

# PARTNERSHIPS TRANSFORMING COMMUNICATION AND TSMO AT THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By Port Authority of New York and New Jersey (PANYNJ)

## IN THIS CASE STUDY YOU WILL LEARN:

1. How a multi-modal agency with some of the busiest transportation facilities in the world approaches Communication and TSMO.
2. How PANYNJ developed its strategies and partnerships to deploy effective TSMO.
3. Communicating TSMO-related data and information among agencies, travelers and private companies is key to informed decision-making for all.

## BACKGROUND

The Port Authority of New York and New Jersey (PANYNJ) is a unique multi-modal agency that includes some of the busiest transportation facilities in the world. The bridges, tunnels, airports, seaports, bus stations and the Port Authority Trans Hudson (PATH) Rail Transit are strategically important transportation assets. The continued prosperity of the region is largely dependent upon handling a steady increase in demand for vehicular, passenger and freight transportation. The following needs prompted PANYNJ to develop partnerships that are transforming its communication and transportation systems management and operations (TSMO):

- **Customer Service** – PANYNJ has a strong commitment to customer service recognizing the impact of its facilities both on the quality of peoples' lives and the role of transportation in the regional economy.
- **Delivering the 10-year \$32B Capital Plan** – While it is not possible to completely rebuild aging infrastructure without impact to travel, it is imperative to provide tools to mitigate impacts including communicating with travelers and coordinating across agencies.
- **Situational Awareness** – PANYNJ traffic management and leadership need to know the conditions of both their own facilities and the many neighboring and peer agencies. In this dense region, small disturbances quickly spread to other jurisdictions.
- **Informed Decision-Making** – Having real-time situational awareness is one component of Informed Decision-Making which also includes being able to analyze historical and forecasted data that is useful for decisions. Such analysis is useful both for real-time response and for evaluating the impacts of proposed construction lane closure hours and detours.

## TSMO PLANNING, STRATEGIES & DEPLOYMENT

When developing effective TSMO strategies to meet the needs above, PANYNJ also considered the following context:

- **Rapid Technology Change** – Technologies available to agencies, used by customers, and used by third parties are all developing quickly and thus shifting the landscape of options and customer expectations.
- **Funding** – As a non-taxing entity, PANYNJ is especially constrained. State of good repair is prioritized so business case and performance management are important to justify TSMO spending.
- **Mobile & Apps** – Commercial app use is high within the Port District (a 25-mile radius of the Statue of Liberty.) While agency apps can have a role, trends are toward integrated platforms.
- **Cross-Jurisdictional** – Travelers expect a seamless experience across not only the roadways managed by various cities, states and authorities, but also across the various public and private transit systems.

These needs and context led the PANYNJ to pursue strategies with the following attributes:

- **Partnerships** – Both deepening relationships with traditional transportation peers and reaching out to new sectors is necessary to increase capabilities.
- **Agile Development** – Adapting the software development approach of collaborative iterative development is needed by cross-functional teams for TSMO.
- **Programmatic** – This is necessary to moving beyond ad-hoc efforts to a planned, funded, and staffed approach aligned with agency needs and with performance management.



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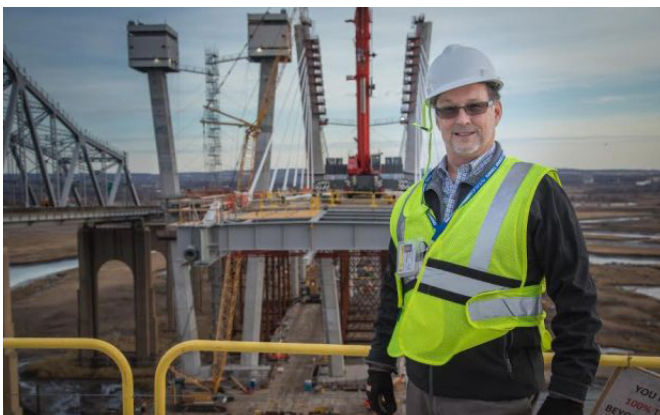
- **Crowdsource** – When properly analyzed and understood, there is value in the insights of users and their devices serving as probes.
- **Microservice** – There needs to be collaboration on multiple loosely coupled services that automate data transfer, processing, and analysis among various platforms.
- **Force Multiplier** – There can be increased impact beyond agency staff by engaging with others, such as the Waze Editors, who are also committed to transportation and bring different capabilities and perspectives.

### COMMUNICATIONS PLANNING AND EXECUTION

PANYNJ has broadened the traditional understanding of “communications” at a transportation management center to extend well beyond speaking with peer agencies and issuing traveler information. The needs that it faces, combined with the new possibilities under the current context, enable the development of a communications-based approach with attributes in which multi-way data and information communications is an integral part of day-to-day operations as well as long-term planning and performance management. These needs, context and attributes overlap as the foundation for the tools and services that the PANYNJ is implementing. Highlights of the key confluences are included in the following three areas that the tools and services are grouped within:

**AWARENESS** – Knowing is the foundation for action. This area includes collecting various data and processing it into useful information. As described in the following section, highlighted tools and services include sensors everywhere, travel time and analysis. Awareness is especially dependent upon the attributes of Partnerships and Agile Development for meeting the needs of Situational Awareness and Informed Decision-Making.

**ROUTING** – Recognizing the context of customers using Mobile and Apps, Routing meets Customer Needs and helps to facilitate the Capital Plan by Partnering and using the Force Multiplier to increase the real-time accuracy of roadways and points of interest within popular apps that are used by PANYNJ customers.



**MESSAGING** – Recognizing the need for providing descriptive information to travelers as well as routing, the Messaging area has expanded the provision of information on variable message signs and agency operated traveler information platforms to also include targeted messages through private apps.

### OUTCOME, BENEFIT AND LEARNINGS

The PANYNJ's Programmatic approach, which includes dedicated staff with specialized expertise supported by PANYNJ executive leadership, has been successful in addressing many needs. The Programmatic approach has also developed an agile system that will continue to adapt to the quickly-changing technical landscape. Highlights of current tools and services are:

- **Awareness: Travel Time** – PANYNJ uses a dashboard of real-time trips based on data from multiple sources including toll tags, sensors and probes.
- **Awareness: Analysis and Reporting** – Both historical and real-time data is analyzed for a variety of needs included tailored daily reports for major construction, such as Capital Plan bridge repair. PANYNJ recently analyzed the reliability of Waze travel time data for operations finding mostly similar results to toll tags, but limitations in complex geometries such as stacked roadways on bridges.
- **Awareness: Sensors Everywhere** – App-based probes provide virtual sensors well beyond the sensors that are feasible for agencies to own. This is especially important for gaps such as detour routes to local roads and for validating other data.
- **Routing: Construction** – For closures, it is important that the exact closure locations and times are in navigation platforms. For the LaGuardia Airport Redevelopment, PANYNJ reflected when a temporary ramp was open in real-time on Waze encouraging the use of the ramp as intended to relieve on-airport congestion.
- **Routing: Roadways Up to Date (Waze Map Editor)** – Through the Waze Connected Citizen1 program, the PANYNJ edits the map and collaborates on aligning guide sign wording to increase accuracy and clarity.
- **Routing: Safety** – Using agency crash data to pinpoint needs, PANYNJ is partnering with Waze to pilot potential safety improvements and monitor impacts. For example, modifying when/where audible direction announcements are made in areas with closely spaced ramps and heavy traffic that complicates lane changes.
- **Routing: Points of Interest** – PANYNJ has worked with several navigation platforms such as for adding commonly used building numbers to the street addresses at airports and shipping ports.
- **Routing: Beacons** – PANYNJ recently installed beacons in a tunnel to improve the ability of multiple navigation apps to accurately know vehicle location where GPS signals are not available.
- **Messaging: Targeted Push Notifications** – PANYNJ requested notification about an airport ramp opening that led to messaging 140,000 users targeted by their travel patterns (at no cost to PANYNJ).



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- **Messaging: Hazard Alerts** – Through the hazard feature in Waze, PANYNJ can request information on major items to be sent to all users in a specific area. One recent alert received over 1,000 thumbs up.

### WHAT WAS LEARNED

The PANYNJ is keeping up with its customers, developing partnerships to expand communications functions both to reach travelers through navigation platforms and to gather information useful for traffic management. We hope that sharing this information inspires and supports other agencies for innovation – using their own needs within current contexts for developing attributes of strategies and then implementing the resulting useful tools and services. Specific lessons learned are:

### BE WHERE THE CUSTOMERS ARE ALREADY LOOKING:

For example, combining PANYNJ and Waze data revealed that more than one third of LaGuardia Airport customers are also Waze users, almost a quarter of all Port District drivers use the app, and usage often spikes above three quarters of travelers who are crossing to and from Staten Island. Engaging with multiple app-based navigation platforms to reach customers is a vital component and an effective communication program.

### MAKE PARTNERING A CORE PART OF TSMO:

Developing supporting partnerships also opens the door to valuable data for situational awareness, analysis, performance management, informed decision-making and even safety applications. Investing time in these partnerships is essential.

### THINK BROADLY ABOUT COMMUNICATION IN TSMO

Transferring data and information among a network of peer agencies, travelers, and private companies is the basis for informed decision-making both by customers and by the agencies that are managing traffic to support regional mobility.



### FURTHER INFORMATION

Port Authority website: [www.panynj.org](http://www.panynj.org)

Part Authority Presentation to the 2017 Waze Cities of Tomorrow Summit:  
[www.youtube.com/watch?v=aseUuQxg\\_vA&feature=youtu.be&t=36m47s](http://www.youtube.com/watch?v=aseUuQxg_vA&feature=youtu.be&t=36m47s)

<sup>1</sup> [www.waze.com/ccp/casestudies/Updating\\_the\\_base\\_maps\\_at\\_laguardia\\_airport](http://www.waze.com/ccp/casestudies/Updating_the_base_maps_at_laguardia_airport)