

# GDOT Rural and Coastal Georgia Incident and Emergency Management Strategies

Rod Ware, PE – ITS Supervisor NRITS Conference/ October 29, 2018





# **Presentation Overview**

- Incident Management Program (C.H.A.M.P.)
- Automated Incident Detection (AID) system
- Connected Data Platform (Big Data Analysis)
- Conclusion-Incident Management/ITS Fusion







#### Chad Hendon; CHAMP Program Manager

Coordinated Highway Assistance and Maintenance Program

C.H.A.M.P.

#### **Roadway Maintenance**

CHAMP provides quick response to the following maintenance issues:

#### Motorist Assistance

• CHAMPs assist motorists, when feasible, and if they are not dispatched to a major highway and the motorist is safely off the road. incident enhances roadway safety by providing motorist assistance and temporary traffic control, which helps to reduce secondary incidents and increases responder safety.

#### Emergency Response

• CHAMPs serve as an on-scene incident responders, providing roadway clearance and traffic control and traveler information.

#### Other Services

- Detect, verify reports and provide all necessary assistance with traffic incidents to ensure safe and quick clearance on interstates outside of HERO territory and on non-interstate state routes within 10 miles on either side of interstates when requested.
- Provide assistance to motorist needing help on interstates, when feasible
- Assist the Department of Public Safety and other law enforcement agencies as needed in a support role (interstate and non-interstate state routes within within 10 miles).
- Safely and expeditiously remove debris and minor non-hazardous spills from highways
- · Assist with removing and/or tagging abandoned vehicles or other incidents
- Maintain and /or improve safe and efficient traffic flow
- Identify, verify and report maintenance issues and/or property damage to infrastructure



Major Maintenance		Minor Maintenance	
	· Bridge/roadway damage	· Vegetation	
	• Down signs	· Blocked drainage	
	• Missing roadway markings	<ul> <li>Debris removal (including abandoned or disabled vehicles)</li> </ul>	
	· Traffic signal malfunction		
	Commercial vehicle crashes and spills		



## **Automated Incident Detection**



# Automated Incident Detection

## I-475 Corridor

### Background Information

- 15 mile six lane Interstate
- 1/3 mile ITS infrastructure constructed 1999-2000's
  - ✤ Approx. \$80 million roadway construction
  - Fun fact: Superbowl 33 ATL vs. DEN
- Existing Infrastructure
  - ✤ 84 ITS pole locations
  - 31 Pan-Tilt-Zoom Cameras
  - 99 Fixed Cameras (Video detection)
  - Legacy devices: 15-20 Y/O

#### Other Factors

- Great candidate for ITS replacement budget
- No planned construction along corridor
- Consistent traffic volume





# **Strategic Planning**

- GDOT Office of Research/GT Partnership: I-475
   Feasibility Study
- Developed map to ensure near 100% coverage
- \* 153 Fixed cameras
- ✤ 31 upgraded pan-tilt-zoom cameras
- ✤ 84 power management devices
- Longest continuous deployment in the Nation
- **\*** A.I.D. powered by TrafficVision
- \* Total cost of \$1,086,293.25





# Results

#### Incidents Captured: 01/26/2018-9/25/2018

- ✤ 30,834 Stopped Vehicles
- 1,081 Congestion Alerts
- 42 Pedestrian Alerts
- "Eye-opening" data
  - Incident detection 6-8 minutes before incident reported by credible source
  - Excessive stalls and truck parking along corridor
  - Impressive C.H.A.M.P. Response Time (year 2 since deployment)
  - Cost Benefit Analysis





# **Incident Response Time**



Hero Response Time: 6:21 PM; 1 minute 45 sec.

Notice time stamp 6:20 PM



### Plenty of Data, Not Enough Time...

There is always more to learn from the data. What would improve the effectiveness of an analyst?

- Aggregate data from silos
- Get data on a map
- Assess data quality
- Move toward rate-based results



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<ul> <li>We welcome feedback</li> <li>Submit comments and</li> <li>suggestions to the GEARS</li> <li>Site Administrator</li> </ul>	



## **Connected Data Platform**

## **Data Elements**

- I. Dashboard portal
- II. Reporting
- III. Notifications & alerts
- IV. Pattern identification
- V. Predictive analytics
- VI. "What If" simulation





# **The CDP Vision**

Connected Data Platform, with Analytics Platform support		
Users: GDOT, GDOT consultants	Users: GDOT, GDOT consultants, local agencies	Users: GDOT, GDOT consultants, local agencies, public
CHAMP & GDOT Vehicles (Verizon Networkfleet)	ATSPM (Traffic Signals)	Transit Vehicles
WAZE, HERE, RITIS (historical , current)	RTOP Performance Measures Software	Rail Vehicles & Highway / Rail Activity
GEARS (crashes)	MaxView (Traffic Signals)	Oversize Vehicles and Weight-in- Motion
NaviGAtor (incidents)	TEAMS (Traffic Signal and ITS Maintenance)	Freight / Container / Port Activity
HERO & CHAMP Dispatch & Activity	SPaT and Connected Vehicle Data	First Responder Vehicles
Maximo (ITS Maintenance Tickets)	Pre-construction and Post-Incident Delay Cost Calculation	Law Enforcement Vehicles
Weather (historical, current, predicted)	New ATMS – Phase 2 or 3	Asset Management via Video Processing
Phase 1	Phase 2	Phase 3



# Phase 1 Focus Areas

#### Safety and ITS Device Applications

- Vehicle and pedestrian crash reporting
- Incident program reporting (HERO, CHAMP)
- ITS device uptime status
- ITS device reliability tracking





## **CHAMP** Vehicles (Freeway Service and Maintenance)





## Program Vision: Planning and Designing for Safety

- Motorists behavior factors
- Influence of environmental factors
- Emergency vehicle routes and patterns
- Road characteristics
- Crash characteristics





# Conclusion

"Creating ITS Implementation Solutions for all Communities"





# **THANK YOU**



















# QUESTIONS

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### Georgia Department of Transportation

**ITS Supervisor** 

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