

CIA TEAM

**MOBILITY &
OPERATIONS**

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FHWA – Ek
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1st Tri-Annual STIC Meeting

Transportation Mobility

April 17th 2024



Expansion of Weather-Savvy

- Initially started with 24 vehicles. 11 new installations and some swaps later:

Mobility	
North	South
2 IMRT	1 IMRT
3 SSP	3 SSP

Operations		
North	Central	South
3 Plows	4 Plows	8 Plows
6 Pickups	3 Pickups	2 Pickups

- Increased Focus on Plows- during a weather event these trucks stay on the road



Expansion of Weather-Savvy

- 10 vehicles left to add (which will bring our total to 45!):

Operations		
North	Central	South
4 Plows	4 Plows	2 Plows

- Increased coverage = increased precision/accuracy of our statewide road surface conditions & increased real-time situational awareness

Vaisala GroundCast

- New generation of Weather Sensors.
- GroundCast is self-powered.
- Wireless, no cables or powering required with built-in wireless communication and battery.
- GroundCast measures road surface temperature and the amount of residual treatment material, providing you with reference grade observations and location-specific forecasts.



Vaisala GroundCast (Cont'd)



WHAT DOES IT DO?

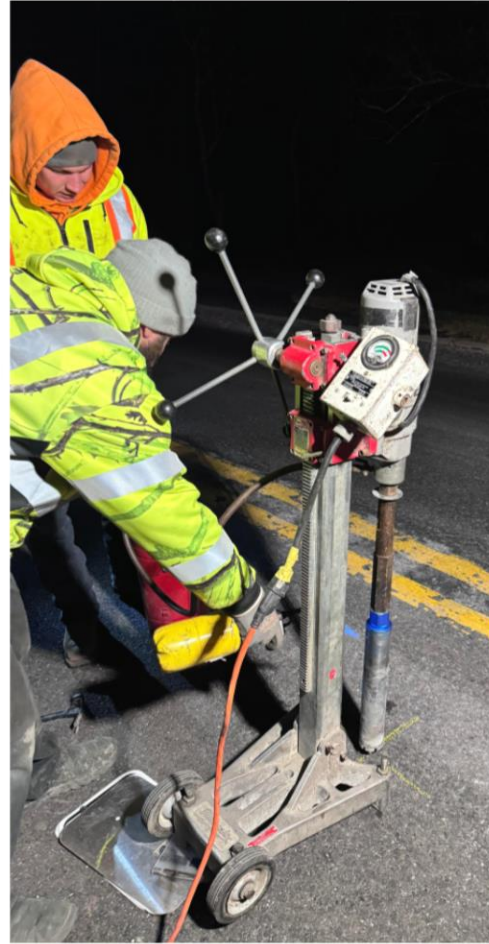
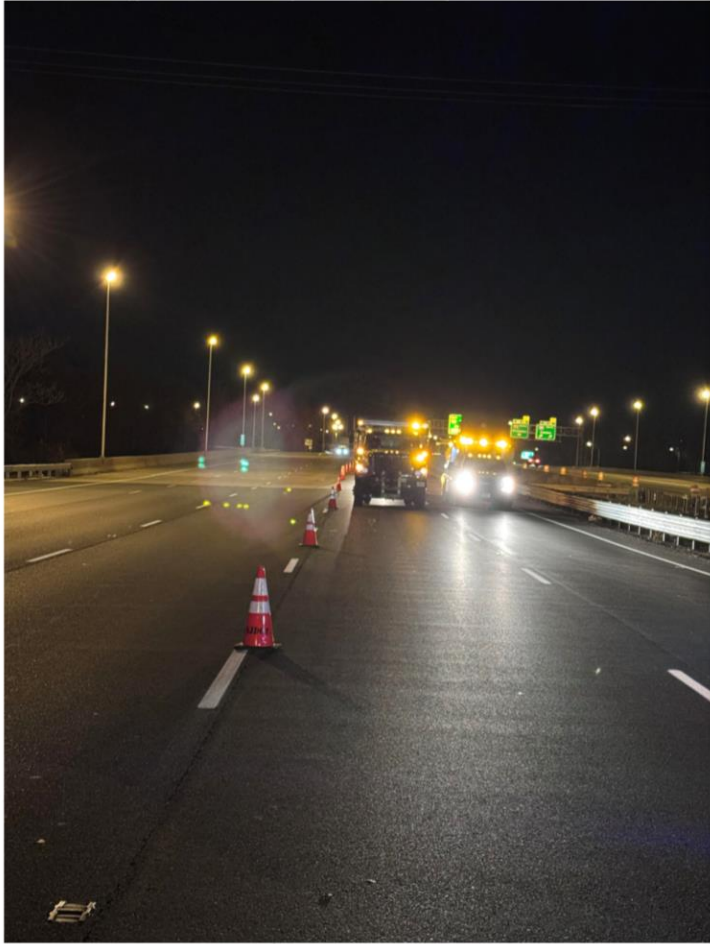
The GroundCast measures:

- Surface temperature
- Surface state: dry / not dry
- Amount of treatment material on the road surface
- Temperature at -6 cm / 2.4 in
- Temperature at -30 cm / 1 ft

New Jersey Deployment

- For the initial pilot deployment, several critical locations have been identified where Vaisala GroundCast sensors are so far installed and will be installed:
 - NJ 29 MP 0.5 (2 sensors installed)
 - NJ 12 MP 1.5 (1 sensor installed)
 - NJ 23 MP 0.4
 - I-295 MP 57.4
 - I-78 MP 10

Installation



Integration into the Weather-Savvy Portal

NJ WEATHER SAVVY IMO PORTAL ? 🚗 📺 tom

Vehicle List

- ▼ Traffic Mobility (3)
 - ▼ North (3)
 - IMRT-N (TD17685)
 - IMRT-NORTH 2(TD30245)
 - SSP-N #1713 (TD30132)
 - SSP-N #1716 (TD30801)
 - SSP-N #1730 (TD30803)
 - ▼ South (0)
 - IMRT-S (TD17684)
 - SSP-S #7512 (TD18484)
 - SSP-S #7513 (TD30389)
 - SSP-S #7529 (TD18297)
- ▼ Operations (8)
 - ▼ North (5)
 - OPS-N #026 (TD17682)
 - OPS-N #215 (TD30046)
 - OPS-N #216 (TD17678)
 - OPS-N #225 (TD30240)
 - OPS-N (TD17679)
 - PLOW-N #216 (TD17770)
 - PLOW-N #227 (TD17151)
 - PLOW-N #231 (TD18246)
 - OPS-N (TD18052)
 - ▼ Central (2)
 - OPS-C #328 (TD30283)
 - OPS-C #314 (TD30009)
 - OPS-C #335 (TD17702)

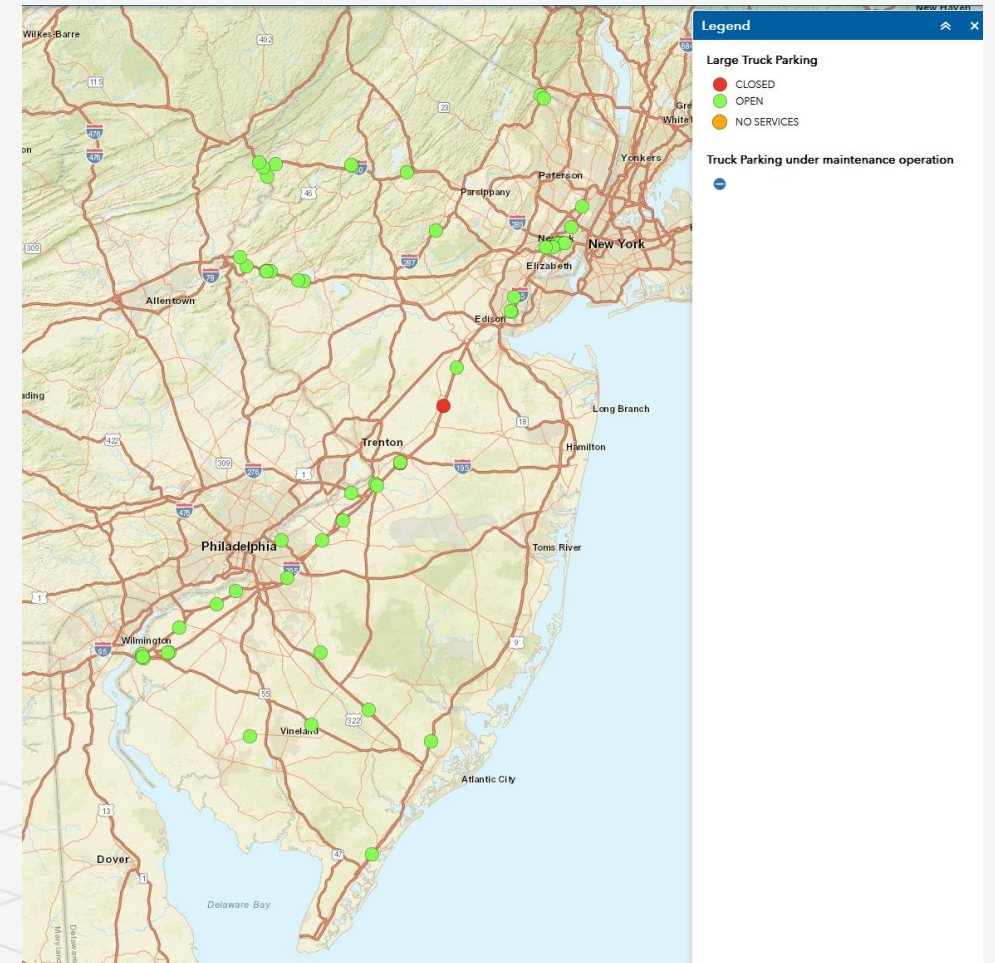
NJ 12 EB 2nd Lane - 4/3/2024, 11:26 AM	
Sensor ID	V3440227
Timestamp	4/3/2024, 11:26 AM
Chemical Amount	0
Temp 30cm	49.82
Temp 6cm	46.58
Surface State	13

NJDOT Pilot Tests of Truck Parking Information System (TPIS)



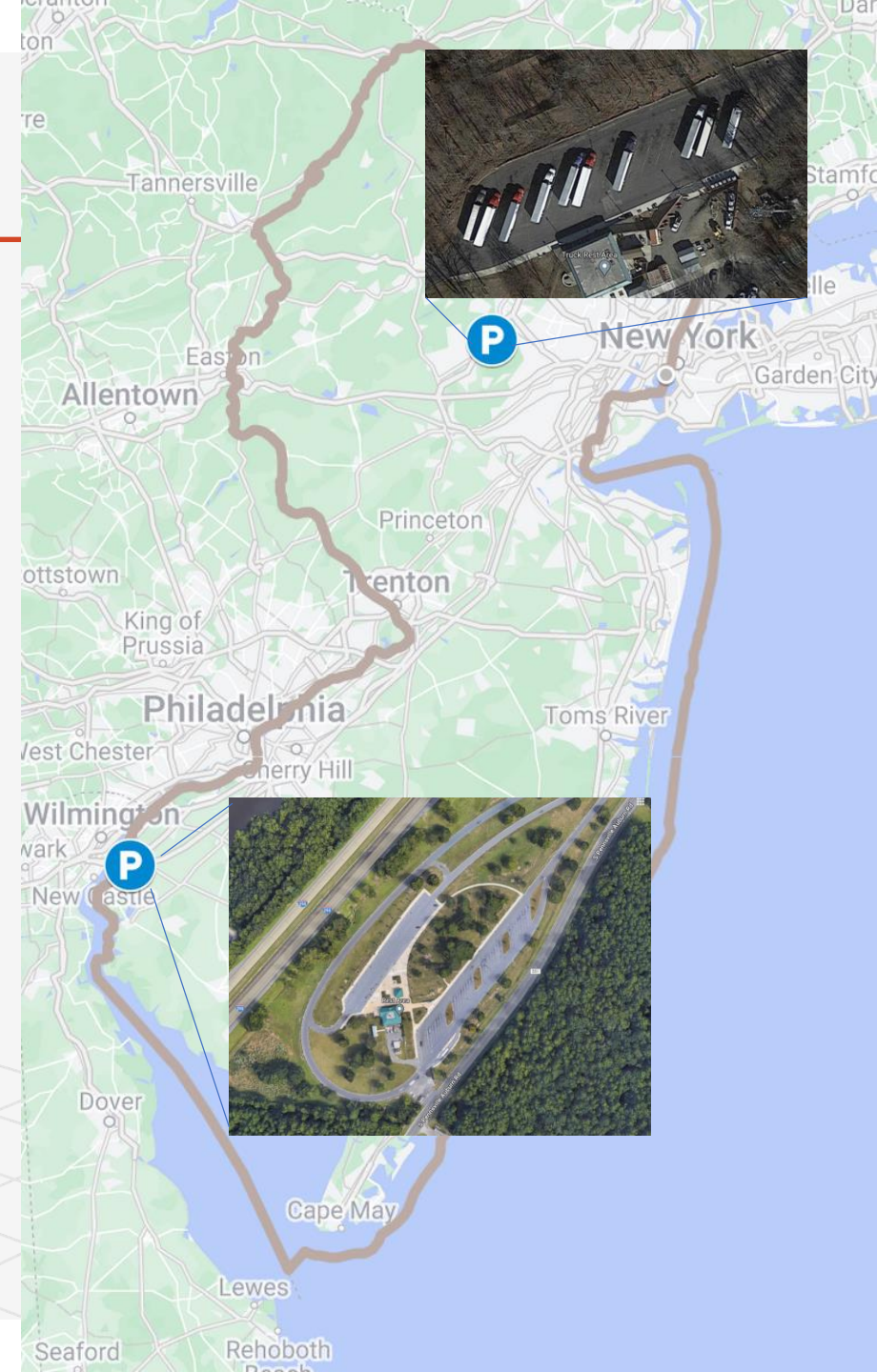
New Jersey Truck Parking

- 2,915 truck parking spaces available in New Jersey, still not enough
- Issues caused by this shortage are exacerbated by the congestion on major New Jersey roadways.
- Coupled with the lack of real-time and accurate information on truck parking availability, the limited truck parking capacity disrupts the truckers' driving plans and routing.



Real-Time Truck Parking Information System (TPIS) Pilot in New Jersey

- NJDOT TM commenced a pilot program to collect and disseminate truck parking availability to commercial vehicle operators.
- The concept of Operation (ConOps) and High-Level System Requirements Specifications for a Pilot Deployment developed in 2019.



Harding Truck Rest Area

- In 2021, ITS technologies Deployed at the Harding Truck Rest Area are:
 - two traffic microwave sensors,
 - 9 CCTV cameras, and
 - 44 in-pavement sensors.



Mobile Trailer with traffic microwave sensor

Locations of cameras and camera coverages



Locations of in-pavement micro radar sensors



Deepwater Truck Rest Area

- In 2023, ITS technologies Deployed at the Deepwater Truck Rest Area are:
 - Two traffic microwave sensors,
 - One CCTV cameras, and
 - 68 in-pavement sensors.



In-Pavement Micro Radar Sensor Installation



Measuring the position of a sensor hole



Core a hole



Clean and dry the hole



Sensor in a hole

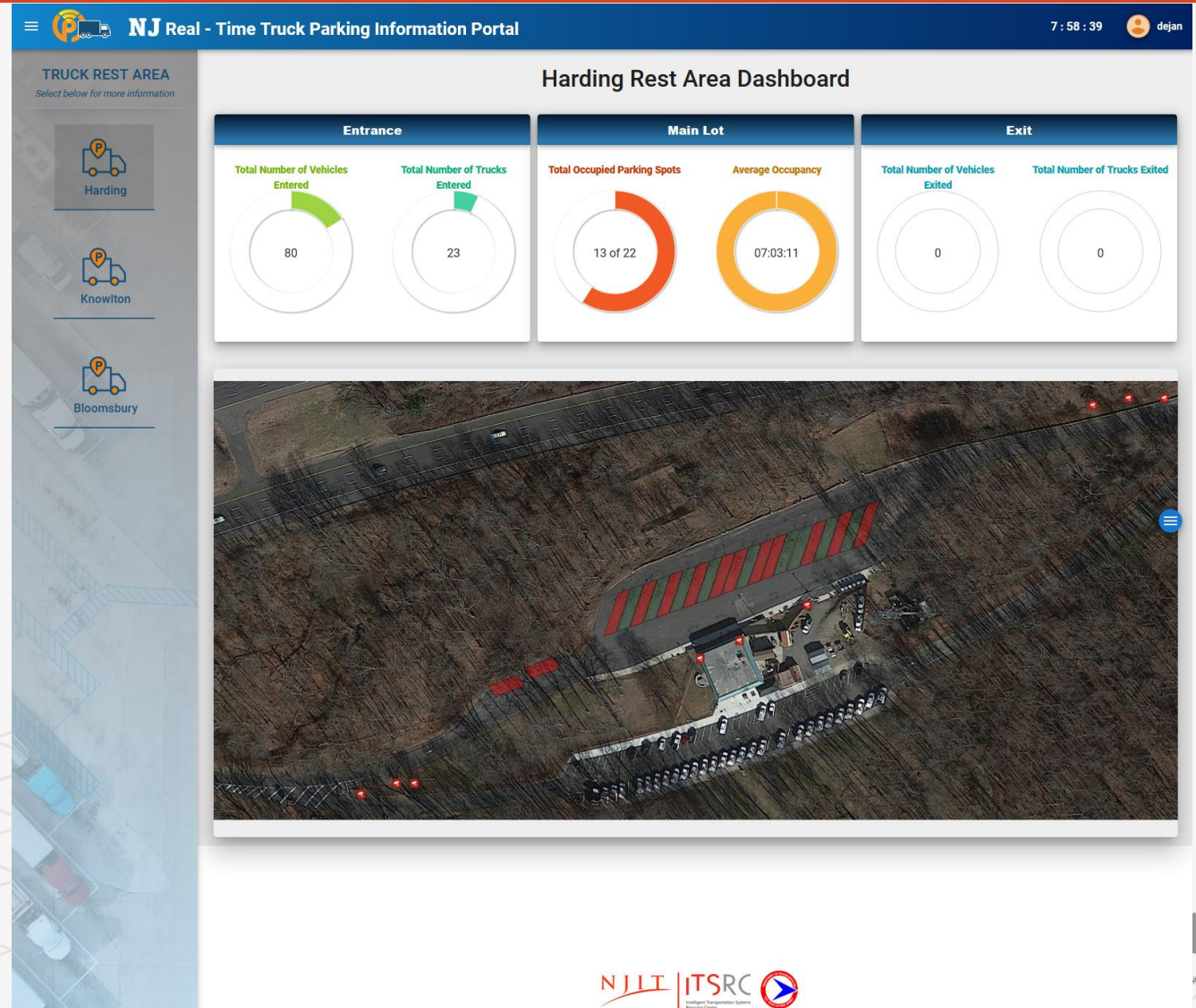


Hole filled with epoxy



Harding Rest Area Dashboard

- Information collected and displayed:
 - Number of trucks and other vehicles entering
 - Main parking lot utilization and average dwell time of vehicles
 - Number of vehicles left the facility
- Access to every camera feed



Harding Rest Area Dashboard

- Web Portal provides a user to obtain monthly or seasonal statistics of how the facility has been utilized or

