

I-80 Sinkhole Mitigation



By New Jersey DOT

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Overview

When a series of sinkholes opened beneath Interstate 80 in Wharton, New Jersey, beginning in December 2024, the New Jersey Department of Transportation (NJDOT) mounted a rapid, technology-driven emergency response to keep the region moving. NJDOT activated seven detour plans, deployed intelligent transportation systems for real-time monitoring, and adjusted signal timing along overwhelmed alternate corridors. Working with the state police, the New Jersey Institute of Technology (NJIT), and affected municipalities, the agency delivered targeted interventions that cut peak-hour delays by more than 50% compared with the week immediately following the eastbound closure. Coordinated traveler information—including nearly 416,000 alerts pushed to commercial carriers through Drivewyze—helped drivers avoid the worst congestion while crews stabilized the roadway. This case study shows how NJDOT balanced urgent, short-term action with long-term goals of community resilience, freight mobility, and durable infrastructure repair.

In this case study you will learn:

1. How NJDOT coordinated emergency traffic management across state, county, and municipal agencies to respond to a multi-sinkhole closure of a major interstate
2. How intelligent transportation systems, real-time monitoring, and adaptive signal timing reduced peak-hour delays by more than 50% along detour corridors
3. Why proactive, multi-channel communication with commercial carriers, local officials, and the traveling public was essential to managing regional disruption

BACKGROUND

A large 40 x 40-foot sinkhole suddenly opened on December 26, 2024, beneath the eastbound lanes of Interstate 80 near Exit 34 in Wharton, Morris County, New Jersey. The collapse, traced to an abandoned underground mineshaft, forced immediate lane closures and triggered a geotechnical investigation. On February 10, 2025, a second depression formed roughly 75 feet from the original site and quickly collapsed into an 11 x 11-foot sinkhole. This development led officials to shut down the entire eastbound direction of I-80 and implement a formal detour using the eastbound ramps at Interchange 34 and nearby arterial roads, while westbound traffic remained open. The ongoing investigation revealed a substantial underground void extending beneath the eastbound lanes, prompting Governor Phil Murphy to declare a State of Emergency in Morris County on March 8, 2025. Then, on March 19, 2025, a third sinkhole opened in the median adjacent to the construction zone, forcing the full closure of the westbound lanes near Exit 34B and expanding the scope of the emergency response.

The traffic impacts from the I-80 sinkhole closures were expected to be severe and regionally disruptive, given that Average Daily Traffic near Wharton exceeds 70,000 vehicles, more than 10% of which are trucks. Immediately after the initial collapse in December 2024, the New Jersey Department of Transportation (NJDOT) closed the affected lanes and activated detour routes to redirect traffic. Travel times for vehicles using the I-80 eastbound detour increased sixfold compared with historical averages. Primary detour corridors experienced travel time increases of 40%–60% as diverted traffic overwhelmed their capacity. Congestion spilled onto secondary roads, and communities such as Dover, Rockaway, Mine Hill, and Roxbury Township saw significant gridlock, with local police reporting backups stretching more than two miles on some days. Delays persisted even on weekends, with travel times along I-80, US-46, and NJ-15 doubling as the regional network absorbed the prolonged closure and rerouted traffic volumes.

TSMO PLANNING, STRATEGIES, AND DEPLOYMENT

When the sinkhole appeared, NJDOT had to respond immediately to protect the public, maintain mobility, and safeguard the long-term integrity of the interstate. At the same time, the agency's emergency actions needed to support broader regional goals that would continue benefiting travelers and communities long after the roadway reopened. NJDOT declared a state of emergency and deployed repair crews working around the clock to stabilize the site. Working closely with the state police, the department implemented a comprehensive traffic management strategy to mitigate the disruption caused by the I-80 closure.

The core approach was to divert eastbound I-80 traffic onto Routes 46, 10, and I-287 to bypass the affected area and reconnect with I-80 in both directions. Seven detour plans were activated immediately. The New Jersey All Hazards Incident Management Team (NJ-AHIMT) was mobilized to oversee strategic diversion routes, manage roving operations, and manually operate 30 signalized intersections to maintain flow along detour and alternate corridors. The NJDOT Office of Emergency Management, Safety and Response (OEMSR) Management Team staffed the NJDOT Mobile Command Post, while Safety Service Patrol units supported field operations as needed.

To further reduce congestion, NJDOT adjusted traffic signal timing and partnered with the Intelligent Transportation Systems Resource Center at NJIT to establish continuous, real-time monitoring of travel times and traffic volumes using smart sensors placed at key locations. Weekly analytical reports identified corridors experiencing significant increases in delay, enabling NJDOT to proactively deploy targeted interventions. These combined efforts produced a substantial improvement in peak-hour conditions, cutting delays by more than 50% compared with the week immediately following the eastbound closure.

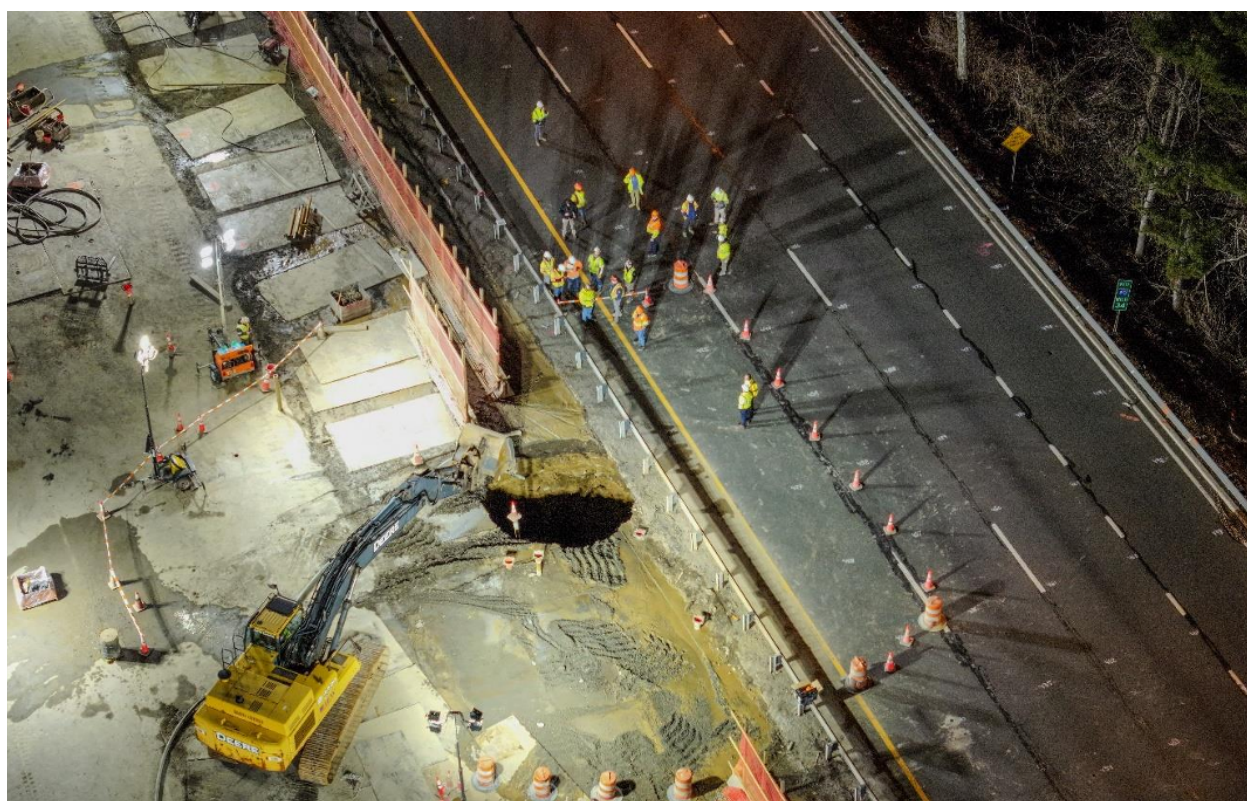
COMMUNICATIONS PLANNING AND EXECUTION

Effective coordination among NJDOT units—including Transportation Mobility, Traffic Engineering, Construction Project Management, and the Communications Office—as well as the state and local police departments, and surrounding municipalities has been essential to managing the crisis. While commuters faced major delays, residential neighborhoods along Routes 15, 46, and 10 were inundated with non-local traffic. Congested local roads also affected emergency response in the Wharton–Dover corridor, where ambulances and fire services struggled to navigate gridlocked alternate routes during peak periods. To support these communities, NJDOT convened weekly ad hoc meetings with mayors from the affected towns, the Morris County Office of Emergency Management, and local police departments. These meetings focused on evolving traffic patterns, queue lengths, and construction progress, enabling rapid adjustments as conditions changed.

NJDOT also deployed portable message boards, issued statewide broadcast alerts, and pushed notifications through commercial trucking systems to warn drivers of closures and alternate routes. The Drivewyze platform was activated immediately, delivering alerts at 18 locations and transmitting nearly 416,000 notifications to commercial carriers. Public updates were also shared through 511nj.org and NJDOT’s social media channels, ensuring real-time communication with the traveling public.

OUTCOMES, BENEFITS, AND LEARNINGS

The social and economic sustainability of the I-80 sinkhole response ultimately depended on NJDOT’s ability to balance urgent, short-term action with long-term objectives such as community resilience, responsible stewardship of public funds, and the preservation of a safe, reliable transportation corridor. This meant minimizing disruptions to daily life by maintaining access to jobs, schools, and emergency services,



while also reducing noise, congestion, and cut-through traffic along detour routes. NJDOT addressed these challenges by deploying intelligent transportation systems for real-time monitoring and adaptive signal control, issuing timely public information through mobile apps, social media, and dynamic message signs, and coordinating closely with state and local law enforcement and the Morris County Office of Emergency Management. Even with these measures, some impacts—such as delays for emergency responders and increased traffic on local roads—could not be fully eliminated.

A road user cost (RUC) analysis conducted using FHWA guidelines quantified how the reconstruction affected daily travelers through delays, detours, increased fuel consumption, and heightened safety risks associated with work zones. The analysis found that RUC increased by an average of \$8,652,570 per month, with approximately 333,771 person-hours lost each month during the reconstruction period.

From an economic standpoint, sustainability required both protecting and restoring I-80's role as a critical freight and commuter artery. NJDOT had to stabilize the roadway quickly while also committing to deeper geotechnical testing and long-lasting subsurface repairs. This shift from temporary fixes to durable, structural solutions was essential to preventing future failures and reducing long-term maintenance costs. Using state highways as detour routes helped keep freight moving, supported local businesses, and preserved economic activity across the region.

Ultimately, the sustainability of the project will be measured not only by how quickly the interstate reopened, but by the durability of the repairs, their contribution to regional economic vitality, and the extent to which they strengthen nearby communities. The lessons learned will also help the state and NJDOT prepare for and withstand major disruptions elsewhere in New Jersey.

