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Transportation Systems Management & Operations

Managing and Operating for an Efficient Transportation System

OPTIMIZING CAPABILITIES

FDOT District 2

DISTRICT 2 ACCOMPLISHMENTS

- Agency Interaction – TIM Teams and ITS Coalition
- Traffic Incident Management/Traveler Information
- Freeway Management System
- Signal Operations
- Signal Retiming Efforts
- Emergency Preparedness and Security
- Emergency Response and Recovery
- Truck/Freight Management
- Multi-Modal Options
- Work Zone Management
- Performance Measures
- Deployments and Projects

AGENCY INTERACTION

- D2 has Established Relationships with Multiple Local Agencies and Firms that Include:

Law Enforcement	EOCs	Fire/Rescue
Universities	MPOs/TPOs	Hospitals
Seaports	Transit	Airports
NOAA/NWS	Public Works	Towers
Private Enterprise	Media	Forestry

TRAFFIC INCIDENT MANAGEMENT/TRAVELER INFORMATION

- Freeway Management System & Arterial Management System Utilize the Following Traveler Information:
  - CCTVs and MVDSs
  - DMS and ADMS
  - 511
  - Road Weather Information Sensors (RWIS)
  - Bluetoad
- D2 has the First Coast and Alachua TIM Teams
  - Bi-monthly meetings to address incidents/issues since last meeting
  - Constantly working to improve coordination/ communications
  - Providing safety and informational presentations/workshops
  - Provide updates for EOC, Construction, and maintenance projects/activities which may impact the other team members

FREEWAY MANAGEMENT SYSTEM

OVERVIEW OF EXISTING AND PROPOSED REGIONAL FMS SYSTEM

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FREEWAY MANAGEMENT SYSTEM

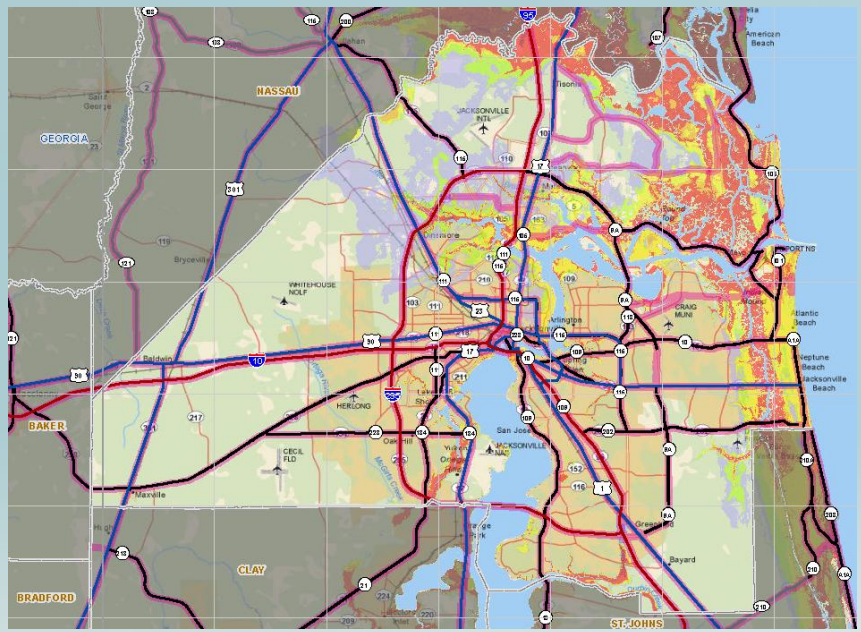
- Action – Move towards migrating to a new RTMC and interconnections
- Action – Instrument I-95 connection to District 5, Georgia State Line, I-10, and I-75
- Action – Continue to incorporate FMS Incident Management with ATMS operations

SIGNAL OPERATIONS

- Action – Continue moving towards real-time management and adaptive signals
  - Includes event and incident-specific signal timing plans
  - District 2 project example: Stadium Contraflow System
- Action – Corridor integration /traveler information dissemination
  - As ATMS projects are completed, utilize parallel routes to manage/balance traffic volumes

EMERGENCY PREPAREDNESS AND SECURITY

- Hurricane Evacuation
  - Coordination with surrounding Districts and STIX
  - Coordination with local, state, and regional EOCs
  - I-10 Contraflow Plan
  - Road Weather Information Sensors on all major bridges



EMERGENCY RESPONSE AND RECOVERY

- Utilize Directional Signal Timing Plans and Contraflow (as required) for Evacuation
- Identify Major Corridors for Quick Cleanup
- Use ITS to Identify Problem Areas During the Emergencies

TRUCK/FREIGHT MANAGEMENT

- Ensure Consistency of Travel Speeds and Times
  - ITS Phase 9 Project on SR 9A will include a splice vault for JaxPort to connect fiber to D2 ITS backbone fiber
  - Bluetooth information collection
  - Shipment Tracking
  - *D2 Special Project Example:* JaxPort is constructing a mass notification system at its Dames Point terminal. This system will tie into the D2 ITS system

MULTIMODAL

- Airport
  - D2 is coordinating with JIA to provide network connections
    - Provide motorists with parking information at JAA facilities
    - Provide incoming air passengers with motorist information prior to them leaving the facility
  - D2 Special Project Example: Phase IX ITS Expansion Project
  - Herlong
  - Cecil Field

MULTIMODAL

- Port
  - JaxPort
    - Interconnection and sharing of data (previous slide)

BUSES

- Network for real-time AVL –installed in all JTA Buses
- Passenger counts - installed in all JTA Buses
- Bus Probes “Preemption”
  - D2 Special Project Examples:
    - ITS Transit Signal Priority
    - Queue Jump (Bus Priority Signal Phasing)
    - Bus Rapid Transit Corridors

BUSES

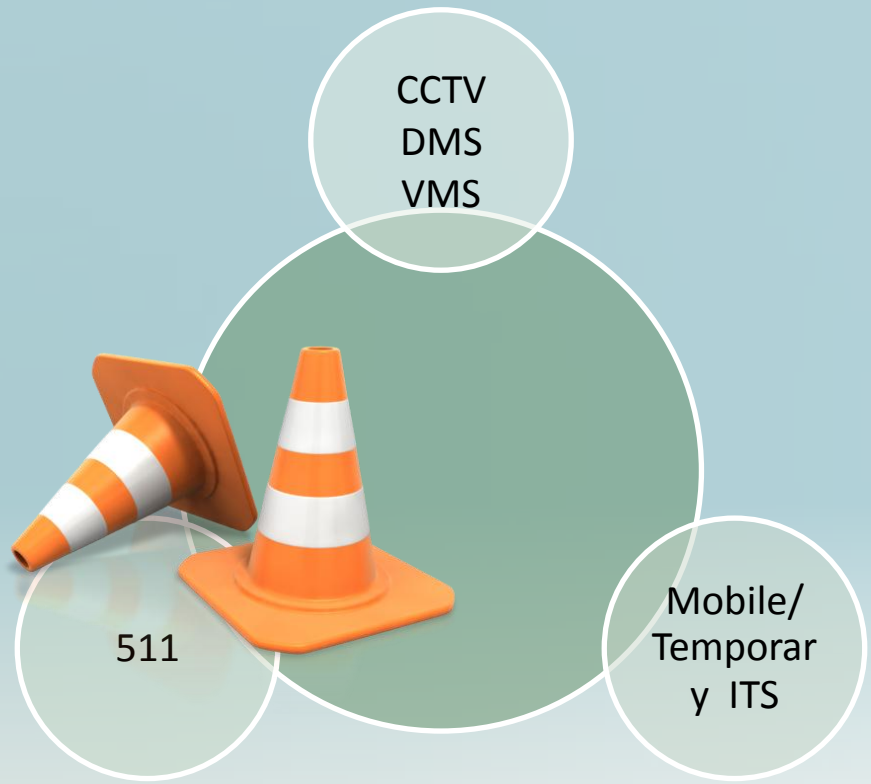
- Pay at Kiosk
  - JTA Special Project Example:
    - Smartcard Fare Collection inside the Rosa Parks Transit Station ($1, $2, $5, $10 & $20 bills). Can also pay the bus operator directly with exact change
  - D2 Special Project Examples:
    - Cell Phone Fare Payment - UPCOMING
- On-bus videos – Installed in 68 buses. Can be sent to law enforcement (LYMMO system in Orlando has wireless access points every ½ mile which allow video from the buses to be sent via the FDOT fiber along I-4 to Authorities). Another less expensive alternative - wireless access card to send still images every 5-10 seconds.

MULTIMODAL

- Trucks
  - Action - report to various staging areas
  - Processing incoming truck traffic
  - Alleviate the congestion near the gates by having trucks stage at a nearby off-road locations and be notified when they can be processed at the gate
- Military
  - Mayport
    - When personnel return from sea
    - Currently one in/one out
    - Potential for ADMS
    - Retiming
  - Action - potential tie-in within 100’ of the property
  - Action – more coordination needed

WORK ZONE MANAGEMENT

- Use of ITS Devices During Construction:



PERFORMANCE MEASURES

- Freeway
  - Travel times/delays are produced by the SunGuide software system using vehicle detector data
  - Incident Clearance and Open Roads Durations are calculated by the SunGuide software system from data complied from SunGuide incident reports
- Arterials
  - Action - Bluetooth as an interim - travel times will be generated by Bluetooth devices comparing wireless MAC addresses along an arterial corridor (expected installation in Summer 2011)

DEPLOYMENTS AND PROJECTS

- Interstate Deployments (9 Phases) – Monitor/Response
- Arterial DMS and CCTV Installation – Monitor/Response
- Bluetooth Devices – Monitor/Modeling O/D
- Wind Sensors – Monitoring/Response
- Signal Upgrades – Performance/Occupancy/Volume
- Transit Signal Priority - Performance

DEPLOYMENTS AND PROJECTS

- RTMC – Coordination/Performance
- WebEOC – Coordination/Performance
- 511 Everywhere – Notification/Dissemination
- Interconnection to local regional/state TMCs
- Coordination with UNF and UF

INSTALLATIONS (ARTERIALS)

- Nassau
- Duval
- Clay
- St. Johns
- Gainesville

BLUETOOTH DEVICES

- Installed on major arterials and interstates in Duval, Clay, St Johns and Nassau counties
- Future install in Gainesville area
- Provide travel time data for performance measures in areas where MVDS are not practical
- Planners can use as beneficial and inexpensive alternative for origin/destination studies

WIND SENSORS

- Installed on over 20 devices on high profile bridges in Duval, St Johns, Clay and Nassau counties
- Use solar power and NOAA satellite communications thus eliminating need for dedicated lines and associated recurring costs
- Used by FDOT and partner agencies during high wind events to track storm movement and provide advanced warning and notification of closure or opening of bridges
- Replaces need for police officer to measure wind speed with hand-held anemometer thus increasing safety and data reliability

TRAFFIC CONTROLLER UPGRADES

- Nassau, Clay, Duval, St Johns and Gainesville
- All Naztec devices
- All agencies use ATMS.now for interoperability and exchange of information
- Addition of fiber optic and wireless communications between signals to facilitate:
- Better coordinated signal system
- Real-time controller updates
- Signal timing changes

TRANSIT SIGNAL PRIORITY (ARTERIALS)

- JTA
- Increased reliability of bus schedules
- More dependable transportation network improves public opinion and thus increases ridership

REGIONAL TRANSPORTATION MANAGEMENT CENTER (RTMC)

- FDOT
- FHP
- JSO
- JFRD
- Division of Forestry
- Fish and wildlife
- COJ Traffic Operations
- Proximity facilitates communication
- Satellite Offices

WebEOC

- Grant-Funded Project
- FHP, FDOT, and Various County Agencies can Access
- Various Agencies can Post and Share Information
- Includes Incidents and Emergency Evacuations, etc.
- Real-Time Communication and Information Sharing

511 ON ARTERIALS

- Traveler Information on Arterials
- Travel Times
- Incidents
- Alternate Routes

GAINESVILLE TMC INTERCONNECTION

- VPN Access to Camera Images
- Planning for Dedicated Fiber Link to Monitor and Control Cameras and Signal System

CONCLUSION

- District 2 has ALREADY Made Significant Strides in the TSM&O Arena!
  - **EXCELLENT** interagency cooperation
    - Operations
    - Funding
    - Education
  - Significant technical infrastructure has been deployed:
    - A mature Freeway Management System with fiber optic cable backbone
    - Multi-County agreement to upgrade to Naztec signal controllers for compatibility between the counties
    - D2 Interconnection of the regional network to City of Jacksonville, Clay County, Town of Orange Park, JaxPort, JAA, and others
    - Placement of ITS devices on arterial roadways
    - RTMC

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QUESTIONS?
MORE INFORMATION?

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QUESTIONS ?