CIA TEAM

MOBILITY & OPS

NJDOT – Sal Cowan & Wayne Patterson

FHWA – Ek Phomsavath

Levels of Every Day Counts (EDC) Implementation

- Not Implementing – we are not going to work on "it"
- Development – we are figuring out how to do "it"
- Demonstration – figured "it" out and we're piloting "it"
- Assessment – "it" works and we're refining "it"
- Institutionalized – "it" is a part of our day to day business

EDC 1 – 4 Recap

Institutionalized

- SHRP 2: Organizing for Reliability Tools (Building your State's TSMO program)
- EDC 2: SHRP2 Traffic Incident Management (TIM) Responder Training
- EDC 3: Regional Models of Cooperation: Planning Products and Studies Across Agencies
- EDC 3: Regional Models of Cooperation: Data Models and Tools
- EDC 3: Smarter Work Zones: Technology Applications

Assessment

- EDC 4: Automated Traffic Signal Performance Measures (ATSPMs)

Demonstration

- EDC 4: Road Weather Management - Weather-Savvy Roads
- EDC 4: Using Data to Improve Traffic Incident Management

Development

Not Implementing – We've never said NO!

EDC 5 – New Initiatives

- Use of Unmanned Aerial Vehicles
  - Assessment (“it” works and we’re refining our processes)
- Weather Responsive Management Strategies
  - Development (we are figuring out how to do “it”)
- Use of Crowdsourcing to Advance Operations
  - Institutionalized (“it” is a part of our day to day business)

EDC – 5
Use of Unmanned Aerial Vehicles (UAV's / Drones)

<u>Aeronautics UAS Program Requests from STIC 2019</u>

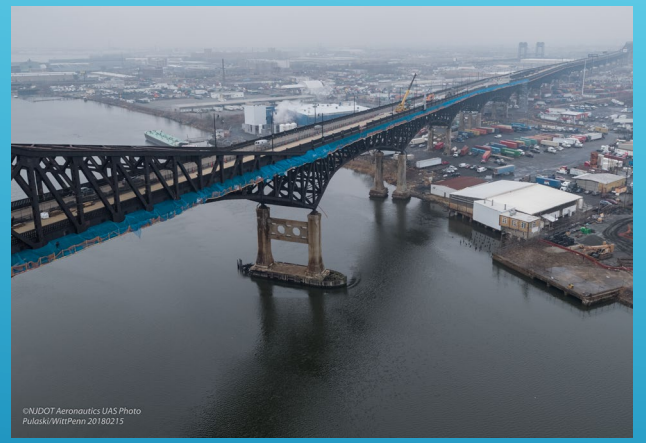
-Enhanced processing capability for 3D models

-Advanced training courses for Photogrammetry, aerial photography and videography

-A portable all-weather large screen monitor to be mount inside the rear of the UAS vehicle

-Thermal Imaging capability for watershed surveys

-Thermal Imaging to count wildlife under bridges



EDC – 5
Use of Unmanned Aerial Vehicles (UAV's / Drones)

Where are we now?:
NJ is seen as a national leader in UAS

Where do we plan to be in two (2) years?:
By 2020 UAS technology will be fully integrated into 50% of our potential use cases

How do we plan to get there?:
Close cooperation with divisions to promote and develop innovative UAS solutions to daily transportation workflows

EDC – 5
Weather-Responsive Management Strategies

What Causes Weather Related Accidents?

Wet roads….73%

Snow and sleet …. 17%

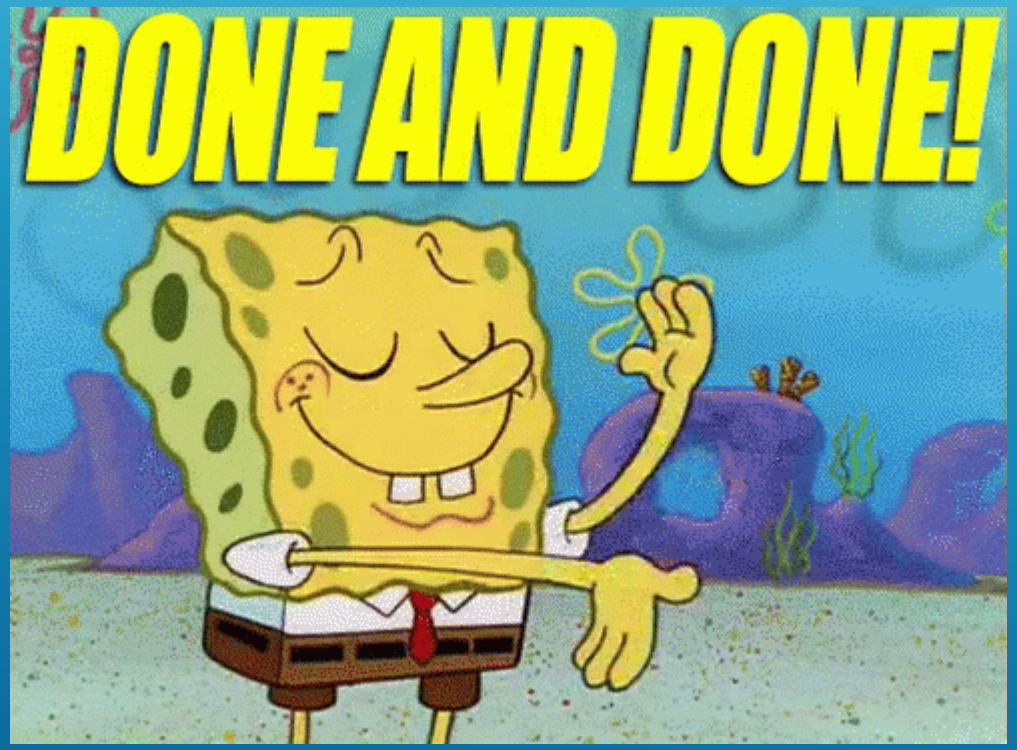
Icy roads …. 13%

Foggy conditions…3%

EDC – 5
Weather-Responsive Management Strategies

- **Traffic Management Strategies**
  - Motorist Advisory and Warning Systems (i.e. 511, dynamic Message Signs, etc)
  - Road/Lane Closures
  - Traffic Diversion
  - Vehicle Restriction

- **Maintenance Management Strategies**
  - Anti-icing and De-icing
  - Plowing and Snow Removal
  - Route Optimization/Vehicle Tracking
  - Debris Removal
  - Water Drainage Maintenance
  - Vegetation Control



EDC – 5
Weather-Responsive Management Strategies

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

- Windshield mounted cameras (20)
- Vaisala Surface Patrol HD pavement Temp/Humidity Sensors (20)

EDC – 5
Weather-Responsive Management Strategies

•**Where are we now?:**

February 2019 – project kickoff

June 2019 – equipment procure and install

October 2019 – integrate into DOT systems

•**Where do we plan to be in two (2) years?:**

Program Evaluation

Dash cams vs Rooftop cams

Larger Rollout beyond initial 20 vehicles

•**How do we plan to get there?:**

Develop into specs for new fleet vehicles

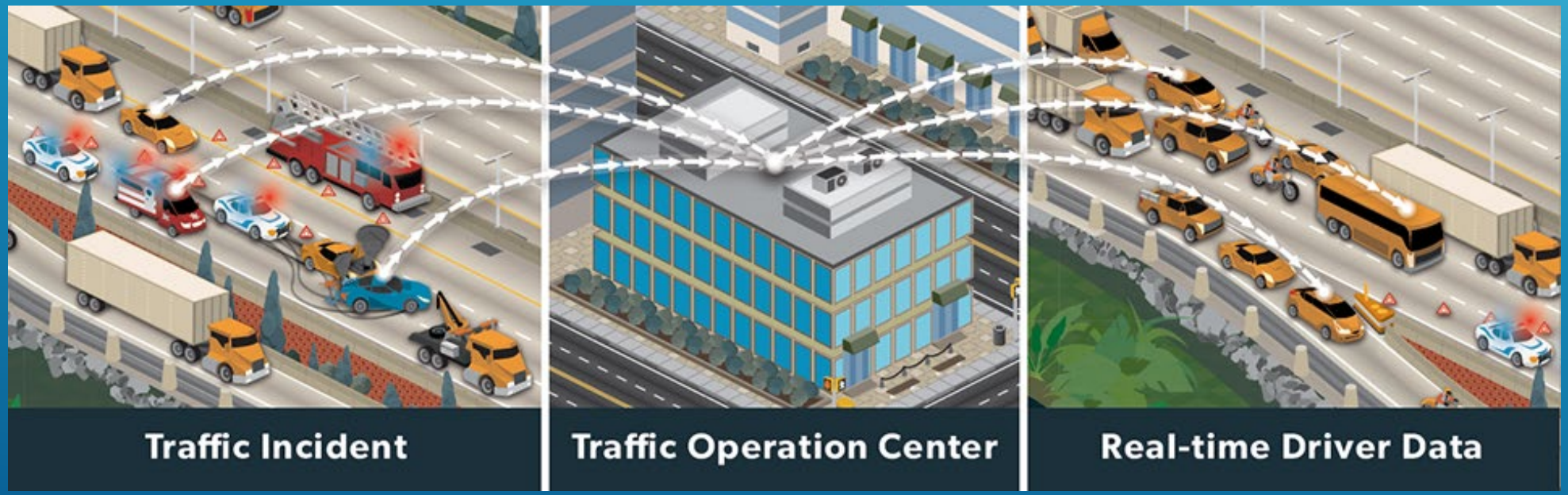
Include equipment into NJDOTs Core Software development and deployment

EDC – 5

Use of Crowdsourcing to Advance Operations

Crowdsourcing….

The practice of addressing a need or problem by enlisting the services of a large number of people via technologies….it's not just traffic applications.



EDC – 5

Use of Crowdsourcing to Advance Operations

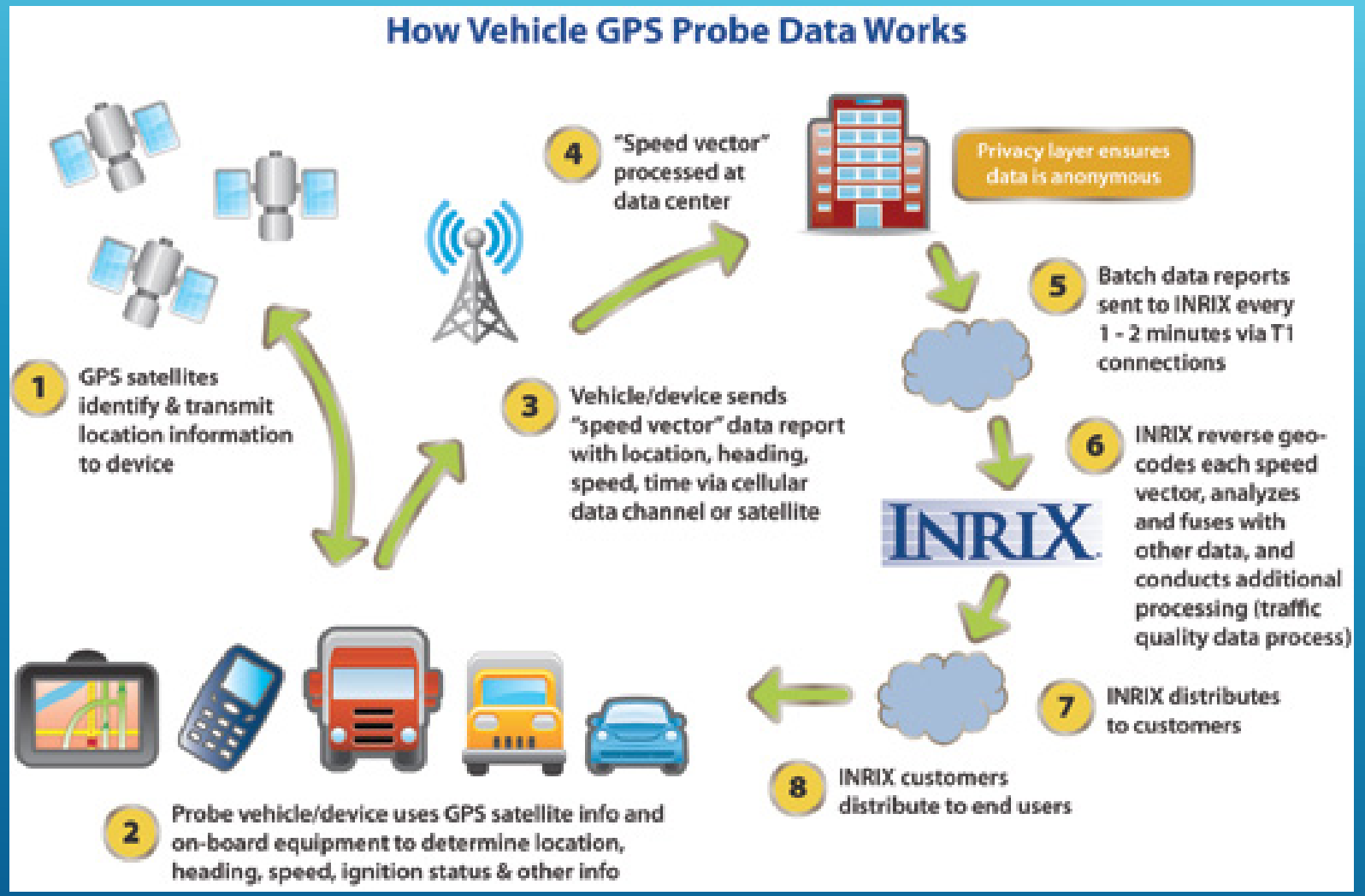
NJDOT has used Crowdsourcing data since….

2008

2014

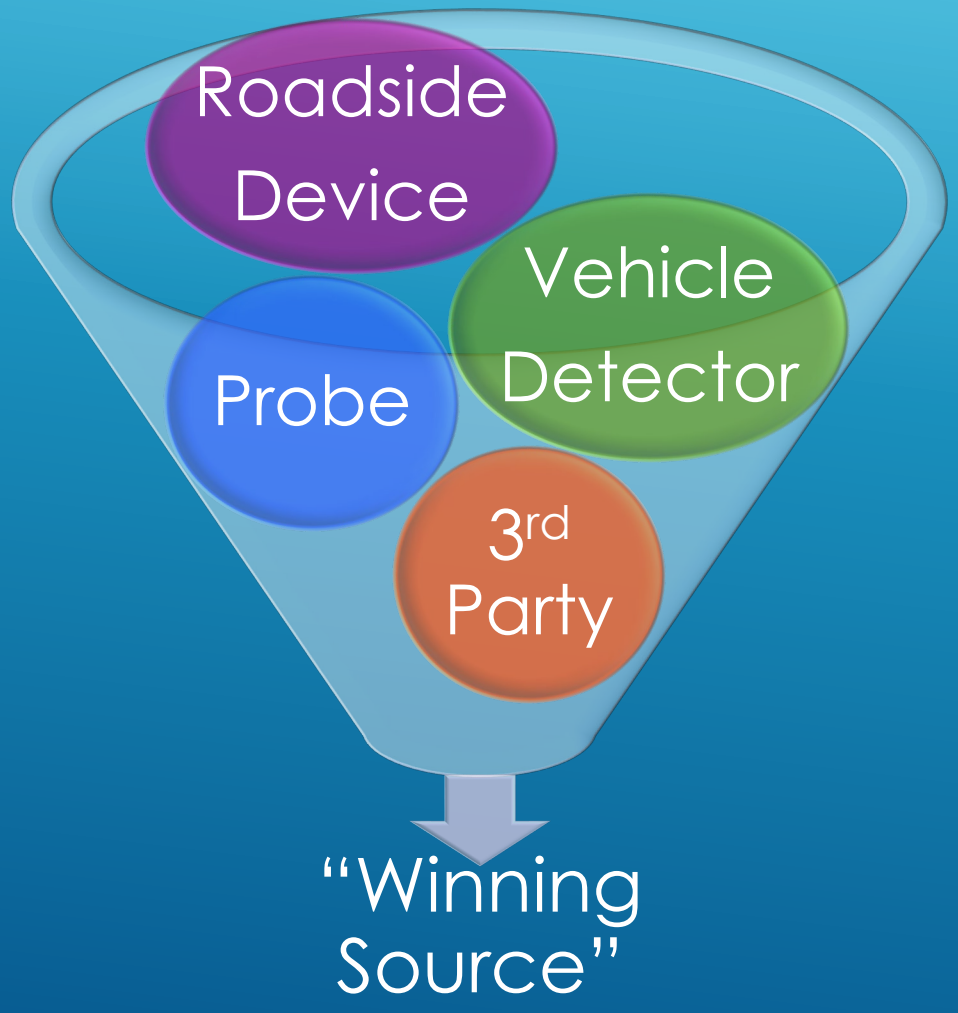
EDC – 5

Use of Crowdsourcing to Advance Operations



EDC – 5

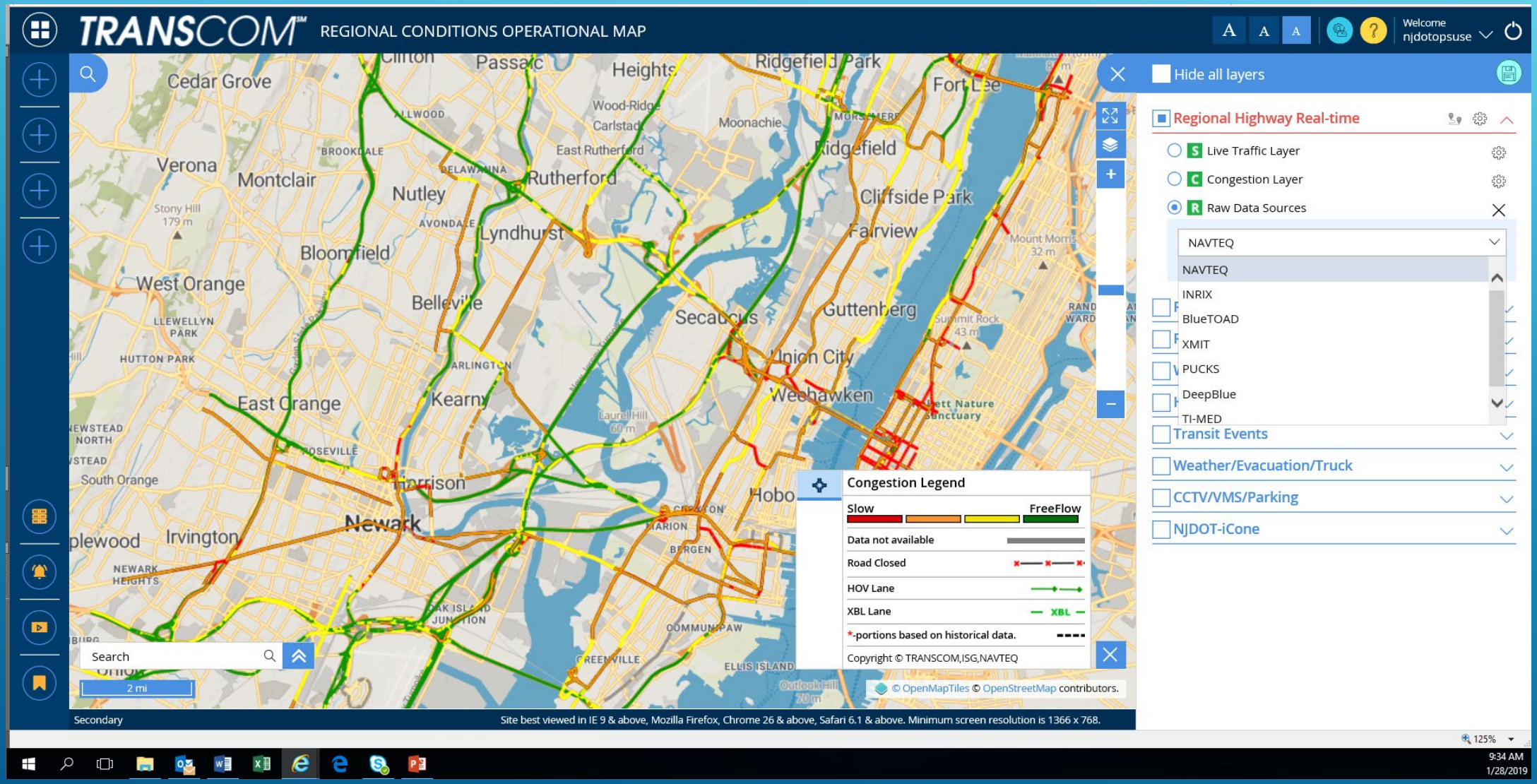
Use of Crowdsourcing to Advance Operations



- **TRANSCOM Data Fusion Engine (DFE) – Data Sources**
- **Identify all possible data sources.**
- **Integrate and map data sources.**
- **Develop "Business Rules" for data source usage.**
- **Winning Source generated by DFE**
- **Results updated every minute.**
- **Data Archived for future analysis**

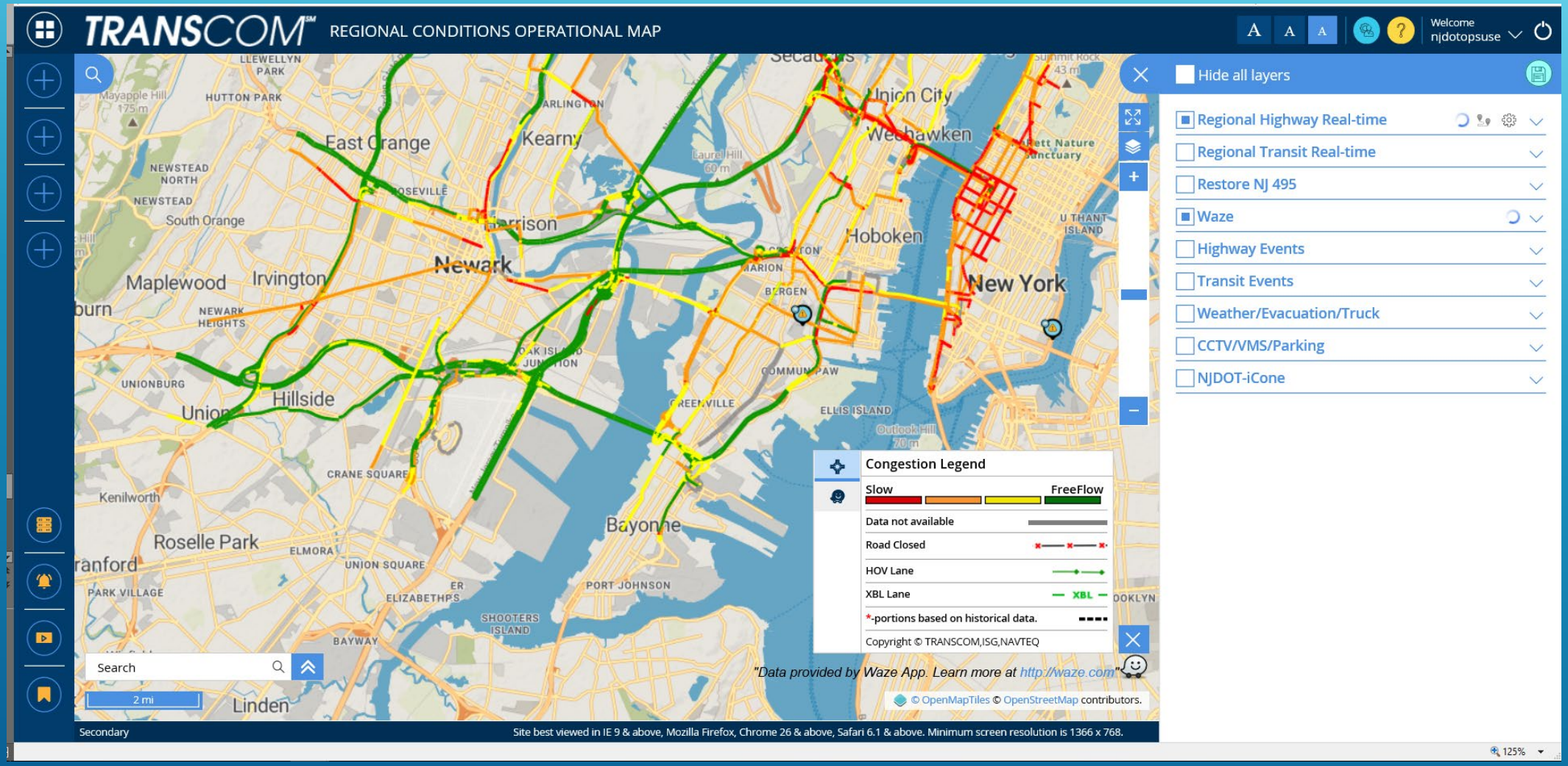
EDC – 5

Use of Crowdsourcing to Advance Operations



EDC – 5

Use of Crowdsourcing to Advance Operations



EDC – 5

Use of Crowdsourcing to Advance Operations

- **Where are we now?:**

NJDOT has institutionalized the use of Crowdsourcing to Advance Operations

- **Where do we plan to be in two (2) years?:**

Continued enhancements of our Transcom systems to improve response time and clearance