NEW JERSEY STIC
State Transportation Innovation Councils

CROWDSOURCING FOR OPERATIONS

MOBILITY & OPERATIONS

What is Crowdsourcing for Operations?

Crowdsourcing turns transportation system users into real-time sensors on system performance, providing low-cost, high-quality data on traffic operations, roadway conditions, travel patterns, and more.

Three common sources of crowdsourced data include social media platforms, third-party crowdsource providers, and specially developed mobile apps. Because crowdsourced data are gathered as people travel, agencies can capture in real time what happens between sensors, in rural regions, along arterials, and beyond jurisdictional boundaries. Crowdsourced data can often be accessed by traffic management centers (TMC) with minimal or no time lags, and it does not suffer from local sensor or system outages.

When combined with traditional data, crowdsourcing helps agencies implement proactive strategies that improve incident detection, traffic signal retiming, road weather management, traveler information, and other operational programs. Agencies can make roadways safer and more reliable, improve operational efficiency, and support cost-effective monitoring through crowdsourcing for operations.

Crowdsourcing can also be used to promote acceptance of public decisions, improve transparency and efficiency of public expenditures, and foster traveler satisfaction with transportation services.

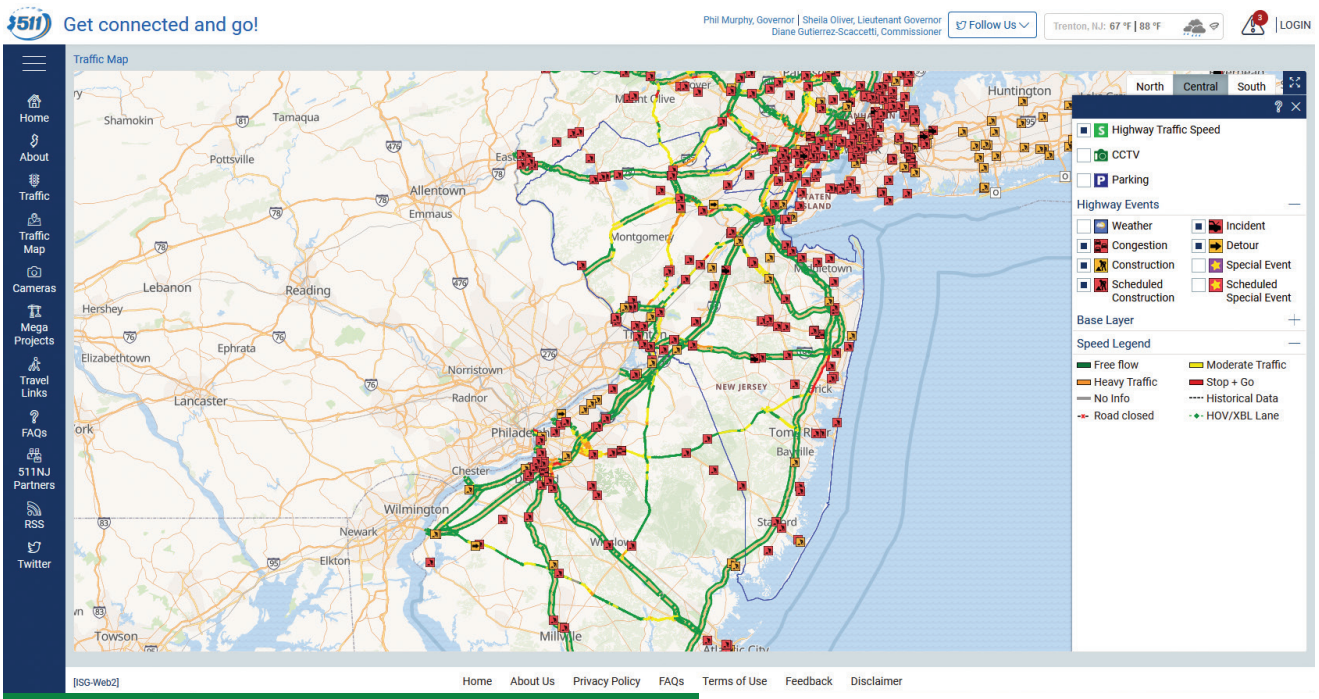
BENEFITS

Improved Operations. Crowdsourcing enables agency staff to provide better traveler information and more proactive and effective operations strategies that can lead to reduced traffic congestion.

Video screenshot of technology-equipped NJDOT safety service vehicle interfacing with crowdsourcing platforms. Photo credit: NJDOT

Increased Safety and Reliability. Crowdsourcing allows agency staff to identify problems more quickly and confidently, leading to faster and more accurate responses to traffic incidents and other congestion-causing events, which in turn reduces the likelihood of secondary crashes and improves travel reliability.

Cost Savings. Crowdsourcing is cost-effective and could reduce the need for additional roadway sensors and equipment that require installation and maintenance. In addition, crowdsourcing allows agencies to leverage and more effectively use their existing intelligent transportation systems infrastructure.



TRANSCOM system reports to the NJDOT 511 system.
Photo credit: https://www.511nj.org/trafficmap

WHAT NJ HAS DONE

New Jersey characterizes its current stage of innovation implementation of UAS as "Institutionalized." This means that the state has adopted the innovation as a standard process or practice and uses it regularly on projects.

New Jersey is a leader in this EDC-5 initiative, incorporating crowdsourcing data to advance operations since 2008 through the following activities:

Acquired two crowdsourcing data sets of probe data, INRIX and HERE (via TRANSCOM partnership).

Incorporated crowdsourcing data sets into TRANSCOM tools such as Data Fusion Engine (DFE) and Selected Priorities Applied to Evaluate Links (SPATEL), which aggregate all available data sources for operations, analysis, and performance measures.

Piloting a connected vehicle program to protect safety service patrol staff by alerting drivers in real-time of their presence at an incident site through apps such as Waze and Google.

WHAT'S NEXT?

Through EDC-5, New Jersey will continue to enhance their TRANSCOM systems to improve response time and clearance, while also evaluating the effectiveness of WAZE crowdsourcing data available via TRANSCOM OpenReach system to support the Traffic Operations Center and incident detection.

Probe data has proven invaluable in monitoring real-time traffic conditions along all NJ roadways and provides NJDOT with the capability to push travel times to regional dynamic messaging signs. NJDOT Planning also uses the RITIS platform to evaluate system performance per MAP-21 standards.

RESOURCES

FHWA EDC-5 Crowdsourcing for Operations
https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/crowdsourcing.cfm

NJDOT Crowdsourcing Innovative Initiatives
https://www.njdottechtransfer.net/crowdsourcing/

NJDOT Crowdsourcing Demonstration Video
https://youtu.be/nCi5R3J5hUI

Making Work Zones Smarter-Data Driven Decision Making
https://www.njdottechtransfer.net/making-work-zones-smarter/