Applications to Improve TIM: D3 Steps Toward ICM

Presenter:
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District 3 Arterial Management
Agenda

• Background
• District 3 Freeway and Arterial Systems
• District 3 ICM Initiatives
• Traffic Signal Controller Upgrades
• eTraffic Exhibit A
• Traffic Signal GIS Application
• Next Steps
Background

- District 3 major freeway: I-10 and I-110
- Major Cities: Pensacola, Destin, Panama City, and Tallahassee
- Heavy freight traffic = 15% - 25%
- Needs multi-modal integrated corridor management for both I-10 and I-110
District 3 Freeway and Arterial System

- Freeway management system will be fully deployed by fall 2020
- Arterial management system is the next logical step
- Identified several priority corridors in the region
- Arterial Intelligent Transportation System (ITS) deployed on
  - Capital Circle and US 90 in Leon County
  - US 231 in Bay County
  - US 98 in Okaloosa County
- Several other arterial deployment planned
District 3 ICM Initiatives

• Consolidated Chipley Regional TMC
• Established RTMC remote connections with
  o City of Pensacola in Escambia County
  o City of Tallahassee in Leon County
  o City of Panama City in Bay County
  o Okaloosa County TSOC
  o Escambia County TSOC
  o Planned traffic signal controller upgrades
• Transition Exhibit A to FDOT eTraffic
• Developed Traffic Signal Retiming GIS Application
• Developed Traffic Incident Management Web Application
Traffic Signal Controller Upgrades

• Planned Traffic Signal Controller upgrades in major cities
• Adapt to the new Traffic Signal Controller Specification 671
• Prepare for Emerging Technologies such as
  • Advanced Traffic Signal Performance Measures (ATSPM)
  • Connected and Automated Vehicles (CAV)
• Enable remote monitoring system as the signals become interconnected and monitored
eTraffic Exhibit A

• Transition Exhibit A into GIS Application
  • Leveraging Central Office’s ongoing efforts
• Developed GIS based traffic signal inventory and performance monitoring system
• Significant stride towards accountability of the systems operations and maintenance by local agencies
• Increased visibility of the system locations and types
Traffic Signal Retiming GIS Application

- Developed GIS based solution for
  - Retiming prioritization
  - Establishing baseline for each location and monitor retiming cycle
  - Work programming funds
  - Priority corridors first
- Prioritized several signals that were not retimed for many years
- Established a prioritization process in GIS layer
Traffic Signal Retiming Prioritization Process

- Identified roadway characteristics
  - Road Name, Classification, and Roadway ID
  - Upcoming Capacity Projects
  - Evacuation Route
  - Average Annual Daily Traffic
- Tagged each location with last retimed year
- Assigned points to each signal based on
  - 10 points if on evacuation route
  - 10 points if in urban buffer area
  - 10 points if on capacity improvement
  - 0-25 points based on AADT range
  - Department and Locals can adjust as needed
- Highest points signals assigned with higher retiming frequency
TIM Web-Application
Background

• Major elements
  • CADD Plans
  • Web-Application
  • Different Layers – points of interest, active and planned construction projects
  • Integrated Corridor Management

• Available to users with or without access control to find detour routes
• Device agnostic - plans accessible via computer or phone through a web-based solution
• Web-Application to be hosted online
• Went through multiple rounds of improvement
• Adaptive to feature requests
Detour Map, Splash Screen

- Before map loads, splash page opens to inform user of FDOT disclaimer.

![Detour Map, Splash Screen](image-url)
• Using the interactive map, search for the location by zoom in/zoom out/pan

• Alternatively, a search box could be used to find address
• User is prompted to select direction of roadway
Detour Map, Detour Details

- When detour is clicked, pop-up with details appears
Detour Map, Detour Design Link

- Hyperlink to detail design of detour
Detour Map, Traffic Signals

• Information regarding Signal Devices

• All signals are state signals
Additional Layers

- Live Traffic Data
- Traffic Control Devices
  - Traffic Signals
  - Interconnected & Monitored Traffic Signal
  - Pedestrian Flashing Beacon
  - Emergency Signal
  - Traffic Warning Beacon
  - Intersection Control Beacon
  - Speed Activation Warning Device
- Interstates and Bridges
- Active Construction Projects

- Work Program Projects
- Points of Interest
  - Rest Areas
  - Fire Stations
  - Hospitals
  - Gas Stations
- Transportation Layers
  - Crossover Locations
  - Railroad Crossings
  - Bridges
  - Road Ranger Facility Coverage
  - Evacuation Routes
Key Features

- Auto identification of approved traffic diversion routes (usually on-system arterial roads)
- Ability to access maintenance of traffic plans showing traffic control devices
- Ability to download plans and access the web-based application on various mobility devices
- Identifies the number of traffic signals and associated maintaining agencies for auto-notification about detour activation
Key Features

• Shows active construction and future work program
• Shows railroad crossings and general bridge locations
• Identify restricted truck routes
• Ability to pick from multiple detour routes due to the extent of congestion
• Allows integrated corridor management to watch both freeway and arterial traffic on the map
• Plans used during incident management when I-10/I-110 lanes are closed or experiencing heavy backup due to an incident
• Includes the placement of traffic diversion and route closure signs
• Plans developed based on FDOT Standard Plans Index 102-600, 102-616, and 102-623.
Detour Plan

• Elements –
  • Detour Signs
  • PCMS
  • Channelizing Devices
  • Other Guide Signs (arrows)
The heavy vehicle turns were checked in Microstation using AutoTurn.

Truck standard WB-62 were tested for turns.

Eastbound right turn restricted to heavy vehicles.
Road Ranger Service

• District 3 Schedule
  • Mon – Fri
  • 6 AM – 10 PM
  • 5 Trucks

Legend:
- Sector 1: US 90 Alternate in Escambia County to SR 87 in Santa Rosa County
- Sector 2: SR 87 in Santa Rosa County to SR 83 in Walton County
- Sector 3: SR 83 in Walton County to SR 276 in Jackson County
- Sector 4: SR 276 in Jackson County to US 90 in Gadsden County
- Sector 5: US 90 in Gadsen County to MM 217 in Leon County
Outreach

• Plans sent to multiple agencies across all counties in District 3 for feedback
• Meetings held at Pensacola, Chipley, and Tallahassee to discuss the feasibility of the detour routes and feature enhancements of the web-application
• Received inputs
  • Point of interest – Hospitals
  • GPS position of the deployed troops
  • Access control to the users
  • Expand project to other Districts
2019 Stakeholder Meetings

- **Engineering**
  - State, County and City Engineers

- **Enforcement**
  - Florida Highway Patrol, Motor Carrier Compliance, Sheriffs and City Police

- **Education**

- **Emergency Services**
  - EMS, Ambulance, Hospital, Fire Rescue

- **Dates and Locations**
  - April 9, Pensacola
  - April 10, Tallahassee
  - April 11, Chipley
Stakeholders Attended

- Escambia County Engineer
- City RTMC Engineer
- FDOT Engineers
- District 3 RTMC Engineer
- City of Defuniak Springs
- Ferrovial Services
- Pensacola Police
- Florida Highway Patrol
- Santa Rosa Public Safety

- Okaloosa County Sherriff
- Santa Rosa County Sherriff
- Jefferson County Sherriff
- Jackson County Sherriff
- Escambia County Emergency
- Leon County Emergency
- Holmes County Emergency
- Chipley Fire Department
Key Benefits

• One-stop location for Regional Transportation Management Center (RTMC) operators and law enforcement agencies
• Quick and efficient traffic incident management to prevent queue backup and secondary crashes
• Enables points of interest like hospital, gas station, evacuation route
• Enables maintenance of traffic using detour and road closure signs
• Integrated corridor management using live traffic
Web-Application Demo
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