Intelligent Roadways

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Intelligent Services

Transportation Infrastructure Revenue Subcommittee

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NMDOT ITS Operations

November 3, 2025

NMDOT

NMDOT-ITS

Intelligent Roadways

Intelligent roadways are roads that integrate advanced technologies like sensors, communication systems, and data analytics to improve traffic management, safety, and efficiency.

These systems can monitor roadway and driving conditions, evaluate traffic flow, detect the presence of incidents and crashes, . Benefits include reduced congestion and accidents, optimized capacity, and improved emergency response times.

Key components and technologies

- **Sensors and Cameras:** Infrastructure placed along the roadside to collect data on traffic patterns, driving and road conditions.
- **Communication Systems:** Enable the collection and sharing of data between the key components, the infrastructure, vehicles, and users.
- **Data Analytics:** Software and AI that process collected data to provide real-time insights and predictions.
- **People and Relationships:** Being able to leverage actionable intelligence in response to the needs of all transportation stakeholders.

Intelligent Services

Roadway and Traffic Surveillance – obtaining information in real time on the roadway, traffic and driving conditions

Traffic Information Dissemination – distributing and sharing collected information to affected transportation stakeholders

Incident and Event Management – collecting and sharing of information and resources in an effort for quicker responses, safer clearances and lessening impacts

Work Zone Management – utilization of data and information to improve work zone safety and mitigate the impacts that transportation maintenance and construction activities have on the surface transportation infrastructure and the motoring public

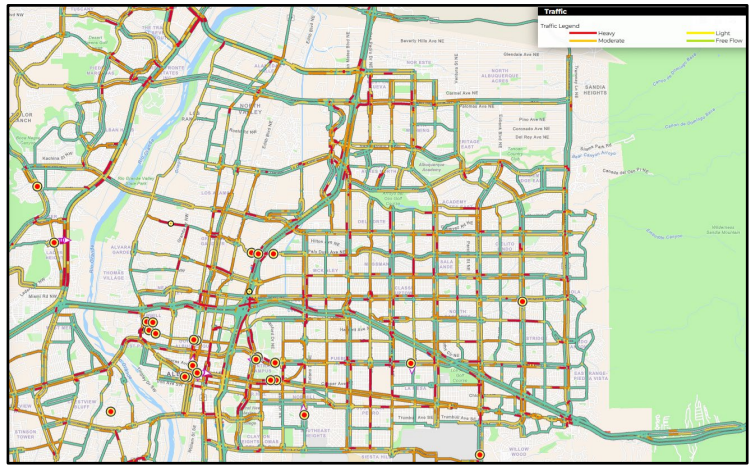
Commercial Vehicle Operations - utilization of data and information to improve fleet management and operations

Roadway and Traffic Surveillance

Road Weather Information Systems

Closed Circuit Television Systems

Traffic Sensor Systems



Third Party Probe Data

Wrong Way Detection Systems

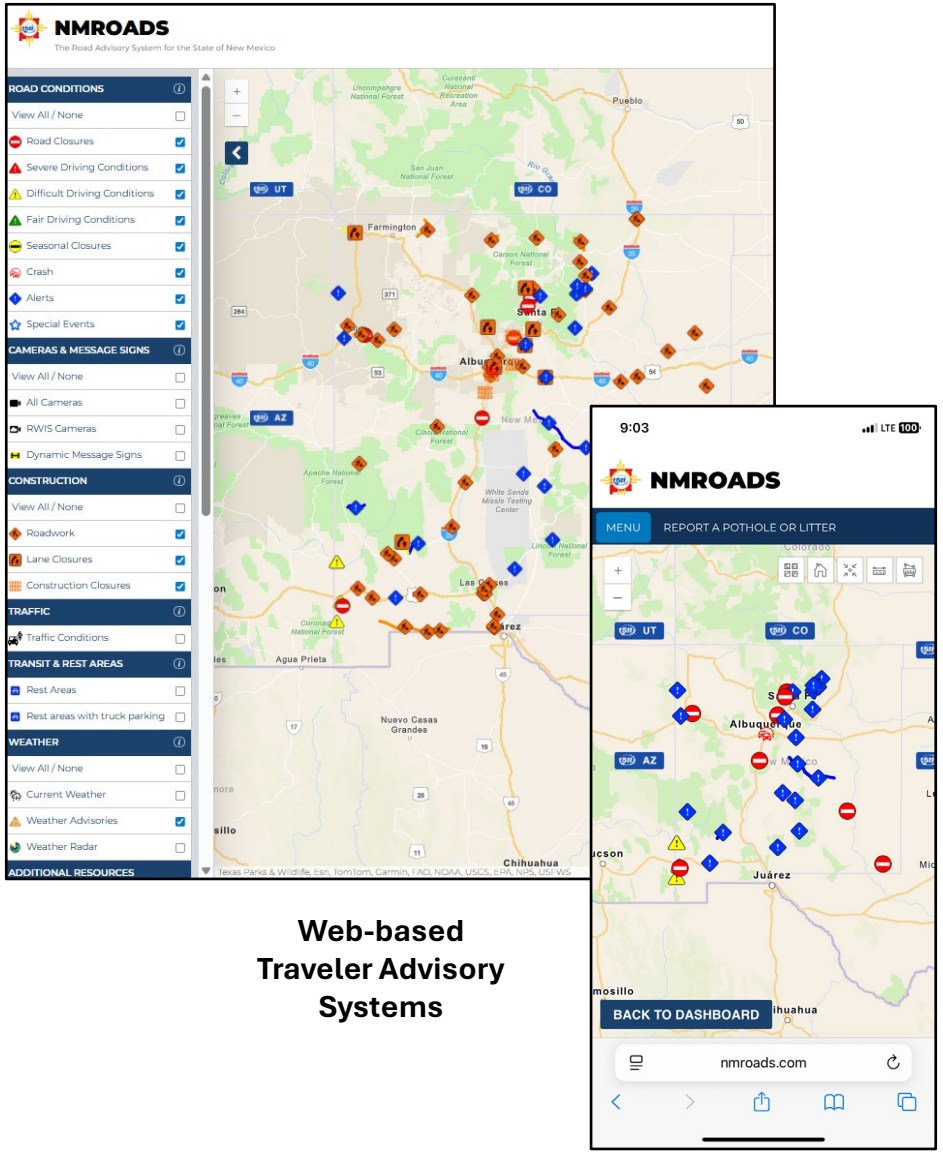
Game Detection Systems

Information Dissemination

Transportation Management Centers

Dynamic Message Signs

Truck Parking Availability Signs

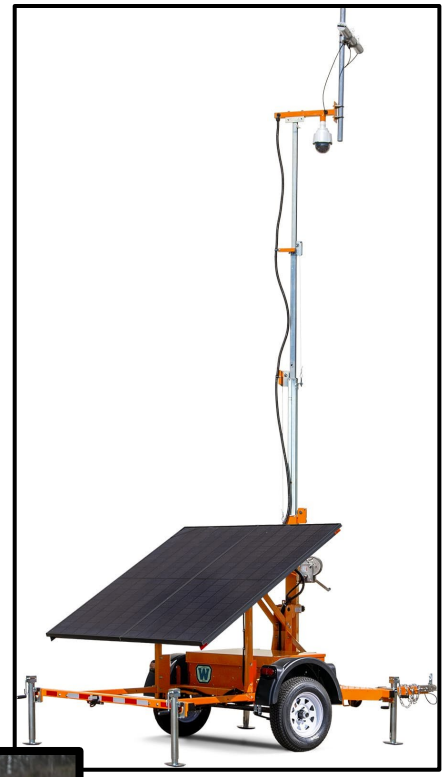


Web-based Traveler Advisory Systems

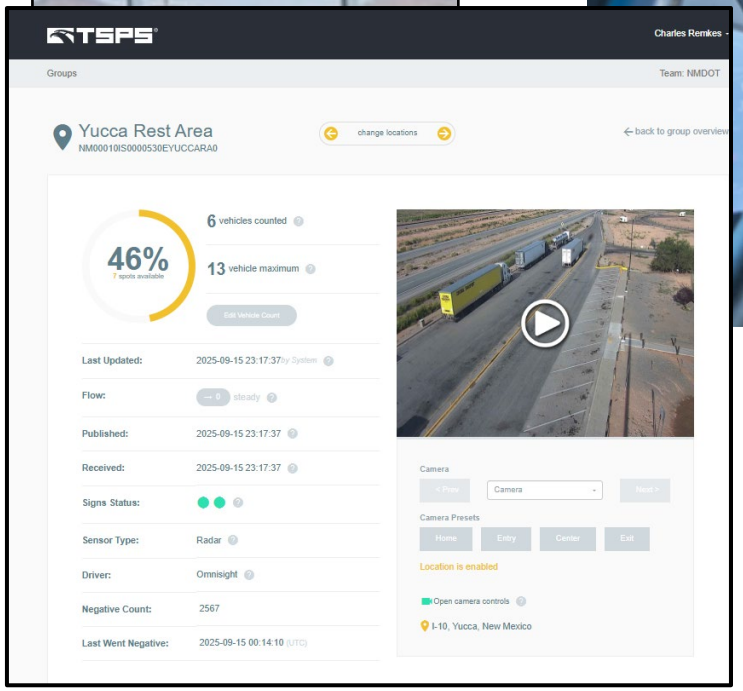
Driver Alert Signage Systems

Incident and Event Management

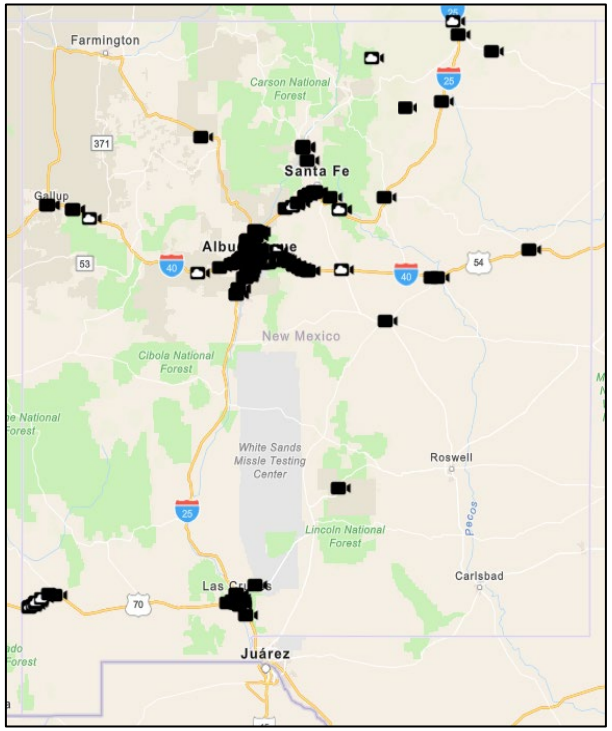
Work Zone Management



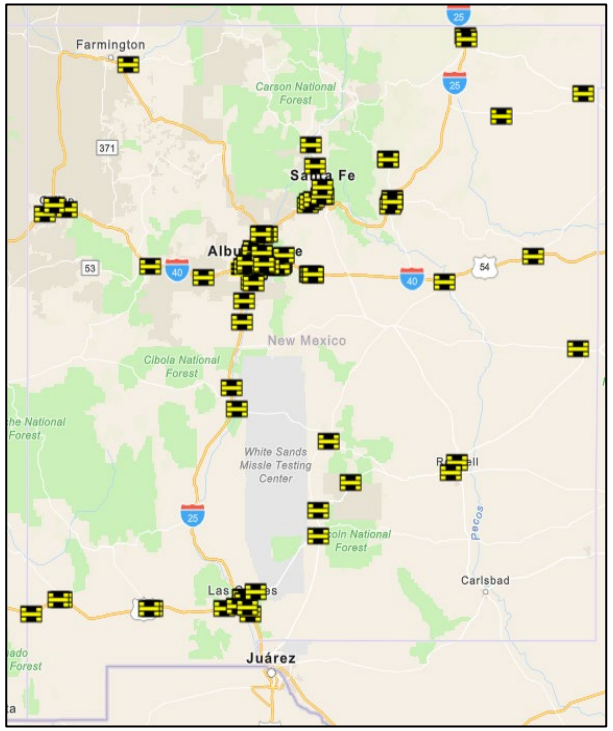
Commercial Vehicle Operations



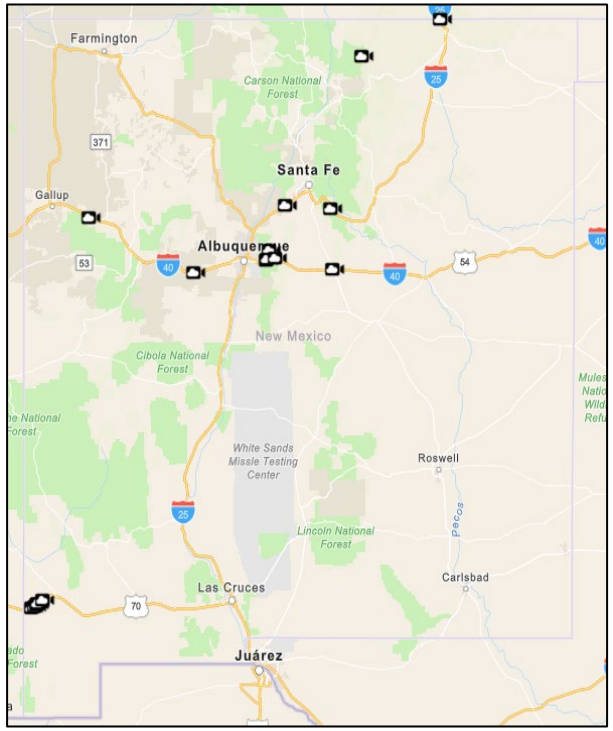
Inventory Count



CCTV Installations - 182

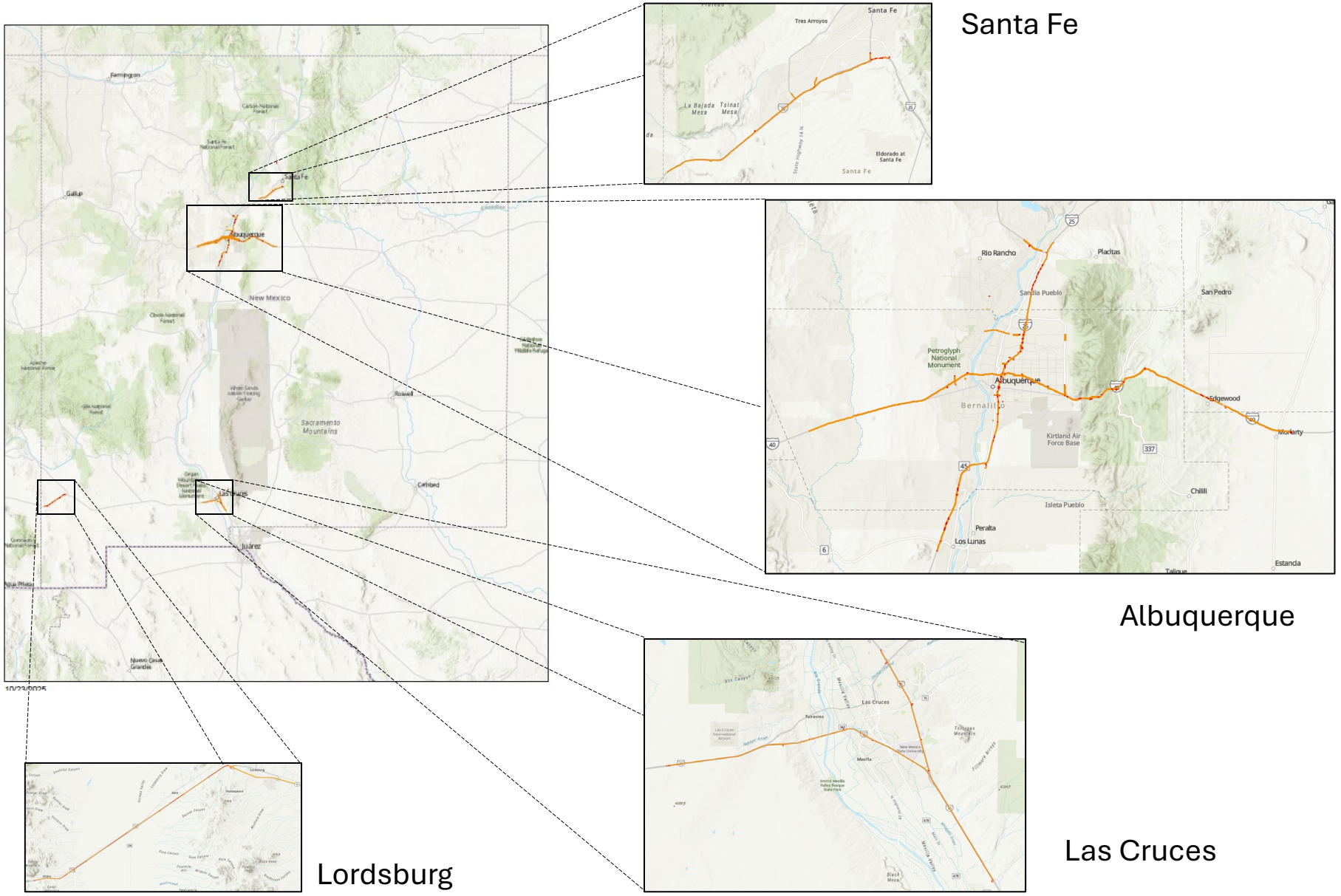


Dynamic Message Signs (DMS) Installations - 132



Road Weather Installation Systems (RWIS) Installations - 25

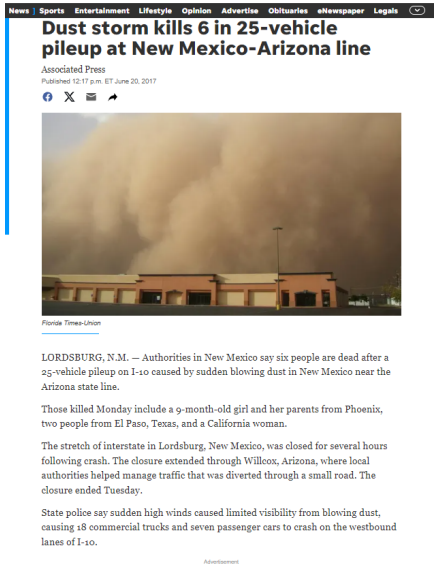
Communications Coverage



FOCUSED SERVICES

Integrating technologies and leveraging core capabilities for enhanced and expanded services

Dust Storm Detection Systems



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Dust storm kills 6 in 25-vehicle pileup at New Mexico-Arizona line

Associated Press

Published 12:17 p.m. ET June 20, 2017

Florida Times-Union

LORDSBURG, N.M. — Authorities in New Mexico say six people are dead after a 25-vehicle pileup on I-10 caused by sudden blowing dust in New Mexico near the Arizona state line.

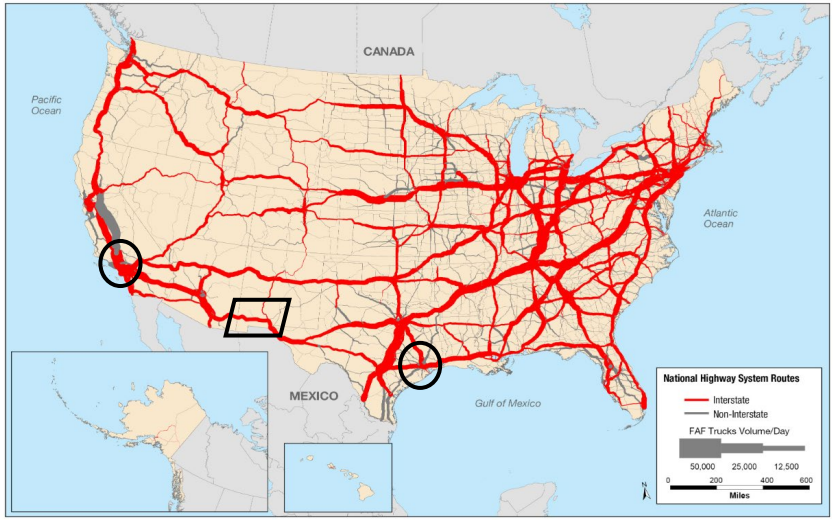
Those killed Monday include a 9-month-old girl and her parents from Phoenix, two people from El Paso, Texas, and a California woman.

The stretch of interstate in Lordsburg, New Mexico, was closed for several hours following crash. The closure extended through Willcox, Arizona, where local authorities helped manage traffic that was diverted through a small road. The closure ended Tuesday.

State police say sudden high winds caused limited visibility from blowing dust, causing 18 commercial trucks and seven passenger cars to crash on the westbound lanes of I-10.

Advertisement

Truck Parking Availability Systems



To New Mexico via I-10	Hours*
From Los Angeles	~ 10 - 12
From Long Beach	~ 10 - 12
From Houston	~ 10 - 12

OPERATIONAL ENGAGEMENT

Sharing of resources, data, infrastructure, access and systems management, operations and maintenance with various stakeholders including other transportation agencies, disciplines, and institutions to best leverage time, money, equipment and staff to accommodate making the best operational decisions on actionable intelligence.

City of Albuquerque
City of Las Cruces
City of Rio Rancho
Bernalillo County

New Mexico State Police
Santa Fe Indian Schools
Los Alamos National Labs
Third parties – WAZE, NWS, App Developers

POSITIONED to SUPPORT CHANGE

Autonomous Vehicles (AVs)

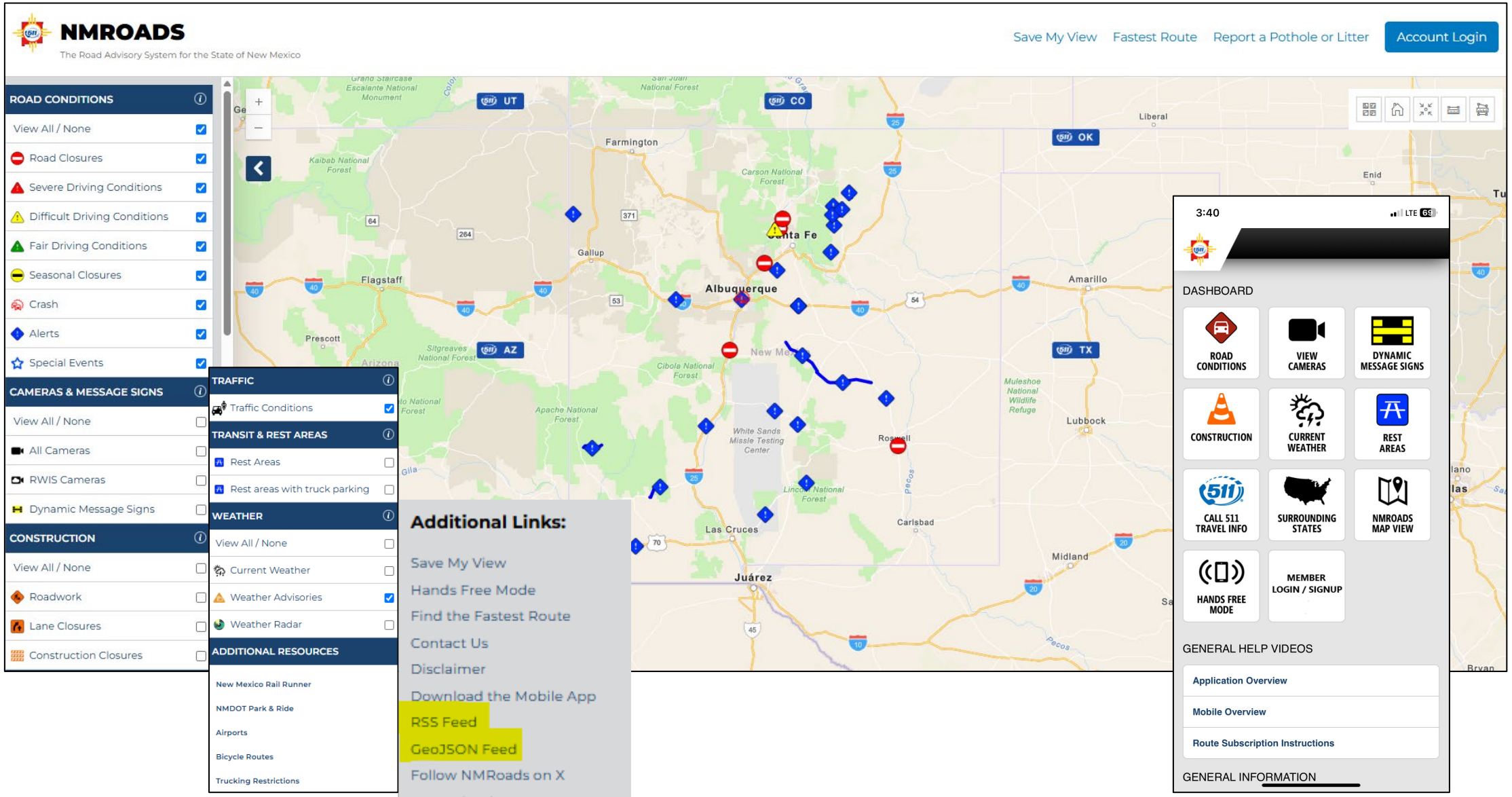
- Automated driving system (ADS) has the decision-making capacity embedded within its on-board processor to emulate the dynamic driving tasks of a human driver (steering, braking and acceleration).
- ADS doesn't need access to external data sources to perform those same functions.
- Both humans and ADSs rely on an awareness of the driving conditions in its immediate environment and circumstances at any given moment (via sensory input) to make the appropriate decisions and choices.
- Specific to the transportation infrastructure, what is good for the human driver also benefits the ADS (i.e., legibility of signs, visibility of pavement markings).

Connected Vehicles (CVs)

- CVs utilize on-board processors to obtain and share information about the current driving conditions and environment to accommodate specific functions associated with the dynamic driving task as well as making associated strategic decisions.
- CVs can communicate with other CVs (V2V) or to other external data sources (V2X) such as roadside infrastructure (i.e., signal systems, roadway weather systems) or cloud-based data sources for roadway and driving conditions (i.e., NMRoads).

Highly Autonomous Vehicles (HAVs) -- AVs with on-board processing and connected capabilities to accommodate the dynamic driving task at hand as well as strategic elements such as route determinations to avoid congestion or conditions that might be out of their operational design domain.

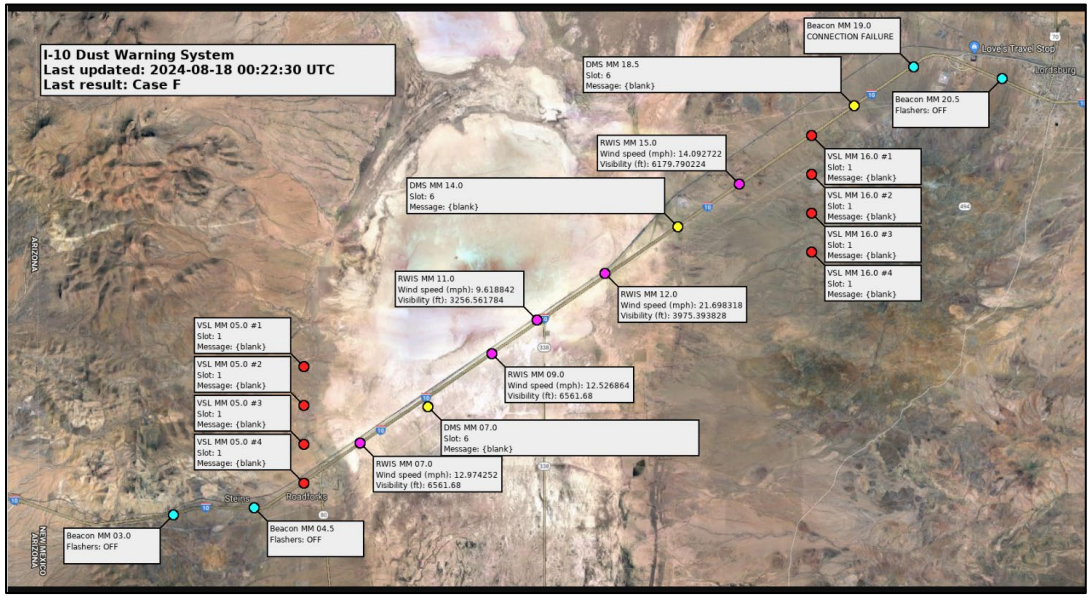
NMRoads – More than a Website



Artificial Intelligence (AI)

According to AI, artificial intelligence, is the capability of computer systems to perform tasks that typically require human intelligence, such as learning, problem-solving, and decision-making. It involves creating machines that can perceive their environment, understand language, recognize patterns, and make predictions or autonomous decisions based on data. Examples range from virtual assistants and search engines to self-driving cars and recommendation systems

Reactive Awareness System Response



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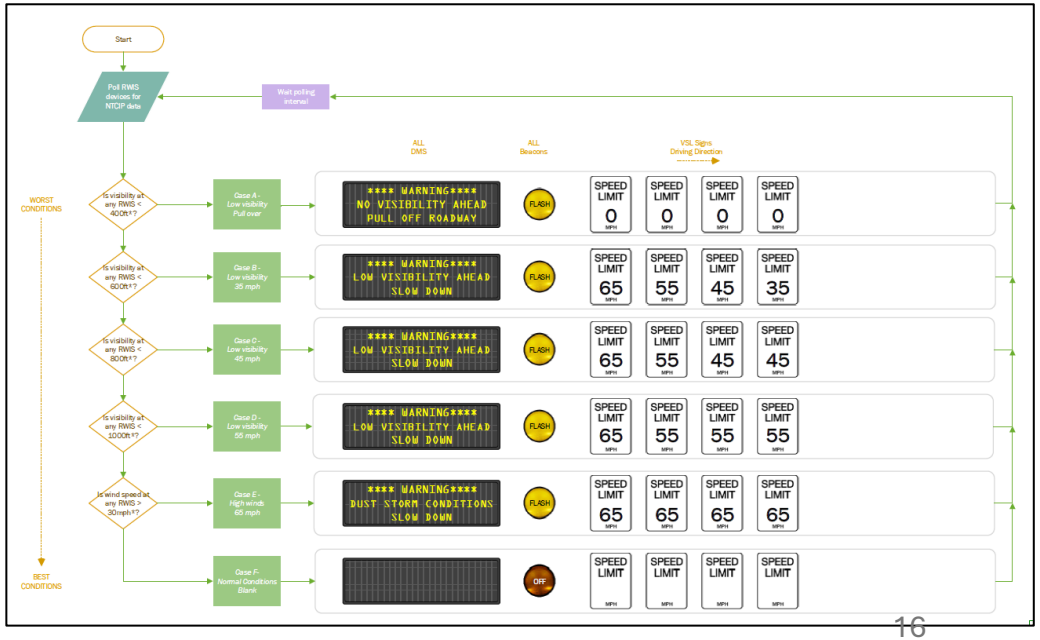
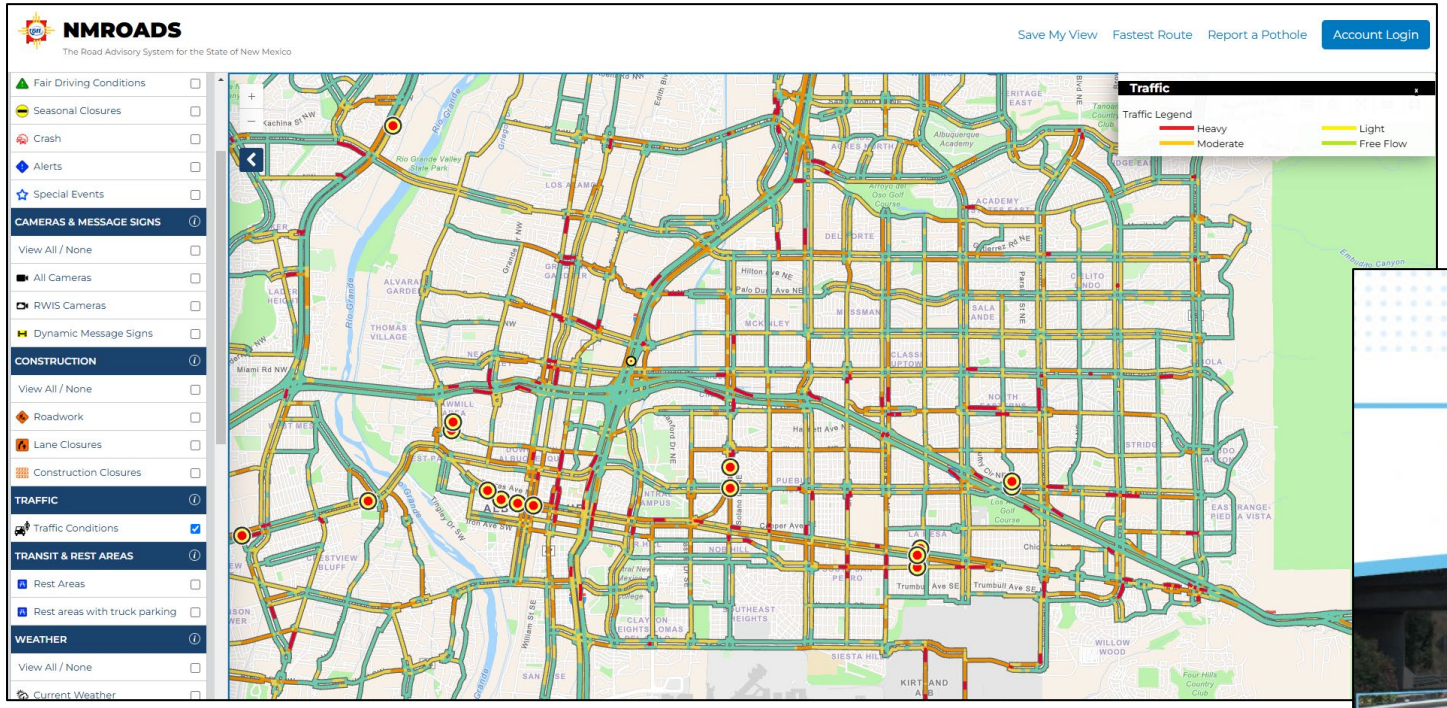
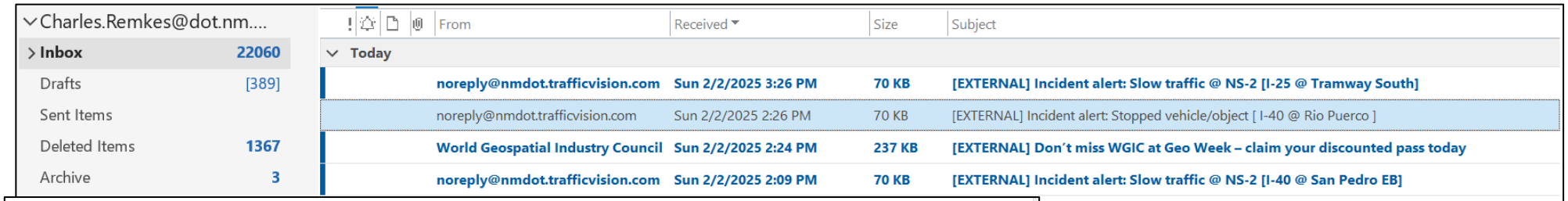


Crowd Sourced Data Aggregation



Video Analytics



[EXTERNAL] Incident alert: Stopped vehicle/object [I-40 @ Rio Puerco]

N noreply@nmdot.trafficvision.com

Reply Reply All Forward

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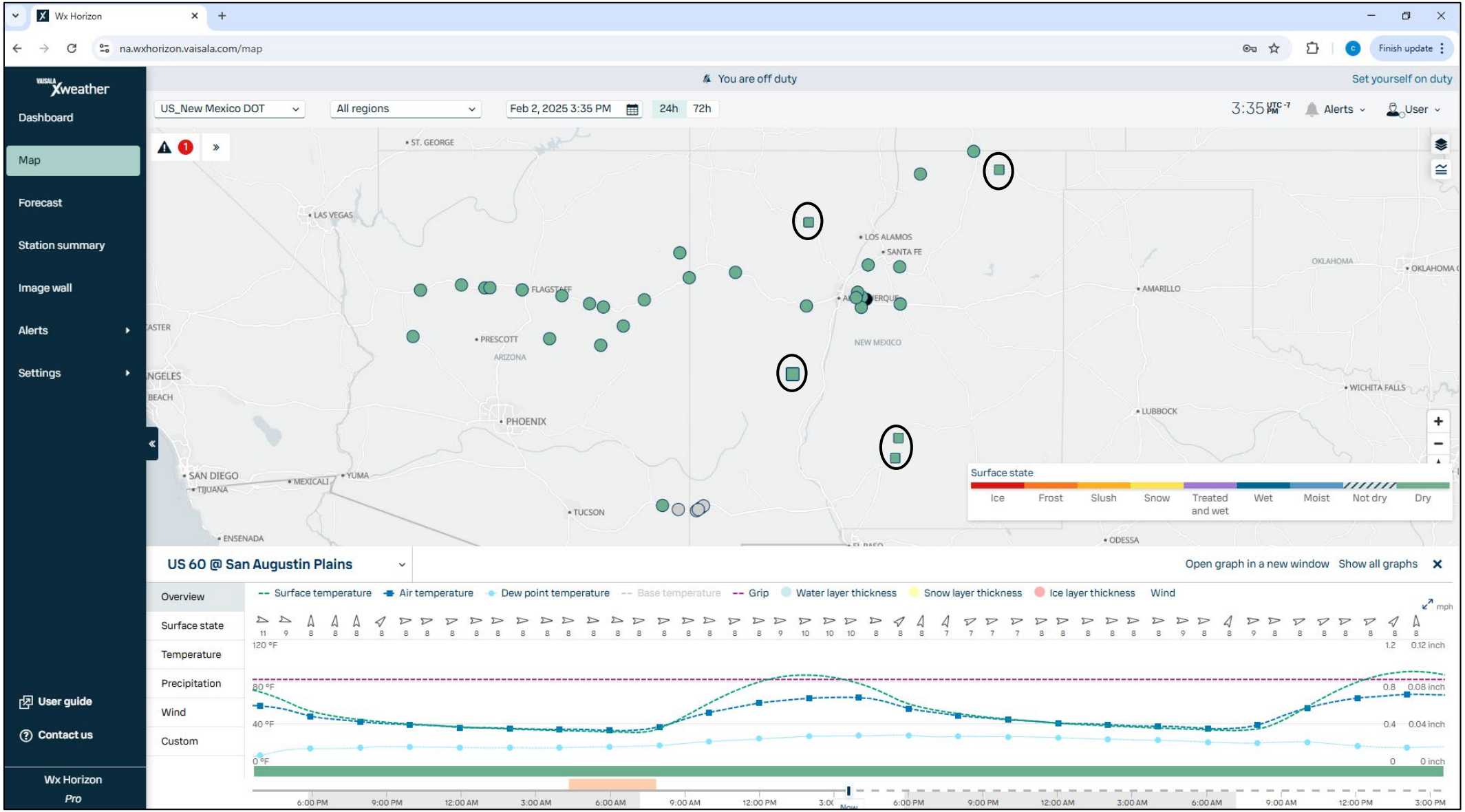
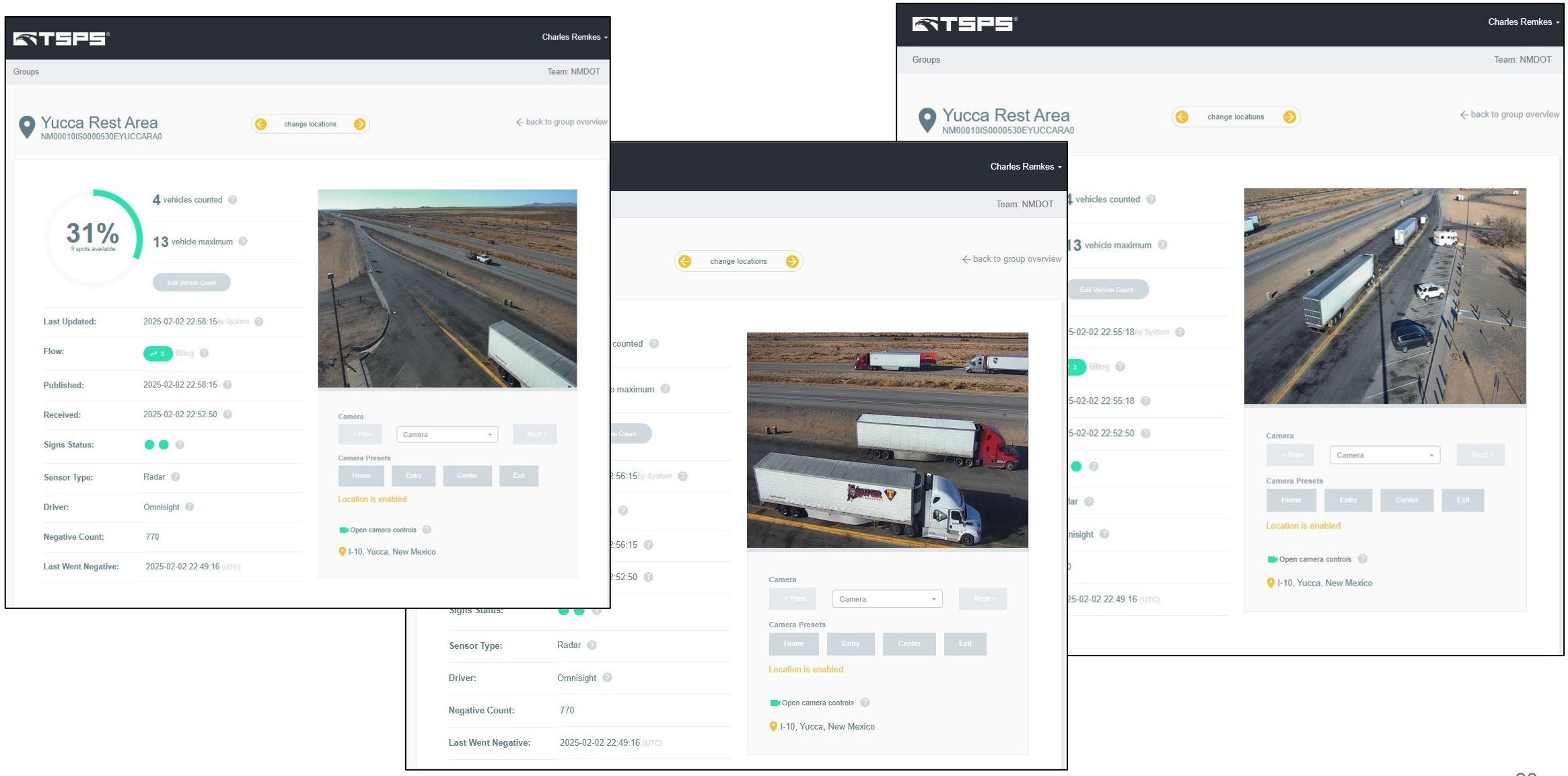
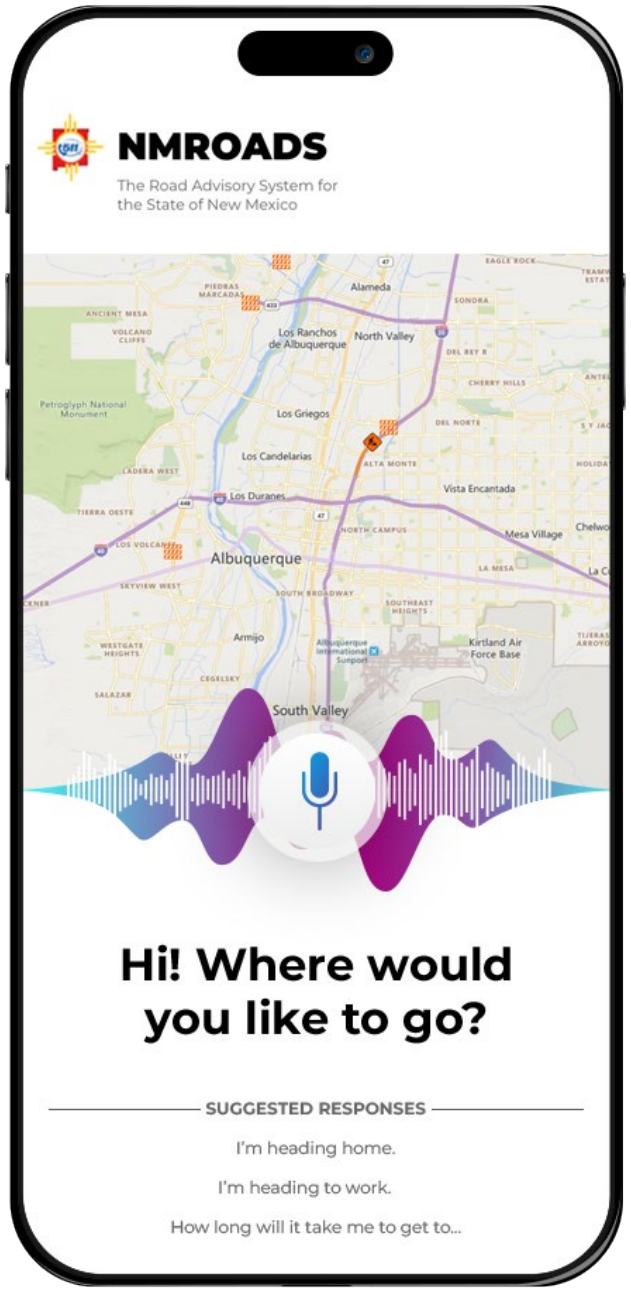
Virtual RWIS Stations



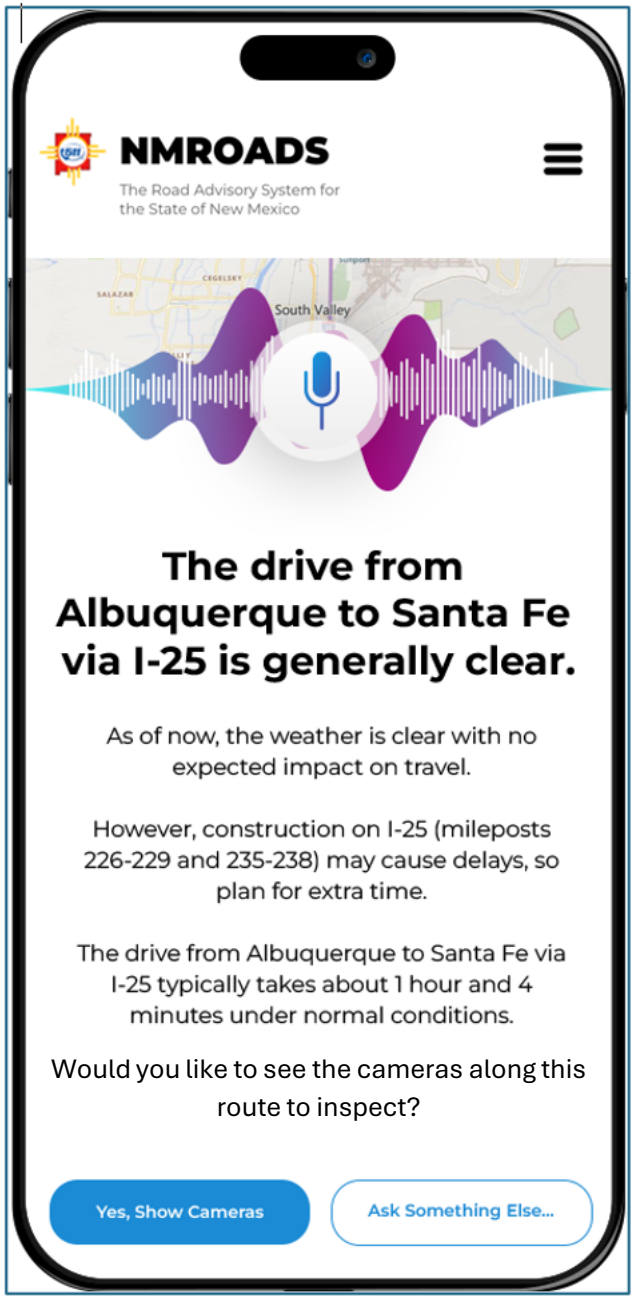
TPAS Ground Truthing Analytics



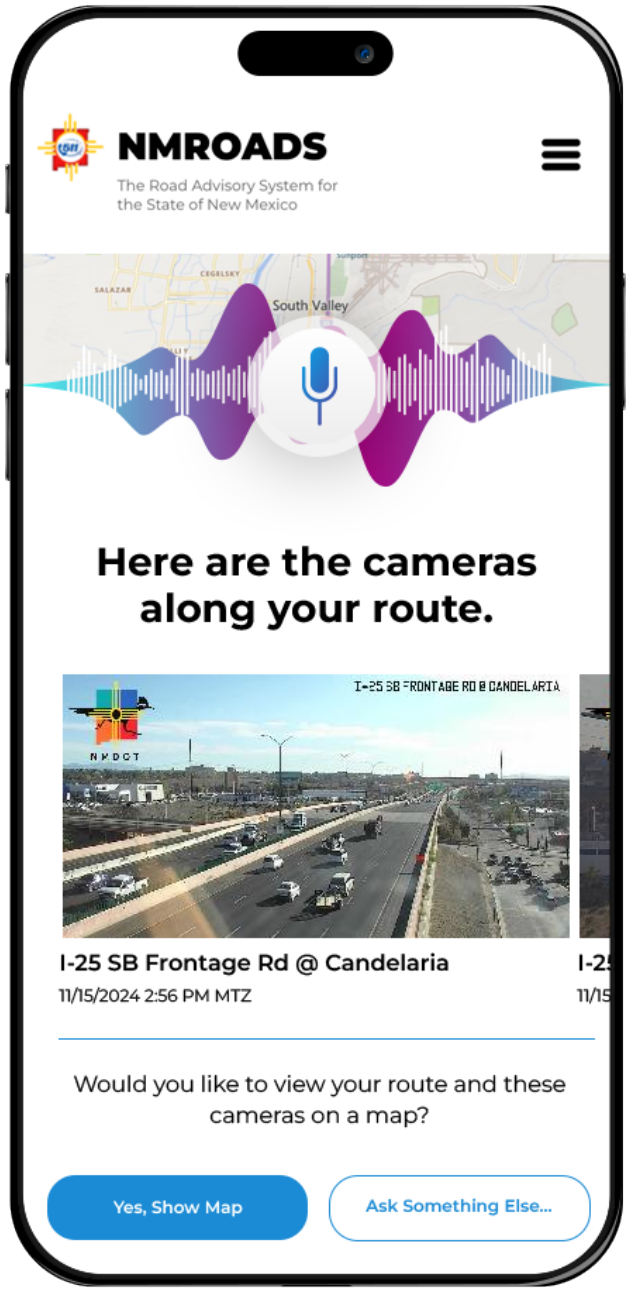


Traveler Information that Anticipates User Requests

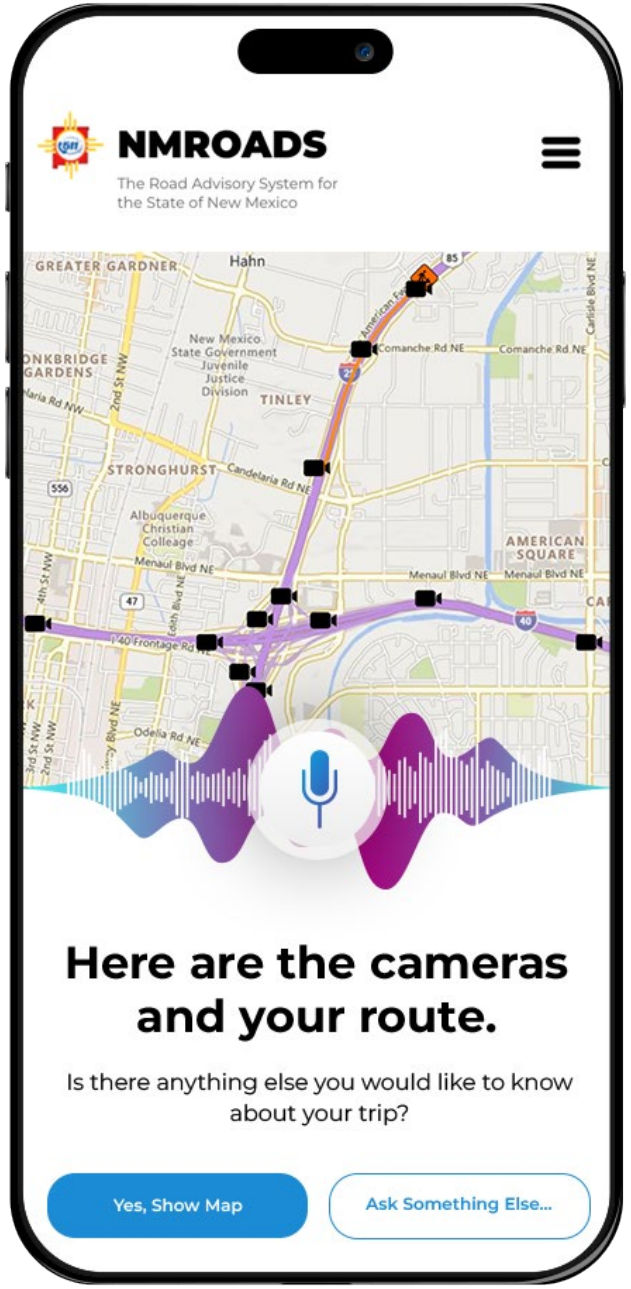
"I'm heading to Santa Fe. How are the roads?"



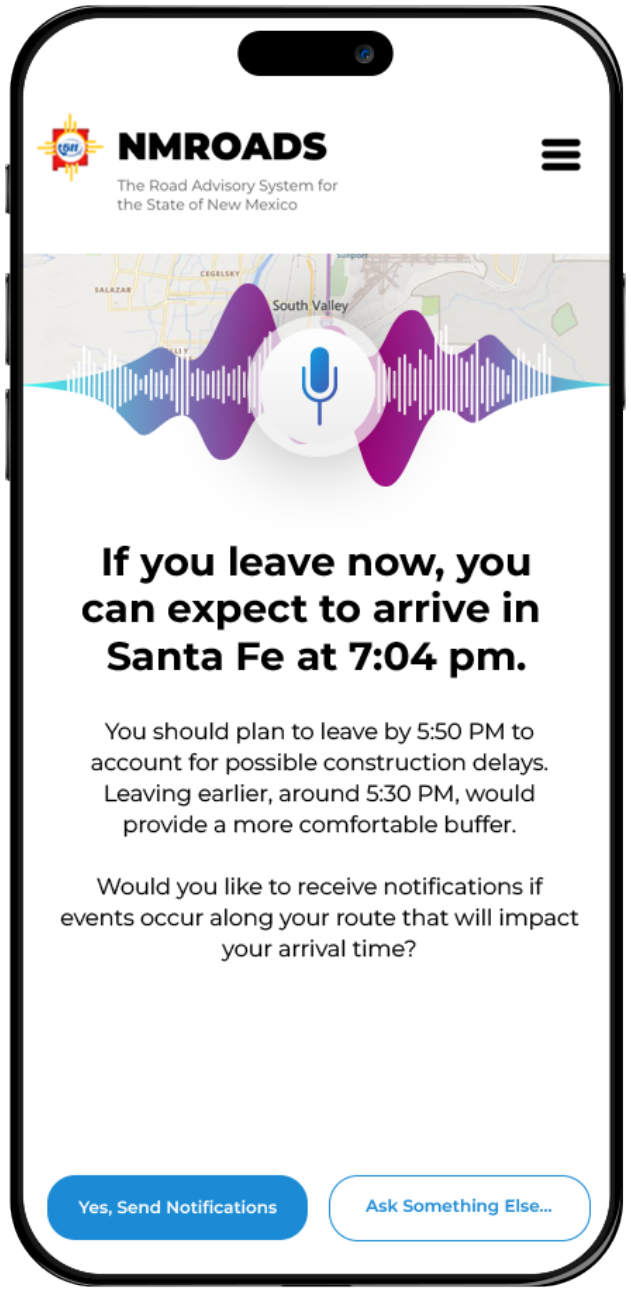
"Yes, show me the cameras."



"Yes, show me the map of cameras on my route."



"How long is the trip going to take?"



"Yes, send me the notifications."


oWiFi
66
Friday, 1. December
09:37
MESSAGES
now
NMRoads
Closure, I 25 northbound and southbound from mile marker 257, (BUDAGHER) to mile marker 269, La Bajada
Personal
3 Notifications

CHARLES REMKES

Charles.remkes@dot.nm.gov