Company Name: New Jersey Department of Transportation
Project Title: Statewide Advanced Traffic Management System (ATMS) Implementation: Enhancing Efficiency and Regional Integration

Project Description

On April 29, 2025, the New Jersey Department of Transportation (NJDOT), in collaboration with HNTB Corporation (HNTB) and Parsons Corporation (Parsons), successfully launched its groundbreaking statewide Advanced Traffic Management System (ATMS) that transforms how the Department will use Intelligent Transportation Systems (ITS) to efficiently operate and manage the state highway system. This initiative exemplifies innovation, policy advancement, and leadership in the ITS community, and delivers a scalable, secure, and integrated platform that enhances mobility, safety, and operational efficiency across New Jersey's highway network.

The deployment of Parsons cutting-edge Intelligent NETworks (iNET®) smart mobility solution, a highly-configurable, commercial-off-the-shelf (COTS) product, is the first integrated statewide ATMS for NJDOT, which has historically relied on a variety of legacy and vendor-based software packages, some of which required extensive manual input of data. With iNET®, NJDOT will benefit from a com-prehensive suite of features designed to enhance traffic management capabilities, including consolidated control of five software platforms, automated incident detection, event management, decision support systems which automatically generate recommended response plans, and unprecedented reporting fea-tures for NJDOT.

Innovation in ITS Product and Service Deployment
The ATMS introduces a single-source platform for the administration, installation, and management of traffic operations across the state highway system. This centralized approach replaces fragmented legacy systems, providing users with streamlined workflows and establishing real-time coordination. The sys-tem is deployed in a Microsoft Azure cloud environment, approved by both the New Jersey Office of Information Technology and the New Jersey Office of Homeland Security, verifying cybersecurity compliance. HNTB, in conjunction with NJDOT, developed the system requirements for the ATMS and managed the design, deployment, testing, acceptance, and operations and maintenance of the initial sys-tem roll-out.

The ATMS uses an automatic incident detection (AID) module, which leverages INRIX traffic data to identify non-recurring congestion on roadways caused by incidents. This real-time detection capability significantly reduces response times and enhances roadway safety by alerting NJDOT personnel to incidents in addition to the traditional approach of operators scanning the roadways using CCTV cameras. Complementing this is a decision support system that automatically recommends dynamic message sign (DMS) messages, closed circuit television (CCTV) camera views, and response strategies, allowing operators to act swiftly and effectively. The system also provides a new virtual video wall which is available to operators in their workstations, allowing for staff to operate and monitor more than 300 DMS and nearly 600 CCTV cameras statewide, as well as live drone video, directly from their workstations.

Advancing ITS Policy and Project Implementation

The ATMS supports NJDOT's broader policy goals by integrating with critical systems, such as the Lane Closure Management System (LCMS) and the TRANSCOM Transportation Regional Event Exchange (T-REX) and Data Fusion Engine (DFE) platforms. The ATMS is integrated with the DFE to obtain the INRIX data. In addition, approved lane closures from the LCMS are integrated with the ATMS for use by traffic operators as decision support. These lane closures, as well as verified incidents, are automati-cally routed to the T-REX system within seconds and made available per policy to the traveling public through New Jersey's 511NJ.org webpage, the NJ 511 telephony system, and NJDOT's first in the nation integration with Siri, Alexa, and Google Home voice assistant platforms, providing synchronization of traveler information across a myriad of user platforms within seconds of an event. When the ATMS went live on April 29, there were already more than 350 active events captured by the T-REX platform.
The system also manages hard shoulder running lanes and lane use control signals in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) on NJDOT's key Route 1 and 29 signalized arterial corridors, supporting dynamic traffic control strategies that improve rider experience and help reduce congestion. By using technology to improve mobility, systems such as NJDOT's hard shoulder running programs, designed by HNTB, and integrated by Parsons, represent a forward-thinking approach to maximizing existing infrastructure.

Fostering Advanced ITS Efficiencies

The new ATMS dramatically improves operational efficiencies and capabilities. For example, AMBER Alert messages previously managed using several disconnected platforms took more than 15 minutes to fully document. With iNET®, these messages can now be shared simultaneously across all operations platforms in less than a minute, helping to rapidly accelerate crucial messaging statewide. Field personnel can now enter incident data directly from the field using laptops, enhancing data accuracy and response coordination. NJDOT's Central Dispatch Unit radio dispatch calls are now integrated with iNET®, eliminating duplicate logging of incidents and providing a complete, searchable record of communications. These robust reporting features support internal and external performance monitoring and can be used in responding to New Jersey Open Public Records Act (OPRA) requests.

Leadership in the ITS Community

This project positions NJDOT as a national leader in innovative ITS integration and deployment. The new ATMS not only meets current operational needs but also establishes a scalable foundation for future enhancements. For the 2026 FIFA World Cup, Phase 2 will introduce artificial intelligence to support operations and integrate with LiDAR, roadway weather information, wrong way driving, video analyt-ics, automatic vehicle location (AVL) systems, NJDOT's official Twitter account, and introduce mobile browser capability for all users to enhance situational awareness. Post-FIFA, the integration of transpor-tation asset management systems and diversion routes into the Decision Support System are anticipated.

Through visionary leadership, technical excellence, and strategic collaboration, NJDOT, HNTB, and Parsons have delivered a transformative ITS solution that sets a new standard for systemwide traffic management. This rollout also provides a roadmap for transportation agencies nationwide to bring inte-grated ATMS to their jurisdictions, which will provide improvements to highway infrastructure, in-crease passenger safety, reduce roadway congestion, and streamline crucial maintenance processes for agencies.