Automated Traffic Signal Performance Measures

**Purpose:**

- Modernize traffic signal management
- Receive high-resolution data
- Implement performance-based maintenance and operations strategies
- Improve safety and efficiency while cutting congestion and cost
Using Data to Improve
Traffic Incident Management (TIM)

**Purpose:**
Integrate NJDOT traffic incident systems with NJ State Police Computer Aided Dispatch (CAD)

- Real-time data exchange between partners
- Enhanced motorist information (511 / Waze)
- Supports future CV/AV technologies
STIC GRANT
CONNECTED VEHICLE
ROAD SERVICE SAFETY MESSAGES

HOW CAN WE INCREASE

SERVICE PATROL PERSONNEL SAFETY?
Deploy “ITS Beacon — Hazard Lights”
Vehicle Hazard Light Radio Adaptation

Posts GPS location and hazard light status

Transmits vehicle ID, location and ‘ON’ status.

Status posted to XML within 2 minutes.

Updates status every 15 minutes.

Re-transmits location if the vehicle moves more than 500 ft.
Provide vehicle location to as many apps and maps as possible.
CONNECTED VEHICLE
ROAD SERVICE SAFETY MESSAGES

Simple Installation

Multiple Trucks Per Day
CONNECTED VEHICLE ROAD SERVICE SAFETY MESSAGES

Pilot Project Goals

• Create “smarter and connected” response vehicles on NJ’s road network
• Alert motorists to the presence of road service vehicles and personnel
• Enhance awareness of the State’s Move Over Law
• Develop standards and specifications for data delivery from field vehicles to various internet mapping and crowdsourcing applications
• Evaluate cellular strength along all interstates in New Jersey
• Integrate fleet location data into layers on 511NJ
WEATHER SAVVY ROADS
INNOVATION GRANT

What Causes Weather Related Accidents?

Wet roads....73%
Snow and sleet .... 17%
Icy roads .... 13%
Foggy conditions...3%
NJ awarded $322,460 to deploy Integrating Mobile Observations (IMO) with EDC4

- Collect weather and road condition data from up to 20 NJDOT vehicles
  - Operations dump trucks/plows
  - Safety Service Patrol trucks
  - Incident Management Response Team Vehicles

- Vaisala Surface Patrol HD pavement Temp/Humidity Sensors (20)
- Windshield mounted cameras (20)
WEATHER SAVVY ROADS INNOVATION GRANT

Project Goals

• Cost-Efficient use of NJDOT resources

• Proactive Resource Management

• Improved Situational Awareness of Roadway Conditions Year Round
AID & STIC INCENTIVE FUNDING PROJECT UPDATE

<table>
<thead>
<tr>
<th>Agency</th>
<th>Amount</th>
<th>Project Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona Department of Transportation (ADOT)</td>
<td>$1,000,000</td>
<td>ADOT will advance the use of data collection for transportation operations of several communities along the state’s “Sun Corridor” — a region as large as Indiana stretching from Phoenix to the state’s borders with Mexico and New Mexico — to improve transportation investments and streamline the federally required environmental reviews they require.</td>
</tr>
<tr>
<td>Florida Department of Transportation (FDOT)</td>
<td>$1,000,000</td>
<td>Using state-of-the-art connected vehicle technology, FDOT will improve safety for bicyclists and pedestrians near the University of Florida and throughout the City of Gainesville by improving access to real-time traffic information to them and operating the city’s existing “Smart Traffic” system.</td>
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<tr>
<td>Iowa Department of Transportation</td>
<td>$1,000,000</td>
<td>Iowa will use its AID grant to implement “bridge banking,” an Innovative contracting method, to quickly and cost-effectively replace several deficient bridges throughout the state.</td>
</tr>
<tr>
<td>Minnesota Department of Transportation (MnDOT)</td>
<td>$1,000,000</td>
<td>MnDOT will use its AID funding to improve roadway safety by creating a signalized “rested crossing U-turn” (RUCT) intersection on Trunk Highway 66.</td>
</tr>
<tr>
<td>Oklahoma Department of Transportation (ODOT)</td>
<td>$1,000,000</td>
<td>ODOT will use its AID funds in Elk City (Beckman County) to build the state’s first “diverging diamond interchange,” which have been shown in many other states to be safer than traditional four-lane Clover or other standard interchanges.</td>
</tr>
<tr>
<td>Utah Department of Transportation (UDOT)</td>
<td>$1,000,000</td>
<td>UDOT will use its AID grant to expand the state’s use of 3D modeling, e-construction, and other state-of-the-art technologies that improve accuracy and cost-effectiveness of project planning and preliminary engineering.</td>
</tr>
<tr>
<td>Illinois Department of Transportation</td>
<td>$771,690</td>
<td>Williamson County will use warm mix asphalt – an early EDC innovation that has many benefits including reduction in paving costs and improving working conditions by reducing exposure to fuel emissions, fumes, and odors – for the Baravis Road resurfacing project.</td>
</tr>
<tr>
<td>New Hampshire Department of Transportation</td>
<td>$631,925</td>
<td>The Town of East Kingston will use its AID grant to use long-lasting Ultra-High Performance Concrete and precast concrete bridge elements in the rehabilitation of a bridge.</td>
</tr>
<tr>
<td>New Hampshire Department of Transportation</td>
<td>$649,500</td>
<td>The City of Dover will improve roadway safety, and reduce traffic interruptions caused by poor or outdated traffic signal timing, with automated traffic signal systems.</td>
</tr>
<tr>
<td>New Jersey Department of Transportation (NJDOT)</td>
<td>$322,452</td>
<td>NJDOT will use its AID grant to start a “weather-savvy roads” pilot program to improve roadway safety and operational efficiency by delivering real-time information about changing weather conditions from road maintenance vehicles to existing data sensors throughout the state.</td>
</tr>
</tbody>
</table>

**TOTAL** | $8,375,577

**NEWS**

**New Jersey Department of Transportation**

For Immediate Release: Contact: Steve Schapiro Matthew Sazel 609-530-4280

**NJDOT receives federal Accelerated Innovation Deployment grant for pilot road weather management system**

Program funds efforts to improve operational safety and efficiency of roadways

(Trenton) – The New Jersey Department of Transportation (NJDOT) today announced its first ever Accelerated Innovation Deployment (AID) grant award from the Federal Highway Administration (FHWA) to better manage the State’s road system during weather events. This $322,452 grant will support a weather-savvy roads pilot program in which up to 20 NJDOT vehicles will be outfitted with dashboard cameras and weather sensors that will feed data directly to the NHIS, allowing for improved situation awareness of road conditions and faster and more accurate resource allocation during weather events year round. This is the first AID grant applied for through New Jersey’s State Transportation Innovation Council (STIC).

"The New Jersey Department of Transportation is always looking for advancements in technology to improve safety," NJDOT Commissioner Diane Gutierrez-Scaccetti said. "This Federal grant allows us to test new technology so we can better manage our roadways ahead of storms, and enhance safety for the motoring public."

This award complements an initiative underway by the State that will build off NJDOT’s intelligent transportation work, in an effort to devise a statewide "smart" framework. Earlier this summer, New Jersey was selected as one of five states to participate in a national smart communities learning lab, being held later this year in Chicago.

FHWA works with partners at the State level through the Every Day Counts program, which is designed to identify market-ready areas of technological innovation that can be deployed to address transportation challenges. The Road Weather Management – Weather-Savvy Roads program funds vehicle-based observation technologies to proactively manage the road system during and ahead of heavy storms. The vehicle-based cameras will allow for enhanced operational collaboration, improved resource allocation, and enhanced situational awareness for highway operations crews working on the roadway.
### STIC Incentive Projects (FY 2014-2018)

<table>
<thead>
<tr>
<th>Year</th>
<th>Project Details</th>
<th>Funding Amount</th>
</tr>
</thead>
</table>
| 2015 | 1. Advancement of Data Driven Safety Analysis ($41,600)  
2. Advancing the use of mobile devices in the administration and oversight of the Local Public Agencies program ($21,464) | $63,064 |
| 2017 | 1. Purchase, use, and evaluate Unmanned Aerial Systems (UAS) with the goal of developing guidance and specifications for bridge inspection and traffic incident monitoring ($47,956)  
2. Hold Local Agency Peer Exchanges for Local Safety Program delivery utilizing Data Driven Safety Analysis tools ($18,564)  
3. Purchase and evaluate the use of tablets for construction and work zone inspection ($32,404) | $98,924 |
| 2018 | Implementation of Connected Vehicle – Road Service Safety Messages | $31,680 |