



NJDOT

G.P.S. System Overview.

**A basic approach to asset tracking
and reporting.**

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Introduction

- ▶ Why did NJDOT decide it needed G.P.S.
- ▶ Choosing the right G.P.S. system
- ▶ System Architecture
- ▶ Basic Functionality
- ▶ Advanced Functionality overview (Bells and Whistles, how many do you need)
- ▶ Expectations of the system
- ▶ The Good, the Bad, and the Ugly

Blizzard of 12/26/2010

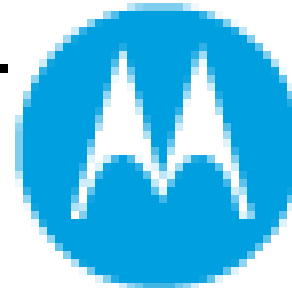


- ▶ Complete road closures and over 550 private vehicles had to be towed off the state roads
- ▶ Where were the crews and how could this happen
- ▶ Antiquated two way radio system



Background

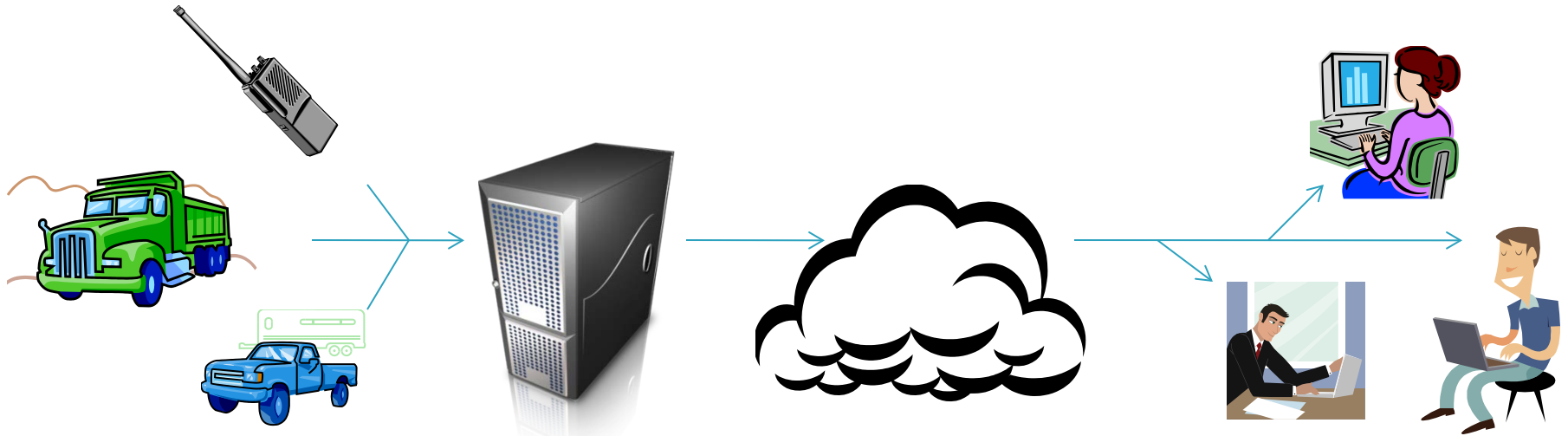
- ▶ The justification:
 - Better allocation and control of NJDOT resources; especially during a snow event
 - Ability to “playback” the location of our resources
 - Improved radio communications
 - Improve the collaboration with NJSP and other state agencies in an emergency
- ▶ Capitalized on the NJSP new state wide “P-25” communication system that was being installed by Motorola.





"MARVLIS" System Architecture

"Mobile Area Routing Vehicle Location Information System"



State owned GPS enabled vehicles and devices

"MARVLIS" server

NJ State Police network

End Users (NJ DOT Operations; NJSP; etc.)

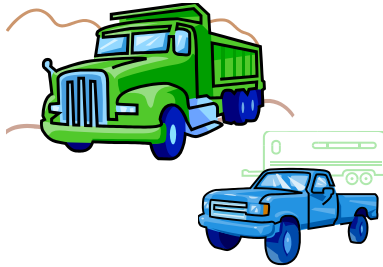


"MARVLIS" System Architecture

Radio Control Head



Photos of the hardware installed in NJDOT's fleet of vehicles



Antenna



GPS and Cell Locator Devices

P-25 700/800 MHz Radio



MARVLIS Basic Functionality

- ▶ Web-based. No end-user software required. Only a web browser
- ▶ Navigation: Zoom in/out; East/West North/South
- ▶ Hover Over Icon: displays type of vehicle; direction; speed; time of update
 - Dump trucks update about every 32 seconds
 - Contractor radios update about every 120 seconds
- ▶ Dump Truck Icon: red square to show plow up/down; spreader on/off; lights on/off; dump body up/down
- ▶ “Stopped Vehicle” Indicator:
 - When a vehicle stops physically moving for at least 15 min, the icon will turn into a circle with quarter sections ticking down to 60 min

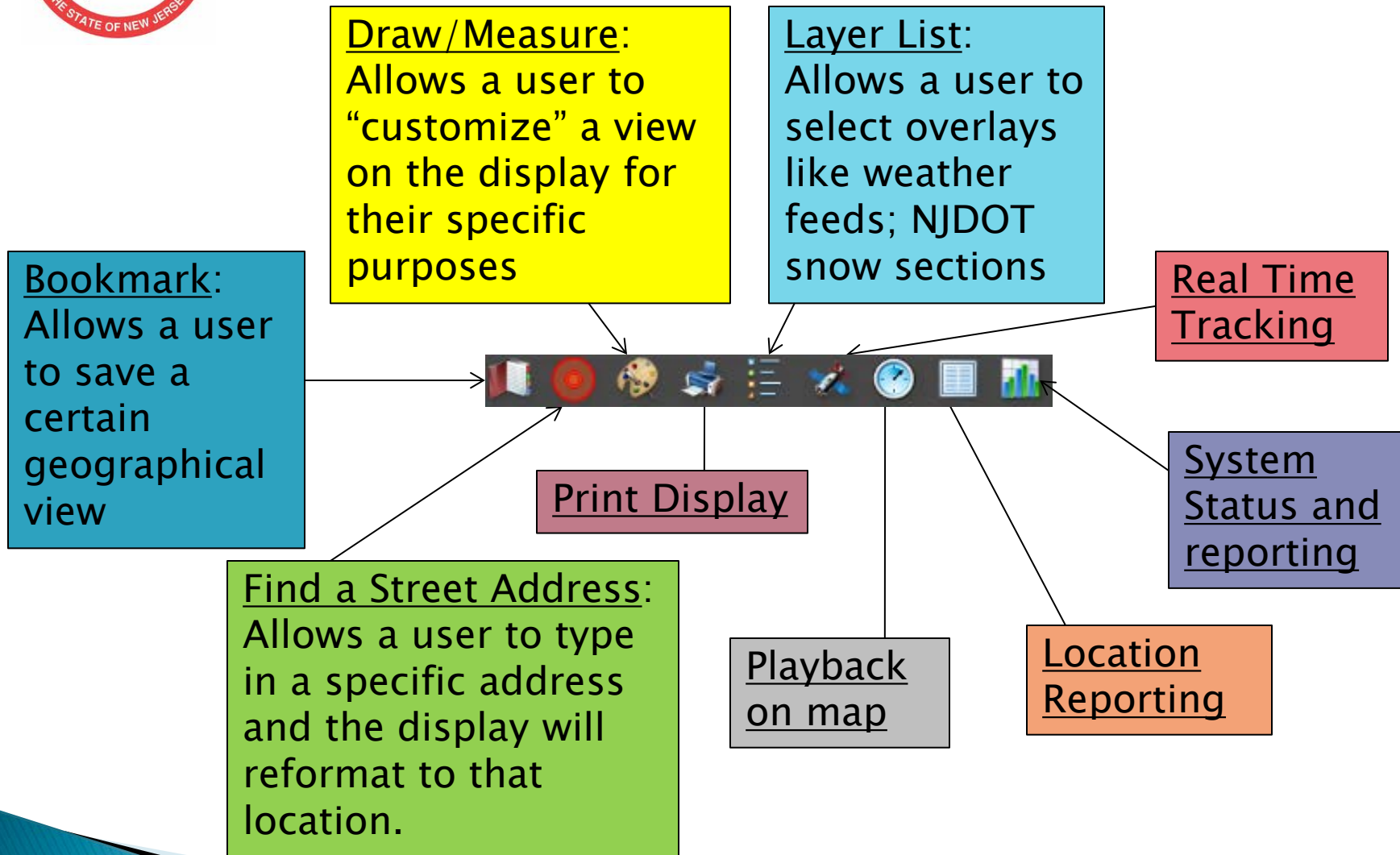


MARVLIS Basic Functionality

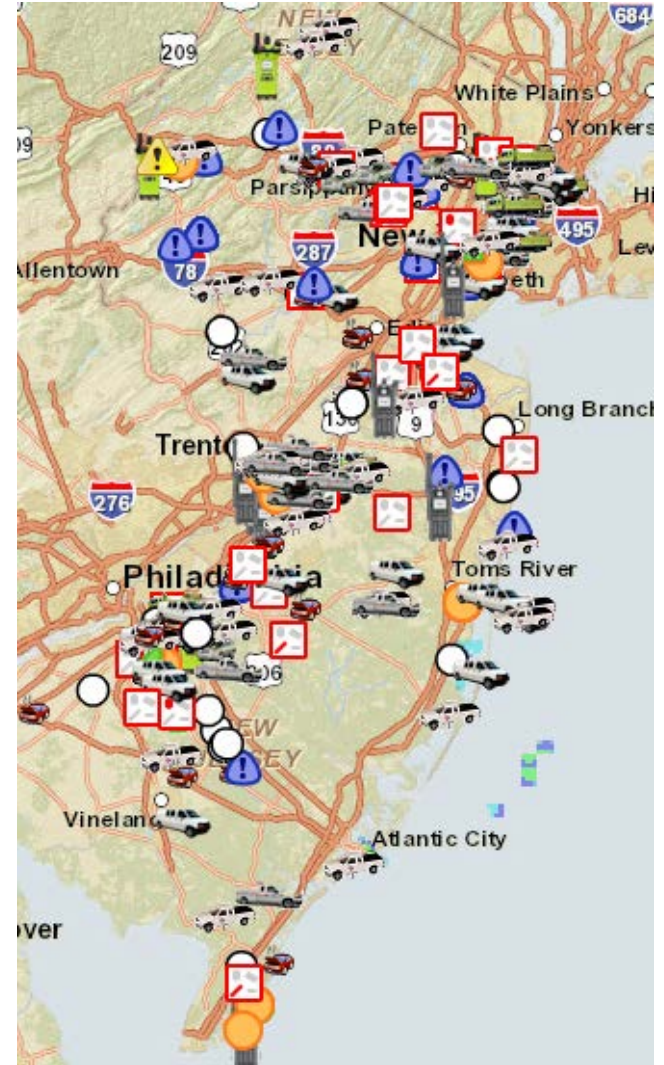
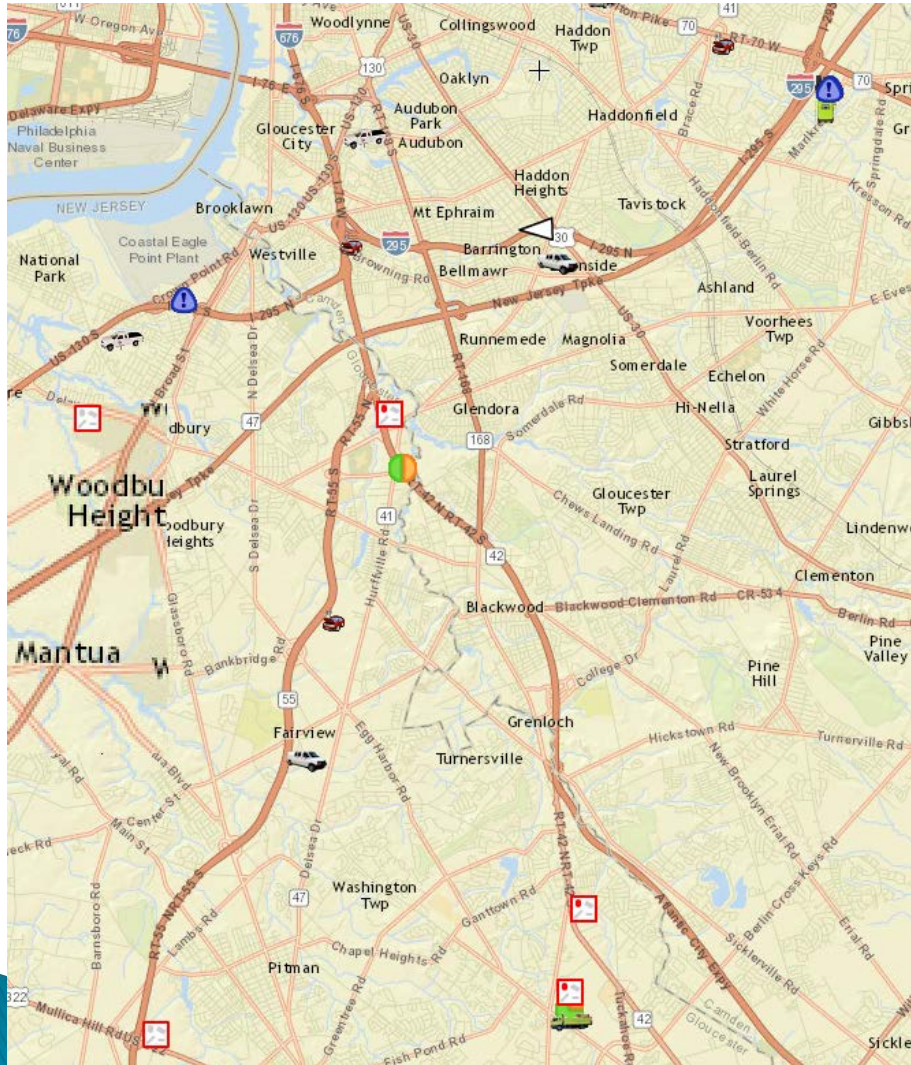
- ▶ Search for a Vehicle. Allows a user to find the current location of a vehicle
- ▶ Playback Feature. Allows a user to replay the route a vehicle took for a select period of time
- ▶ Location Report. Allows a user to extract the exact locations a vehicle was in for a select period time. Can be exported to Excel.



Marvlis Advanced Functionality



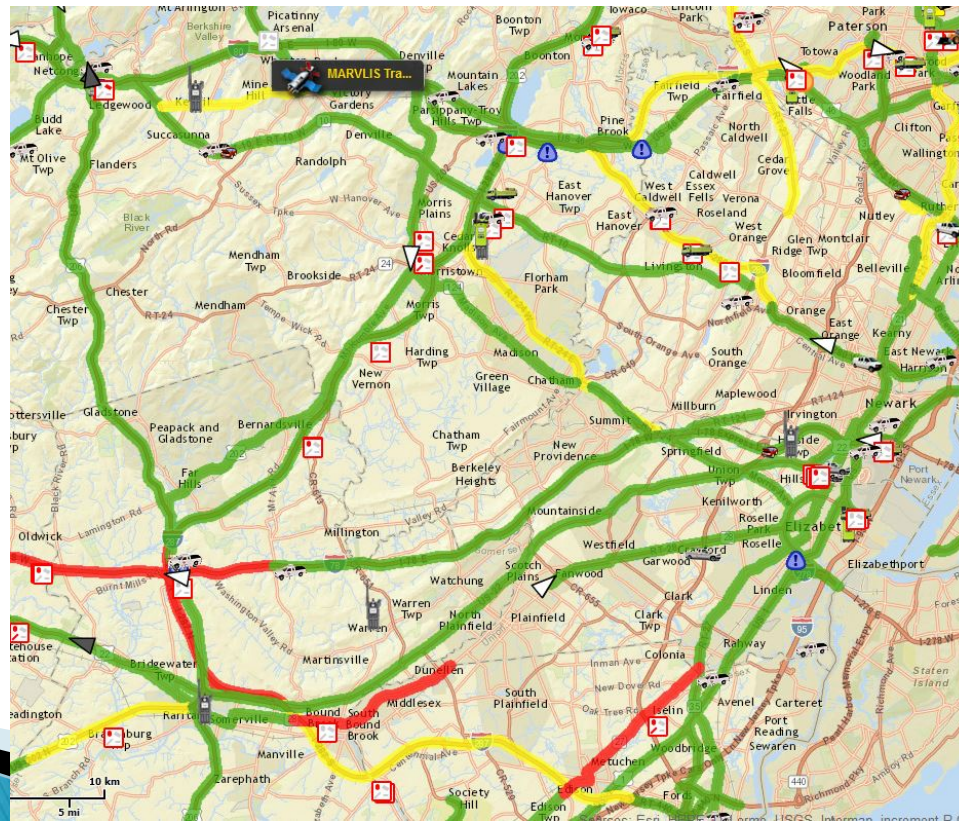
Near Real Time G.P.S. Map View





The eye in the sky near real time road conditions SITREP

- ▶ Crews call the REOC every 2 Hours to report the current road conditions
- ▶ REOC staff inputs data for visual awareness





What to Expect

- ▶ Union push back
- ▶ Employee push back
- ▶ Tampering with the system
- ▶ Speeding, Speeding and more Speeding
- ▶ Increase in discipline
- ▶ Increased productivity
- ▶ Increased resource management
- ▶ Decrease in inappropriate vehicle usage
- ▶ OPRA requests, get your DAG or IG to set policy against



Thank You

An open Q&A session will take place at the end of the G.P.S. session event?

