTraffic	Trailer	Facebook
Slow Down	Traffic	Move Over	Instagram

FL511 Adds Facebook and Instagram to Further Engage Motorists Using Florida Roads

By Ellen Underwood, Sonshine Communications

The Florida 511 (FL511) Advanced Traveler Information System (ATIS) is a service provided by the Florida Department of Transportation (FDOT), and is the state's official source for real-time traffic and travel information. The FL511 app, website, and Twitter feeds provide information about Florida's interstates, toll roads, and other major metropolitan roadways, allowing drivers to avoid unnecessary delays, as well as receive updates on crashes, congestion, construction, and more. The FL511 mobile app, available from the Apple App Store or Google Play, features an interactive map showing traffic congestion and incidents on roads around the user's current location. Readers may consider downloading and using the FL511 app, if they haven't already today.



FL511 Facebook

Florida 511 has added Facebook and Instagram to its social-media nest. They join an already-existing Twitter account with 13 handles. The Facebook and Instagram pages became operational recently, and can be reached @FL511 on Facebook and @Florida_511 on Instagram.

The benefit of adding these two social media platforms is to further engage travelers with FDOT's FL511 Advanced Traveler Information System. "We wanted to enhance our social-media platforms and share news to our FL511 subscribers using these two engaging services," says Eugene Jules with FDOT. "It's yet another way we are expanding our marketing efforts and helping our customers to Connect. Know. Go."

Both new social media pages began in November 2018, with Facebook Live interviews and Instagram video posts during an event with FDOT's Florida Turnpike Enterprise to promote National Traffic Incident Response Awareness. Interviews were conducted with Florida Highway Patrol officers and others during this day-long activity, which took place at the Turnpike Plaza in Pompano Beach. In addition, the team recorded video clips during the Florida Automated Vehicles Summit in Tampa, where guests shared why they use and like the FL511 system and service.

Most recently, the new social media pages also were used to roll out a special animated video clip featuring the Miami Dolphins' football player, Frank Gore. The clip shares how the star running back creates "Smart Moves" on the field and on the road.

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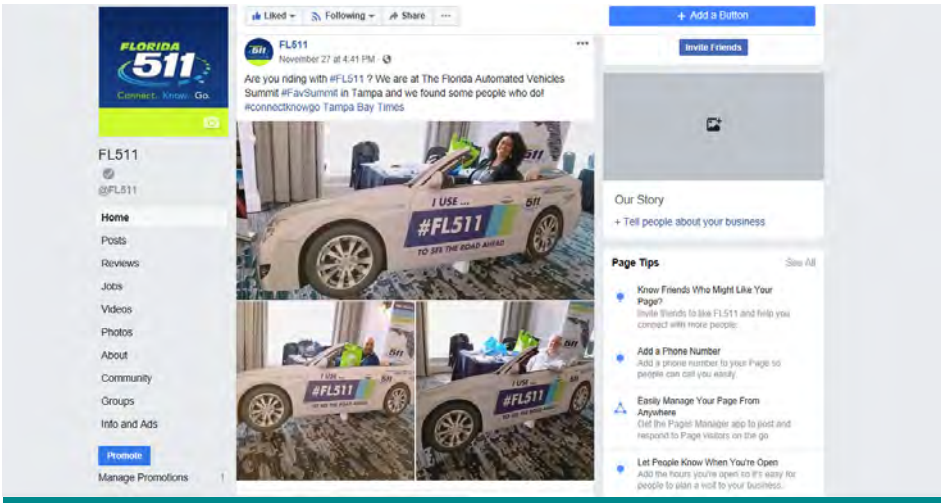
The FL511 Facebook and Instagram pages help provide fresh, new, and inviting content that is posted regularly showing events and activities throughout the state. In addition, followers of the pages are able to post comments and messages, which are monitored by the FL511 marketing team daily. People are regularly liking and following the pages and they are expected to draw more followers in the near future. Site users are expected to continue to increase as the word gets out.



FL511 Twitter page

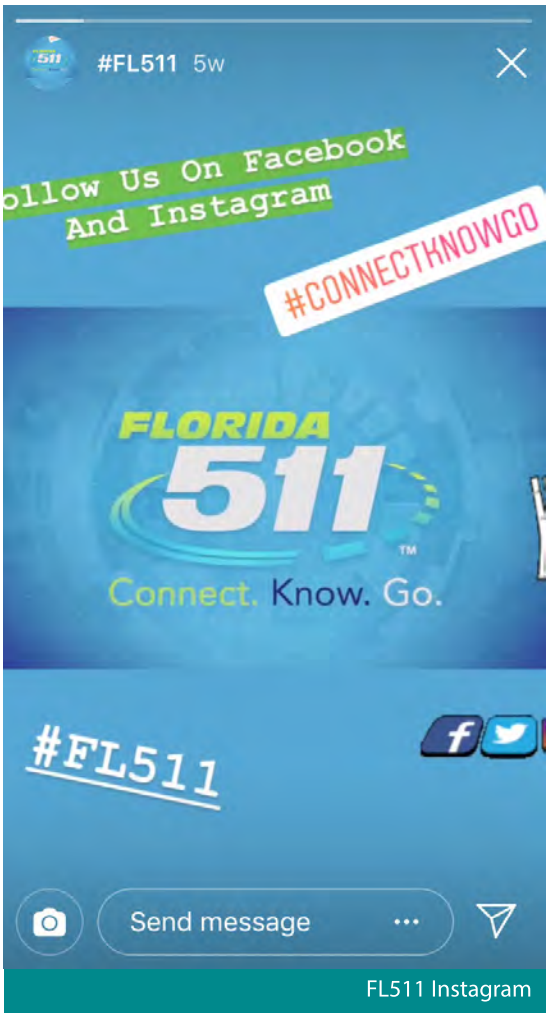
The Facebook and Instagram sites are used to build the FL511 social community by providing information about events, news, and activities; they will also be used to provide information on emergency services such as pending storms and hurricanes, when needed.

The FL511 Twitter account has more than 67,000 followers and is available on 13 handles. A statewide handle is available in English and Spanish. The other handles available are for specific regions of Florida and I-4, I-10, I-75, I-95, 95-Express, and Florida's Turnpike. FDOT often posts dozens of tweets daily in real time about road and travel conditions. Registered Twitter users can respond to or retweet these messages. Anyone can see the messages.

About Facebook, Instagram, and Twitter

- Facebook is the largest social media platform in the world, with 2.2 billion users. Most people who use it do so frequently. Facebook posts text, photos, videos, and has other services. Seventy-nine percent of all adults use Facebook. The mission is to give people the power to share and make the world more open and connected.
- Instagram is one of the fastest-growing platforms, with 800 million users. Thirty-two percent of adults use Instagram. It is a photo and video-sharing site and is popular with young adults age 18 to 24. Its mission is to capture and share the world's moments.
- Twitter has 336 million users, with 24 percent of adults using the platform. Its mission is the power to create and share ideas and information instantly without barriers.

For more information, please contact Eugene Jules at eugene.jules@dot.state.fl.us or visit the website at www.FL511.com. Travelers are also encouraged to follow one of the 13 Twitter handles and follow and like FL511 on Facebook @FL511 and Instagram @Florida_511.



FL511 Instagram

District Four Participates in National Traffic Incident Response Awareness Week

By Nicole Forest, TSM&O Incident Management Program Manager

As the occurrences of incident responder crashes increase at an alarming rate, the District Four TSM&O Unit and Florida's Turnpike Enterprise (FTE) participated in the annual National Traffic Incident Response Awareness Week from November 11-17, 2018, to assist in raising awareness about the dangers incident responders face.

The Federal Highway Administration (FHWA) designated this week after incident responder crashes increased by 7.2 percent in nearly 50 years. According to the National Highway Traffic Safety Administration, in 2016, emergency vehicles and light trucks accounted for more than three-fourths (40 percent and 38 percent, respectively) of the vehicles involved in fatal motor-vehicle traffic crashes. District Four felt compelled to participate in the awareness week after 11 noteworthy incident responder crashes occurred since 2017; one tragically ending in a fatality after an on-scene incident responder fell from an overpass.

To maximize awareness, District Four collaborated with FTE for a Touch-A-Truck outreach event on November 14, 2018, at a local service plaza. In a powerful statement, FTE displayed a wrecked Florida Highway Patrol vehicle at the entrance of the service plaza; vividly showing passing motorists that while incident responders are out on the interstates assisting vehicles, they ultimately require assistance from the overall public to remain safe.

"The opportunity to bring national awareness to emergency responders is extremely humbling. Our main purpose is to ensure the safety and security of motorists. Thus, when motorists have a better understanding of what we do, it encourages a collaborative effort," said Charles Harder, Severe Incident Responder Vehicle Manager.

To further push the narrative, District Four posted "Move Over" law messages on Dynamic Message Signs across the district's area and scheduled several social media posts to target younger motorists who may not have heard of the "Move Over" law.

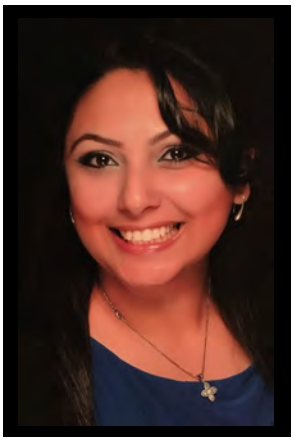
"We realized the best way to make an impact would be to reach out to incident responders and motorists directly and spread the word through the people they encounter every day," said Michael McGee, District Four Traffic Incident Coordinator.

In 2017, District Four reached 500 individual outreach impressions. This year an overwhelming 4,000 individual outreach impressions were reached through District Four's awareness efforts.

For more information, please contact Nicole Forest, TSM&O Incident Management Program Manager at (954) 847-2631 or visit the National Traffic Incident Management Network website at www.timnetwork.org.

Please remember to Slow Down and Move Over for emergency vehicles; give them room to save lives.

Welcome to New Employees in the Central Office



State ITS Software Engineer:
We are pleased to announce that Ms. Christine Shafik, P.E. has been appointed to the State ITS Software Engineer position previously held by Mr. Derek Vollmer. Christine will oversee the Department's statewide SunGuide® Software platform as well as Florida's Statewide ITS Architecture (SITSA). She comes to us from the Department of Management Services (DMS) where she managed statewide construction projects and contracts. Prior to DMS, she was with FDOT in the offices of Roadway Design, TranStat, and Program Management. Christine holds the following certifications: Project Management Professional (PMP), Certified Public Manager (CPM), Florida Certified Contract Manager (FCCM), and Florida Certified Contract Negotiator (FCCN).

TSM&O Program Development Engineer:
We are also pleased to announce that Mr. Clinton Smith, P.E. has been appointed to the TSM&O Program Development Engineer position previously held by Mr. Russell Allen. Clint will oversee the Department's statewide 511 system as well as managing the day to day activities on the TSM&O General Engineering Consultant (GEC) contract that supports the TSM&O Program. He will also manage the Work Program funding allocations in TSM&O. Clint comes to us from the private sector consulting area. Prior to that he worked in Power Engineering and in the facilities planning and construction areas at the city of Tallahassee and Florida A&M University, respectively. Clint is also a U.S. Air Force veteran.

We welcome Christine and Clint to the Traffic Operations Team!

ITS Florida Board of Directors 2019

ITS Florida's Board of Directors is made up of public, academic, and private transportation professionals. The officers serve one year and typically move up the ladder. The Director-at-Large positions serve a two-year term. ITS Florida is pleased to announce the ITS Florida Board of Directors for 2019, they are as follows.

Immediate Past President	Jonathan Tursky, Transcore
President	Jim Clark, Rhythm Engineering
Vice President	Pete Costello, Iteris
Secretary	Craig Carnes, Metric Engineering
Treasurer	Pete Ganci, Control Technologies

Directors-at-Large for 2019
Vik Bhide, City of Tampa
Fabio Capillo, Manatee County
Dr. Mohammed Hadi, Florida International University
Terry Hensley, Gannett Fleming
Jeremy Huffman, Southern Manufacturing
Robert Price, Lee County

Fred Heery will be the Florida Department of Transportation representative for 2019.

FDOT District Six Observes National Traffic Incident Response Awareness Week

By Javier Rodriguez, District Six TSM&O Program Engineer, FDOT

The Florida Department of Transportation District Six observed National Traffic Incident Response Week from November 11-17, 2018.

National Traffic Incident Response Week aims to bring awareness to the emergency responders that serve the public every day. Emergency responders include law enforcement, fire, emergency medical, towing, and transportation agencies.
The week also focuses on the importance of safe practices to ensure the safety of the emergency responders and the traveling public. Initiatives like "Move Over, Florida" demonstrate the State's commitment to this important issue.

District Six is participating in the annual event by handing out incident management materials to members of the public through the Road Ranger Service Patrols and working with partner agencies for messaging and outreach events. The District is also posting messages on its various social media channels and will be alerting drivers about National Traffic Incident Response Week on its dynamic message signs.

Every day, emergency responders work to save lives and serve the public by clearing traffic incidents safely and efficiently. For more information regarding National Traffic Incident Response Week, please visit The TIM Network.

For more information, please contact Javier Rodriguez at (305) 640-7307 or by email Javier.Rodriguez2@dot.state.fl.us.

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