



## **Traveler Information Web Summit: Taking A Deeper Dive Into Work Zone Management, Waze and Truck Alerts**

*March 16, 2023*

# Welcome to the Meeting!

- VIDEO - You are welcome to turn on your camera by pressing the camera icon in the bottom left corner of your screen
- AUDIO - Please select **ONE** of the following audio options:
  1. **Computer: Use your computer speakers and microphone by clicking the “Join Audio” button at the bottom left of the screen (Preferred method of audio)**
  2. **Phone:** Call into the meeting by dialing the phone number based on your location (provided in the confirmation email) and enter the Meeting ID at the prompt
- **This web meeting is being recorded.**
- **Questions** with the audio or web? Please contact Esther via the Chat Box or email ([ekleit@kmjinc.com](mailto:ekleit@kmjinc.com))

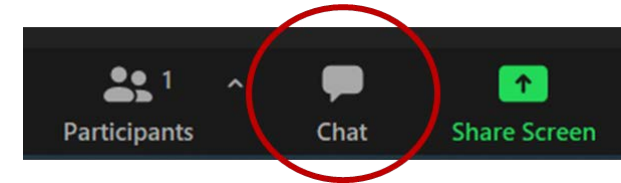


# Asking Questions



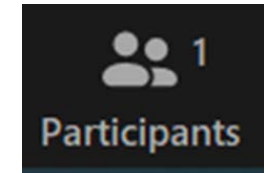
- **In the Chat Box**

- You may pose your questions using the Chat Box. Click on the chat icon at the bottom of your screen
- The questions in the Chat Box will be monitored and answered at the end of the session.



- **Verbally**

- Please raise your hand (*click on the participant button at the bottom of the screen then scroll down to the bottom of the list of participants and click on the “Raise Hand” button*), and a host will unmute you.
- Please give your name and agency before asking your question
- **Please mute yourself when you are finished asking a question**



[tetcoalition.org](http://tetcoalition.org)



# Welcome from TETC



**Denise Markow**

TSMO Program Director  
The Eastern Transportation Coalition





# Update on TETC Coordination with Waze & Google

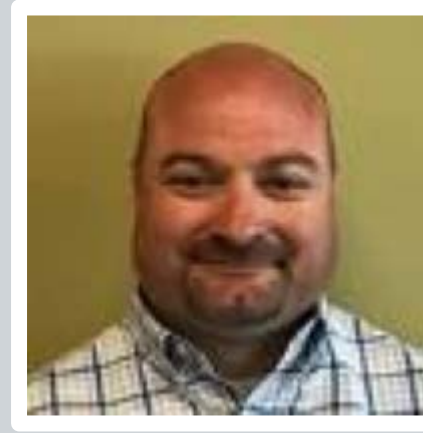
- **WAZE** - continues to receive and report on alert data for incidents, construction work zones, and other alerts (i.e., TRANSCOM, MASSDOT, etc.)
- States that are able to provide polyline closures, have those closures presented on **Waze and Google Maps** (i.e., North Carolina DOT, Florida DOT)
- **WAZE** is accepting data feeds in the WZDx standard (e.g., VDOT)
- States are starting to develop state lane configuration data/APIs which are essential to launching Audible Speakable Hazards in the **WAZE** app (expected Q3 2024)
- **WAZE** will be showcasing a new pilot called Green Light this coming June, which centers around improving traffic signal optimization to reduce split failures
- Discussions with **Google** to work on a pilot project during Hurricane Season are underway



# Introducing the TIS Co-chairs



**Kelly Wells**  
**State Traveler Information Engineer**  
*North Carolina DOT*  
**TIS Co-chair**



**John Parker**  
**Senior Traffic Operations Project Manager**  
*Pennsylvania Turnpike Commission*  
**TIS Co-chair**



# Agenda

Time	Topic	Speaker
9:00am - 9:15am	Welcome, Introductions & TETC Update	Denise Markow, TSMO Program Director, The Eastern Transportation Coalition Kelly Wells, State Traveler Information Engineer, North Carolina DOT & TIS Co-chair
9:15am - 10:00am	PTC Lane Configuration feed for Waze	John Parker, PA Turnpike Commission & TIS Co-chair James Barbosa, Director, US Solutions Lead, Intelligence, IBI
10:00am – 10:45am	Transforming Work Zone Data	Adam Graham, Chief Product Officer, one.network Ken Selvig, Chief Product Officer, one.network
10:45am – 10:55am	<i>10-minute break</i>	
10:55am – 12:05pm	State Programs for Truck Alerts and Notifications: <ul style="list-style-type: none"><li>• Virginia's Tools for Traffic &amp; WZ Notifications</li><li>• Drivewyze Updates: NC, GA, Ohio, NJ</li></ul>	Darragh Frye, Senior Communications Specialist, Virginia DOT  Ben Lempke, Assistant State Signal Engineer, Georgia DOT Sal Cowan, Senior Director, Transportation Mobility, New Jersey DOT Stephanie Marik, Data/Performance Measures Engineering Analyst, Ohio DOT Kelly Wells, State Traveler Information Engineer, North Carolina DOT & TIS Co-chair
12:05pm - 12:15pm	More Information: Travel Info & TETC	Denise Markow, TSMO Program Director, The Eastern Transportation Coalition



# Meeting Participants

Agencies				
Alabama DOT	Delaware DOT	LVPC	NITTEC	Rhode Island Division of Statewide Planning
Anne Arundel County Office of Transportation	DVRPC	Maryland DOT-SHA	NJTPA	Rhode Island Turnpike & Bridge Authority
Atlanta Regional Commission	District DOT	Massachusetts DOT	North Carolina DOT	University of Maryland
Baltimore Metropolitan Council	Florida DOT	MetroPlan Orlando	Ohio DOT	Vermont AOT
Capital District Transportation Committee (CDTC)	Georgia DOT	New Jersey DOT	Pennsylvania DOT	Virginia DOT
Connecticut DOT	Kentucky Transportation Cabinet	New York State DOT	Pennsylvania Turnpike Commission	





# Let's talk about WZDx

- Setting the Stage
- What is your agency doing with WZDx?
  1. We have a WZDx feed
  2. We are working on a WZDx feed
  3. We are considering it
  4. It's not on our radar



# PTC Lane Configuration feed for Waze



**John Parker**

Senior Traffic Operations Project Manager  
Pennsylvania Turnpike Commission  
TIS Co-chair



**James Barbosa**

Director, US Solutions Lead, Intelligence  
IBI



# Traveler Information Web Summit PA Turnpike – Waze Lane Closures Feed

March 16, 2023

## Primary Objectives:

1. Optimally manage work zones (traffic operations – safety, efficiency)
2. Provide timely, comprehensive and accurate work zone information to internal and external stakeholders
3. Disseminate work zone information as widely as possible



## Derived Initiatives:

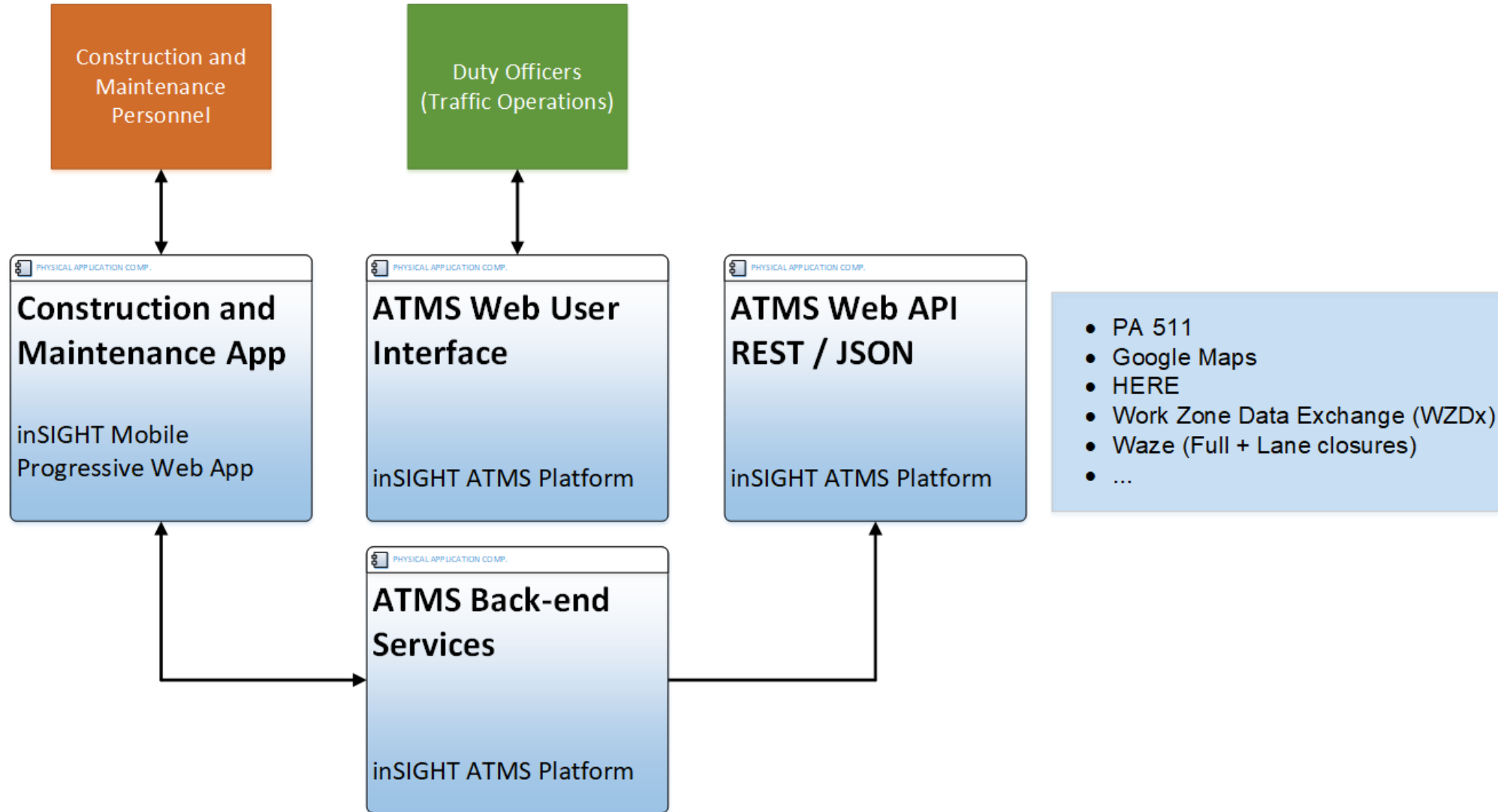
1. Standardize and simplify the timely entry of accurate work zone information by construction and maintenance personnel
2. Implement seamless, bi-directional workflows integrating construction and maintenance operations with traffic operations
3. Streamline the effective review (QA) and timely publishing of work zone information by traffic operations personnel, via both internal (e.g. DMS) and external information channels

## Derived Initiatives (cont'd):

4. Publish work zone information via a growing list of external information channels, including:

- PA 511
- Twitter
- Google Maps
- HERE
- Work Zone Data Exchange (WZDx)
- Waze (full + lane closures)
- ...

# PA Turnpike – Work Zone Management Technology Program



# Construction and Maintenance App (inSIGHT Mobile)

3:09

Construction Event

Event: 0 ATMS ID:  
State: Pending Next Activity:

**Location**

**Begin** I-76 West 11.65 miles beyond Bedford (MP: 134) ☐

**End** I-76 West 14.64 miles beyond Bedford (MP: 131) ☐

☐ Same as Begin

☐ Transition

**Map** **Satellite**

Kegg Maintenance Building

Mow N

Old Union Cemetery

CLEAR SAVE

Map Construction Maintenance Projects

AA cmm.paturnpike.com

3:08

Construction Event

Event: 0 ATMS ID:  
State: Pending Next Activity:

**Activity**

Cause

Ramp Closure (E-ZPass exit/entrance ramp closures)

Ramp Work (Exit/Entrance)

Road Construction ☒

Seeding

Sign Installation

Dismiss OK

CLEAR SAVE

Map Construction Maintenance Projects

AA cmm.paturnpike.com

3:09

Construction Event

Event: 0 ATMS ID:  
State: Pending Next Activity:

Google

Mow N Snow

Shippy Rd

Keyboard shortcuts Map data ©2023 Terms of Use

**Lane Pattern** Edit

Scheduled

**Schedule Type**

Single Occ... ☒ Repeating

**Recurrence Details**

Weekdays ☒ Select All

CLEAR SAVE

Map Construction Maintenance Projects

AA cmm.paturnpike.com

3:14

Construction Event

Event: 0 ATMS ID:  
State: Pending Next Activity:

**Recurrence Details**

Weekdays ☒ Select All

From To

16:00 20:00

**Schedule Period**

Start Date End Date

03/15/2023 05/15/2023

**Project Details** Select Project

Project Number: T-186.20S004-3-02

Description: Rehabilitation of the Tuscarora Tunnel and portal buildings including electrical and mechanical upgrades: full-death

CLEAR SAVE

Map Construction Maintenance Projects

AA cmm.paturnpike.com



# ATMS Web User Interface (inSIGHT ATMS)

Event: P23031500006

Event ID: P23031500006

Detected: 15:14

Owner: mmcbroom@paturndpike.com

State: Advance

Event Type: Planned

Last Update (No.): 15:29 (7)

Created By: Not Owned

Next Activation: 16:00

Primary Details

Project

Workzone Info

Linked Events

Restrictions

Advance Response

Active Response

Details

Cause: Road Construction

Source:

Subcause:

Schedule

☐ Auto-deactivate ☐ Auto-activate

Repeating Wednesday 16:00 to 20:00 from 03/15/2023 to 05/15/2023

Advance Plan Period: 1 Hours

Location

Add Location

Opposite Direction

New Location

Severity: 1

I-76 West 11.65 miles after Bedford 21.45 miles before North Somerset Service Plaza

Begin

I-76 West 11.65 miles after Bedford 21.45 miles before North Somerset Service Plaza

Roadway

I-76 West

Mile: 134

Reference

11.65 Miles: Beyond Bedford

Limits

Juniata / Bedford / District 2

End

I-76 West 14.64 miles after Bedford 18.46 miles before North Somerset Service Plaza

Roadway

I-76 West

Mile: 131

Reference

14.64 Miles: Beyond Bedford

Limits

Juniata / Bedford / District 2

Transition:

☐ Offset: Miles

Transition Roadway

Mile:

Length 3

☐ Event on Ramp ☐ In Tunnel

Lane Blockage

Add Event

On Opposite Road

Linked Congestion

Schedule Diversion

Confirm

Combine

Uncombine

Activate

Deactivate

Clear

Own

Disown

Save

Close

ARCADIS | IBI GROUP

PENNA  
TURN  
PIKE

17

# ATMS Web User Interface (inSIGHT ATMS)

Event: P23031500006

Event ID: P23031500006    Detected: 15:14    Owner: mmcbbroom@paturnpike.com    State: Advance    Event Type: Planned  
Last Update (No.): 15:29 (7)    Created By: Not Owned    Next Activation: 16:00

Primary Details    Project    Workzone Info    Linked Events    Restrictions    Advance Response    Active Response

Details    Schedule    ☐ Auto-deactivate    ☐ Auto-activate

Cause: Road Construction    Repeating: Wednesday 16:00 to 20:00 from 03/15/2023 to 05/15/2023  
Source:    Advance Plan Period: 1 Hours  
Subcause:

Location    Add Location    Opposite Direction    New Location

I-76 West 11.65 miles after Bedford 21.45 miles before North Somerset Service Plaza

Mile: 134

Beyond Bedford

District 2

End: I-76 West 14.64 miles after Bedford 18.46 miles before North Somerset Service Plaza

Roadway: I-76 West    Mile: 131

Reference: 14.64 Miles: Beyond Bedford

Limits: Juniata / Bedford / District 2

Transition: ☐ Offset:    Miles

Transition Roadway:    Mile:

Length: 3    ☐ Event on Ramp    ☐ In Tunnel

Lane Blockage:

Severity: 1

Activate Event

If you continue, this event will be marked as active. The Active Response plan will be available for review and approval.

Continue    Cancel

Add Event    On Opposite Road    Linked Congestion    Schedule Diversion    Confirm    Combine    Uncombine    Activate    Deactivate    Clear    Own    Disown    Save    Close

# ATMS Web User Interface (inSIGHT ATMS)

The screenshot displays the inSIGHT ATMS web user interface. At the top, a dark header bar shows the event ID: P23031500006. Below this, a blue notification banner states "Info: Response plan has been updated." with a "Dismiss" button. The main content area is divided into several sections. The top section displays event metadata: Event ID: P23031500006, Detected: 15:14, Last Update (No.): 15:32 (9), Created By: Not Owned, Next Deactivation: 20:00, and Event Type: Planned. Below this is a tabbed interface with tabs for Primary Details, Project, Workzone Info, Linked Events, Restrictions, Advance Response, and Active Response. The Active Response tab is currently selected. Within this tab, there are sub-tabs for DMS, Email, API, SMS, and Task List. The API sub-tab is active, showing a "Proposed Message" and a "Current Message" section. Both sections contain the text: "Road work on I-76 West. The right shoulder is closed." Below the "Proposed Message" section, a "Character Count: 53" is displayed. At the bottom of the "Proposed Message" section, there are "Delete" and "Accept" buttons. The bottom of the interface features a row of action buttons: Add Event, On Opposite Road, Linked Congestion, Schedule Diversion, Confirm, Combine, Uncombine, Activate, Deactivate, Own, Disown, Regenerate, and Close. The background of the interface shows a map of the area around York Springs, PA, with a green dashed line indicating the workzone and a red icon representing the event location.

Event: P23031500006

Info: Response plan has been updated. [Dismiss]

Event ID: P23031500006 Detected: 15:14 Event Type: Planned  
Last Update (No.): 15:32 (9) Created By: Not Owned Next Deactivation: 20:00

Primary Details Project Workzone Info Linked Events Restrictions Advance Response Active Response

✓ DMS Email ✓ API SMS Task List [View Generation Log] [Export Response Plan]

**Proposed Message** ✎

Road work on I-76 West. The right shoulder is closed.

Character Count: 53

**Current Message**

Road work on I-76 West. The right shoulder is closed.

[Delete] [Accept]

[Add Event] [On Opposite Road] [Linked Congestion] [Schedule Diversion] [Confirm] [Combine] [Uncombine] [Activate] [Deactivate] [Own] [Disown] [Regenerate] [Close]

# ATMS Web API (REST / JSON) – WZDx Endpoint

Example WZDx record:

```
"id": "-315000060", "type": "Feature",
"properties": {
  "core_details": {
    "event_type": "work-zone",
    "data_source_id": "ATMS",
    "road_names": ["I-76 West"],
    "direction": "westbound",
    "description": "Road work on I-76 West. The right shoulder is closed.",
    "creation_date": "2023-03-15T19:14:33Z",
    "update_date": "2023-03-15T19:32:57Z"},
    "start_date": "2023-03-15T20:00:00Z", "end_date": "2023-05-15T04:00:00Z",
    "is_start_date_verified": false, "is_end_date_verified": false, "location_method": "channel-device-method",
    "vehicle_impact": "some-lanes-closed", "is_start_position_verified": false, "is_end_position_verified": false,
    "lanes": [ {"order": 1, "type": "shoulder", "status": "open"},
               {"order": 2, "type": "general", "status": "open"},
               {"order": 3, "type": "general", "status": "open"},
               {"order": 4, "type": "shoulder", "status": "closed"} ],
    "beginning_milepost": 0.08, "ending_milepost": 0.08},
  "geometry": {"type": "MultiPoint", "coordinates": [ [-78.740189, 39.97934], [-78.693474, 39.999683]]}
}
```



# ATMS Web API (REST / JSON) – Waze Endpoint

Example Waze record (lane closure):

```
"id": "-315000060",
  "creationtime": "2023-03-15T15:14:33-04:00", "updatetime": "2023-03-15T15:32:57-04:00",
  "starttime": "2023-03-15T16:00:00-04:00", "endtime": "2023-05-15T00:00:00-04:00",
  "type": "HAZARD", "subtype": "HAZARD_ON_ROAD_CONSTRUCTION",
  "description": "PTC:Road work on I-76 West. The right shoulder is closed.",
  "location": {"direction": "ONE_DIRECTION", "polyline": "39.9977689275318 -78.6954130385477
39.9927629487863 -78.7004356097952 39.9911626736685 -78.7020352764616 39.9901662395821 -
78.7030586516841 39.9890030975936 -78.7042251975505 39.9882587562227 -78.7049694286924
39.9877751379211 -78.7054467417122 39.9873919151793 -78.7058826460182 39.9870929778112 -
78.7062177291665 39.986735602406 -78.7066901495837 39.9864793715736 -78.7070977887736
39.9860496963806 -78.70785899777 39.9857129216337 -78.7085315605489 39.9854181013689 -
78.7093000554485 39.9851674815145 -78.7100943545016 39.9850329906458 -78.7106373577278
39.9848636547674 -78.711424343604 39.9848216947758 -78.7116094014914 39.9846823240151 -
78.7123043409662 39.9845272094909 -78.7132091711139 39.9842345781996 -78.7147504865002
39.9831425679233 -78.7204281448954 39.9819955509742 -78.72640702473 39.9809168742673 -
78.7319328289076 39.9803190994621 -78.7351080904122 39.9798881773107 -78.7372972780784
39.9793457863177 -78.7401476640269", "street": "I-76 W", "location_description": "I-76 West 11.65 miles
beyond Bedford"},
  "lanes": [{"order": 1, "type": "shoulder", "status": "open"},
            {"order": 2, "type": "general", "status": "open"},
            {"order": 3, "type": "general", "status": "open"},
            {"order": 4, "type": "shoulder", "status": "closed"}]
}
```

# QUESTIONS?

# Transforming Work Zone Data: *Enhancing safety by connecting work crews to road users*



**Adam Graham**

Chief Product Officer  
one.network



**Ken Selvig**

Chief Product Officer  
one.network



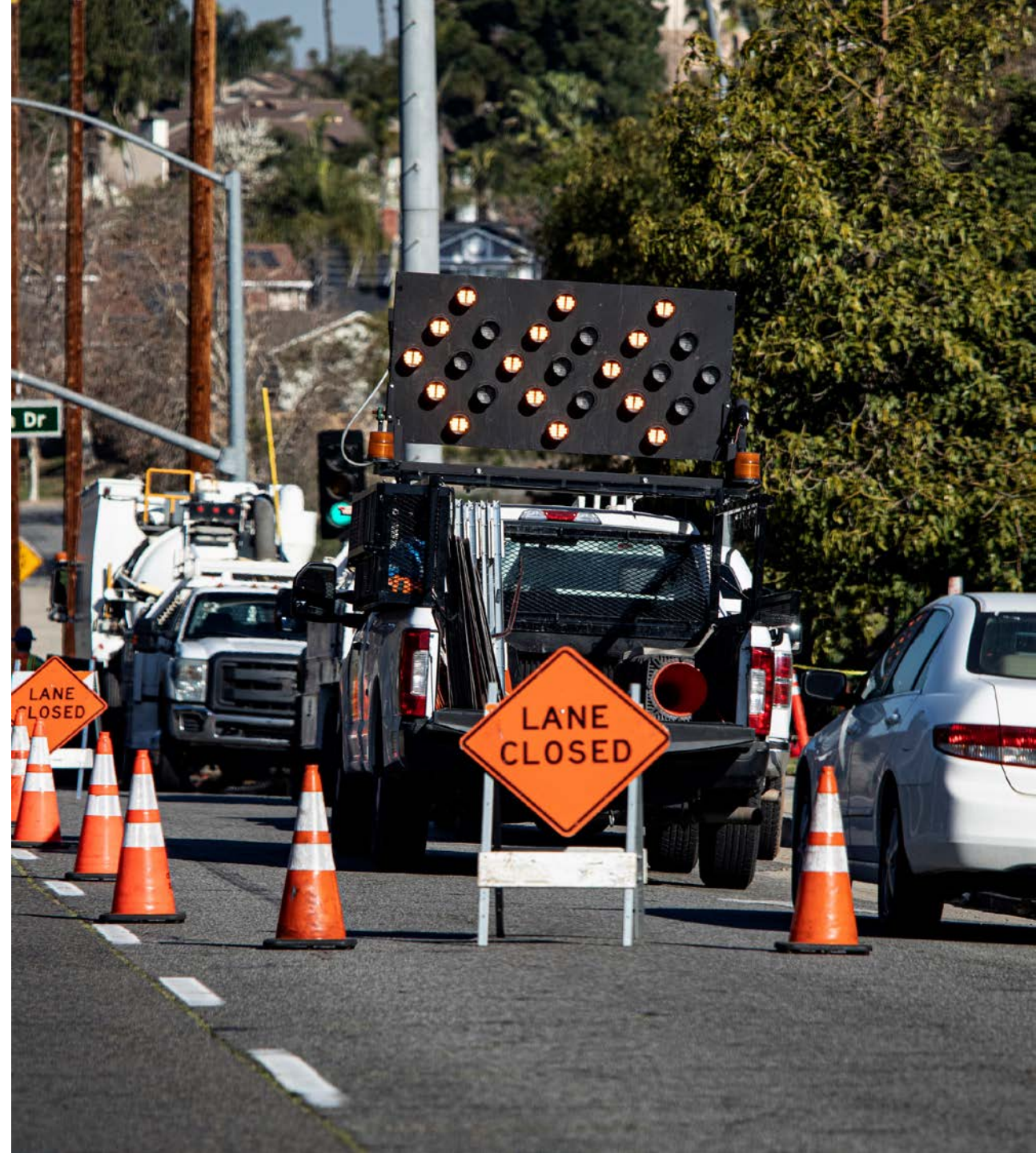


# Transforming Work Zone Data

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Enhancing safety by connecting work  
crews to road users

The Eastern Transportation Coalition | March 2023







Experienced solutions provider

# Trusted by leading agencies on both sides of the Atlantic

Our platform is market-proven by over 200 road agencies across the UK, enabling our data partners, including Google Maps, GM, Ford, Waze and TomTom to trust and further invest in their integrations with one.network in the United States.

As one of the WZDx initiative's pioneers and leading advocates, we're now driving innovative and intuitive solutions into the hands of forward-thinking US road agencies like Florida DOT.



Improving safety



Influencing drivers



Increasing collaboration



Taking work zone data in any format and converting it to WZDx (and many others)

Work Zone data can be represented in many may ways but the core data required to accurately communicate information is relatively consistent

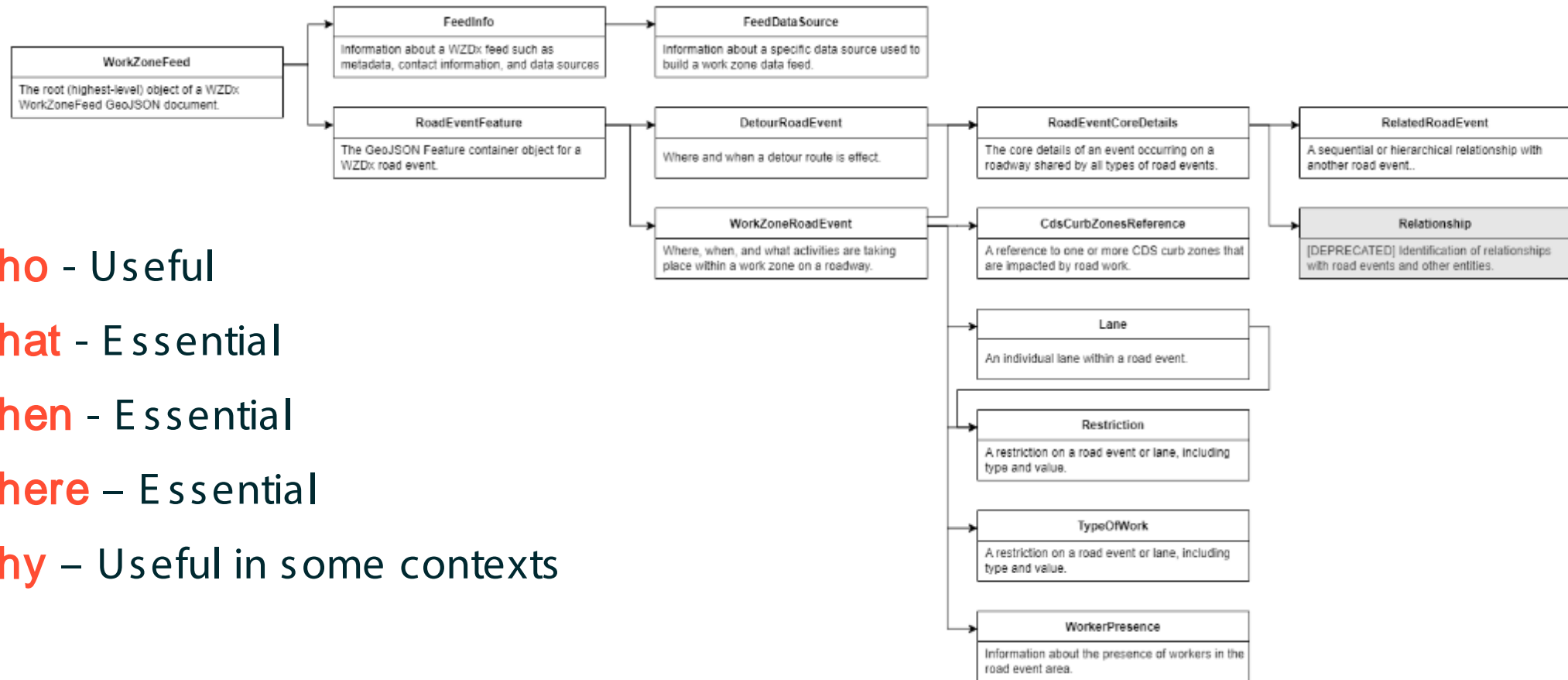
- The value of WZDx is that it allows consumers to update once and have a compliant import for many feeds
- WZDx is one of many standards used across different industries to communicate road disruptions
- WZDx is now in v4.2 (newly released) and will transition to a new standard called the CWZ standard (more on that later)





## What do you need to communicate road disruptions – The 5 W's

At a high level the information required to communicate Work Zone data and the associated disruptions are quite straight forward



**Who** - Useful



**What** - Essential



**When** - Essential



**Where** - Essential



**Why** - Useful in some contexts

## The 5 W's

### Who

---



#### Purpose

- Provides Context and authority
- This is mapped in the Feed Info section

#### Challenges

- No provision for multiple agencies (for example where all counties / cities in a state combine to a single feed)
- Limited ability to share granular detail such as construction team only

#### Uses

- This is used by data consumers to understand who is providing the data and a default level of trust to apply

## What

---



### Purpose

- Work Zone event is already defined by the feed but this section extends to explaining the impact on road users:
  - Road Closure / lane closure / shoulder closure
  - Traffic Lights etc

### Challenges

- This detail is often not mapped by agencies and can change multiple times per day

### Uses

- This is used in navigation to impact routing and generate context sensitive alerts

## The 5 W's

### When

---



### Purpose

- To define precisely when each phase of the Work Zone is active

### Challenges

- This is the most difficult part to get right, people often know the planned extents of the permit, not the planned roadway intervention and very rarely is this managed in real-time
- This leads to a loss of trust from data consumers

### Uses

- This is critical for injecting information into navigation services to push the right information at the right time to road users
- It is also critical for coordination purposes both within and between agencies

## The 5 W's

### Where

---



#### Purpose

- Share the exact location of the work zone and related interventions

#### Challenges

- WZDx requires a geometry, we often see point locations or addresses
- WZDx also requests a direction which is relatively unique
- Ideally consumers would like the specific lanes impacted

#### Uses

- Used to map out the work zones and interventions

## Why

---



### Purpose

- Define the reason that the work zone is taking place

### Challenge

- This is not a structured field in WZDx but can be contained in the event description

### Uses

- It is helpful when sharing information with the public or other agencies but rarely used by navigation



Is my agency ready for WZDx

## What is the minimum bar?

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### What

Work Zone data

### When

The Planned start and  
end date/time

### Where

The location in any  
format

Is my agency ready for WZDx

## What is needed for Navigation purposes

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### What

Work Zone data  
Traffic Disruption Type

### When

The Planned start and  
end date/time

Real-time Authoritative  
Start / Stop

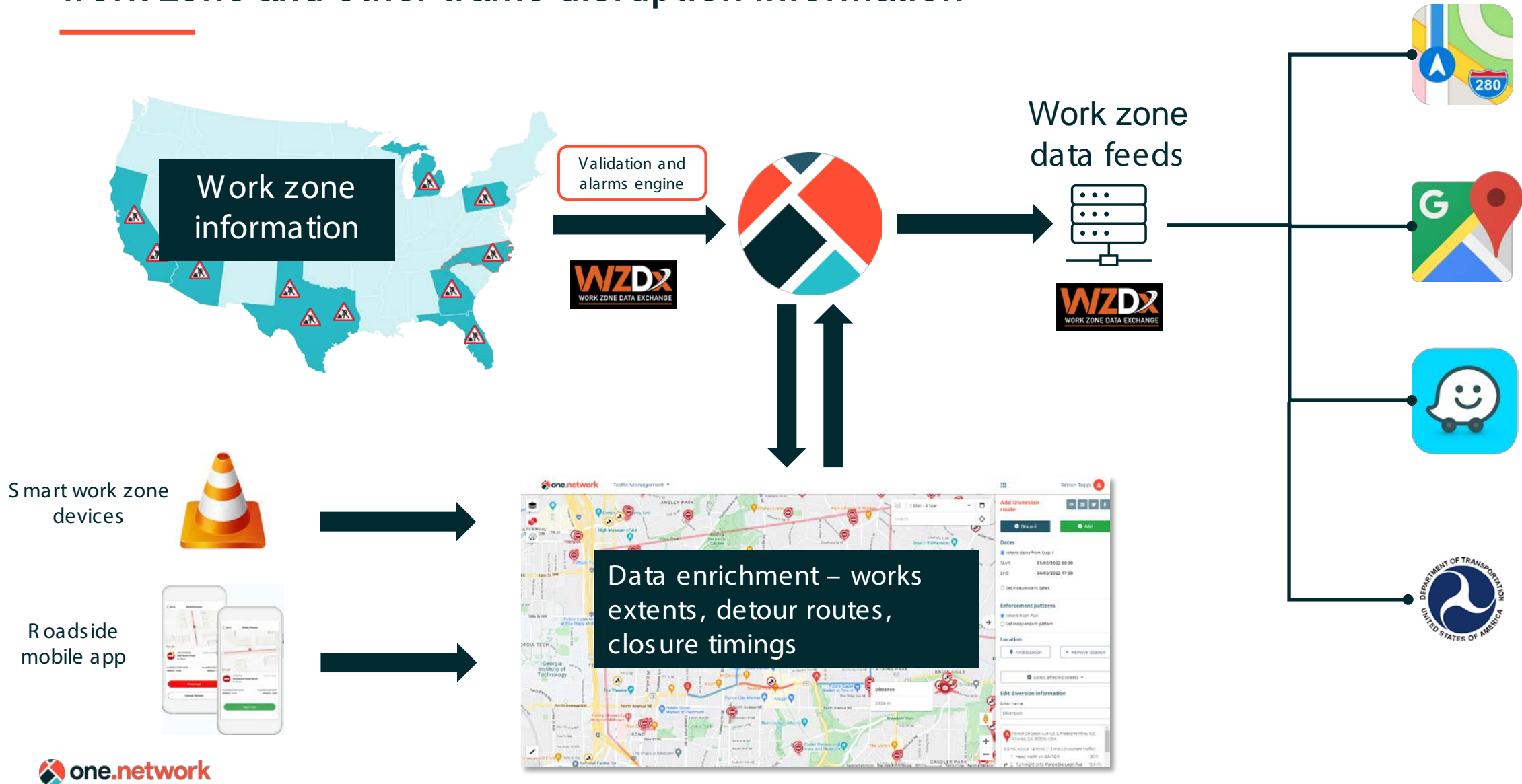
### Where

The location in the  
format they need

Detail down to the lane  
level

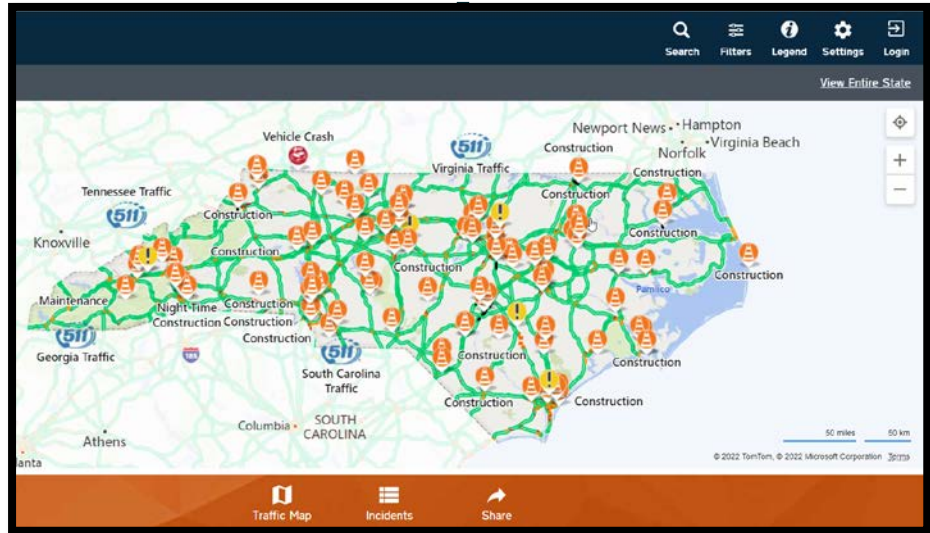
## What do one.network do

We work with all of the major navigation providers to standardize and share work zone and other traffic disruption information



# NC DOT WZDX

one.network took existing NCDOT feed  
and “translated” it into WZDX format



## DriveNC incident feed

DriveNC.gov website  
(NC 511): Work Zones,  
Crashes, Flooding,  
etc.

[illegible]

## Work Zone Data Exchange (WZDx) Feed Registry

## Roadways And Bridges

This dataset contains the up-to-date metadata on Work Zone feeds that meet the Work Zone Data Exchange (WZDx) specifications and is registered with USDOT ITS DataHub. The current work zone data from each feed can be accessed through their respective API links or through the [ITS Work Zone Sandbox](#), which contains an archive of the data.

Table Preview

View Data Create Visualization

state	issu...	feed...	url	forma...	active	Data...	versi...	socra...	sdate	edate	pipe...	last
arizona	Maricopa ...	mcdot	<a href="https://api...">https://api...</a>	json	False	4h	1	<a href="https://dat...">https://dat...</a>	2019 Oct ...	2020 Oct ...	True	2020
arizona	AZTech	mcdot	<a href="https://ap...">https://ap...</a>	geojson	False	24h	3	<a href="https://dat...">https://dat...</a>	2020 Oct ...		True	2022
massach...	Massach...	massdot	<a href="https://d...">https://d...</a>	geejson	False	15m	2	<a href="https://dat...">https://dat...</a>	2020 Sep ...		True	2022
iowa	Iowa DOT	iowadot	<a href="https://ci...">https://ci...</a>	xml	False	15m	1		2019 Oct ...		True	2022
massach...	Massach...	massdot_...	<a href="https://w...">https://w...</a>	geejson	False	15m	3.1	<a href="https://dat...">https://dat...</a>	2021 Jun ...		True	2022
oklahoma	Oklahom...	odot	<a href="https://ok...">https://ok...</a>	geojson	True	1m	4.0	<a href="https://da...">https://da...</a>	2022 Mar ...		True	2022
north car...	North Car...	ncdot	<a href="https://ys...">https://ys...</a>	json	True	4m	3.1	<a href="https://dat...">https://dat...</a>	2022 Jan ...		True	2022
colorado	Colorado ...	cdot	<a href="https://da...">https://da...</a>	geejson	True	5m	4.0	<a href="https://da...">https://da...</a>	2022 May ...		True	2022
texas	Texas DOT	txdot	<a href="https://tcd...">https://tcd...</a>	geejson	False	15m	2	<a href="https://dat...">https://dat...</a>	2020 May ...		True	2022

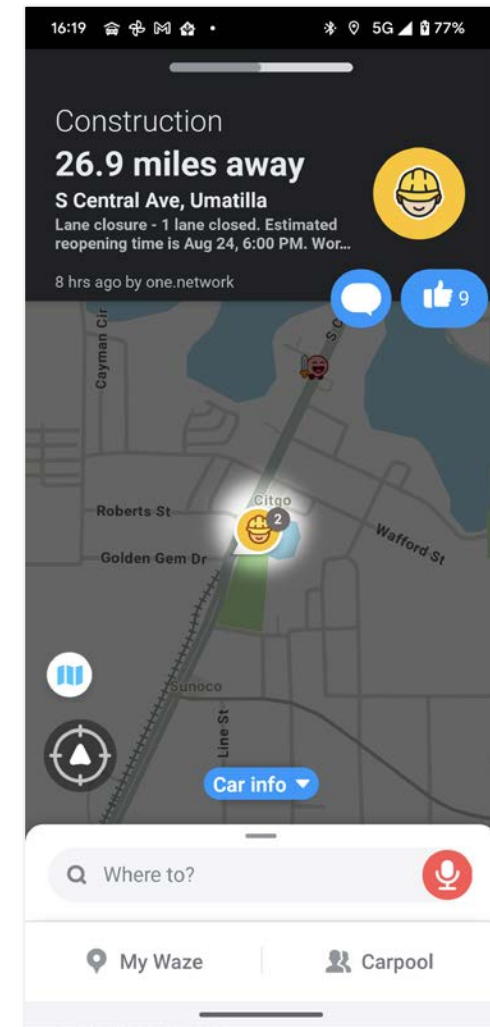
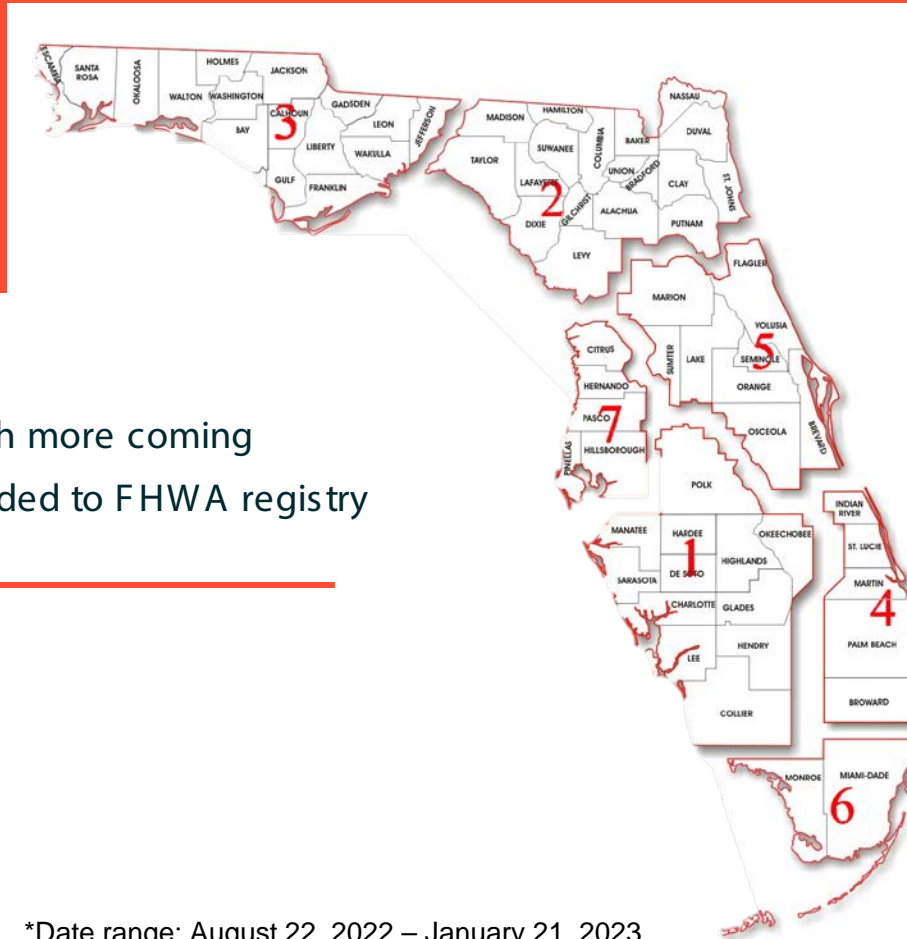
## Successes

# Partnering to make change happen

# 4,698

Closures Entered

- Statewide participation
- Data partners on board, with more coming
- WZDx feed successfully added to FHWA registry



## Where next

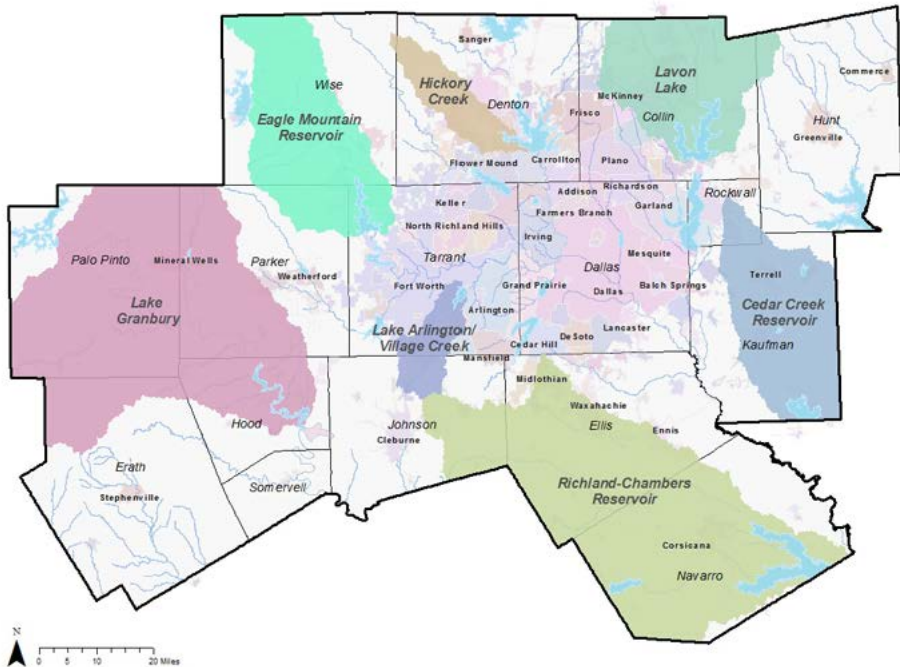
# WZDx is becoming a true data standard under a joint initiative called CWZ

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- **What is happening** – WZDx is being transitioned from a data exchange protocol to a true standard under the ITE banner along with AASHTO and NEMA
- **What does this mean in terms of WZDx** – The standard will be developed off of v4.1 and will align closely to the existing format so agencies should proceed with WZDx
- **What are the timelines** – The standard is scheduled to be finalised in Q2 2025
- **How do you get involved** - <https://www.ite.org/technical-resources/standards/cwz/>



# What is NCTCOG and TXShare?



NCTCOG is a collaborative planning organization centered in the Dallas-Fort Worth area.

Serving 16 counties and more than 230 local governments including cities, special districts and school districts.

**NCTCOG was looking for organizations to help the DFW region's agencies bring together and communicate all of their work zone data utilizing the Work Zone Data Exchange (WZDx) format as a standard.**

**NCTCOG released an RFP for targeted services the Fall of 2022 for WZDx Related software, services and consulting.**

## What is NCTCOG and TXShare?

### North Central Texas Council of Governments Selects one.network to Offer Work Zone Data Sharing Solutions for Member Agencies and Beyond



**You can make contact with me  
([ken.selvig@one.network](mailto:ken.selvig@one.network), 847-612-6544) to have one.network  
create a WZDx feed for you as we  
have done for NCDOT  
at no charge**

- NCTCOG operates TXShare Cooperative Purchasing Program
  - to maximize efficiencies in public procurement
  - allowing access to dynamic contract offerings.
- Cooperative Contracts satisfy procurement requirements and regulations that govern public sector acquisitions.
- The TxShare contract simplifies the procurement process for public-sector agencies by extending access to any interested agency that can benefit from it.
- Satisfying Uniform Guidance 2.CFR.200 regulations, with the promise that one.network software will be as seamless and simple to procure and deploy, as it is to operate.



# Thank you!

---

Adam Graham - [Adam.Graham@one.network](mailto:Adam.Graham@one.network), Chief Product Officer

Ken Selvig – [ken.selvig@one.network](mailto:ken.selvig@one.network), US, Director

London, UK | Delaware, US | Lisbon, Portugal

# 10 Min Break





# State Programs for Truck Alerts and Notifications



# Virginia's Tools for Traffic & WZ Notifications



**Darragh Frye**

Senior Communications Specialist – Fredericksburg District  
Virginia DOT





## I-95 MEGA WORK ZONES

Notifying travelers about full traffic stops, long-term lane closures or detours to avoid delays with construction to improve I-95

| Darragh Frye, VDOT Senior Communications Specialist

FACT: Fredericksburg is still an hour away from Fredericksburg.



March 16, 2023







# IMPROVE 95

*Building a Better Ride*

**More than \$1 billion in state, federal and private investment to build a better ride on I-95 in the Fredericksburg area since 2017.**

**A 16-mile of stretch of I-95 under construction in various phases through 2024.**





## 18-hour Work Zone

- 2,000 tons of asphalt
- 20,000 feet of lane markings
- 5,000 feet of concrete barriers





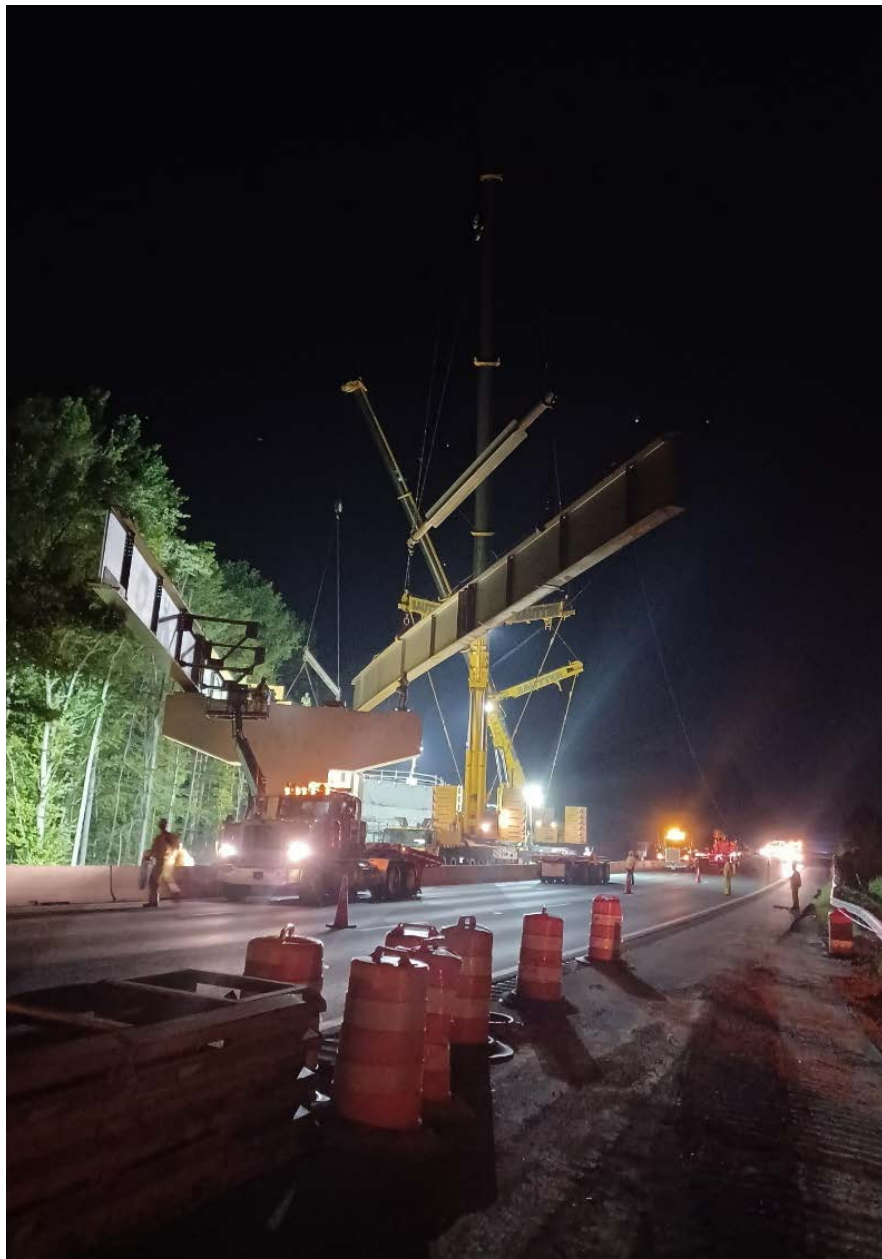


## Full stops or total closure needed

- Bridge beam lift and installation
- New alignment or new bridge
- Overhead signs and toll gantries

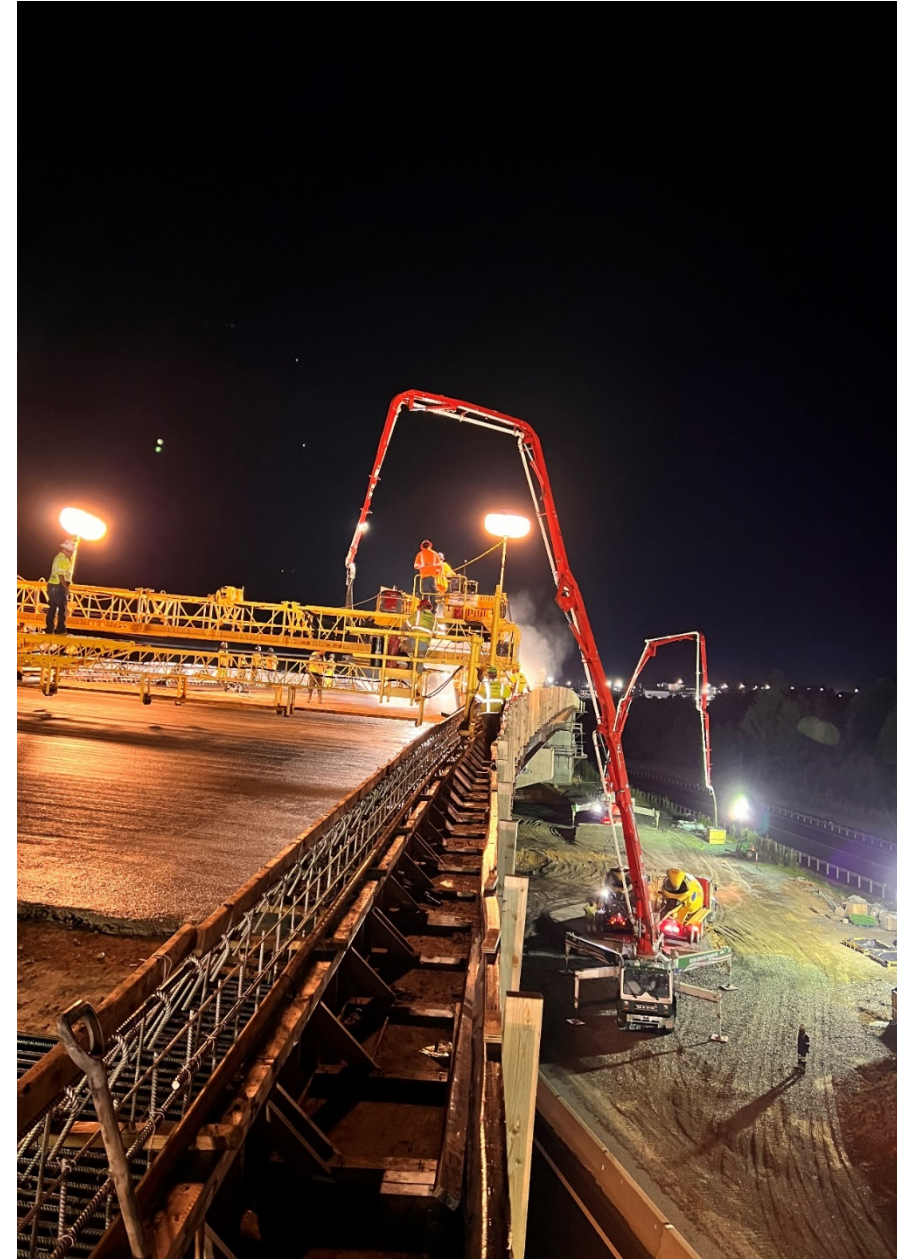






## GOAL

**Divert as many drivers as possible to minimize the queue and reduce the risk of crashes in or near the work zone**





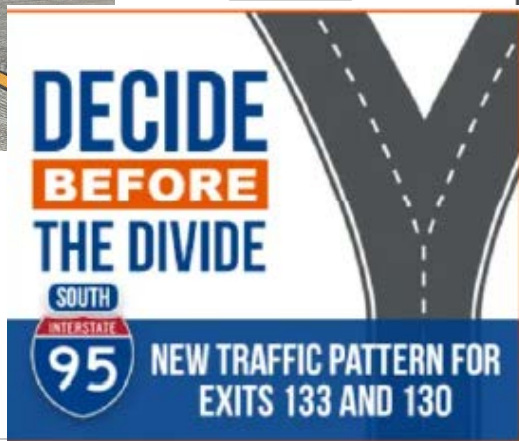
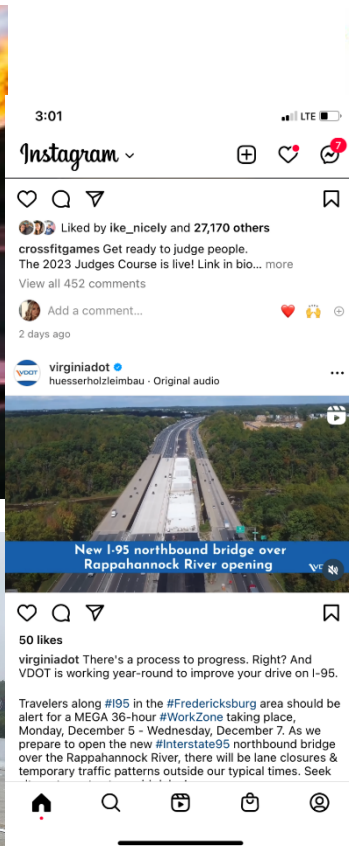
Starting two weeks before a major work zone, we begin our public outreach campaign. We encourage **ALL** drivers with destinations outside the Fredericksburg area to use alternate routes. We have detoured as much as 25% of daily traffic around a work zone with our various campaigns.





Today 12:03 PM

LANES CLOSED  
THE CENTER, RIGHT, AND RIGHT  
SHOULDER OF I-95  
SOUTHBOUND IS CLOSED AT THE  
119. PLEASE USE ALTERNATE  
ROUTES OF TRAV... <https://evb.gg/n#yfuuuylcu>



## TRAFFIC ALERT

VirginiaDOT.org

RELEASE: IMMEDIATE

Nov. 28, 2022

CONTACT:  
[Kelly Hannon](#)  
(540) 656-0321 cell  
[Darragh Frye](#)  
(540) 907-8409 cell

**HEAVY TRAFFIC EXPECTED DECEMBER 5-7  
ON I-95 NORTHBOUND IN THE FREDERICKSBURG AREA**  
*Northbound traffic will be reduced to a single lane over multiple evenings,  
with a temporary traffic pattern installed during the day,  
as a new interstate bridge opens over the Rappahannock River*



**FREDERICKSBURG, Va.** – Interstate 95 northbound travelers planning to pass through the Fredericksburg area between 5 p.m. Monday, Dec. 5, and 4:30 a.m. Wednesday, Dec. 7, are advised to use alternate routes to avoid heavy traffic and major delays expected from Improve 95 project construction.



# Public Outreach

- News release
- Media availability
- Paid radio, social media and digital mobile advertising, including Waze
- VDOT + stakeholder social media channels
- Private mapping provider outreach
- Message boards
- Locality text alerts



# PRIVATE VS. PUBLIC MAPPING PROVIDERS



**Various navigational apps may direct you the same way, but they're not all the same.**



**We're trying our best to maximize our mobility on the I-95 corridor through construction and minimize delays to travelers.**







# Drivewyze Updates



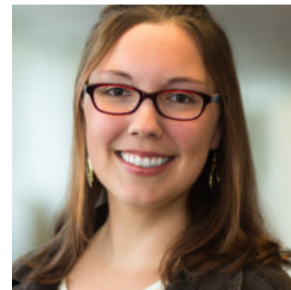
**Kelly Wells**  
**State Traveler Information Engineer**  
*North Carolina DOT*  
**TIS Co-chair**



**Sal Cowan**  
**Senior Director, Transportation Mobility**  
*New Jersey DOT*



**Ben Lempke**  
**Assistant State Signal Engineer**  
*Georgia DOT*



**Stephanie Marik**  
**Data/Performance Measures Engineering Analyst**  
*Ohio DOT*





# Drivewyze Overview

# INRIX



## Expertise

- Real-time monitoring nationwide road network
- Detects + characterizes slowdowns
- Updates every minute

## Foundational Data

- Consumer Devices
  - Connected Cars
  - Cell Phones
- Local Fleets (service, delivery, etc.)
- Long Haul Trucks



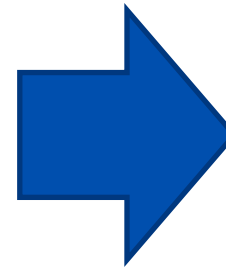


# Drivewyze

## ELD (Electronic Logging) Partners 2.7m CMVs



## Hands Free Driver App



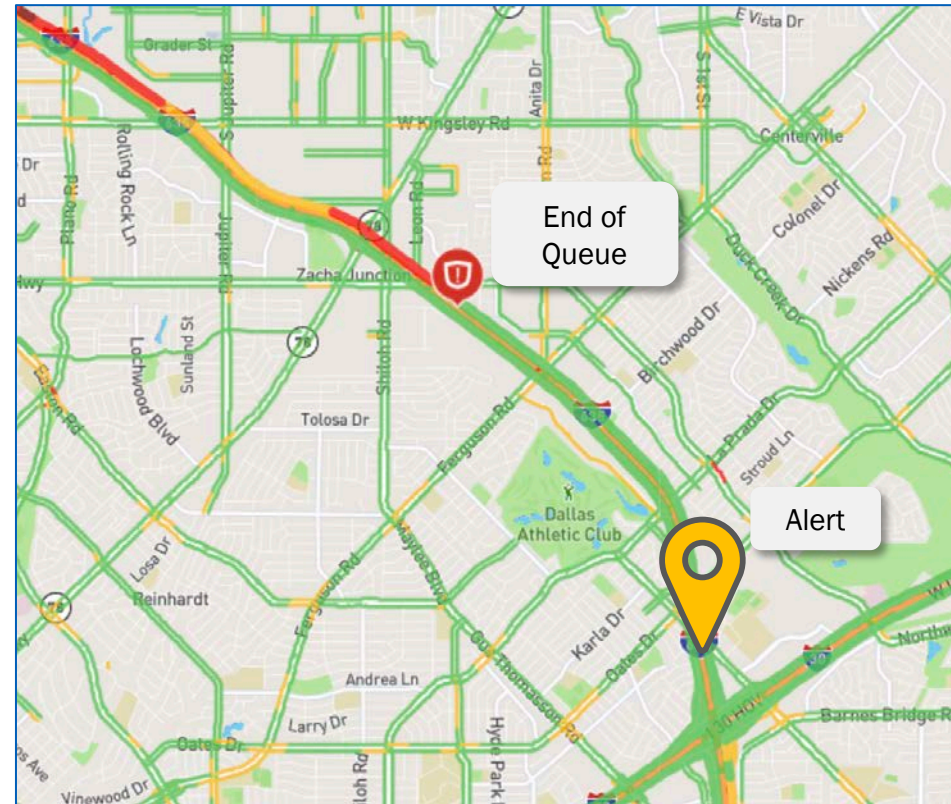
## Always-On Applications for CMV Drivers



# INRIX Traffic Alerts

## Dangerous Slowdowns

- Significant drop in speed ahead vs current speed
- Alert will be issued if speed drops 35 mph +
- 2 miles ahead



Audible beep accompanies visual alerts

## Congestion

- Delay vs. Historical
- Alert will be issued if 3 minutes or more of delay
- 3 miles ahead



# CMV Traffic Alerting - How it Works

Alerting, analyzing and optimizing driver behavior.

## Drivewyze Monitors INRIX for Events

- Sudden Slowdowns
- Congestion



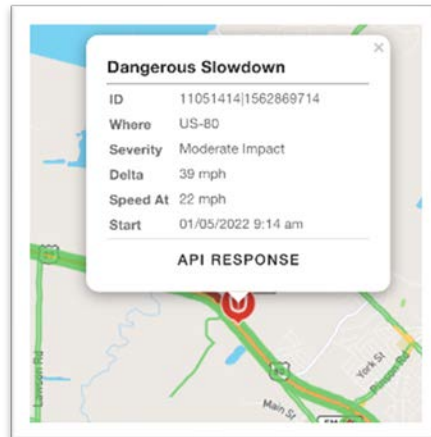
## Drivewyze Distributes Alerts

- Subscribed Fleets
- Subscribed Drivers



## Drivewyze Provides Analytics Results

- Alert Location
- Alert Frequency
- Alert Density





# Existing Drivewyze Safety Notifications

## High Rollover

NC Cary i440 & i40 NB	35.766624 -78.733381
NC Charlotte I-85 & Harris Road SB	35.311518 -80.759468
NC Charlotte I-85 & I-77 EB	35.271867 -80.847583
NC Charlotte I-85 & I-77 NB	35.274336 -80.845508
NC Charlotte I-85 & I-77 SB	35.271875 -80.845903
NC Clyde 74 - i40 NB	35.543802 -82.915932
NC Fines Creek I-40 near Forest Service Rd 288 NB	35.739593 -83.026598

## Steep Grade

NC Green River Gorge I-26 Steep Grade EB	35.273732 -82.372902
NC TN Border I-26 Steep Grade NB	35.967915 -82.553483
NC TN Border I-26 Steep Grade SB	35.924458 -82.556657

## Low Bridge

NC Durham 9th St EB	36.006555 -78.921865
NC Durham 9th St SB	36.006003 -78.922292
NC Durham S Alston Ave NB	35.984416 -78.889417
NC Durham S Alston Ave SB	35.983896 -78.889971
NC Durham S Roxboro St NB	35.99283 -78.89916
NC Durham W Peabody St NB	35.999116 -78.910281
NC Durham W Peabody St SB	35.998844 -78.910665
NC Greensboro E Lindsay St EB	36.075942 -79.785046
NC Greensboro E Lindsay St WB	36.076329 -79.785885
NC Greensboro E Washington @ Lyndon St WB	36.070459 -79.785634
NC Greensboro E Washington St EB	36.070093 -79.784234
NC Greensboro S Aycock St NB	36.063084 -79.815501



# Truck Alerts and Notifications

**Ben Lempke, PE**  
**Assistant State ITS Engineer**

## Current Initiatives

### Predetermined Static Messaging (April 2020 – Present)

- 16 Messaging sites in Metro Atlanta
- Predetermined messages based on crash history and roadway geometry
- Includes manual, low-frequency (1-4 times/month) high-profile incident messaging



### INRIX-Supported Dynamic Messaging (August 2022 – Present)

- 500 miles (I-95, I-16, and southern portion of I-75)
- “Sudden Slowdowns” and “Congestion”



# Findings

## 6-month Pilot Study Report

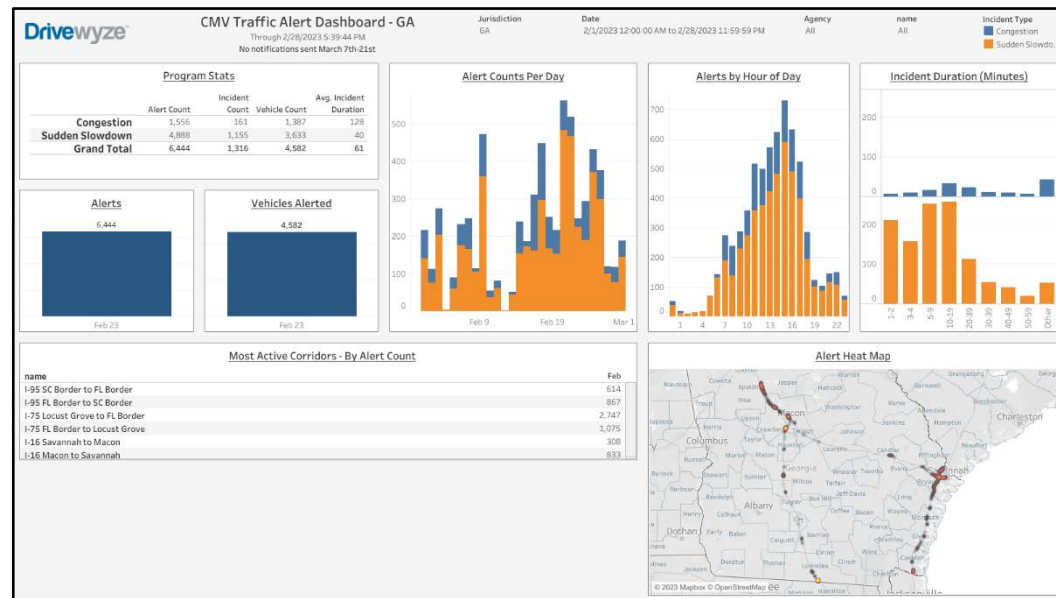
- 10 sites in Metro-Atlanta
- Decrease in hard-braking at 8/10 sites

## Predetermined Messaging in Metro-Atlanta

- ~2% Average speed drop when receiving messages across 16 sites
- Monthly refinements to sites based on findings

## INRIX-Supported Dynamic Messaging

- ~10,000 Alerts per month.



# Upcoming Activities

## Work Zone Messaging

- Partnership w/ Livelink

## Virtual Sign Network Expansion

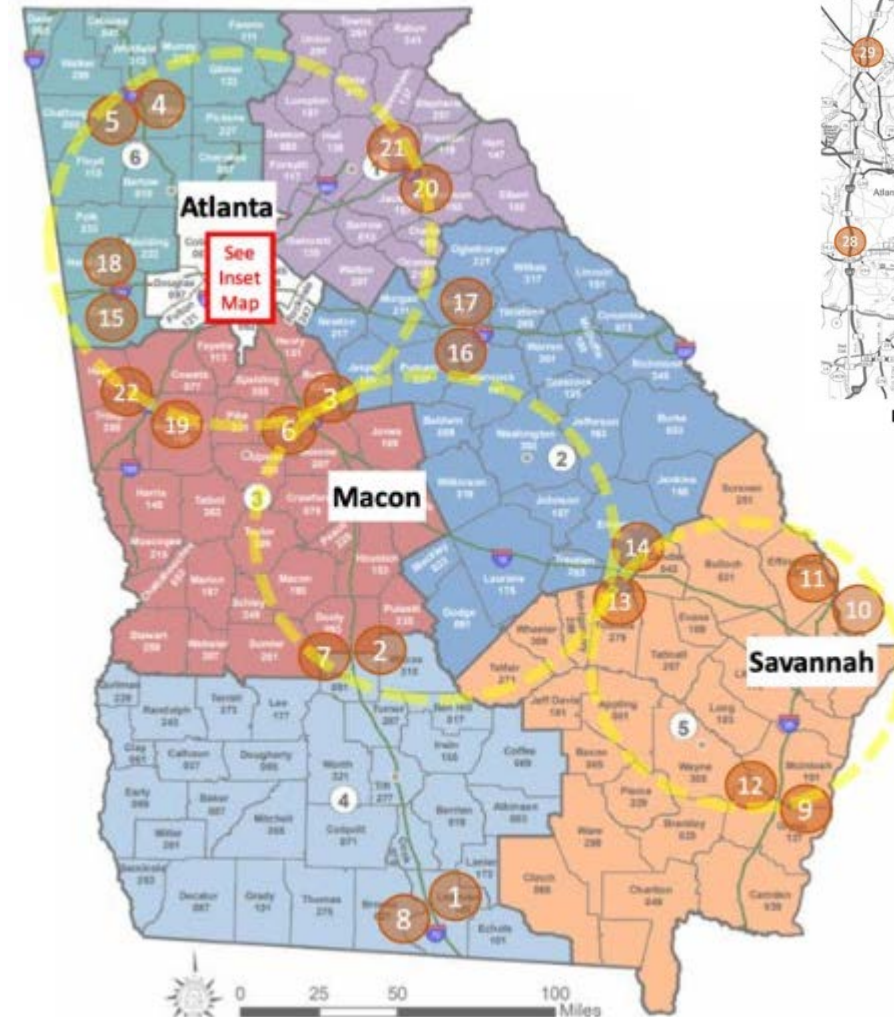
- Agency controlled, customizable messages

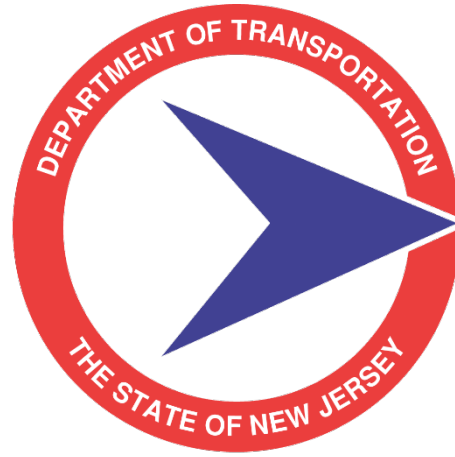
## B/C Analysis

- Utilizing TOPS-BC and other University studies
- Will explore independent verification

## Telematic Data Analysis

- Dashboard to be available this summer
- Ability to view specific braking events





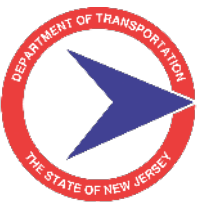
# **New Jersey Commercial Vehicle Alerts**

Sal Cowan

Senior Director, Transportation Mobility

New Jersey DOT



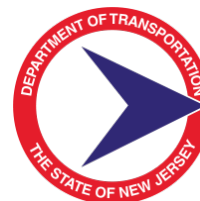


## What Roads Are Covered?

Northern New Jersey Commercial Vehicle Alert Sections			
Route	Begin Milepost	End Milepost	Total Miles
1-78	0	58.5	58.5
I-80	0	68.5	68.5
I-280	0	17.85	17.85
I-287	0	67.54	67.54
NJ 440	0	5.15	5.15
Total			217.54
Southern New Jersey Commercial Vehicle Alert Sections			
Route	Begin Milepost	End Milepost	Total Miles
I-195	0	34.2	34.2
I-295	0	76.56	76.56
I-76	0	3.08	3.08
I-676	0	4.75	4.75
NJ 42	6.2	14.3	8.1
Total			126.69
New Jersey Turnpike			
Route	Begin Milepost	End Milepost	Total Miles
PHMTE			6.6
NBHCE			8.4
Mainline			118
Western Spur			10.5
I-95 Extension			5
Total			148.5

Garden State Parkway			
Route	Begin Milepost	End Milepost	Total Miles
	0	106	106
Total			106
Atlantic City Expressway			
Route	Begin Milepost	End Milepost	Total Miles
	0		48
Total			48

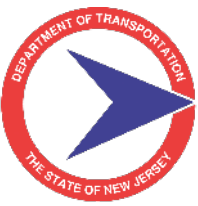
Total Centerline Miles  
(all three agencies)  
647



# What Are We Getting?

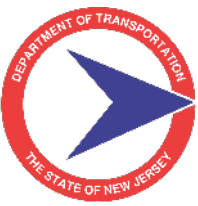


- Provide commercial drivers with real-time slowdown and congestion alerts.
- Help commercial drivers react before encountering stopped traffic or slowdowns



# Internal QA/QC

Have you received Safety Alerts from Drivewyze app? (Yes/No)	Date and Time of Alert	Route , Direction, MP when you received the Alert
What kind of Alert Type did you experience: Sudden slowdown, Congestion ahead, Low bridge ahead, High rollover area, etc.	Safety Alerts appeared for how long (5/10/15 seconds)?	Alert Method: Blinking of notification? Sound? Vibration?
How many alerts did you receive for same incident?	Can you correlate the Sudden Slowdown Alert/Congestion Ahead Alert to an Actual Incident or a slowdown?	Accuracy: Early (4+ miles out), On time (2 miles), Late (1 mile or less), No alert, Wrong alert, False alert, etc.
How did receiving the alert change your driving behavior?	Is the device mounted? Y/N	Battery life: % at beginning and % at the end of use
What time did you start the app and what time did you close the app?	Any issues using the app?	Other comments?



# Discussions Following QA/QC

NJ was provided multiple Drivewyze accounts for field vehicles to reviewing the product. Over 60 discrepancies in content/delivery since February 2022 (missed alerts, false positives, early alerting, expired alerting, etc) .

Drivewyze / Inrix team meeting in February 2023 to discuss investigation of NJ reported items over the course of 2022.

### **Walk aways for Drivewyze**

Evaluate field observations provided by NJDOT and the data transfer/polling processes with Inrix. Review QA/QC form and suggest improvements. Send QA/QC questions to Drivewyze customers (internal value). Update Tableau reporting GUI.

### **Walk aways for NJDOT**

Continue to use field evaluations using updated QA/QC form.  
Check battery life for phones (make, model, battery usage when only using the app).

# Ohio Commercial Vehicle Safety Alerts

The Eastern Transportation Coalition: TIS Web Summit

3/16/2023

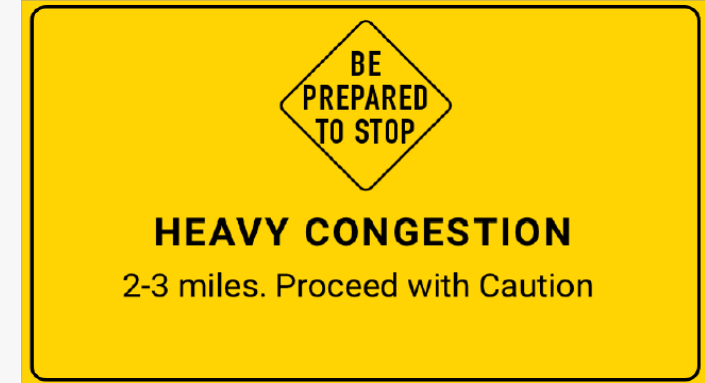
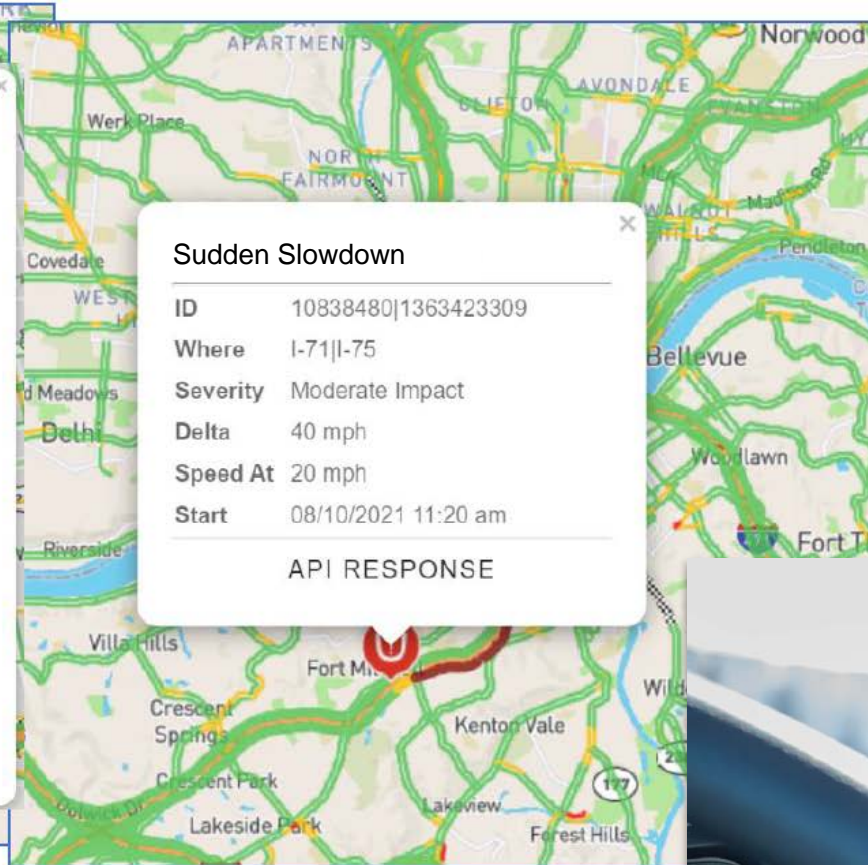
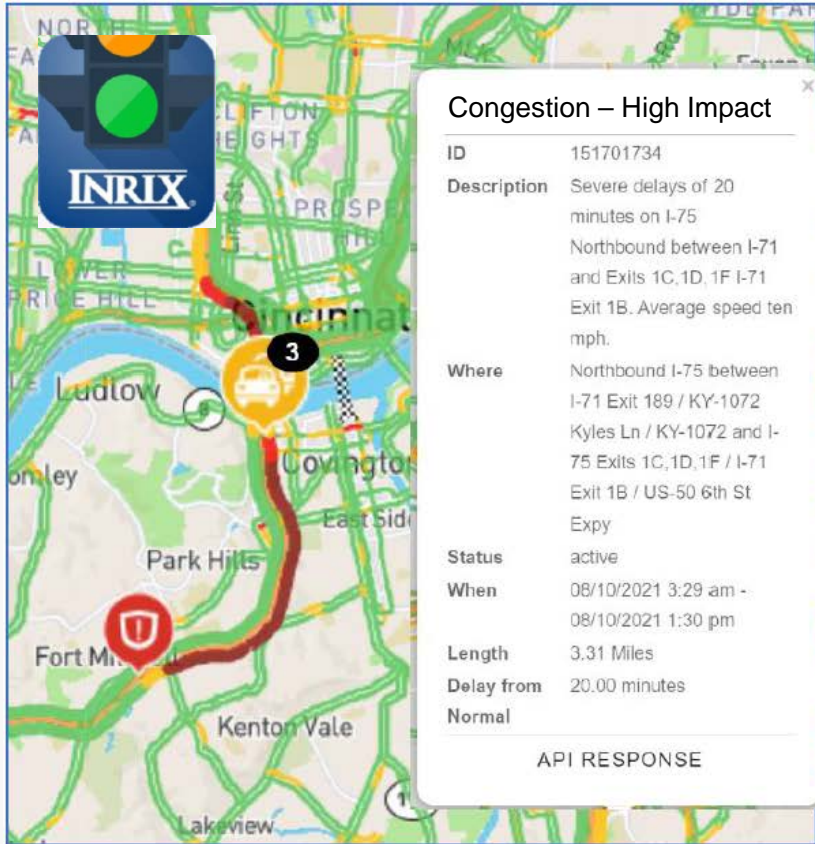


Stephanie Marik

[stephanie.marik@dot.ohio.gov](mailto:stephanie.marik@dot.ohio.gov)



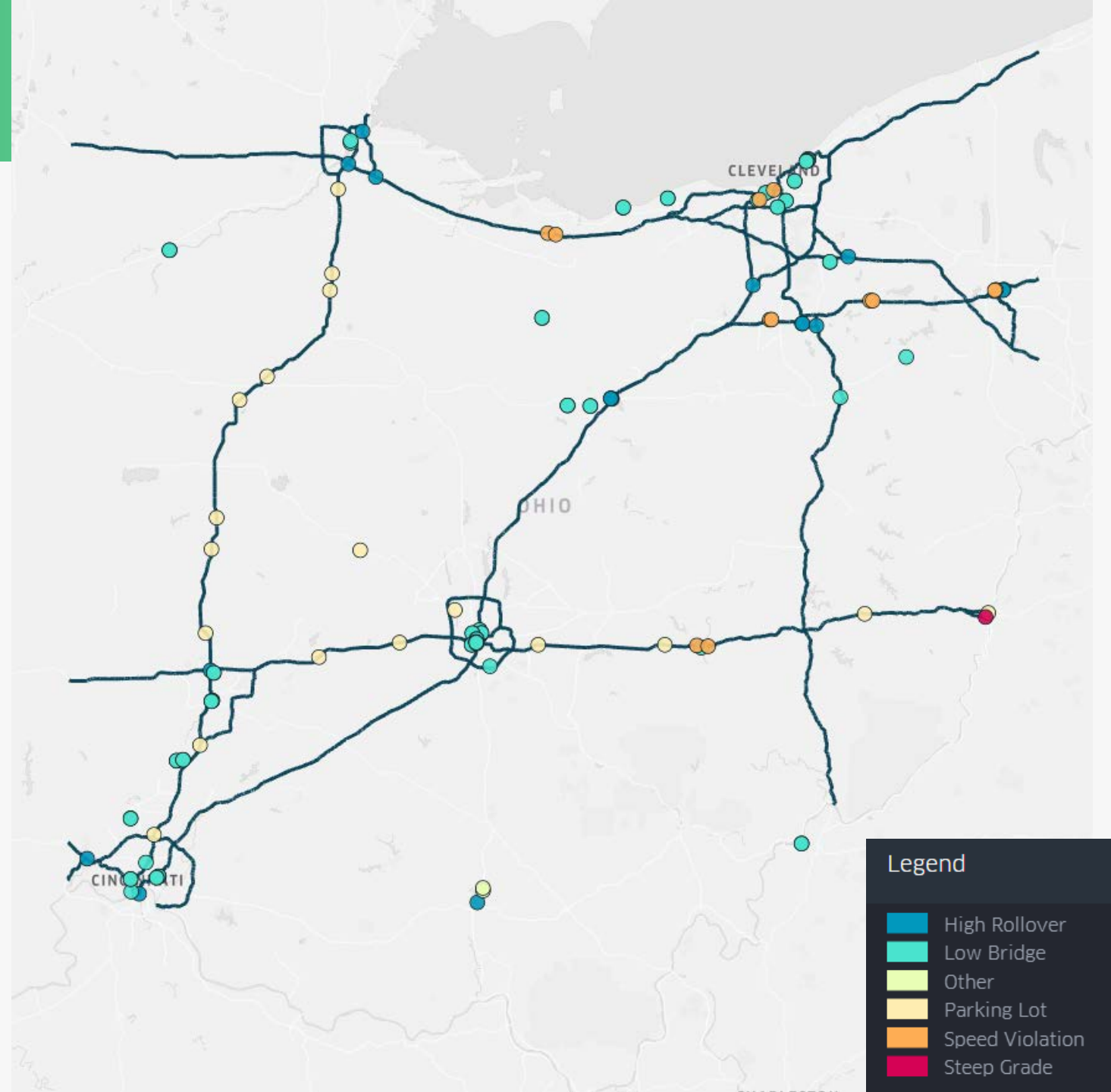
# Commercial Vehicle Safety Alerts





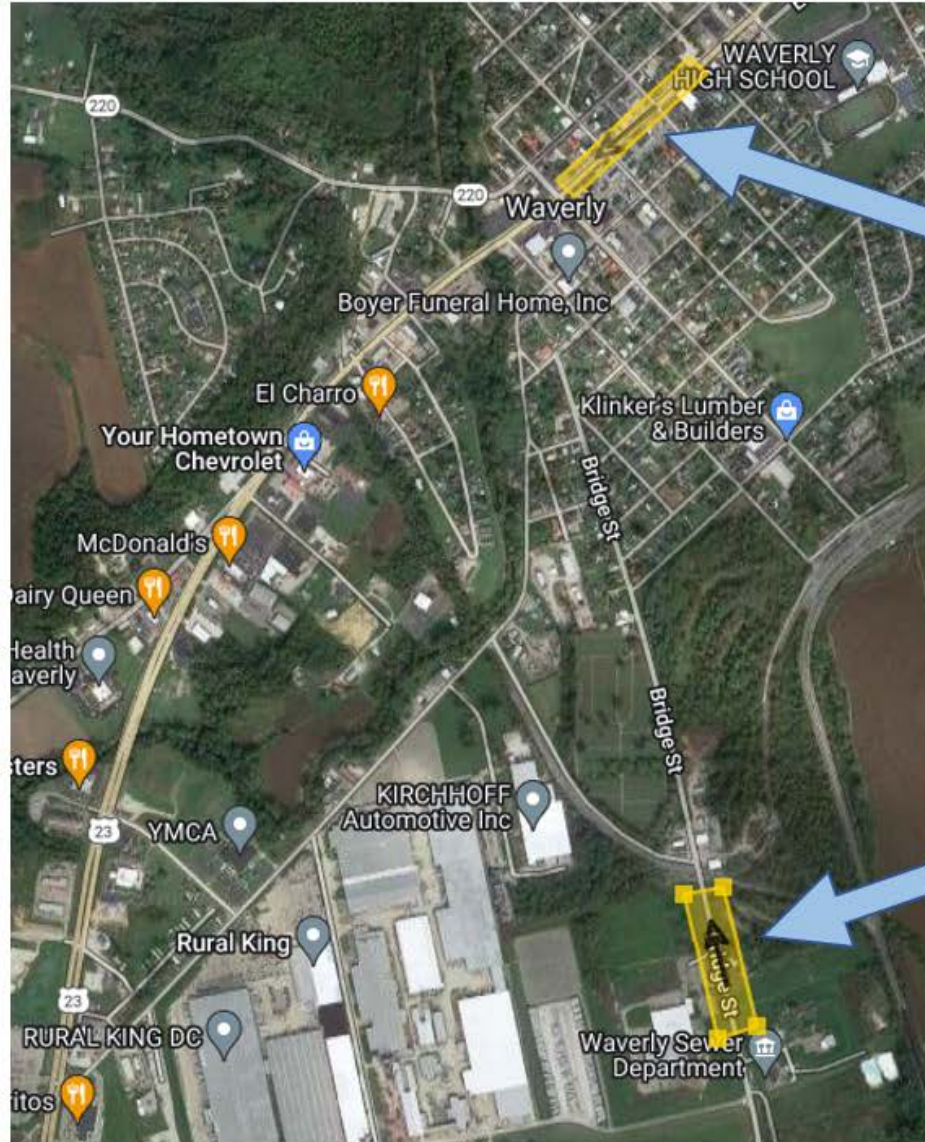
# Coverage Area

- Congestion & Sudden Slowdown Alerts
  - All Interstates in Ohio including the Ohio Turnpike
  - ~1570 Centerline Miles
- Targeted Alerts
  - Safety Warnings
  - Special Use Case (Waverly, OH)



# Waverly, OH

## Special Request Use Case



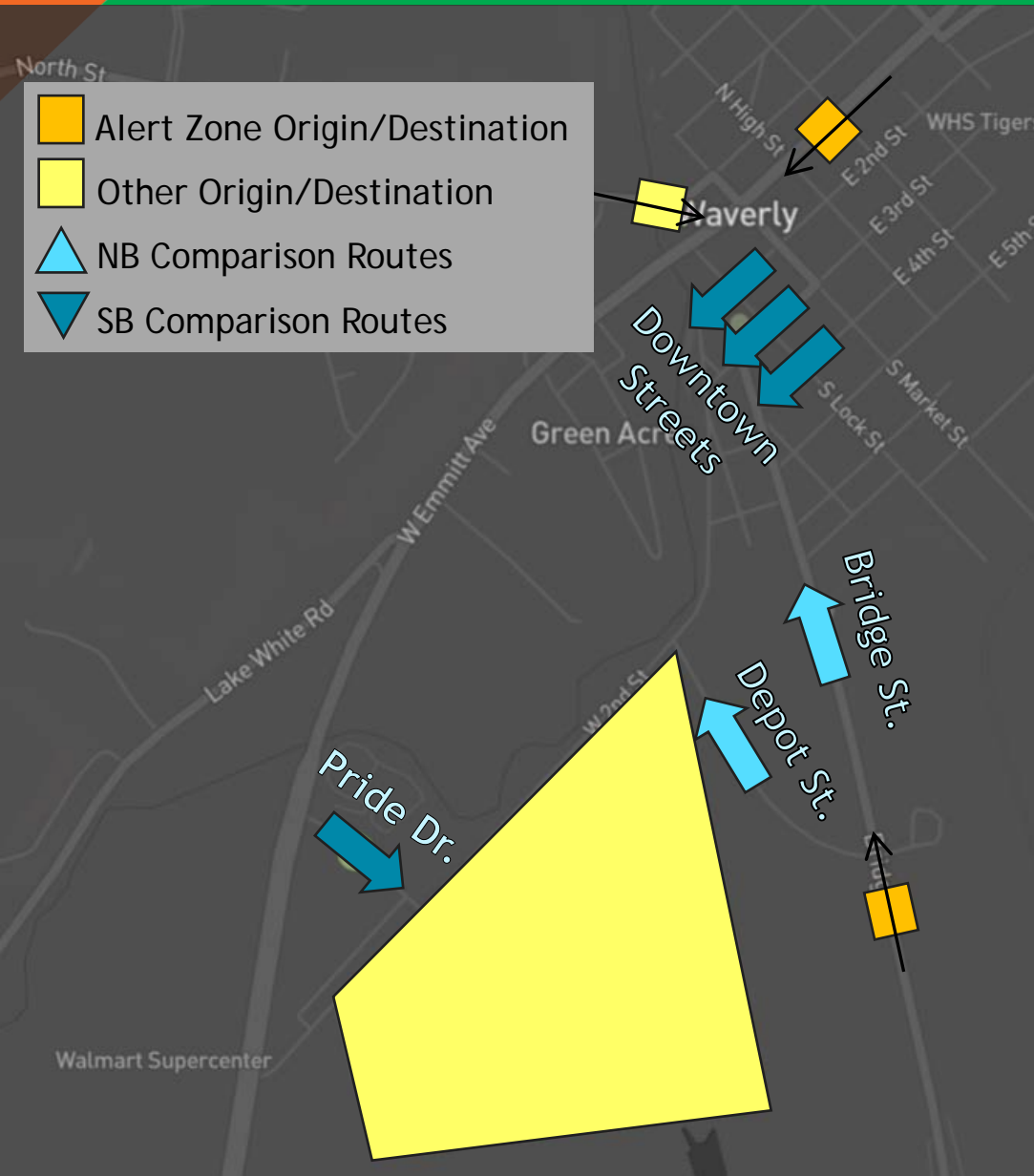
For SR220 EB Use Pride Dr  
Follow Truck Route Signs



For US23 NB Use Depot St  
Follow Truck Route Signs

# Waverly, OH

## Analysis

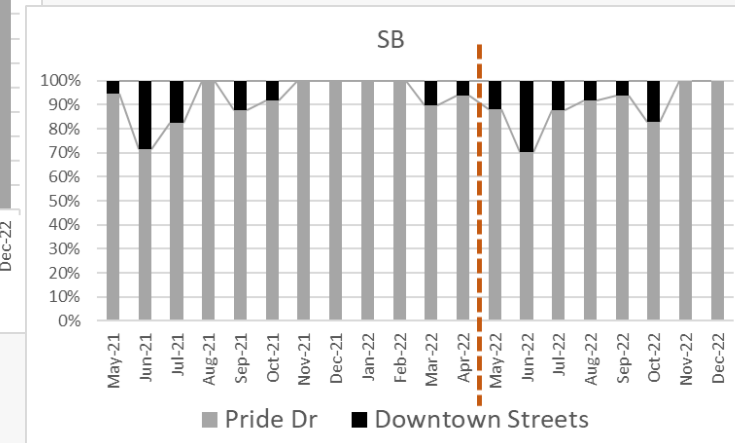
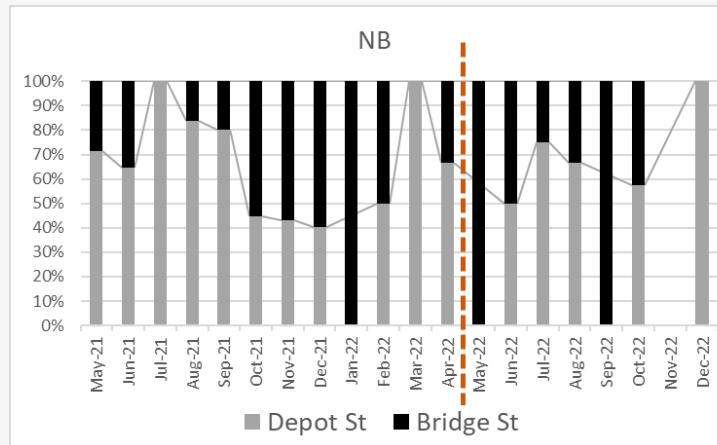


### Drivewyze Stats

Location	Number of Alerts	Unique Truck IDs
US-23 SB	3,324	1,407
Bridge St. NB	16	16



### Streetlight Analysis (Inconclusive)



# Upcoming Initiatives

- Work Zone Alerts
  - Utilizing ODOT's Work Zone Management System (WZMS) with WZDx compliant feed
- Research Project

RFP Number: 2024-14



Project Title: Determining the Effectiveness of Commercial Vehicle Safety Alerts

Submission Deadline: **March 17, 2023 @ 3:00PM (ET)**





# North Carolina CMV Alerts

Kelly Wells, PE

Traveler Information Engineer

North Carolina Department of Transportation



Drivewyze

CMV Traffic Alert Dashboard - NC

Through 8/27/2022 6:39:16 PM

No notifications sent March 7th-21st

Jurisdiction

NC

Date

9/1/2021 1:06:33 AM

8/28/2022 12:00:00 AM

Agency

North Carolina DOT

name

(All)

Incident Type

Congestion

Sudden Slowdo...

Program Stats

	Alert Count	Incident Count	Vehicle Count	Avg. Incident Duration
Congestion	42,240	7,351	16,289	61
Sudden Slowdown	64,246	19,151	18,926	13
Grand Total	106,486	26,502	23,126	32

Alerts

Vehicles Alerted

Alert Counts Per Day

Alerts by Hour of Day

Incident Duration (Minutes)

Most Active Corridors - By Alert Count

name	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
I-40EB MM0-40 TN to Asheville	255	642	317	391	315	381	405	912	1,306	819	367	441
I-40EB MM53-180 Asheville to WS	370	769	368	227	104	176	150	1,736	1,095	780	501	493
I-40EB MM259-270 Hillsborough	23	25	103	54	3	5	14	94	84	105	33	55
I-40EB MM320-420 Raleigh to Wilm	11	75	5	5	12	3	9	123	55	136	90	66
I-40WB MM40-0 Asheville to TN	110	650	1,054	1,718	734	590	835	4,632	1,591	1,242	789	777
I-40WB MM180-53 WS to Asheville	706	1,955	837	370	276	185	142	620	307	642	954	433
I-40WB MM270-259 Hillsborough	44	138	123	55	23	49		97	145	133	113	78
I-40WB MM420-320 Wilm to Raleigh	18	39	11	4	4		4	13	46	45	23	17
I-77 NB MM 55 to MM 105				123	105	1,112	1,154	3,876	2,636	1,392	290	291
I-77 SB MM 105 to MM 55				99	545	1,443	679	1,026	689	903	49	43
I-95NB MM0-182	403	700	1,433	933	798	611	1,729	7,998	3,884	3,263	3,671	2,746
I-95SB MM182-0	311	1,246	1,473	3,734	661	1,479	1,005	3,805	2,268	2,238	3,461	2,302

Alert Heat Map

- Sept 21: 500 Miles Rural Interstates
- March 23: Expanding to all rural freeways (2200 miles)

Average around 10K alerts per month

Unable to quantify benefits

# Restricted Truck Alerts ~ Western North Carolina



Site ID	Site Name	Visit Count	Risky Visit Count
16799	NC Lansing to Virginia NC-194 Restricted Road NB	7	0
16802	NC Elk Park to Valle Crucis NC-194 Restricted Road EB	560	0
16803	NC Elk Park to Valle Crucis NC-194 Restricted Road WB	7	0
16805	NC Buncombe County I-40 Restricted Road WB	2,405	0
16806	NC Buncombe County I-40 Restricted Road EB	137	0
16807	NC Lake Lure Old Fort Rd Restricted Road NB	3	0
16808	NC McDowell County Bat Cave Road Restricted Road EB	171	
16809	NC McDowell County Bat Cave Road Restricted Road WB	408	
16830	NC Highlands Franklin Rd Restricted Road WB	23	
16831	NC Highlands Dillard Rd Restricted Road	75	
16832	NC Franklin Highlands Rd Restricted Road EB	70	
16833	NC Franklin Sylva Rd Restricted Road NB	2,057	
16834	NC Franklin Sylva Rd Restricted Road SB	2,030	
16835	NC Rosman Rosman Hwy Restricted Road SB	110	
16836	NC Rosman Rosman Hwy Restricted Road NB	105	
16837	NC Pickens Moorefield Memorial Hwy Restricted Road NB	45	
Grand Total		8,213	0

- Since July 2022
- 16 locations







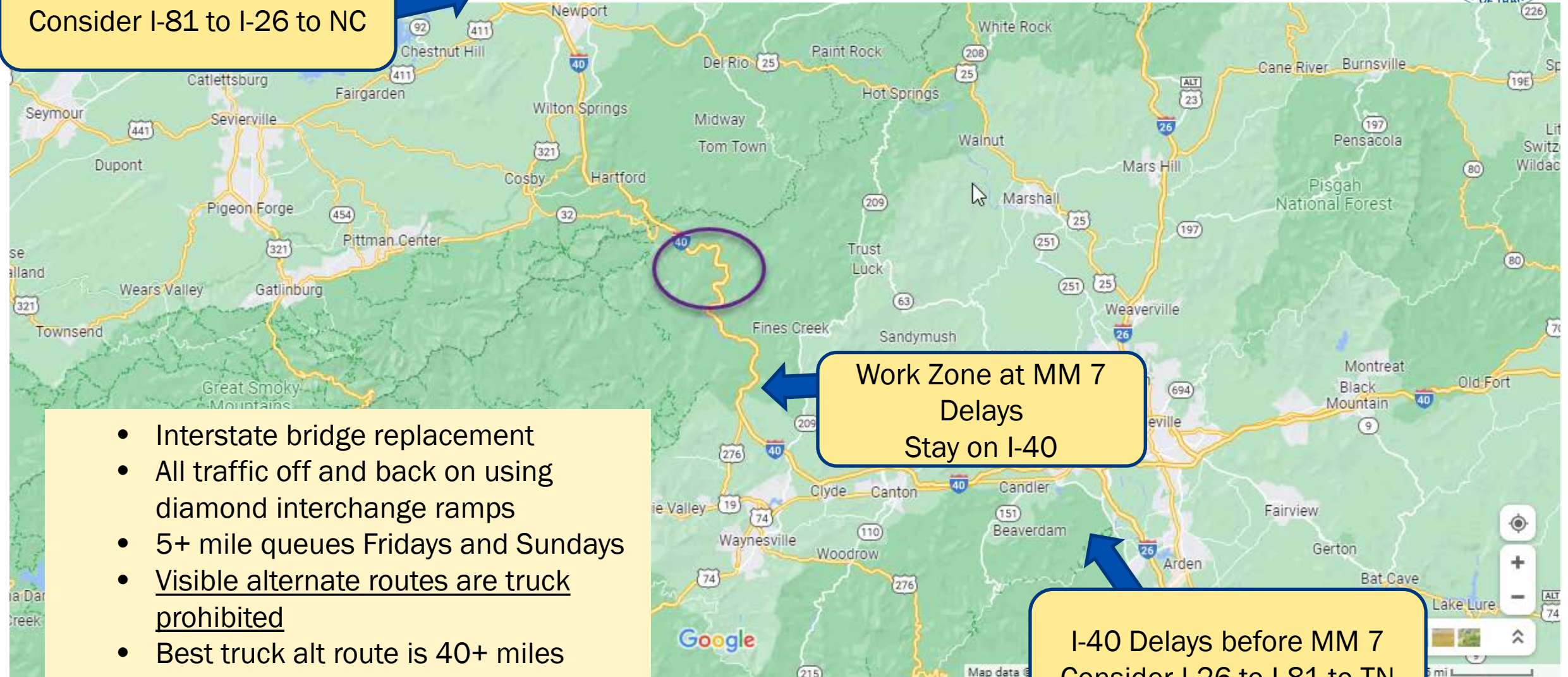
# Agency Generated Safety Alerts

Work Zone Delays in NC  
Consider I-81 to I-26 to NC

- Interstate bridge replacement
- All traffic off and back on using diamond interchange ramps
- 5+ mile queues Fridays and Sundays
- Visible alternate routes are truck prohibited
- Best truck alt route is 40+ miles before work zone

Work Zone at MM 7  
Delays  
Stay on I-40

I-40 Delays before MM 7  
Consider I-26 to I-81 to TN



# Truck Notification: Agency Discussion





# More Information: Travel Info & TETC



**Denise Markow**

TSMO Program Director  
The Eastern Transportation Coalition



# New Traveler Information Tools Coming Soon!

- A new **Traveler Information Listserv** is coming soon for Coalition members
- The **Nav Hub Ticketing** system is in beta testing
- New **regional and state-specific Mapping Company contact and reference documents** are in process
- A **Secure Login program** that will allow TIS members to access sensitive material is in beta Testing



# What is the AASHTO Transportation Operations Manual (TOM)?

- First-of-its kind digital only resource, exclusively focused on transportation operations
- A guide for transportation agencies to define and support their TSMO efforts
- First edition expected in May 2023
- Each State DOT will have access to a certain number of simultaneous use licenses
- Contents will include the following:
  - A. Introduction
  - B. TSMO Concepts and Context
  - C. TSMO Program Development & Management
  - D. Project Development
  - E. Tactical Elements
  - F. Industry and Technology Trends

**Coming May 2023**

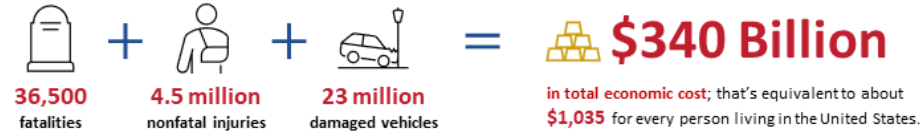


# Cost of Crashes

## THE COST OF CRASHES in the united states



In 2019, motor vehicle crashes resulted in:



When quality-of-life valuations are considered, the total value of societal harm from these crashes was



**\$1.37 Trillion**

### Key Takeaways



#### Incidence of Crashes

**14.2M**  
motor vehicle crashes



**23%** of all crashes involve injury to a vehicle occupant or nonoccupant. The remaining **77%** involve property damage only.



About **60%** of property damage-only crashes & **32%** of all injury crashes are not reported to the police.



#### Economic Impact

**\$1.6M** Lifetime cost to society for each fatality  
**\$36.0B** Congestion costs (delay, added fuel usage, environmental impacts)  
**\$75.5B** Lost workplace productivity costs  
**\$113.0B** Other costs (including medical care, legal costs, etc.)  
**\$115.3B** Total property damage costs for all crash types



#### Seat Belt Use



Prevented **14,653** fatalities & **450,000** serious injuries, saving **\$93 billion** in injury-related costs.

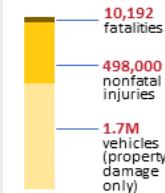


Nearly **2,400** people were killed and **46,000** were seriously injured by not wearing their seat belts, costing society **\$11 billion**.



#### Speed-related

% Cost by Category



**28%**

**11%**

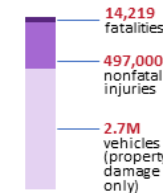
**7%**

**\$46.4B** OR **14%**  
in crash costs of all crash costs



#### Alcohol Involvement

% Cost by Category



**39%**

**18%**

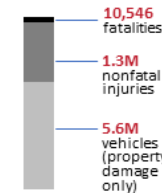
**14%**

**\$68.9B** OR **20%**  
in crash costs of all crash costs



#### Distracted Driving

% Cost by Category



**29%**

**29%**

**29%**

**\$98.2B** OR **29%**  
in crash costs of all crash costs



This infographic is being provided by The Eastern Transportation Coalition using information from the National Highway Traffic Safety Administration's report: *The Economic and Societal Impact of Motor Vehicle Crashes, 2019* (February 2023)

Get the full NHTSA report [here](#)



March 16, 2023

The Eastern Transportation Coalition: Traveler Information Web Summit

[tetcoalition.org](https://tetcoalition.org)

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# Upcoming Coalition Events

- TSMO Strategic Planning Session (*invite only*) – April 13 and 19, 2023
- Waypoint/Trip Data for Ops and Planning - RITIS Workshop #4 - April 20, 2023
- Summit: A Unified Approach to Driving Change on the Roadway - May 8-10, 2023



THE EASTERN  
TRANSPORTATION  
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CONNECTING FOR SOLUTIONS



# THANK YOU

Denise Markow  
TSMO Program Director  
The Eastern Transportation Coalition  
[dmarkow@tetcoalition.org](mailto:dmarkow@tetcoalition.org)