



THIS MEETING IS BEING RECORDED

NEW JERSEY STATE TRANSPORTATION INNOVATION COUNCIL

www.NJDOTtechtransfer.net/NJ-STIC

FALL Quarterly Meeting November 6, 2020



- Say “cheese”! Let us see your face if you’re comfortable.
- Mute yourself to avoid unnecessary background noise
- Use chat window for questions and comments
- Use the “reactions” tool for thumbs up, thumbs down

- 10:00-10:05 **Welcome & Introductions**
Assistant Commissioner Michael Russo, NJDOT
- 10:05-10:10 **FHWA Updates**
Helene Roberts, Performance Manager, FHWA NJ
- 10:10-10:25 **Core Innovation Area (CIA) Updates** CIA Team Leaders
- Safety *Dan LiSanti, NJDOT/Keith Skilton, FHWA NJ*
Mobility & Operations *Sal Cowan, NJDOT*
Infrastructure Preservation *Bob Signora, NJDOT*
- 10:25-10:35 **Featured Innovation: Weather Savvy Instrumentation (AID Grant)**
Sal Cowan, Senior Director, Transportation Mobility, NJDOT
- 10:35-11:05 **EDC-6 Innovations: Priorities - Interactive Polling Exercise**
Helene Roberts & Amanda Gendek
- 11:05-11:50 **EDC-5 and Other Initiatives: Challenges and Lessons Learned – Breakout Session**
Helene Roberts & Amanda Gendek
- Breakout Session (30 minutes)
Plenary Discussion (15 minutes)
- 11:50 -12:00 **Reminders & Announcements**
- Adjourn**

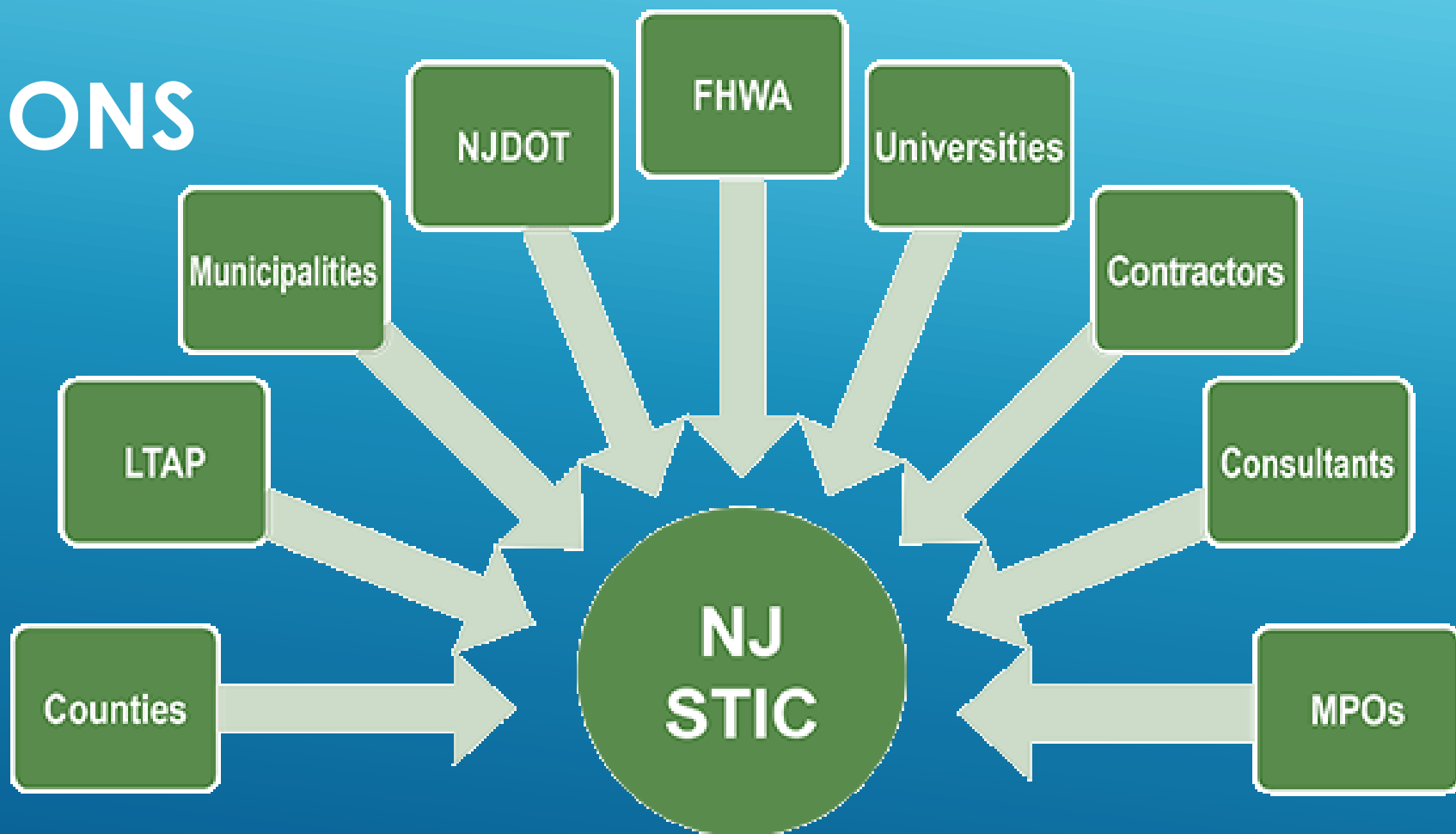


WELCOME

Mike Russo
Assistant Commissioner
NJDOT Planning, Multimodal & Grant Administration



INTRODUCTIONS





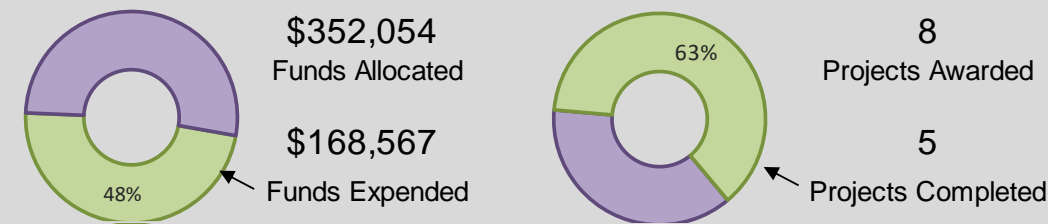
FHWA UPDATES



Helene Roberts, P.E.
Innovation Coordinator & Performance Manager
FHWA, NJ Division Office

New Jersey

STIC Incentive Projects



Accelerated Innovation Deployment (AID) Demonstration Projects



Increased Federal-share for Project Level Innovations Usage



EDC-5 Innovations

	PROGRESS DURING TWO-YEAR DEPLOYMENT					2-Year Goal for Dec 2020	Goal Met?	Highlights / Challenges
	Baseline Jan. 2019	Progress June 2019	Progress Dec 2019	Progress June 2020	Final Report Dec 2020			
Advanced Geotechnical Exploration Methods (A-GaME)	Demonstration	Demonstration	Demonstration	Demonstration		Institutionalized	0%	
Collaborative Hydraulics (CHANGE)	Demonstration	Demonstration	Demonstration	Demonstration		Demonstration		
Project Bundling	Institutionalized	Institutionalized	Institutionalized	Institutionalized		Institutionalized		
Reducing Rural Roadway Departures (RwD)	Development	Development	Development	Development		Demonstration	0%	
Safe Transportation for Every Pedestrian (STEP)	Assessment	Assessment	Assessment	Assessment		Institutionalized	0%	
Unmanned Aerial Systems (UAS)	Assessment	Institutionalized	Institutionalized	Institutionalized		Institutionalized	100%	
Use of Crowdsourcing to Advance Operations	Institutionalized	Institutionalized	Institutionalized	Institutionalized		Institutionalized		
Value Capture	Not Implementing	Not Implementing	Not Implementing	Not Implementing		Not Implementing		
Virtual Public Involvement (VPI)	Not Implementing	Not Implementing	Not Implementing	Not Implementing		Not Implementing		
Weather-Responsive Management Strategies (WRMS)	Development	Development	Development	Development		Assessment	0%	
	Legend:							
	Not Implementing	not currently using the innovation anywhere in the State and is not interested in pursuing the innovation						
	Development	collecting guidance and best practices, building support with partners and stakeholders, and developing an implementation process						
	Demonstration	testing and piloting the innovation						
	Assessment	assessing the performance of and process for carrying out the innovation and making adjustments to prepare for full deployment						
	Institutionalized	adopted the innovation as a standard process or practice and uses it regularly on projects						

CORE INNOVATION AREA REPORTS

CIA TEAM SAFETY

NJDOT – Dan LiSanti
FHWA – Keith Skilton

CIA TEAM MOBILITY & OPS

NJDOT – Wayne Patterson
FHWA – Ek Phomsavath

CIA TEAM INFRASTRUCTURE PRESERVATION

NJDOT – Bob Signora
FHWA – John Miller

CIA TEAM

SAFETY

NJDOT – Dan LiSanti

FHWA – Keith Skilton

EDC – 5

Reducing Rural Roadway Departures



A Roadway Departure (RwD) is a crash in which a vehicle crosses an edge line, a center line, or otherwise leaves the traveled way.

Per FARS data, from 2014 to 2016 New Jersey had 10% of fatality crashes being Rural RwD, about 55-60 a year.

EDC – 5

Safe Transportation for Every Pedestrian (STEP)

Under EDC4, an action plan was completed for NJDOT which targeted specific countermeasures for improving pedestrian safety at uncontrolled intersections.

The EDC4 initiative is now considered Institutionalized.

The action plan recommends measures that when implemented may help reduce the number and rate of pedestrian crashes, fatalities, and injuries on New Jersey highways.



CIA TEAM

INFRASTRUCTURE

PRESERVATION

NJDOT – Bob Signora

FHWA – John Miller

Collaborative Hydraulics: Advancing to the Next Generation of Engineering (CHANGE)

Purpose: Improve the understanding of complex interactions between river or coastal environments and transportation assets

Benefits:

- *enabling better design*
- *enhanced communication*
- *more efficient project delivery*



Status:

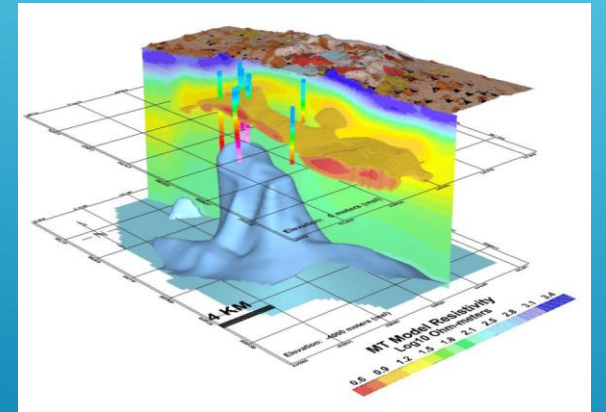
- *H&H unit attended SRH 2D North East Peer Exchange Review in NH and briefed Geotech staff about the current SRH 2D practices*
- *In-person staff training was cancelled due to COVID19. Training will be held remotely.*

Advanced Geotechnical Exploration Methods (The A-Game)

Purpose: To explore new innovative technologies for enhancing the subsurface exploration program

Benefits:

- Reduce uncertainties in subsurface conditions
- Mitigates design and construction risks
- Improve Quality and accelerate Project Delivery



Status:

- Geophysical Testing was added to the Bridges & Structures Design Manual
- New innovative techniques were included in the subsurface exploration contract language

Purpose: To continue to explore new methods of project bundling

Benefits:

- Streamlines design, contracting, and construction
- Capitalize on economies of scale to increase efficiency
- Greater collaboration during project delivery and construction



Status:

- Bundle of 2 Delaware & Raritan Canal bridge replacement projects under way
- NJDOT tracking man hours and costs (compared to single project)
- Project bundling documents were sent to FHWA EDC-5 Project Bundling Team (Office of Infrastructure and Resource Center). The documents included guidance on selecting bundling projects and project bundling tracking documents.

CIA TEAM

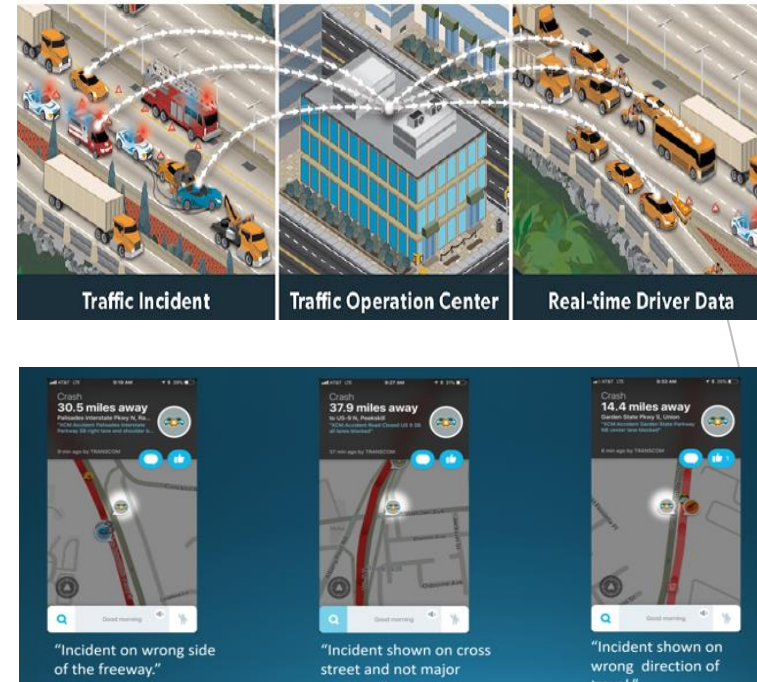
MOBILITY & OPS

NJDOT – Wayne Patterson

FHWA – Ek Phomsavath

EDC-5 - Use of Crowdsourcing to Advance Operations

- ▶ Goals:
 - ▶ Expands real-time traffic monitoring
 - ▶ Enables a more targeted/timely response
- ▶ Initiative:
 - ▶ NJDOT is institutionalized.
 - ▶ WAZE has been sharing traffic/incident data with NJDOT.



EDC-5 - Weather-Responsive Management Strategies

- ▶ Goal:
 - ▶ Use mobile road weather data
 - ▶ Maintenance/traffic operation responses
- ▶ Initiative:
 - ▶ NJDOT awarded the AID grant (\$322,462):
 - ▶ Install video camera dashboards/sensors
 - ▶ Maintenance trucks and safety service patrol vehicles



EDC-5 - Unmanned Aerial Systems (UAS)

- ▶ Goal:
 - ▶ Enhance data collection for structural/construction inspections and emergency response.
- ▶ UAS has enhanced the NJDOT's business process for providing a safe alternative, accelerated construction, and asset management to enhanced our DOT operations.

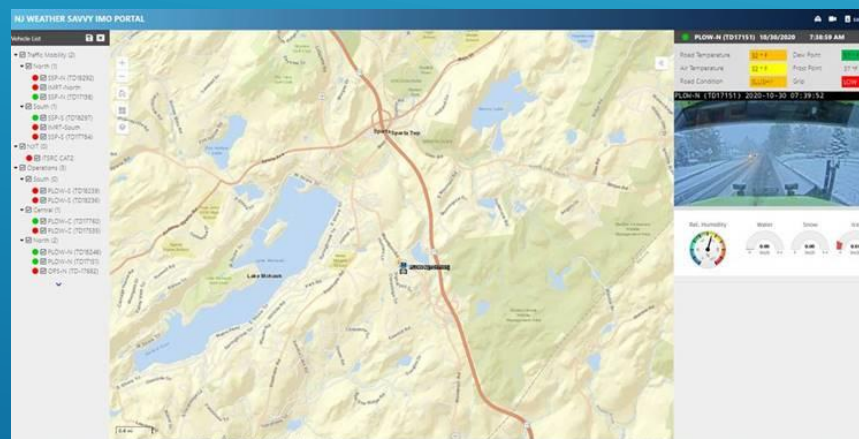




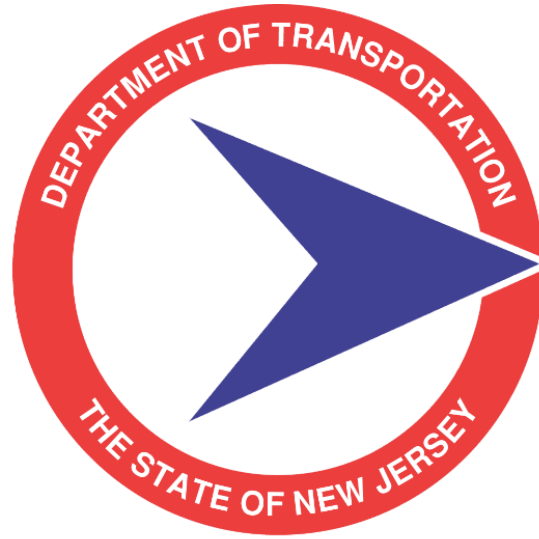
FEATURE PRESENTATION:

WEATHER SAVVY ROADS INSTRUMENTATION

ACCELERATED IMPLEMENTATION DEMONSTRATION (AID) GRANT

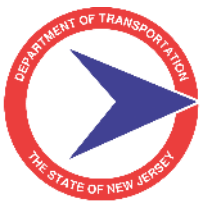


Sal Cowan, Senior Director,
Transportation Mobility, NJDOT



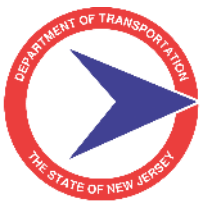
Weather Savvy Roads Pilot Project

October 2020



Weather Savvy Roads - Pilot Project

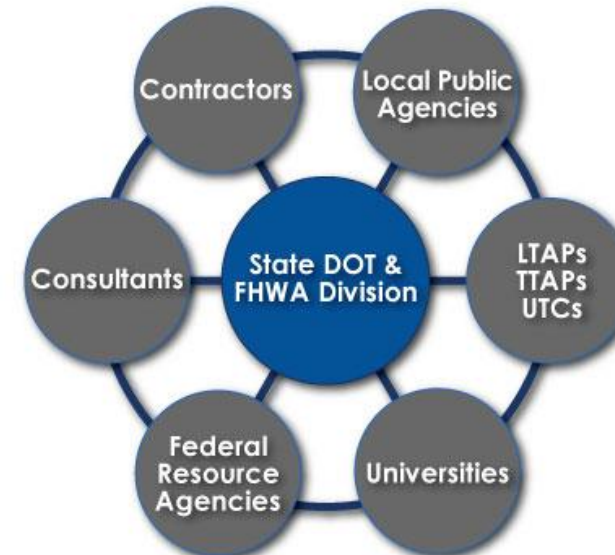
1. What is the pilot?
2. Why is NJDOT doing this?
3. Are any other DOTs doing this?
4. What equipment will be installed?
5. What will the equipment do?
6. What won't the equipment do?



Weather Savvy Roads - Pilot Project

What is the pilot?

An FHWA pilot program, valued at \$322,462, under the “Weather Savvy Roads Integrating Mobile Observations (IMO)” innovation.



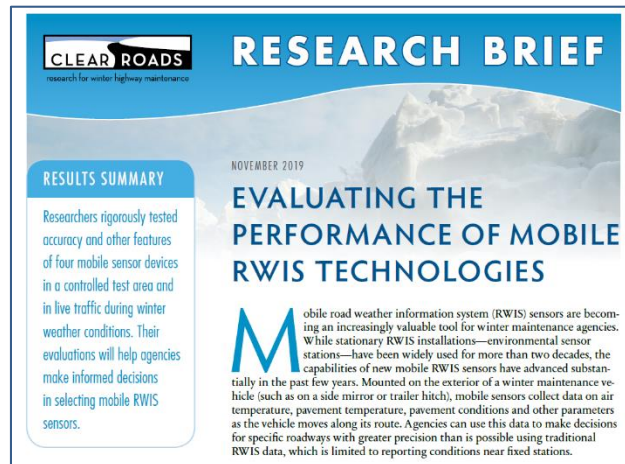


Weather Savvy Roads - Pilot Project

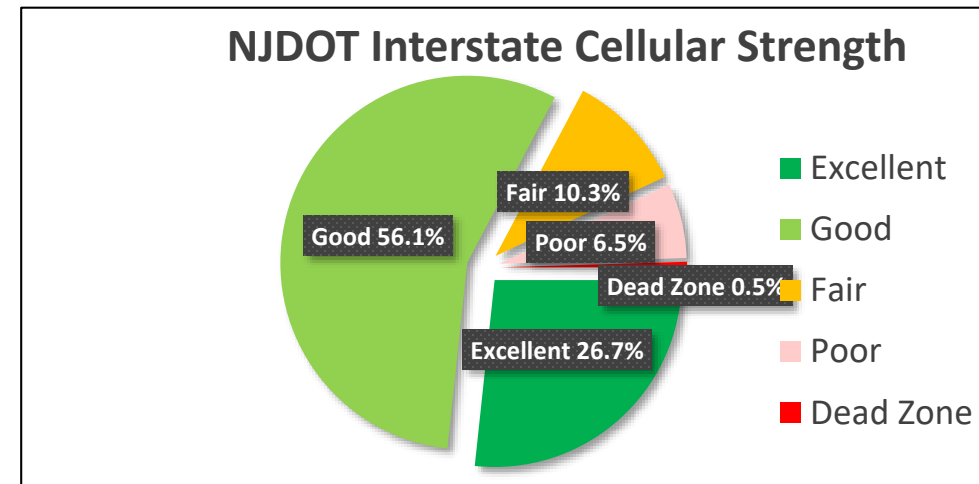
Why is NJDOT Doing This?

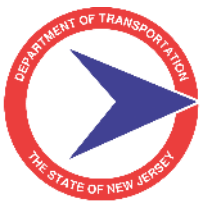
To do our own research ...

...to compare the value of mobile RWIS vs fixed RWIS



...to test FirstNet signal strength vs commercial cellular strength on NJDOT's road network





Weather Savvy Roads - Pilot Project



Locations

Maintenance Operations

- Sussex – 1 Plow Truck
- Rockaway – 1 Plow Truck
- Flemington – 1 Plow Truck
- West Amwell – 1 Plow Truck
- Cherry Hill – 1 Plow Truck
- Mays Landing – 1 Plow Truck

Mobility

- Harding – 2 x SSP trucks and 1 IMRT truck
- Cherry Hill – 2 SSP trucks
- Deptford – 1 IMRT truck

Expanding with additional 8 vehicles*



Weather Savvy Roads - Pilot Project

Cab Setup – IMRT Truck



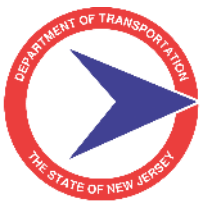


Weather Savvy Roads - Pilot Project

Cab Setup – SSP / IMRT Trucks

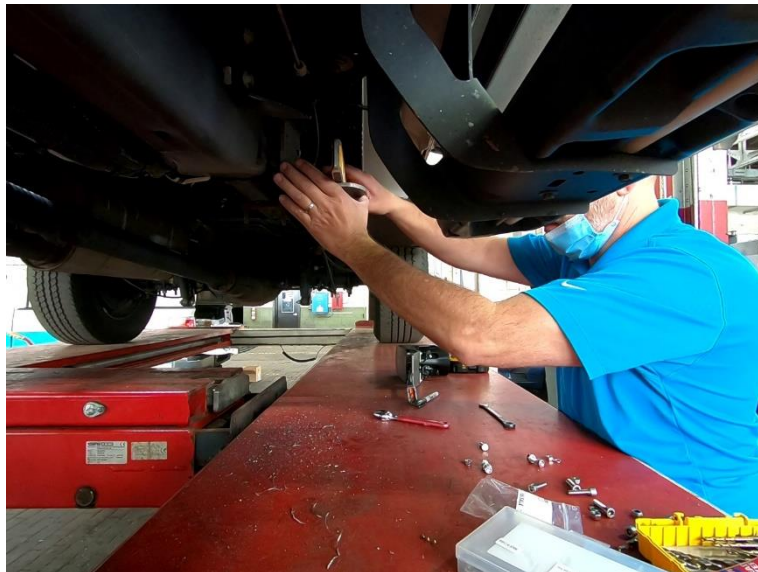
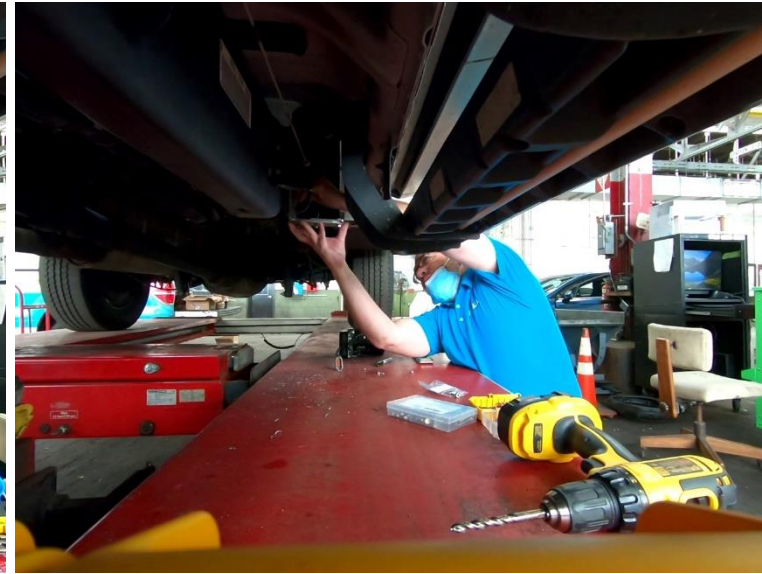


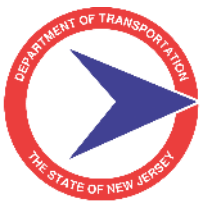
- Cellular Router (with GPS) -- FirstNet
- Video Camera Transcoder and Power Unit
- Power distribution unit



Weather Savvy Roads - Pilot Project

Road Weather Sensor Installation – SSP / IMRT Trucks





Weather Savvy Roads - Pilot Project

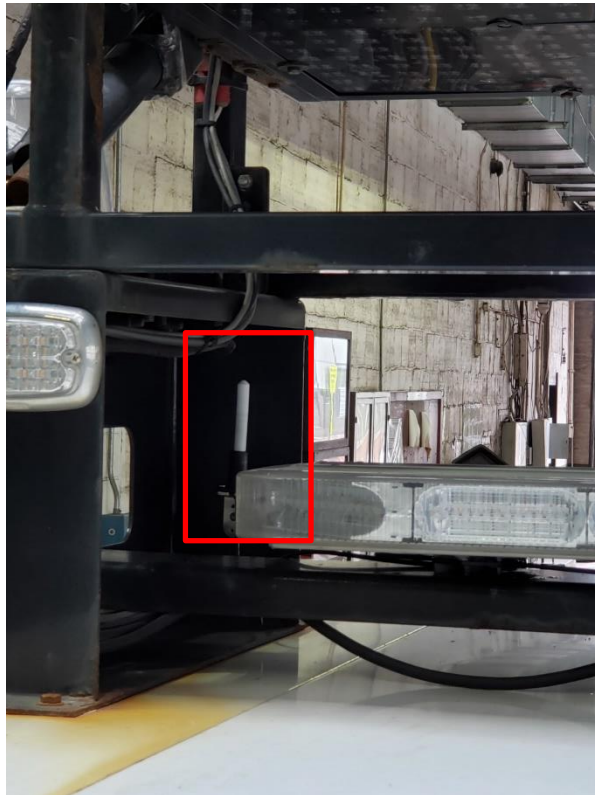
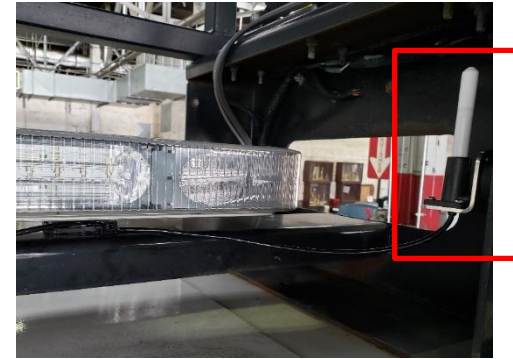
Road Weather Sensor Installed – SSP /IMRT Trucks





Weather Savvy Roads - Pilot Project

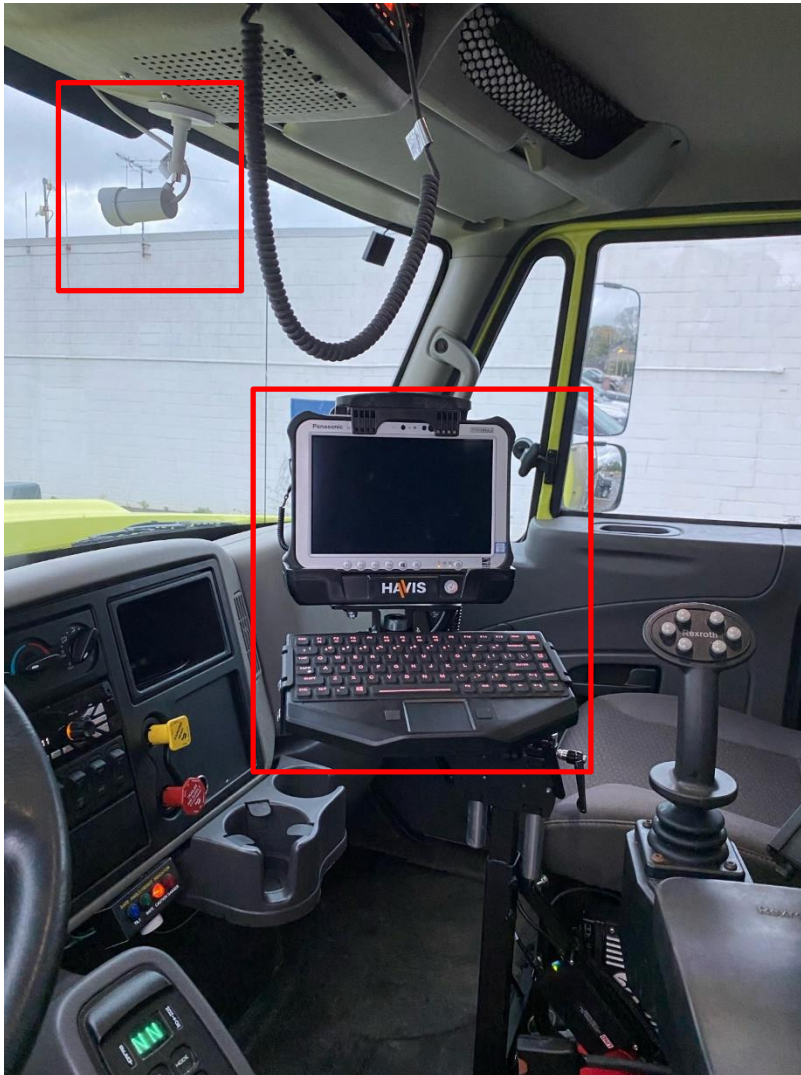
Ambient Weather Sensor Installation – SSP /IMRT Trucks

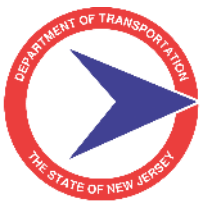




Weather Savvy Roads - Pilot Project

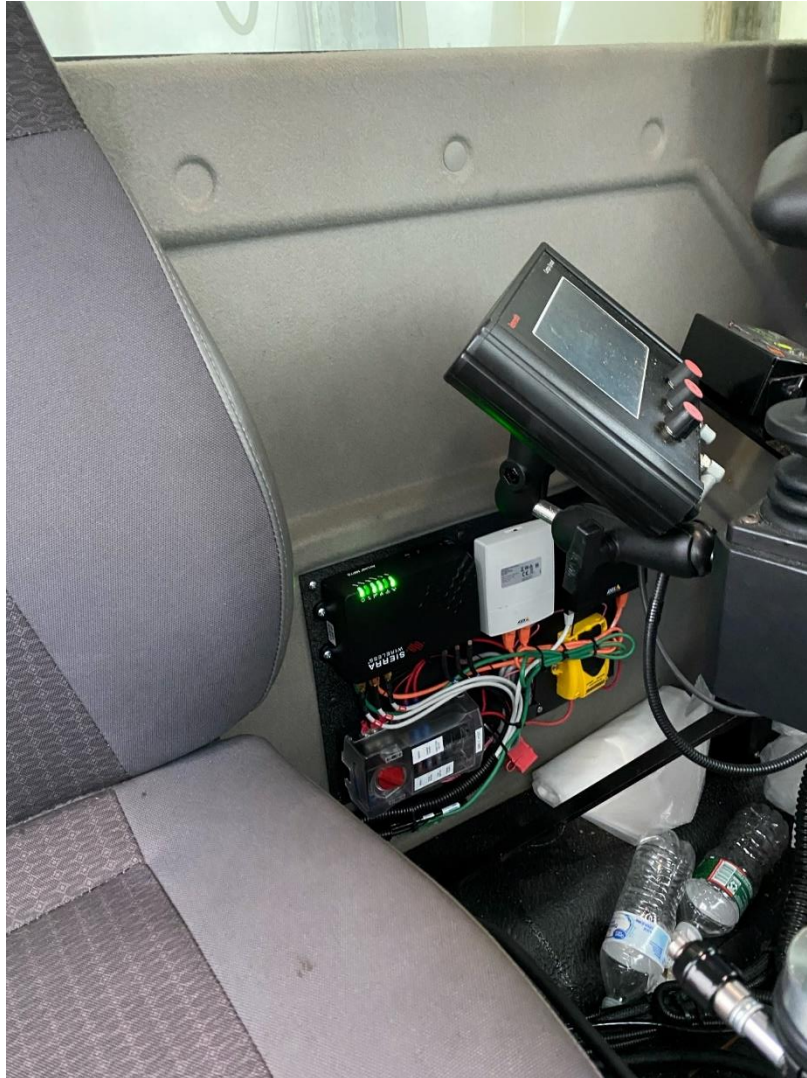
Cab Setup - Dump/Plow Trucks





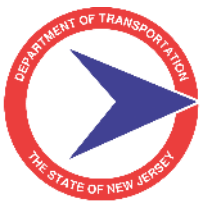
Weather Savvy Roads - Pilot Project

Cab Setup - Dump/Plow Trucks



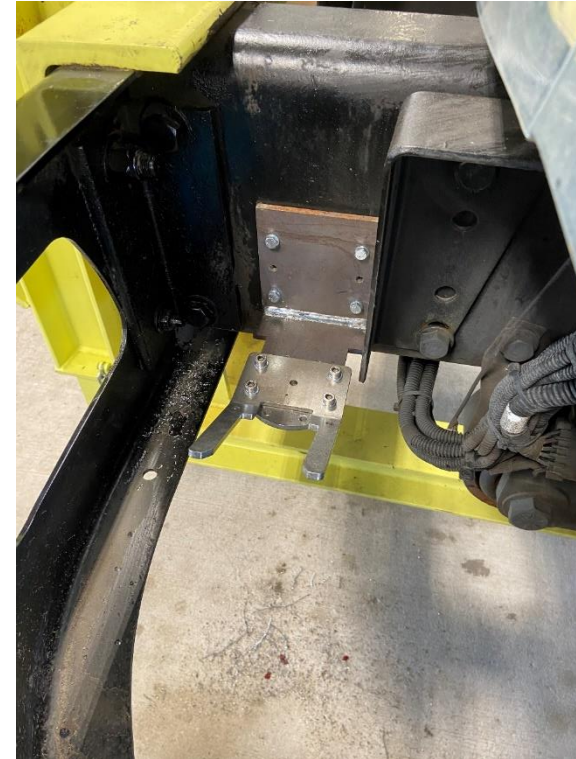
- Cellular Router (with GPS) -- FirstNet
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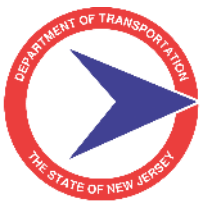




Weather Savvy Roads - Pilot Project

RWIS Installation - Dump/Plow Trucks





Weather Savvy Roads - Pilot Project

RWIS Installed – Dump/Plow Trucks





Weather Savvy Roads - Pilot Project

Ambient Weather Sensor Installation - Dump/Plow Trucks





Weather Savvy Roads - Pilot Project

Weather Savvy Pilot Web Interface (GUI)

NJ WEATHER SAVVY IMO PORTAL

transprod5.njdot.edu/njweathersavvy/login

Sign in

Username

Password

[Forgot password?](#)

SIGN IN

State of New Jersey
DEPARTMENT OF TRANSPORTATION

NJIT ITS RESOURCE Center

Ad 2019 Copyright

NJ WEATHER SAVVY IMO PORTAL

Home / Manage Profile

Change Password

Map Settings

Video Wall Settings

Manage Users

Manage Vehicles

NJ WEATHER SAVVY IMO PORTAL

Vehicle List

- ▼ Traffic Operations (2)
 - ▼ North (2)
 - ☒ SSP-N (TD18292)
 - ☒ IMRT-North
 - ☒ SSP-N (TD17138)
 - ▼ South (0)
 - ☒ SSP-S (TD18297)
 - ☒ IMRT-South
 - ☐ SSP-S (TD17784)
 - ▼ NJIT (1)
 - ☒ ITSRC CAT2
 - ☒ NJIT LAB
 - ☒ TRUCK 08
 - ☒ TRUCK 05

● SSP-N (TD18292) 8/4/2020 6:14:21 AM

Road Temperature	73 ° F	Dew Point	71 ° F
Air Temperature	71 ° F	Freeze Point	N/A
Road Condition	WET	Grip	MEDIUM

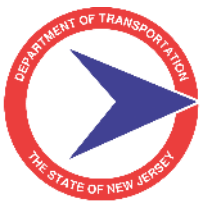
SSP-N (TD18292) 2020-08-04 06:14:40

Rel. Humidity

Water

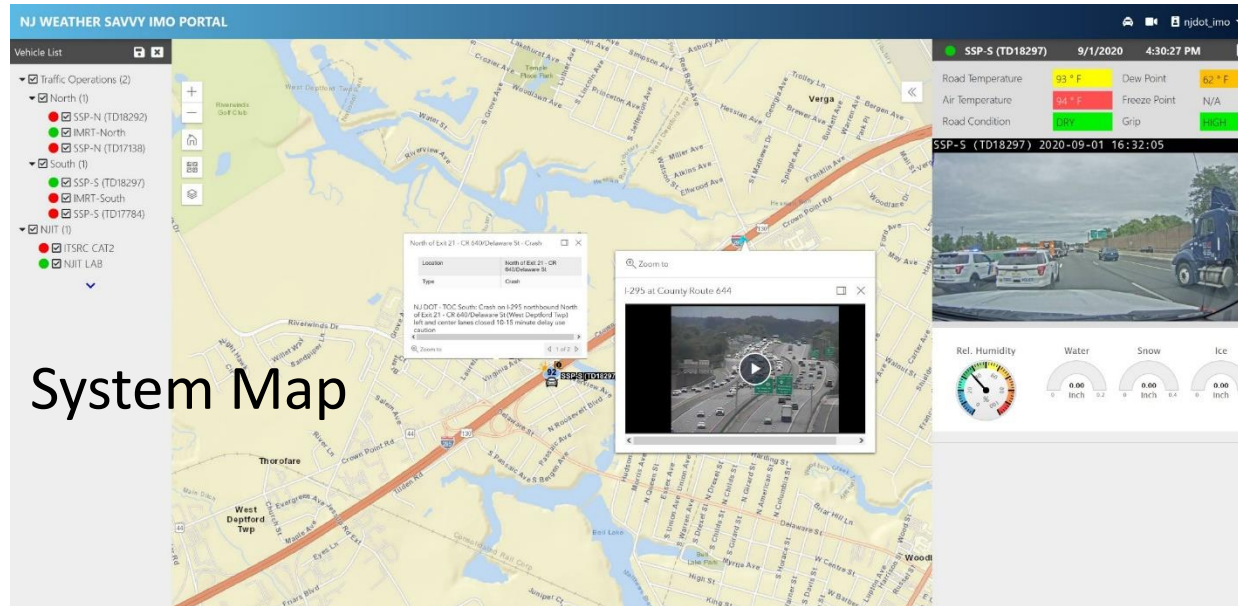
Snow

Ice



Weather Savvy Roads - Pilot Project

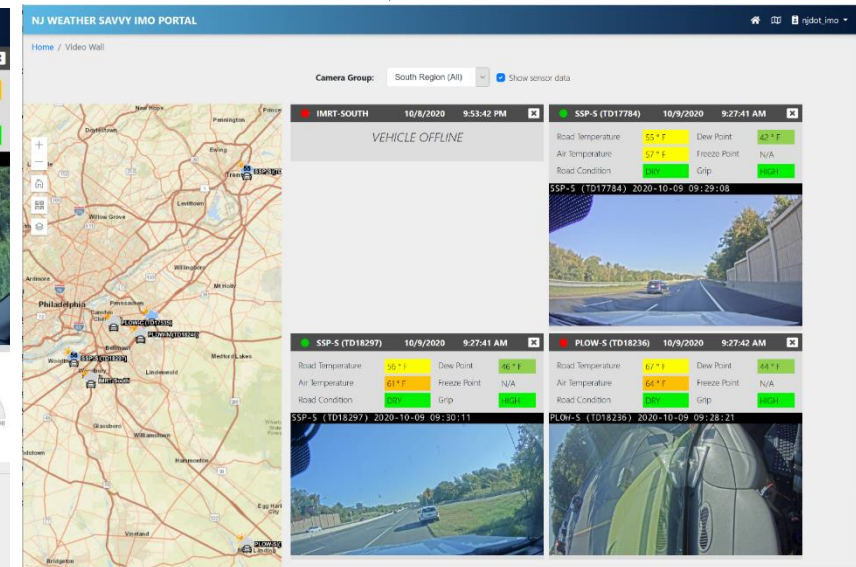
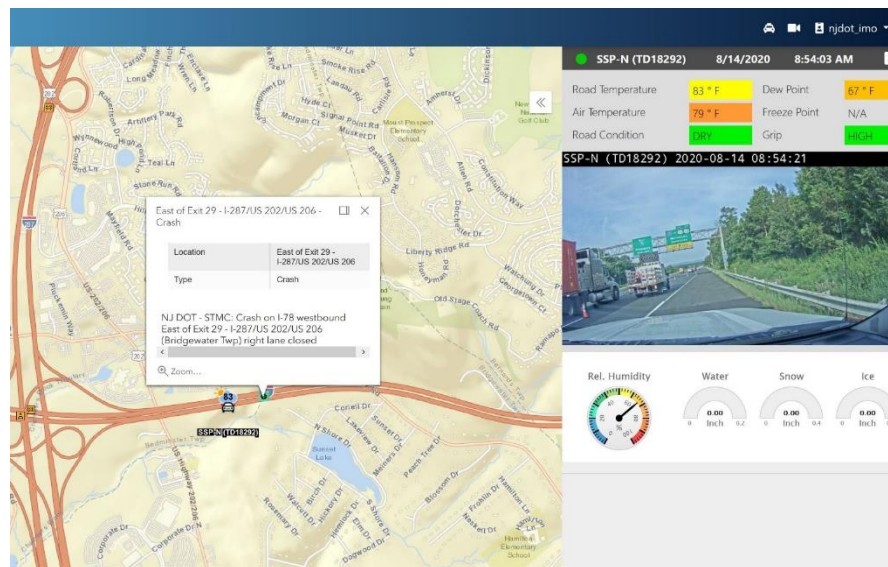
Weather Savvy Pilot Web Interface (GUI)



System Map

Weather Savvy Vehicle Dashboard

Virtual Video Wall



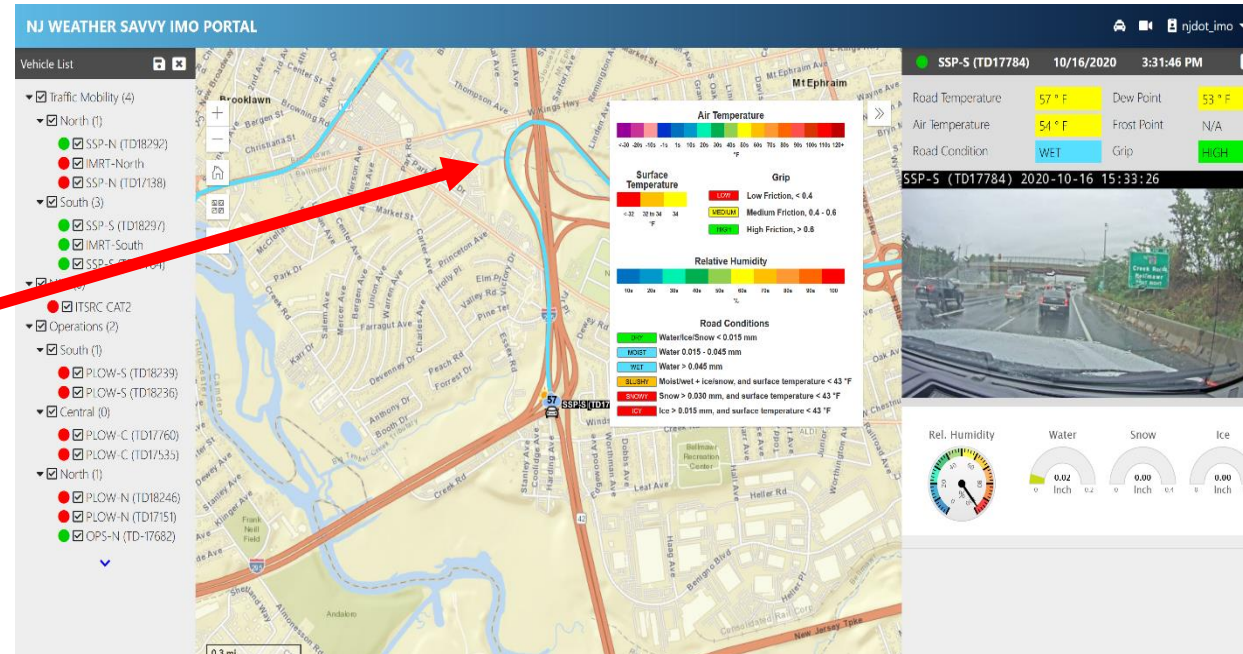


Weather Savvy Roads - Pilot Project

Weather Savvy Pilot Web Interface (GUI)

Vehicle Tracking:

- Shows the trace of vehicles in the past 15 minutes.
- Trace color represents the Road Condition (e.g., BLUE = WET/MOIST)



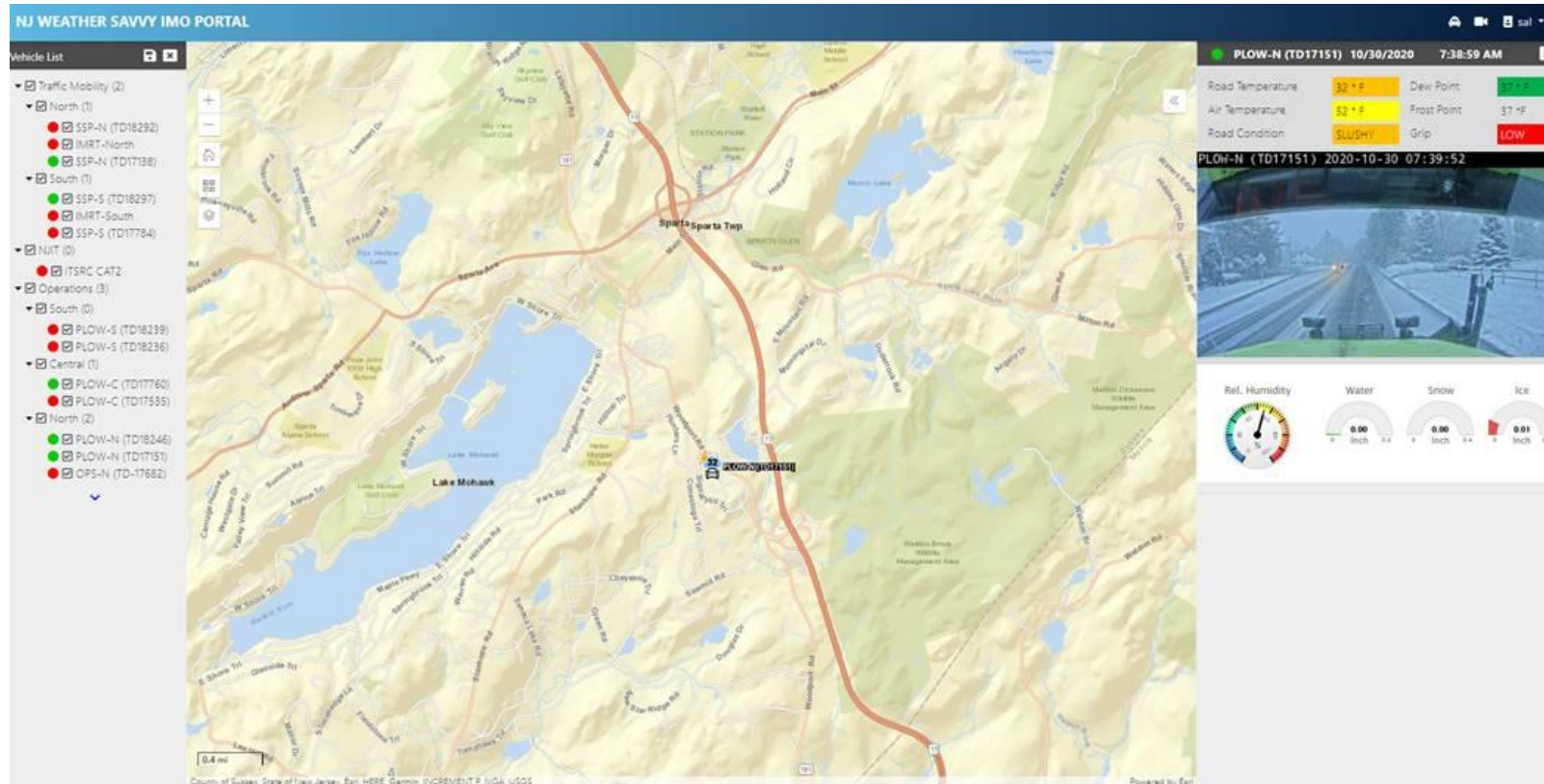
Note: we renamed “Freeze Point” to “Frost Point” in the dashboard to be more consistent with the clarification we received from Vaisala. Explanation in the last slide.



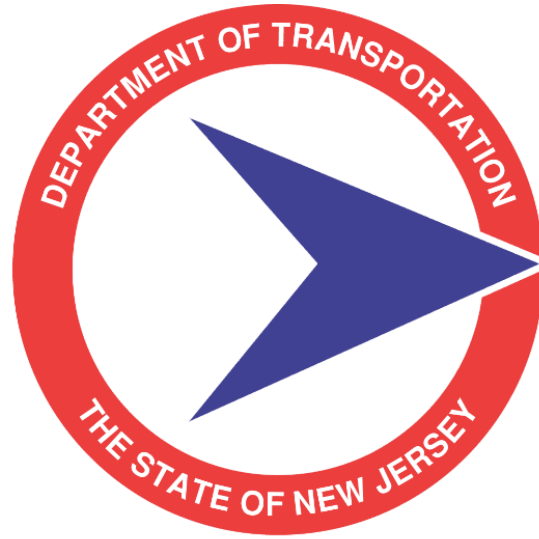
Weather Savvy Roads - Pilot Project

Weather Savvy Pilot Web Interface (GUI)

Friday October 30th – 7:38 am



During the first storm of the 2020-21 Winter Season



Weather Savvy Roads Pilot Project

October 2020



EDC-6 Innovations: Priorities

Interactive Polling Exercise





EDC-5 and Other Initiatives: Challenges and Lessons Learned

BREAKOUT SESSION

BREAKOUT SESSIONS WILL BE RECORDED

- Each of you have been pre-assigned to a Breakout Room
- Each room is facilitated by a Rutgers VTC Staff member
- The group has 4 Questions to discuss and answer
- 30 minutes total (approx. 7 minutes per question)
- Time reminders will be sent to each room to keep us on track
- Facilitator to take notes, all notes from all breakout sessions to be summarized into one document and shared after today's meeting.
- After the 30 minutes, we will all reconvene to the main meeting room where we'll have a 15 minute plenary discussion about our experiences.

Q1. Which EDC-5 initiatives is your organization working on? What stage of implementation are you at?

Q2. What kind of assistance from FHWA or the Local Technical Assistance Program (LTAP) would still be helpful to you in working toward institutionalization of these initiatives?

Q3. What topics for Tech Talk webinars would you be most interested in attending?

Q4. Do you have “success story” examples or “lessons learned” from the adoption of EDC initiatives or other innovations that you would be willing to share with the STIC and others?

PLENARY DISCUSSION: CHALLENGES AND LESSONS LEARNED



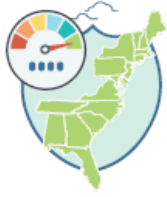
Moderator: **Helene Roberts**
Performance Manager
FHWA-NJ Division

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Hi.

New Jersey is conducting a pilot in partnership with the Eastern Transportation Coalition* to test the viability of a mileage-based user fee.



GETTING INVOLVED IS EASY!



Step

1

Enroll via weblink

Receive your plug-in device within a week.

Step

2

Turn your car into a smart car! Plug in your device and start driving. Receive simulated statements each month.

Step

3

Review simulated statements, use smartphone app to see driving habits and vehicle health, provide feedback via two online surveys.

Step

4

Pilot ends January 31

Return your device.

We're turning to the experts, you!

New Jersey is working with the Eastern Transportation Coalition* (Coalition) to bring New Jersey's voice to the exploration of a mileage-based user fee as a possible sustainable solution for transportation funding. We all expect to get where we're going safely and efficiently. To do this, we must continue to maintain our roads and bridges. The current fuel tax funding is unsustainable due to improving fuel efficiency and an increase in electric vehicle adoption rates. Help shape the future of transportation by participating in our mileage-based user fee pilot.

That's where you come in!

✓ EASY. ✓ REWARDING. ✓ USEFUL. ✓ SECURE.

Why should you join the pilot?



It's easy: sign up, plug a device into your vehicle for 3 months, tell us what you think.

Turn your car into a smart car: monitor your driving habits, vehicle health, trip info and carbon footprint.



Help bring New Jersey's voice to the table.

We need real people to help us understand if a mileage-based user fee meets the needs of our state. Participating in the pilot will allow us to gather important insights and feedback from New Jersey residents.



Your privacy, guaranteed. Choose a GPS-enabled device or use a device without GPS data. Secure account management practices guarantee participant privacy. Your personal travel data is for your eyes only. Detailed trip data and information from personal driving features available during the pilot are not shared with New Jersey or the Coalition.

Visit tetcoalitionmbuf.org for more information.
If you are interested, send an email to mbuf@tetcoalition.org.

*Formerly the I-95 Corridor Coalition.

You may have already received an email with this flyer

Mileage Based User Fee Study

The Eastern Transportation Coalition

Step One: Gather the following information:

1. VIN (Vehicle Identification Number)
2. Current odometer reading
3. License plate number

Step Two: Visit the Coalition's MBUF website to begin enrollment.

Within a week of enrollment, you'll receive a device that turns your car into a "smart car." Just plug it in, drive for four months, and provide feedback via quick online surveys.

For more information please visit the project website at

<https://tetcoalitionmbuf.org/join-the-pilot/>

or simply contact mbuf@tetcoalition.org



THANK YOU!

www.NJDOTtechtransfer.net/NJ-STIC
(609)963-2242 – Bureau of Research