



NORTH CAROLINA
Department of Transportation

Keeping North Carolina Moving: An Introduction to TSMO, IMAP, and DriveNC

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August 18th, 2026

Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina

Presentation Pathway



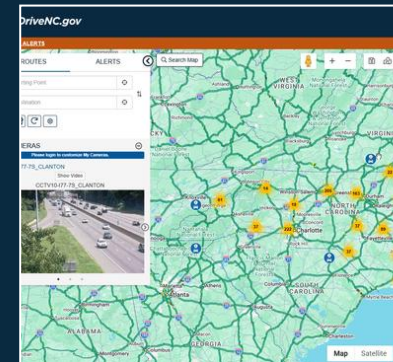
TSMO 101

Discover how Transportation Systems Management and Operations improves safety, mobility, and reliability across the transportation network.



What is IMAP?

Explore IMAP's role in incident response and how new technologies are being piloted to improve safety and efficiency.



New DriveNC.gov

See how the redesigned DriveNC improves the user experience and differs from the department's legacy systems.



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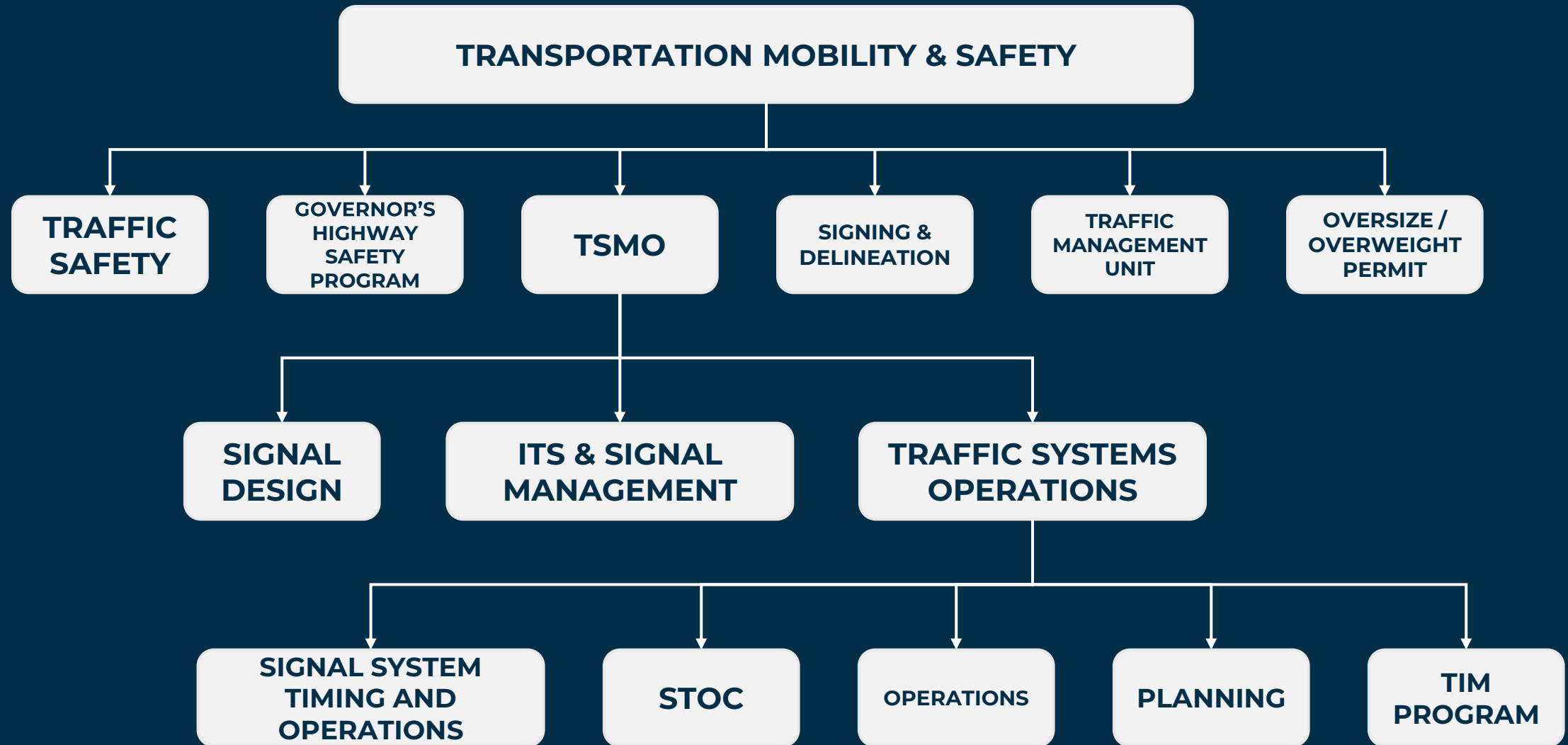
Transportation Systems Management & Operations (TSMO) 101

Lamar "LJ" Hawkins
TSMO Planning Engineer
Traffic System Operations

August 18th, 2026

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Organizational Chart



Transportation Systems Management & Operations (TSMO) Unit

● **TRAFFIC SYSTEMS OPERATIONS**

- Signal System Timing and Operations
- TSMO Planning
- Traffic Operations

● **ITS SIGNALS & MANAGEMENT**

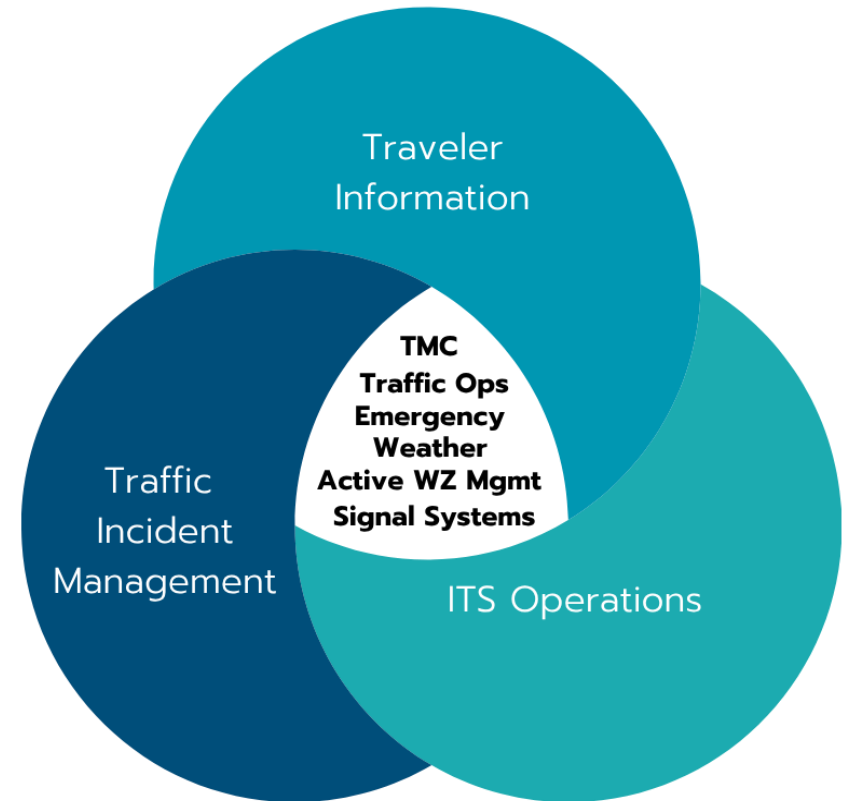
- Signal Equipment Design
- Intelligent Transportation Systems (ITS)
- Traffic Electronics Center (TEC)

● **SIGNAL DESIGN**

- Signal Plan and Projects
- ITS & Signals Structures

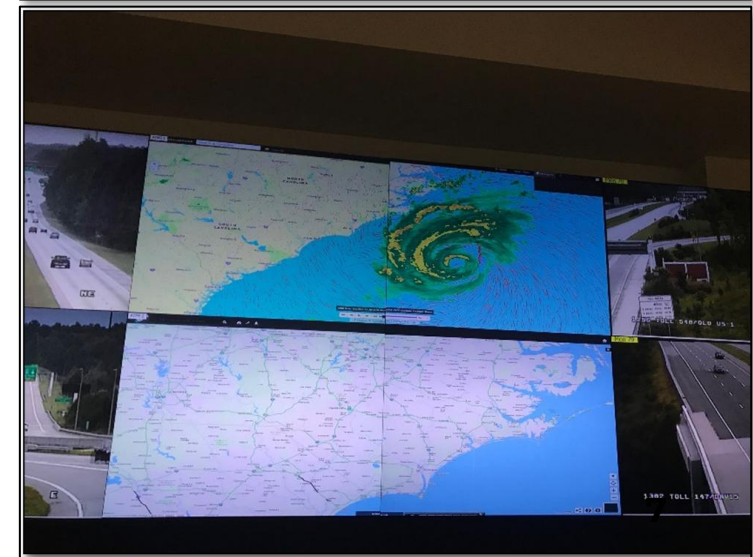
What is Traffic Systems Operations (TSO)?

- TSMO Planning:
 - Incorporated TSMO into projects
 - Manages TSMO budget and strategies
 - Traveler information and performance data
- Traffic Operations:
 - Freeway operations
 - TMC operations
 - ITS operations
 - Manage TIM program
- Signal System Timing and Operations:
 - Arterial operations
 - Timing signals through corridors



Statewide Traffic Operation Center (STOC) and Regional Traffic Management Centers (TMC)

- Detect, verify, and inform the public of events
- Dispatch IMAP responders
- Hub for emergency response
- Coordinate with Divisions, Law Enforcement, Towers



Regional Traffic Management Centers (TMC) Statewide Transportation Operations Center (STOC)



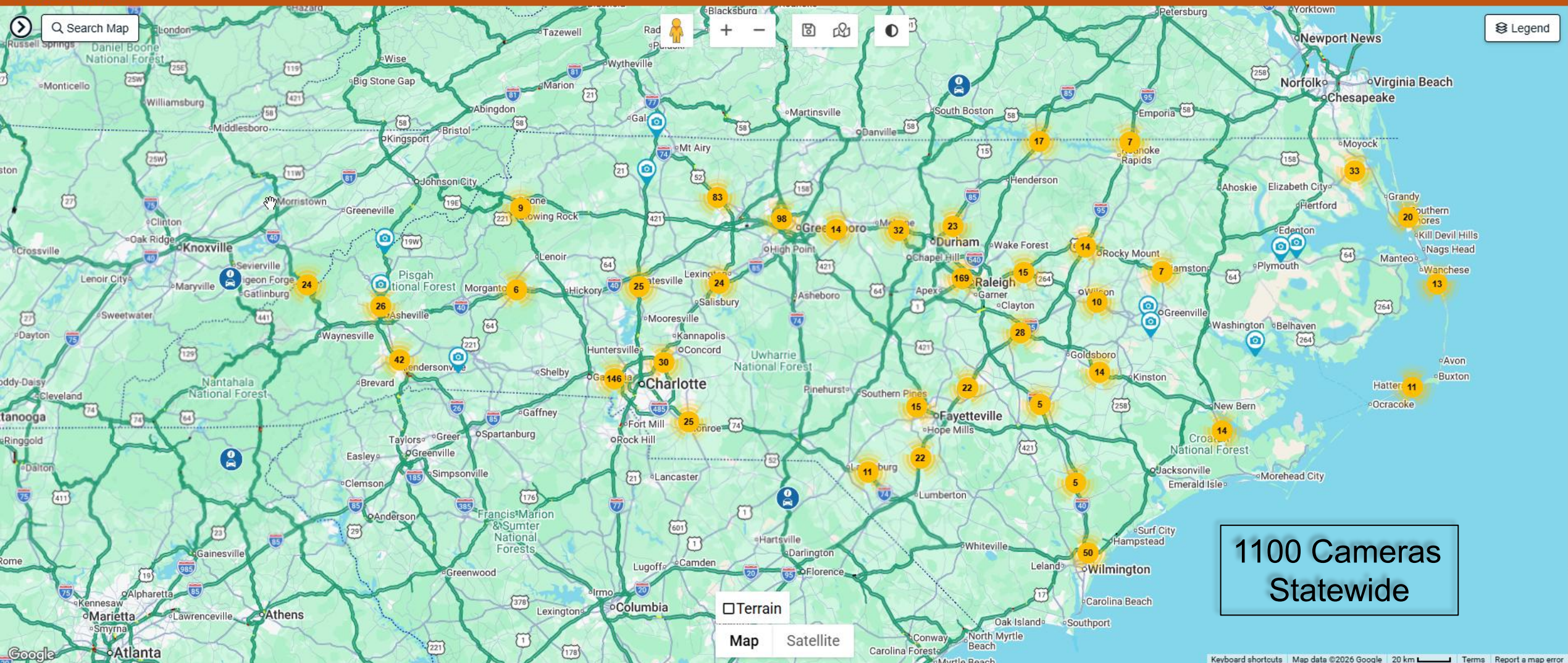


TRAFFIC CAMERAS

- **Situational Awareness**
- **Video sharing with media and partners (EM, LEO)**
- **Do NOT record**



SPECIAL ALERTS



1100 Cameras
Statewide

Dynamic Message Signs

- Lane and Road Closures
- Travel Times
- Special Events
- Adverse Weather
- Safety Messages



Dynamic Message Sign Policy

NCDOT DMS/CMS POLICY
1/8/08

DMS MESSAGES

- Use a maximum character size of 18 inches and no more than 20 characters per line.
- DMS Message Priorities
 1. Road closures on any major network facility within a 10-mile radius of the DMS
 2. Emergencies, such as evacuation information
 3. Congestion, lane closures, lane shifts or shoulder closures due to incidents within a 10-mile radius of the DMS
 4. Closures due to incidents that are greater than a 10-mile radius away
 5. AMBER & SILVER Alerts
 6. Hazardous or uncommon road conditions that require drivers to alter their driving (such as standing water, icy roads, etc.) within 10-mile radius of the DMS where information is available on road conditions
 7. Travel Times during road closures, congestion, or other unusual conditions
 8. Congestion or unusual conditions greater than a 10-mile radius away
 9. Special Event messages
 10. Advance notice of events likely to cause congestion, such as:
 - future road, lane or ramp closures or special events in the area
 - closures or congestion on another primary route
 11. Supplemental Signing for Work Zones
 12. Ozone Action Day Alerts
 13. Move Over/Fender Bender Messages
 14. Multi-modal Traveler Information such as direct transit, Park & Rides, etc.

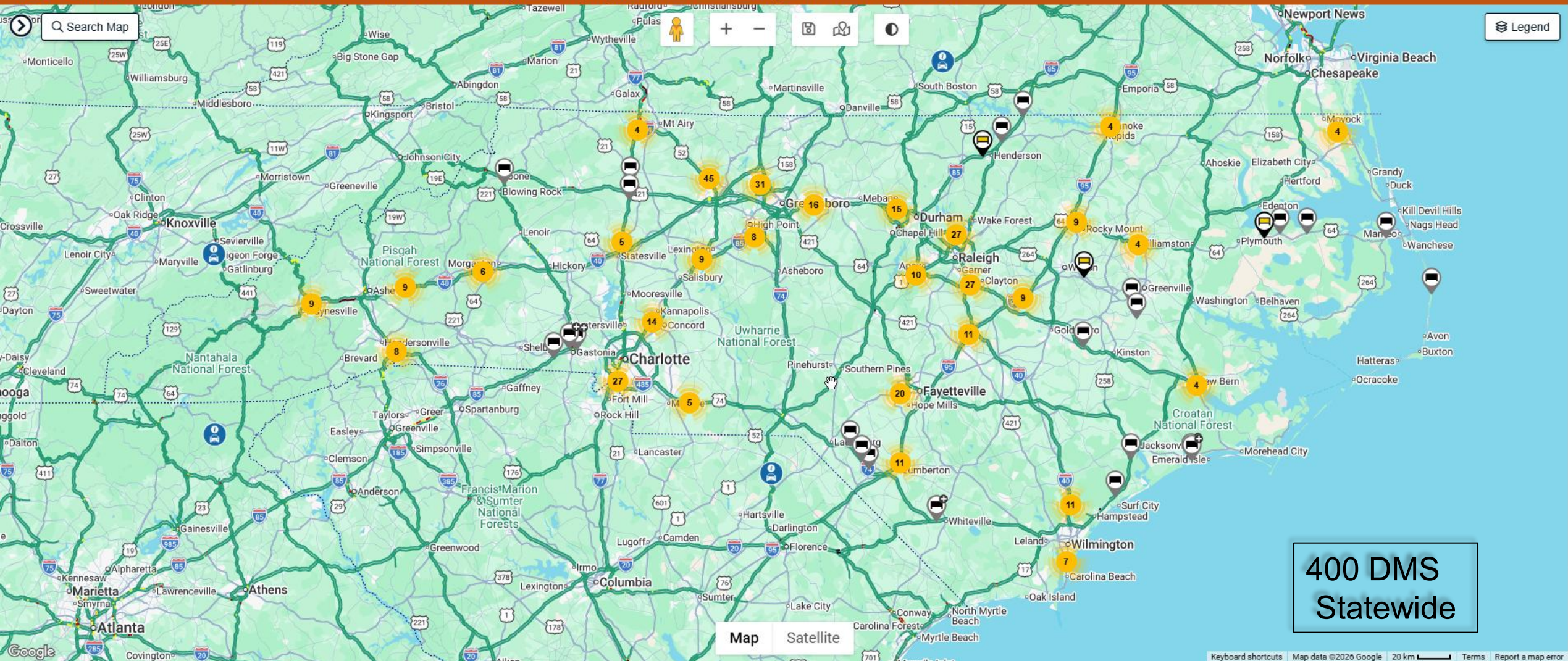


**CRASH AHEAD
2 RIGHT
LANES CLOSED**

requires driving action



SPECIAL ALERTS The left lane is closed on I-40 Eastbound at Exit 44 in Buncombe County, due to emergency road work until further notice. Updated 11:10 am. ID -26081400064.



TSMO FREEWAY LAWS

- NC Move Over Law – Move over or slow down
- NC Fender Bender Law – Move minor crashes out of traffic





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NCDOT IMAP Program

Peri Ela Akozer, PE
Traffic Operations Engineer

August 18, 2026

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■ Purpose:

Manage incidents and congestion to maintain mobility of the roadway

■ Benefits:

- Safe, quick clearance of incidents
- Proactively prevents incidents by assisting with the removal of disabled/abandoned vehicles

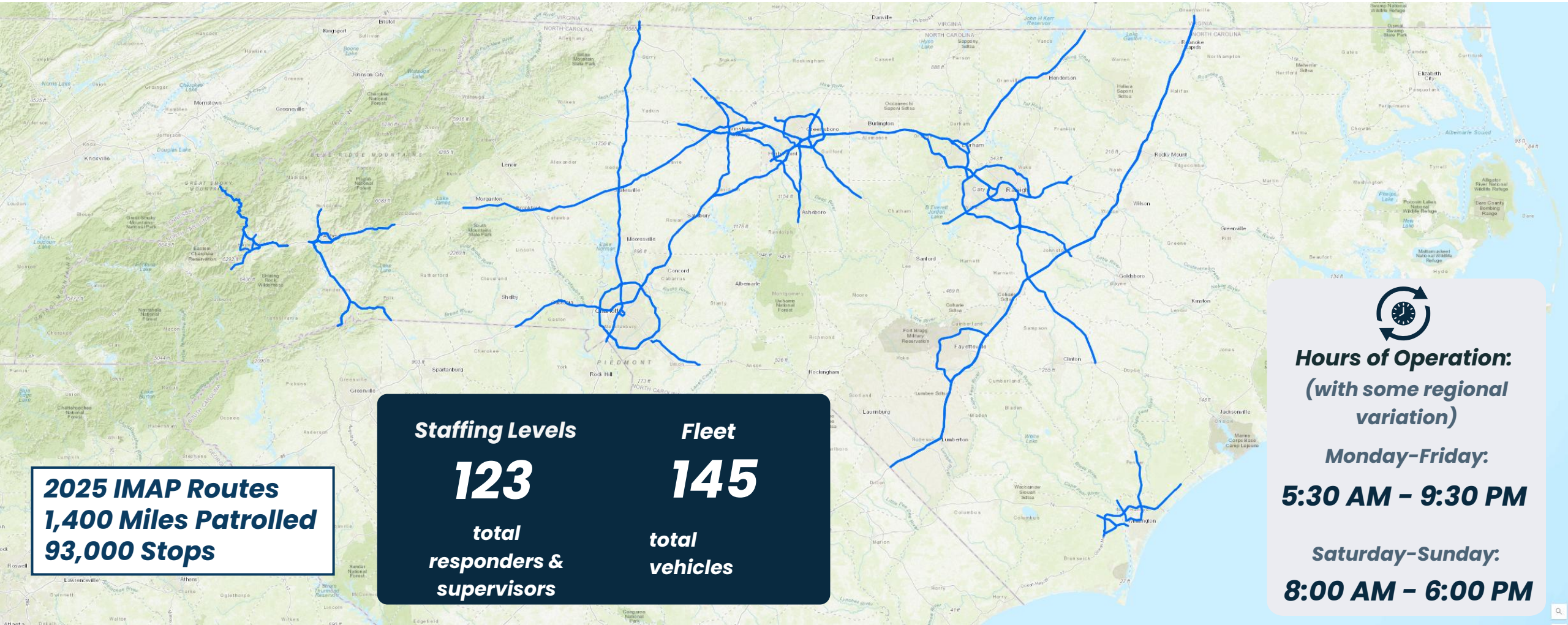
■ Services Provided:

- Provides emergency traffic control
- Clear road obstructions
- Change flat tires
- Provide fuel
- Jump-start batteries

WHAT IS IMAP?

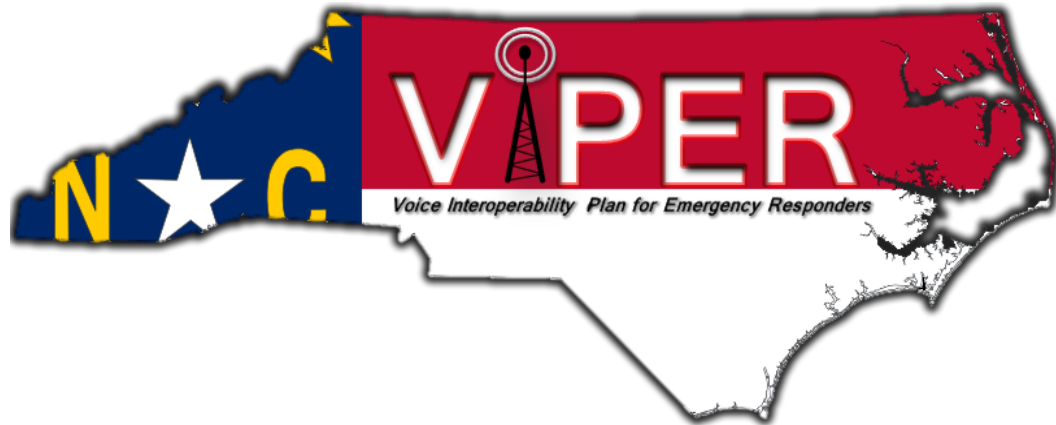
Incident Management Assistance Patrol





IMAP Communication

- ***Network for emergency responders***
- ***Dispatch tool with TMCs***
- ***Communication with other responder agencies***
- ***Listen to multiple channels / agencies***





EMERGENCY RESPONSE

- Immediate tow support
- Evacuation traffic
- Portable cameras and CMS deployment
- Reposition responders on key routes
- Transporting emergency devices
- Tethered drone for storm impacts
- **Hot spot support**

TIM Events

- ***Towing & Recovery Professionals/Livestock***
- ***Hazmat Scenario with UNC LifeFlight***
- ***Technology Day with IMAP***
- ***Commercial Vehicle Crash Scenario***



Multiagency Exercises



Debris Removal Pilot

- ***Evaluated For:***
 - ***Types and size of debris***
 - ***Ease of use***
 - ***Durability***
 - ***Deployment time***
 - ***Reduction of responder exposure***
- ***Purpose:***
 - ***Reduce responder exposure time***
- ***Outcome:***
 - ***Use by interstate maintenance***



JAWS



LaneBlade



SWIPER



DebrisClear

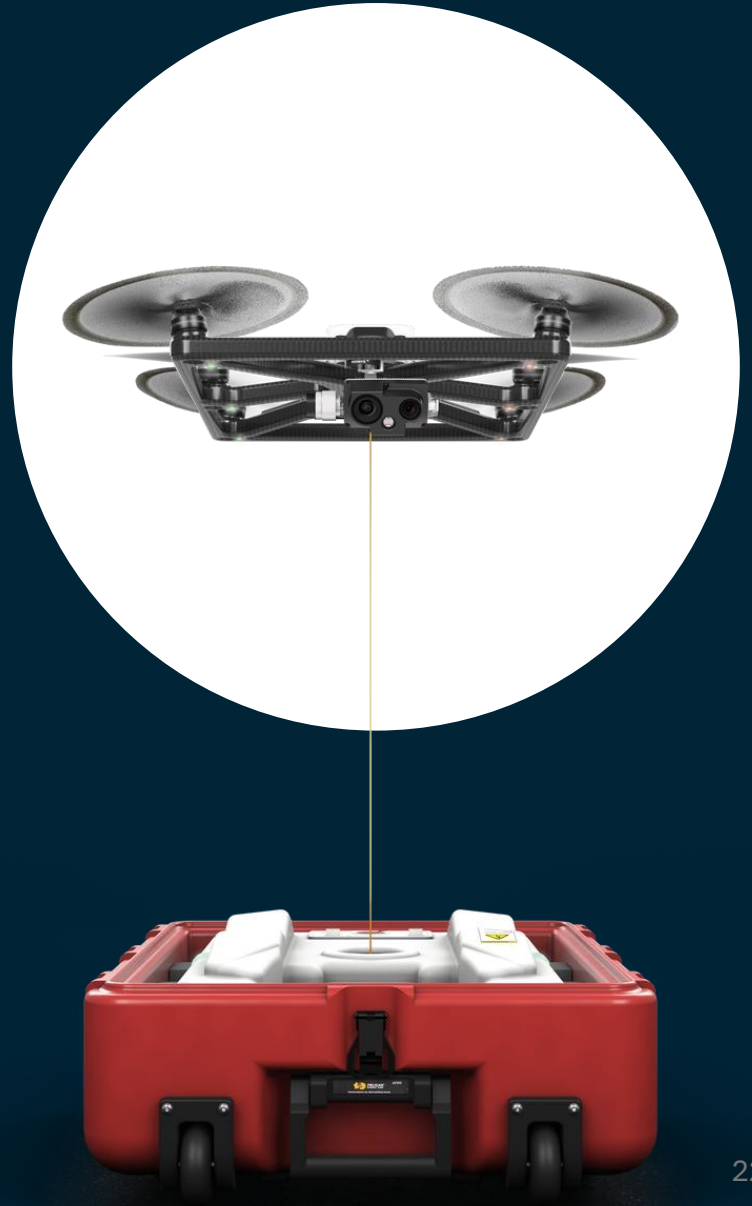
TETHERED DRONE TECHNOLOGY

- Used by supervisors on-scene.
- An operator license is not required
- Maximum height being 150'

Each Region =
1 Drone

Used during incidents
in areas with limited CCTV

Live Streaming
in TMCs



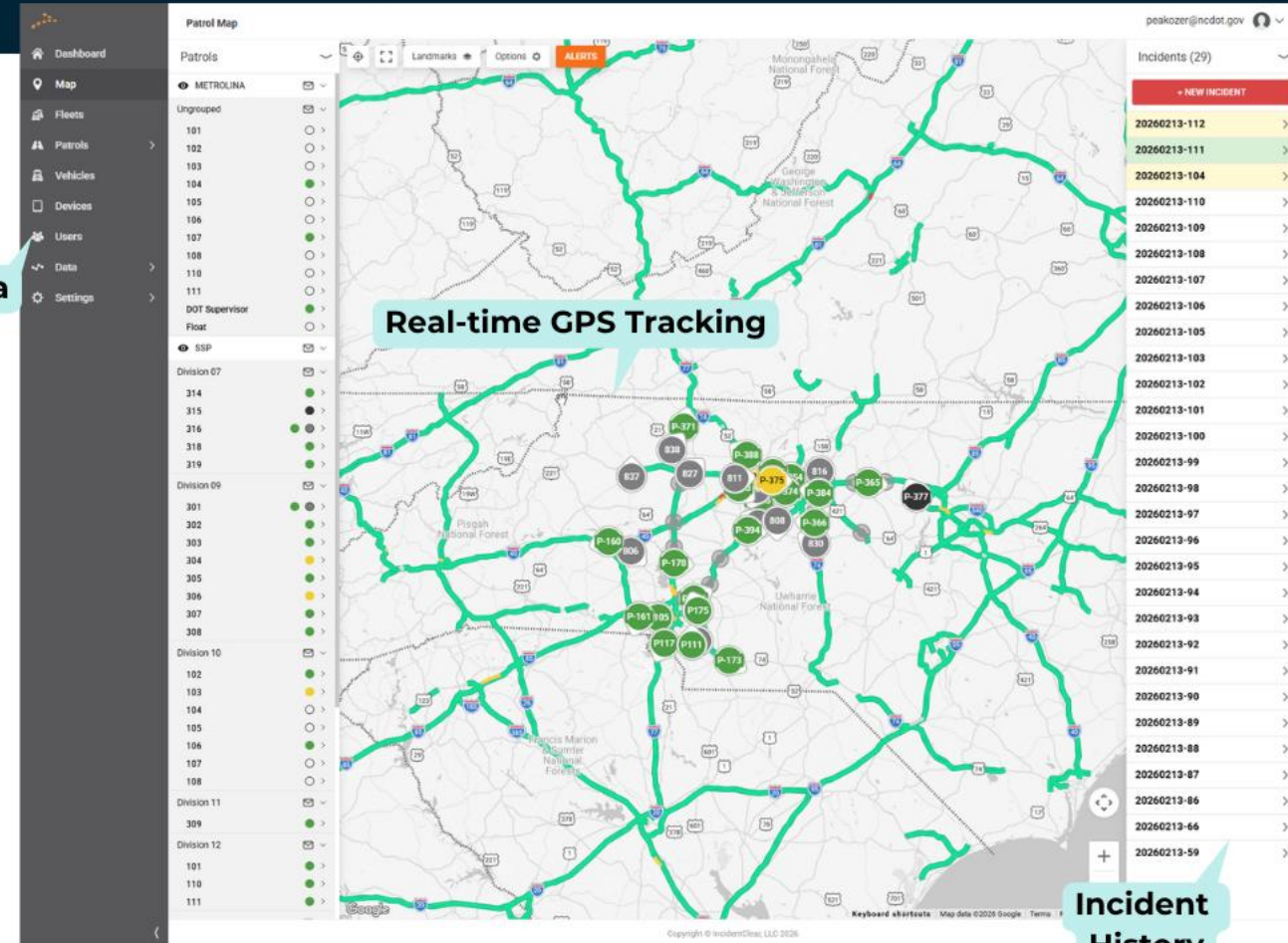
ICS PILOT

Need: Real-time monitoring of IMAP drivers' location and status in one tool.

- Added NCDOT IMAP trucks to Incident Clear's ATMS
- Access to CCTVs on Incident Clear Trucks
- Real-time GPS location tracking with geofencing
- Incident Type and Same Day Incident History
- Driver and stop type performance metrics



Data



SYNCHRONIZED LIGHTING PILOT

Working with State Highway Patrol and Fire Stations to synchronize emergency lighting, using lights, with IMAP vehicles



Enhances Responder
Safety



Influence Driver
Behavior



Reduce Secondary
Crashes



Integrate & Scale
Technology

V2V



COMING SOON

What is the Synchronized Lighting Pilot?

- Vehicle-to-vehicle sync capabilities
- Goal: reduce confusion and improve safety
- Evaluate effectiveness for statewide IMAP implementation



Fire Departments

Garner FD

From: I-440 MM 14
To: I-40 MM 310

Benson FD

From: I-40 MM 321
To: I-95 MM 78

Cleveland FD

From: I-40 MM 310
To: I-40 MM 314

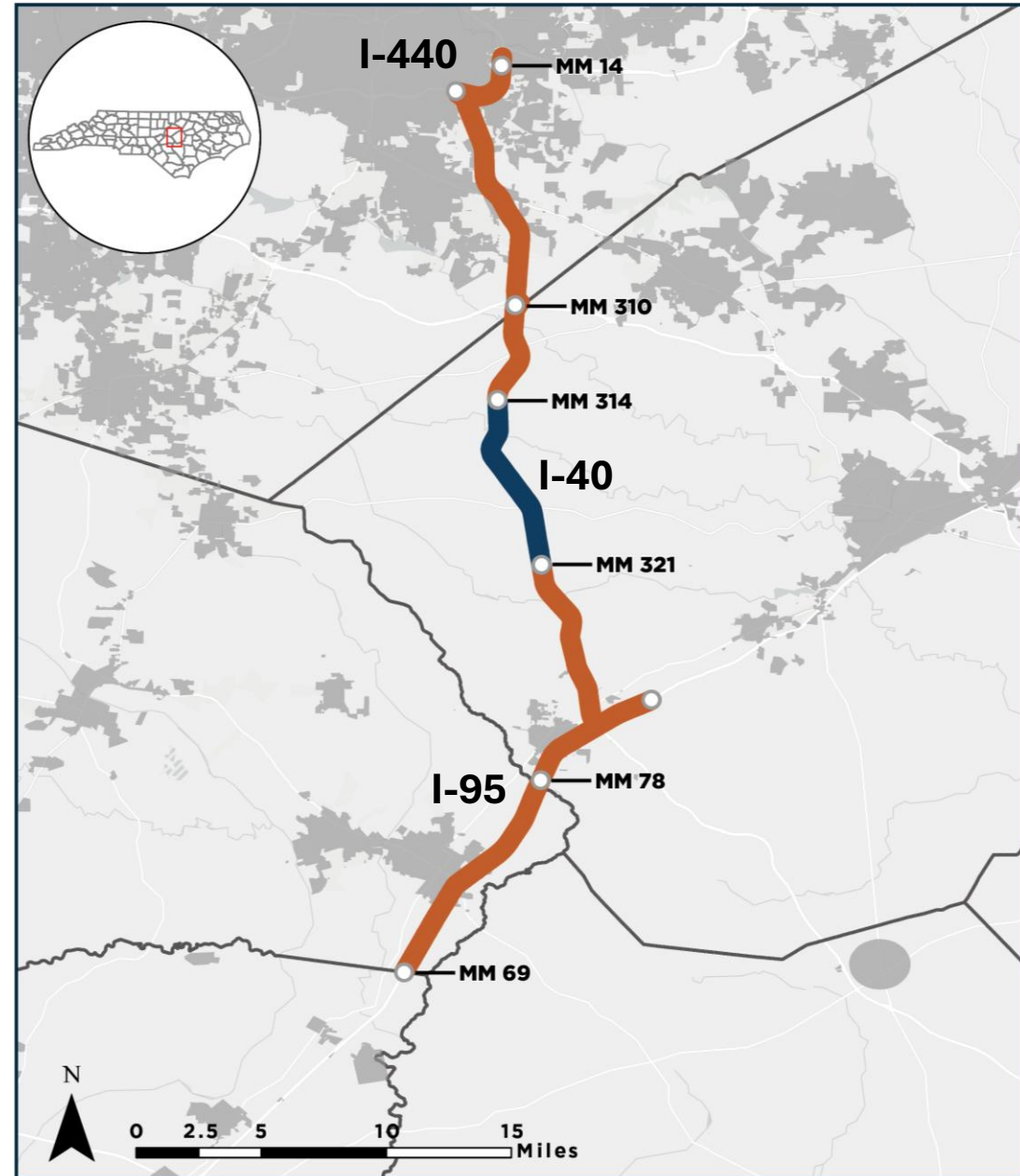
Dunn FD

From: I-95 MM 78
To: I-95 MM 69

NCSHP

Coverage

Responds along entire Pilot Study Area



ncdot.gov



Community Support

IMAP is intended for Unplanned Events, but can be asked to help promote community events

- **Touch a Truck**
- **State and local fairs**
- **School demonstrations**



Successes/Accomplishments

Drivers
Anthony Buie & Nick Allen ★★★★★

They put their lives on the line each day to help people they don't even know. They are truly a blessing!

Driver
Reggie Hocutt ★★★★★

The IMAP program put someone at the right place at the right time. It truly could have saved my life that day!

Driver
Willie Odom ★★★★★

He turned what may have been a disaster into a pleasant experience and exhibited a high level of professionalism that far exceeded expectations.



2025 Governor's Award
for Helene Rescue



SHP Award
for Helene

IMAP ROI

\$333 Million in Benefits to NC Travelers



\$201.2 Million Safety Benefit of Reduced
Secondary Crashes



\$126.2 Million Congestion Benefit of
Reduced Roadway Clearance Times



\$2.9 Million Gasoline Savings Benefit
of Reduced Idling Time



\$2.7 Million Emissions Benefit of
Reduced Idling Time

21:1 Benefit to Cost Ratio



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The New DriveNC.gov

Kelly Wells, PE
State Traveler Information Engineer

August 18, 2026

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DRIVENC PURPOSE

North Carolina's one stop shop
for info about things that disrupt traffic



Work Zones

Planned & expected - construction, maintenance, bridge maintenance,...



Weather

Unplanned & often expected – flooding, debris, snow and ice,...

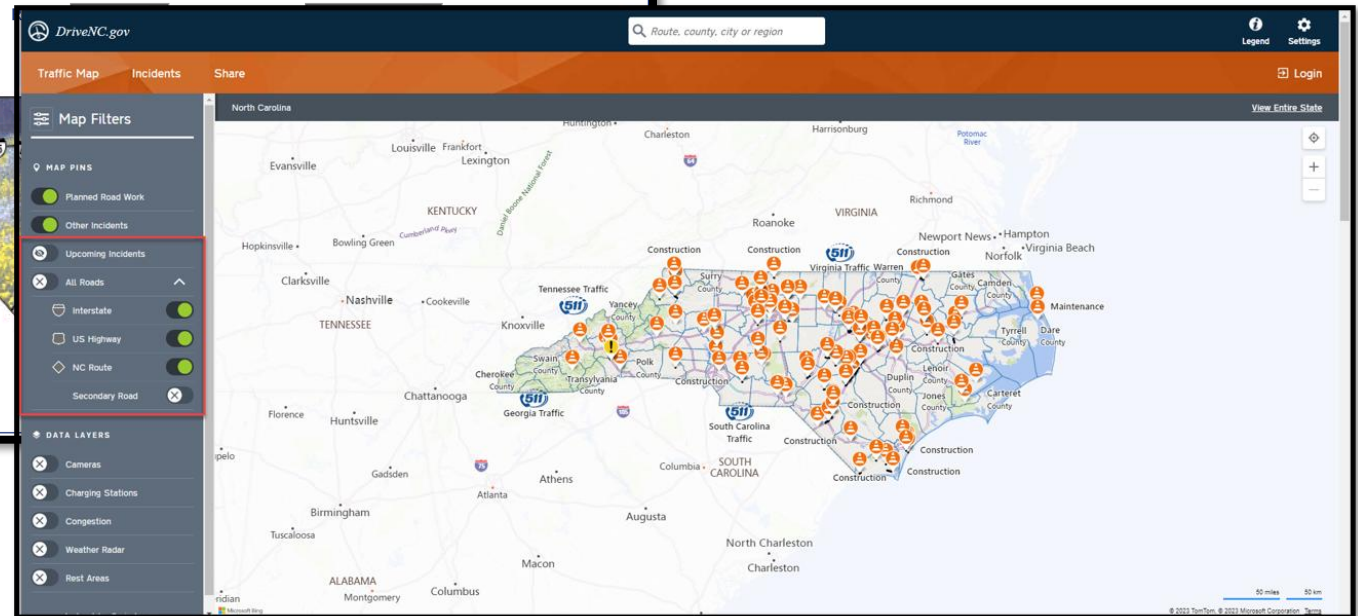
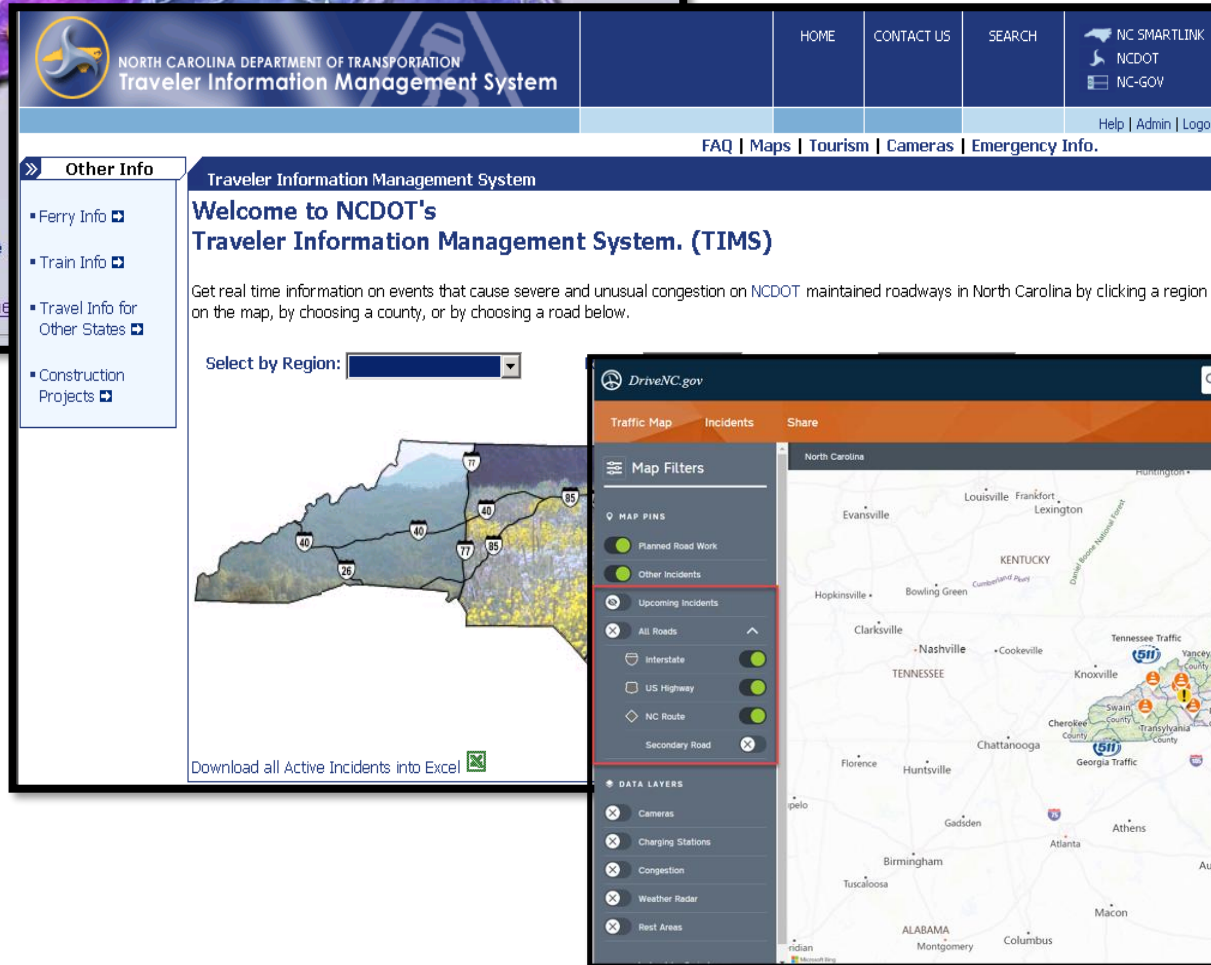
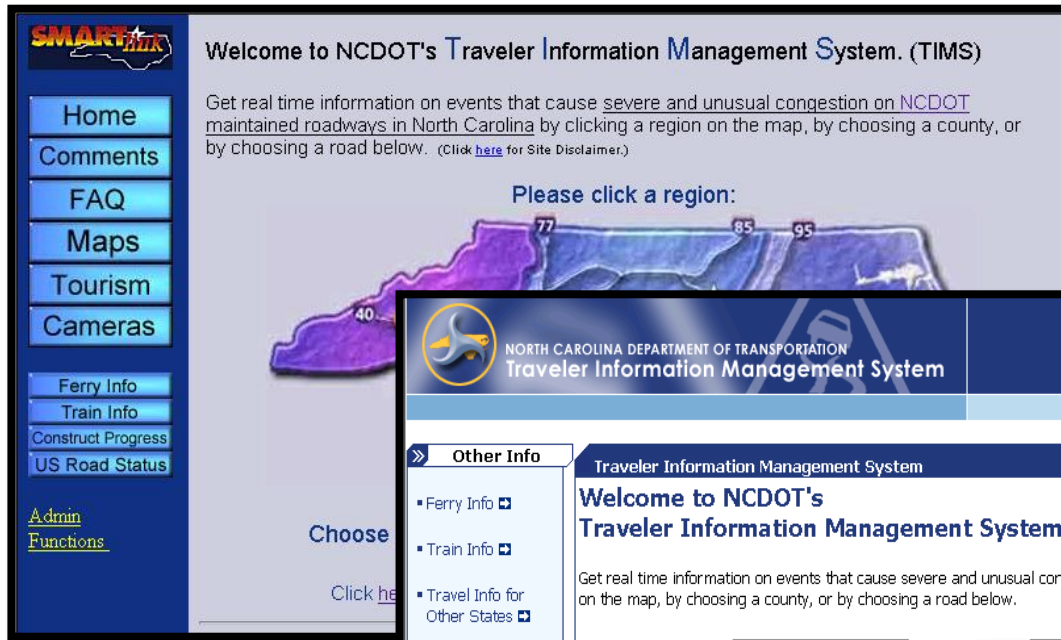


Crashes

Unplanned & unexpected - overturned tractor trailers, spilled loads, fender benders,...



- Created in 2000, after Hurricane Floyd
- Retired in 2026, after Hurricane Helene



NEW

FeaturesTIMSSnow & IceTriangle

HomeTrafficMy DriveNCLinksAboutAdmin

SPECIAL ALERTS

MY ROUTESALERTS

Select your route or enter starting point and destination

AStarting Point

BDestination

Icons for car, bus, truck, and settings

MY CAMERAS

My Camera View

CCTV05-US1-94N_VERIDEA

Show Video

CCTV05-US1-94N_VERIDEA

Search Map

Map controls: zoom in, zoom out, full screen, layers, compass

Map of North Carolina showing traffic congestion, incidents, and road closures. Major cities like Charlotte, Raleigh, and Durham are visible. Various icons indicate traffic conditions and events.

MapSatellite

Legend

Traveler Information

☒ Congestion

Closed/StoppedHeavyNone

☐ Snow & Ice

☐ Major Events

☐ Closures

☒ Incidents

☒ Road Work

☒ Weather Incidents

☒ Other Events

☐ Upcoming Events

☐ Rest Areas, Visitor & Welcome Centers

☐ Cameras

☐ My Cameras

☐ Waze Reports

☐ Message Signs

☐ Mile Markers

☐ County Boundary

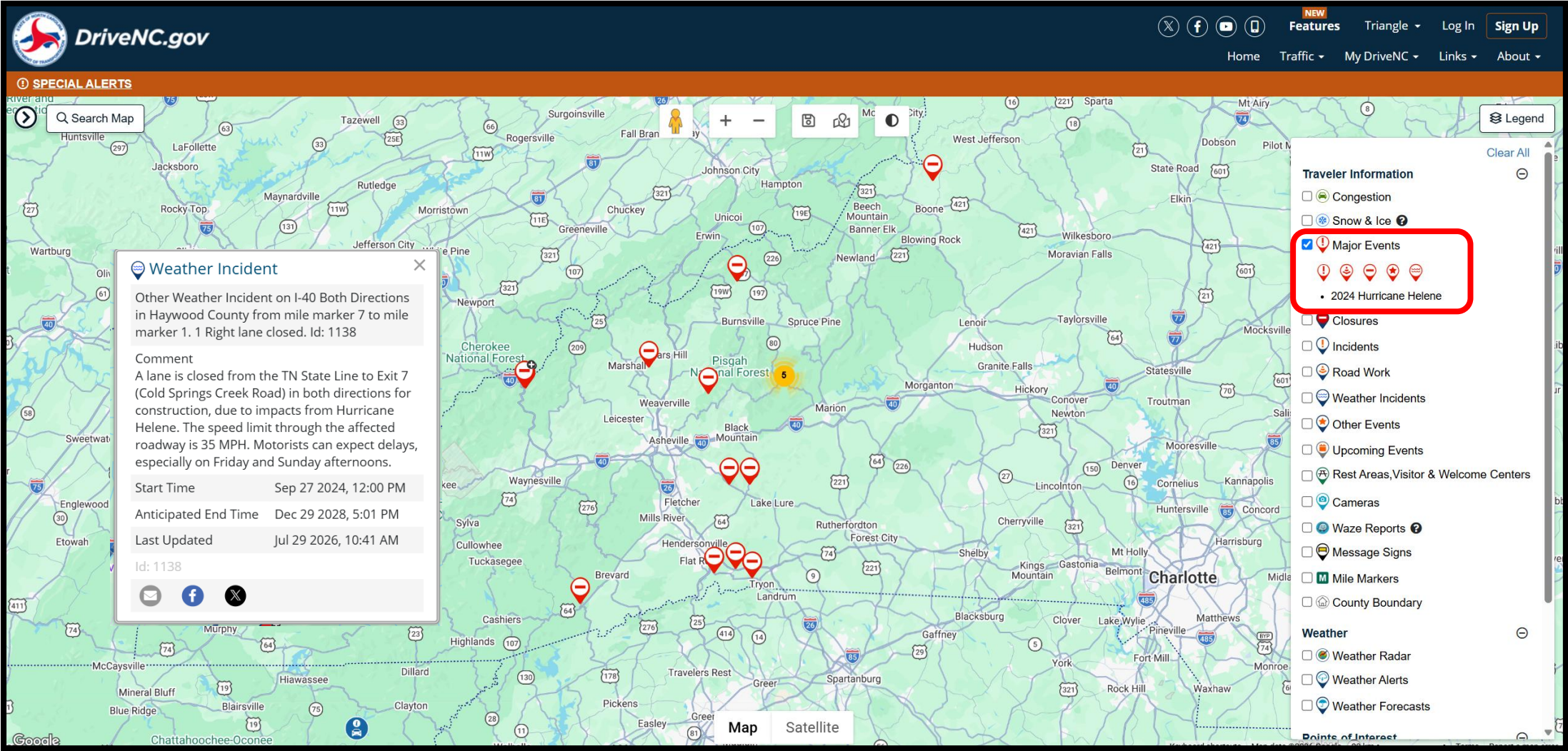
Weather

☐ Weather Radar

☐ Weather Alerts

☐ Weather Forecasts

33



The screenshot displays the DriveNC.gov website interface. At the top, the DriveNC.gov logo is on the left, and navigation links (Home, Traffic, My DriveNC, Links, About) and user options (Log In, Sign Up) are on the right. A 'SPECIAL ALERTS' banner is below the header. The main area features a map of North Carolina with various camera locations marked by blue camera icons. A pop-up window titled 'Camera' is open, showing a live video feed from camera 'CCTV01-US64-546M'. The video shows a highway bridge over a river. A red box highlights the 'Show Video' button. Below the video, a message states: 'Video and images are neither stored nor recorded.' To the right of the map, a 'Traveler Information' sidebar is visible, containing a list of filters. A red box highlights the 'Cameras' checkbox, which is checked. Other filters include Congestion, Snow & Ice, Major Events, Closures, Incidents, Road Work, Weather Incidents, Other Events, Upcoming Events, Rest Areas, Visitor & Welcome Centers, Waze Reports, Message Signs, Mile Markers, and County Boundary.

Most urban cameras open instantly; rural cameras can take up to 15 seconds to load.



DriveNC.gov

NEW

Features

Triangle

Log In

Sign Up

Home

Traffic

My DriveNC

Links

About

SPECIAL ALERTS

Search Map

Legend

Message Sign

DMS10-I85-54.75

CRASH
PAST EXIT 52
RIGHT SHLDR CLOSED

Aug 4 2026, 3:02 PM

Traveler Information

☒ Congestion

☐ Snow & Ice

☐ Major Events

☐ Closures

☒ Incidents

☒ Road Work

☒ Weather Incidents

☒ Other Events

☐ Upcoming Events

☐ Rest Areas, Visitor & Welcome Centers

☐ Cameras

☐ Waze Reports

☒ Message Signs

☐ Mile Markers

Closed/Stopped

Heavy

None

Active

Inactive

MILE 19

Map

Satellite

Subscriptions


DriveNC.gov






NEW

Features

Triangle

Log In

Sign Up

Home

Traffic

My DriveNC

Links

About

SPECIAL ALERTS

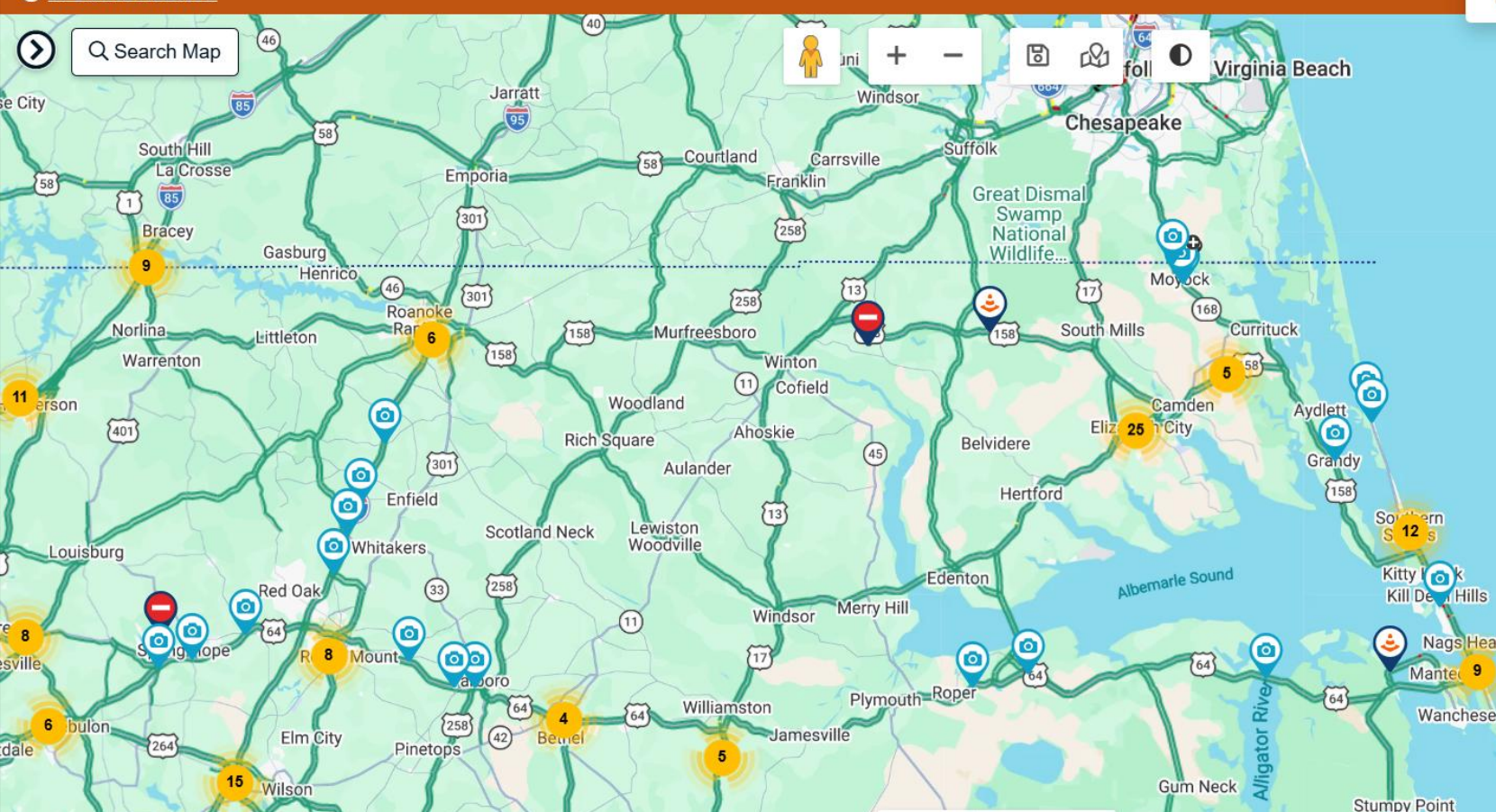
My Routes & Notifications









Legend

Clear All

Traveler Information

☒ Congestion

Closed/Stopped Heavy None

☐ Snow & Ice

?

☐ Major Events

!

☐ Closures

⛔

☒ Incidents

!

☒ Road Work

🚧

☒ Weather Incidents

⛅

☒ Other Events

🌟

☐ Upcoming Events

📅

☐ Rest Areas, Visitor & Welcome Centers

🏠

☒ Cameras

📷

☐ Waze Reports

?

☐ Message Signs

📢

☐ Mile Markers

M

☐ County Boundary

🗺️

Map

Satellite

Subscriptions

[illegible]

The image is a screenshot of the DriveNC.gov website's route planning interface. At the top, the DriveNC.gov logo is on the left, and navigation links for Home and Traffic are on the right. A 'SPECIAL ALERTS' banner is below the navigation bar. The main interface is split into a left sidebar and a right map area. The sidebar has tabs for 'MY ROUTES' and 'ALERTS'. Under 'MY ROUTES', a route named 'Home to Work' is selected. It shows two waypoints: 'A' at 316 Montibello Drive, Cary, NC, USA, and 'B' at 1636 Gold Star Drive, Raleigh, NC, US. Below the waypoints are icons for car, bus, and a refresh button, along with an 'Update' button. A green message box states 'Your route has been saved.' At the bottom of the sidebar, 'Route 1' is shown with a travel time of 11 minutes and a total travel distance of 6.0 miles. The map area on the right shows a blue route starting from a green location marker 'A' near Lake Crabtree, passing through 'The Umstead Hotel and Spa', and ending at a red location marker 'B' near the North Carolina Museum of Art. The map includes various landmarks like Lake Crabtree, The Umstead Hotel and Spa, and the North Carolina Museum of Art. A search bar at the top of the map area contains the text 'Search Map'. The map also shows a 'First Watch' icon in the top right corner.

* Denotes a required field

Notification Name *

Home to Work

Events

Types *

Select the types of traffic event for notification

Incidents, Road Work, Closures, Weather, Other Events

Notification Type(s) *

When event condition changes, notify me when new event, updated information and/or cleared

New Event, Event Cleared

Days of week *

Which day(s) of the week do you wish to receive notifications?

Monday, Tuesday, Wednesday, Thursday, Friday

Time of the day *

What time of the day do you wish to receive notifications? (If start and end time are both 12AM then notifications will be for the entire day [24 hours])

6:00 AMto6:00 PM

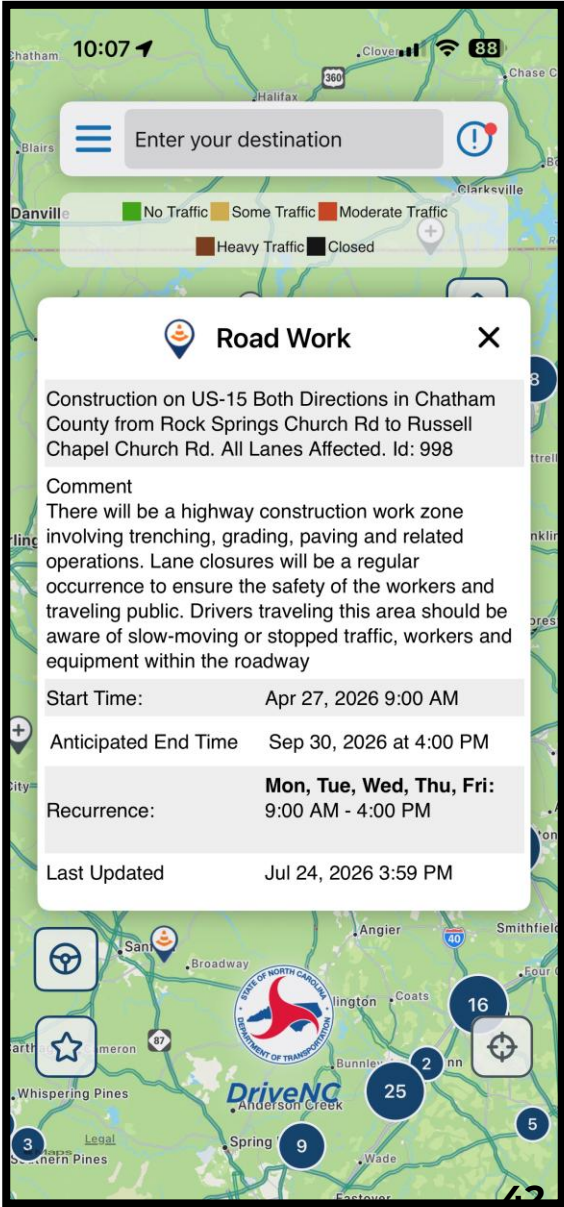
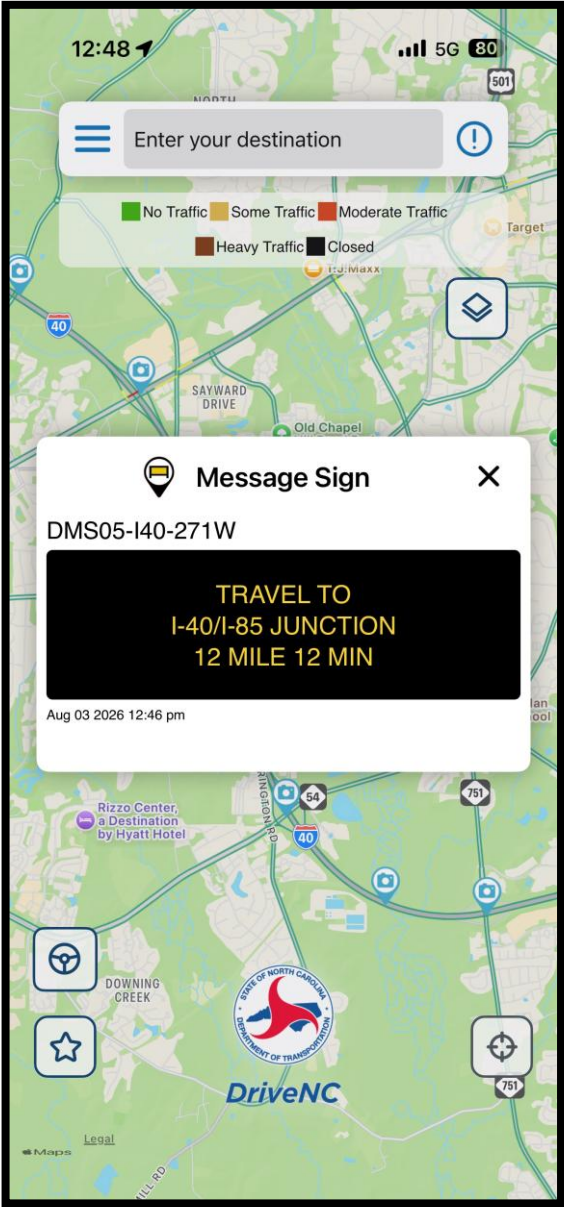
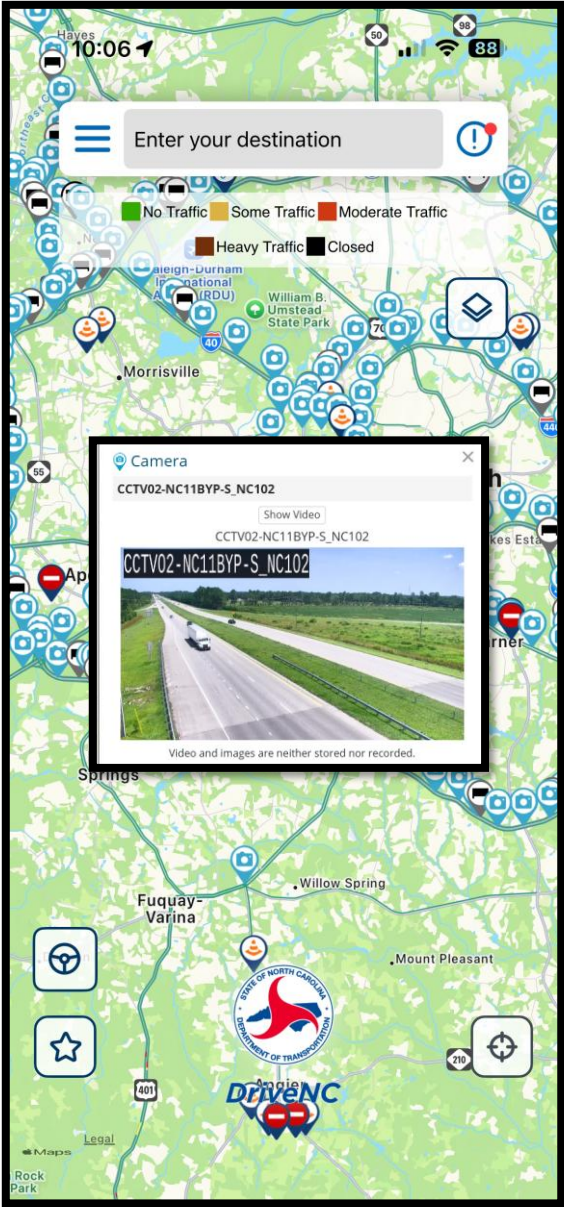
Daily summary (Email only)

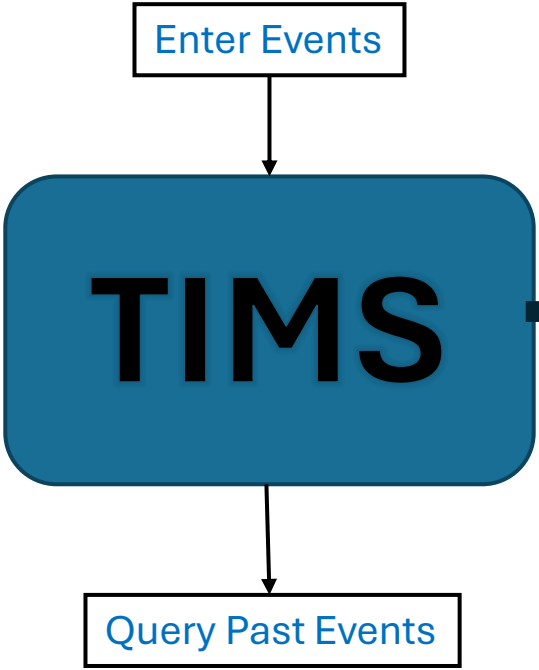
Specify the time you wish to receive a daily summary of events on your route

Never

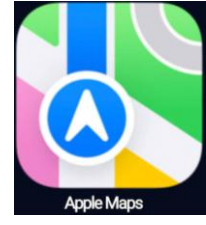
Delivery options *

- ☒ By Email
- ☐ By SMS

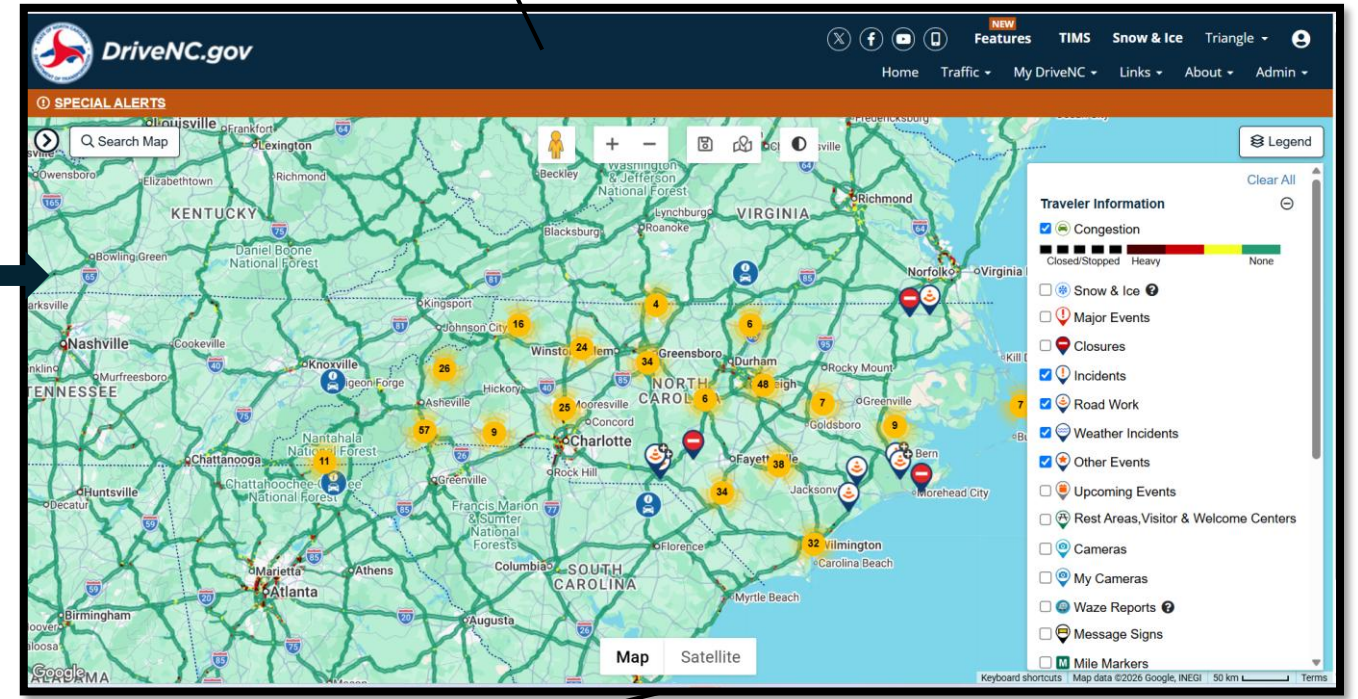




NCDOT Only



Event Feed(API)

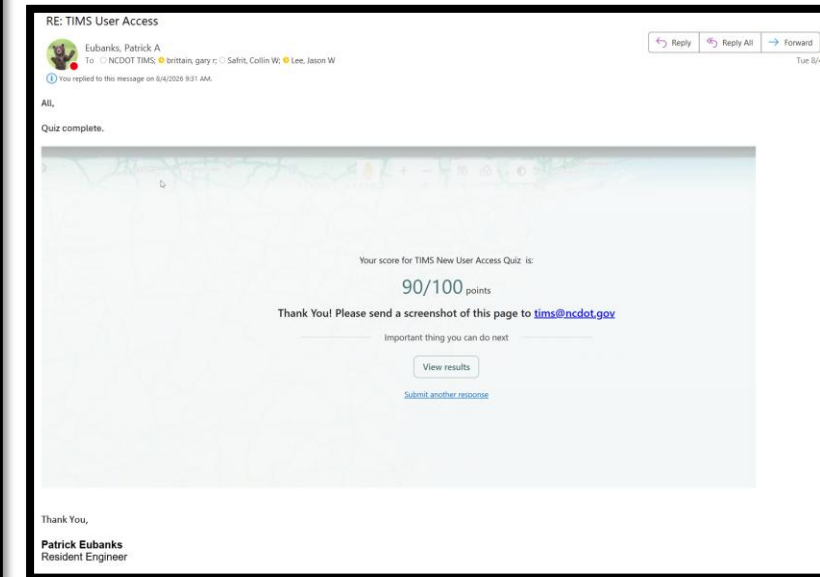
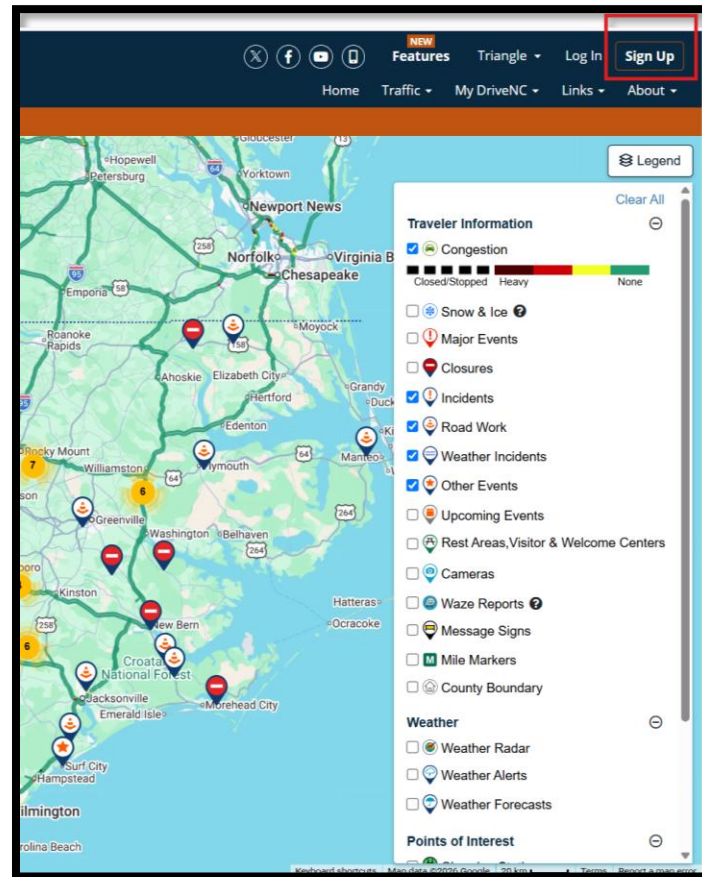


Public



If you used old TIMS to **enter incidents** and want to use new TIMS

1. Sign up for account at DriveNC.gov
2. Team TIMS will send you training video to watch and quiz to take.
3. Reply with test score and gain access.



If you used TIMS to query past incidents...

Search for Incidents

Incident #:

Start Date: Through:

Active On: Through:

Active Now ☐

TIP/Contract #: Contact Name:

Common Name: Submitted By:

Deep Search: ☐ Export to Excel: ☐

Search

Expected Impact To Traffic: Event:

Incident Type: Division:

County: City:

Direction:

Condition:

Road:

Fatality: ☐ Structure Affected: ☐

Hazardous Material: ☐ Commercial Vehicle: ☐

Unusual Event in WorkZone: ☐ Overturned Commercial Vehicle: ☐

ICM Activation: ☐

- Process has changed: now 2 separate databases whether before / after May 2026
- GIS building comprehensive search tool for all TIMS data
- If you/your team needs TIMS data reach out, I will help you navigate this: kwells@ncdot.gov

Contact Us

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