

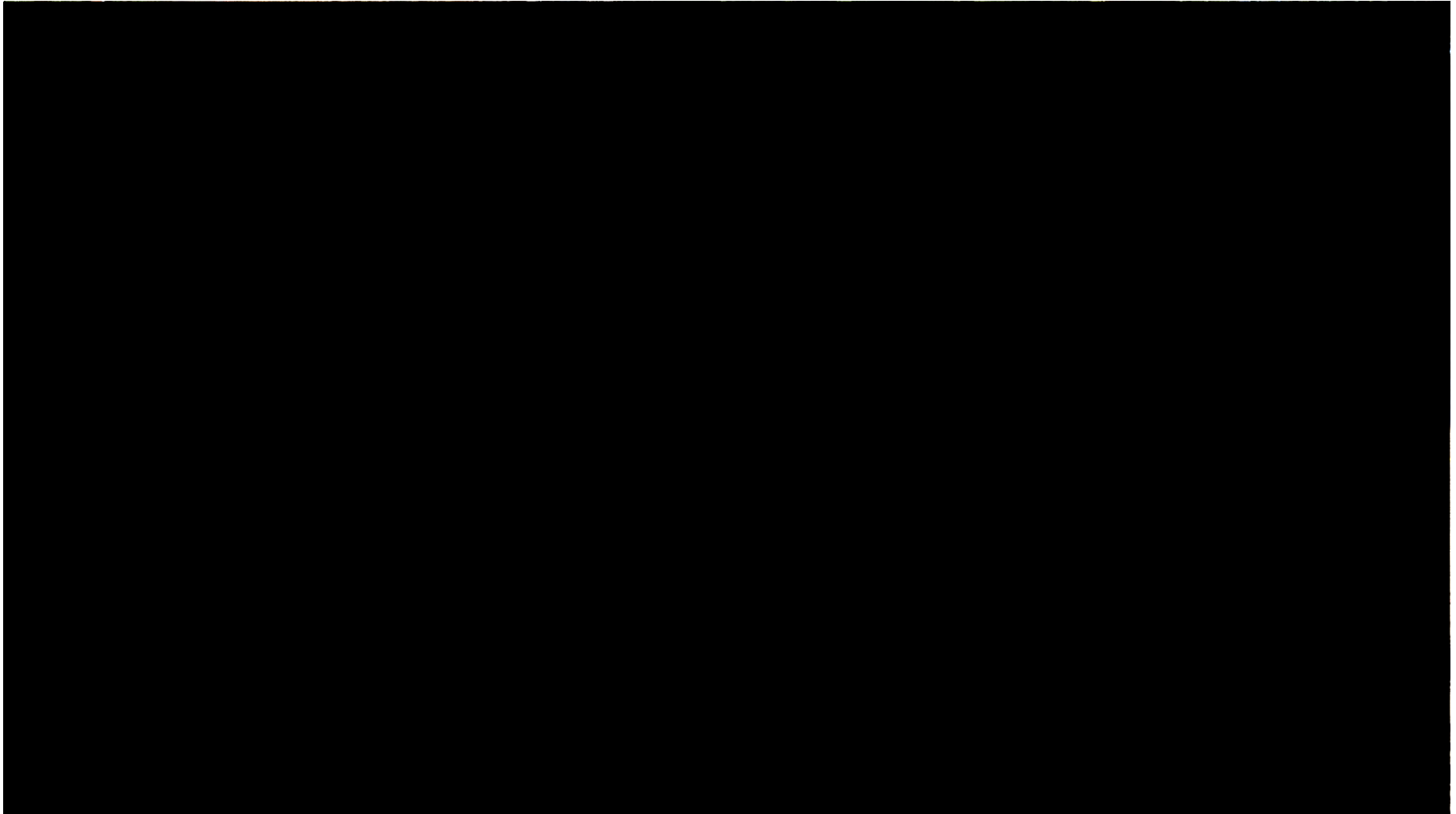
North Carolina's Approach to Work Zone Crashes



May 17, 2022



Distracted Driving



#1



**Risky
Driver
Behaviors**

Inattention

CRASH RISK INCREASE

29%

Work Zone Crashes



(Source: NCDOT 2016)

<https://www.ncdot.gov/initiatives-policies/safety/work-zone-safety/Pages/work-zone-statistics.aspx>

Agenda

- 1. Overview / Context (Greg Ferrara)**
- 2. Approach and Strategies (F/S Kendall Jackson)**
- 3. Analytics Demo (Colleen Lippert)**

North Carolina



Great Smoky Mountains



Atlantic Beach



Population

- **9th Most Populated State (10.8 million)**
- **Growing by 112,000 / Year**
- **Surpassed growth of all but 5 states**



Road Miles

**2nd Largest State Maintained
Road Network in Nation**

> 80,000 Miles

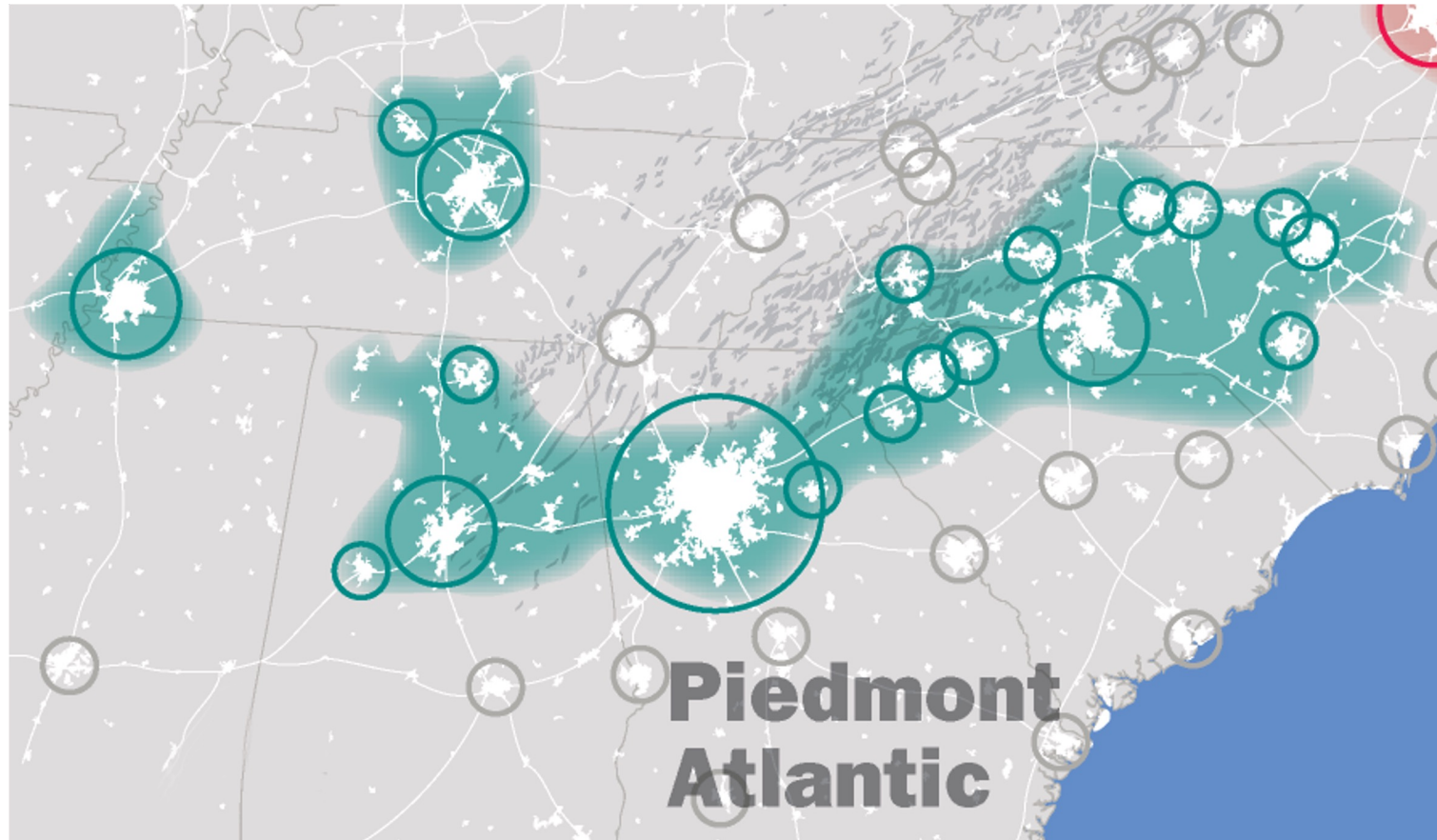


Bridges

**13,500
Bridges**



Piedmont Atlantic Megaregion



Road Capacity 2040



Commodity Flows



43% Increase
by 2045

Fatality Spike



CMV Fatalities

150 -180
Per Year



Risk Trends

Trends in commercial vehicle risks

- **Driver inexperience:** Truck driver shortage, retention, and turnover
- **Exposure change:** Increasing e-commerce/freight demand and VMT
- **Delivery schedule pressure:** Associated with speeding, lack of belt use, and crashes (increasing in urban areas)

Cargo van crashes involving pedestrians in NC in urban areas, by year and type

Model	2011	2012	2013	2014	2015	2016	2017	2018	Total
<i>NV Cargo</i>	0	0	0	1	1	2	2	5	11
<i>ProMaster</i>	0	0	0	0	2	0	2	2	6
<i>Sprinter</i>	1	1	1	1	1	0	1	1	7
<i>Transit</i>	0	0	0	1	2	13	7	2	25
Total	1	1	1	3	6	15	12	10	49

Source: CSCRS Project R30: Urban freight and road safety: Trends and innovative strategies:
<https://www.roadsafety.unc.edu/research/projects/2019r30/>

CONGESTION



WORK ZONES



WRECKS



North Carolina's Work Zone Profile

How Many?



68 Active

Work Zone Crash Risk



24%

**INCREASED
CRASH RISK**

CMV-Involved



30%

of work zone fatal crashes involved
at least one large truck.

Slow Down!



20% = 62%

SPEED DECREASE REDUCED FATALITY RISK

Approach

F/S Kendell Jackson

Safe Systems Approach



ncvisionzero.org

NC VISION ZERO

ABOUT

GET INVOLVED

SAFETY FOCUS AREAS

DATA AND ANALYTICS

RESOURCES

FAQ

IMAGE GALLERY

SAFE ROUTES TO SCHOOL

NCDOT GHSP ITRE



VISION ZERO ANALYTICS LOGIN

NC Vision Zero is a collaborative initiative to eliminate roadway deaths and injuries in North Carolina.

Join Us →

Watch Video →

SCROLL DOWN



Take the Pledge

If everyone followed these four simple rules - over a thousand lives could be saved every year in North Carolina.

Take The Pledge →

Strategies

F/S Kendell Jackson

Partnerships!

1.NCDOT (engineering)

2.University / ITRE (planning support / analytics / measuring effectiveness)

3.SHP - non CMV Troopers

4.Local LEAs

5.Trucking Association

6.Vendors (roadside / in cab technologies)

Open Roads

(Quick Clearance Meeting and Review)

NCDOT (Project Lead, Traffic Safety)

NCSHP (Troop Captain, County First Sergeant, Headquarters Staff, Communications Supervisor)

EMS, Fire Department, Emergency Management

Contractor (Engineers and Project Leads)

Tow Truck Companies

High Visibility Enforcement

1. **(WIRED / Safe DRIVE) reaches out to non CMV districts to partner in LIDAR speed enforcement**
2. **HAWKS - GHSP**
3. **Drone cars / Work Zone blue light cars**
4. **LIDAR / Speed Enforcement Teams**

Utilize Technologies

- 1. Portable Message Signs**
- 2. Distracted Driving Cameras**
- 3. Mobile Vans**
- 4. In-Cab Alerts**

Portable Message Signs



Why Portable Message Signs?

- **Enable** Commercial Vehicle Enforcement (CVE) section with the capability of broadcasting safety and enforcement messages directly to high risk drivers along high CMV crash corridors
- **Extend CVE's capabilities** by utilize portable technologies
- **Practical tool** for driving down risky driving behaviors known to be correlated with CMV-involved fatal crashes



Main Modes

1. Speed only



2. Message Only



3. Speed and Message



Speed / Volume Best Practices

- **60-70 mph (radar Zone)**
- **71 - 80 mph (speed display)**
- **81+ (speed display + blue lights)**

Type of Alertness

Drug Impairment:

Hyper-Alert: CNS-Stimulants

Hypo-Alert: CNS-Depressants and
Narcotics

Work Zone Drivers:

Hyper-Alert: (Mimics) CNS-Stimulants

Hypo-Alert: (Mimics) CNS-Depressants
and Narcotics

Distracted Driving Cameras



Distracted Driving Cameras

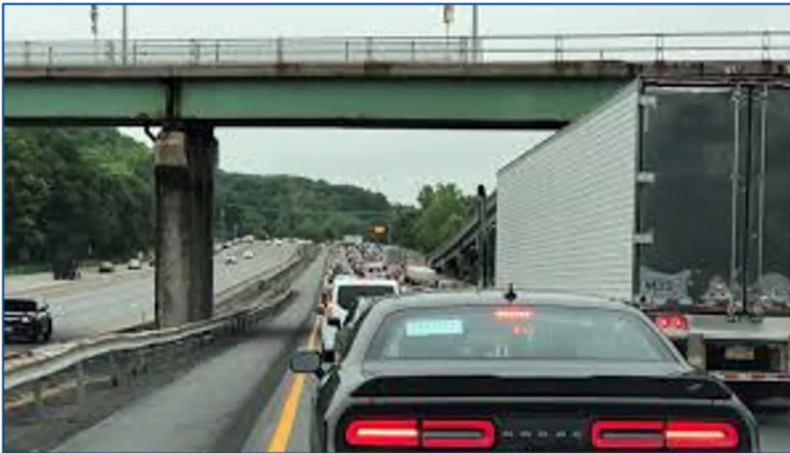


Mobile Vans / Trailers



In-Cab Alerts

After



INRIX + Drivewyze = real time in cab alerts
for slow downs and congestion



Drivewyze® INRIX

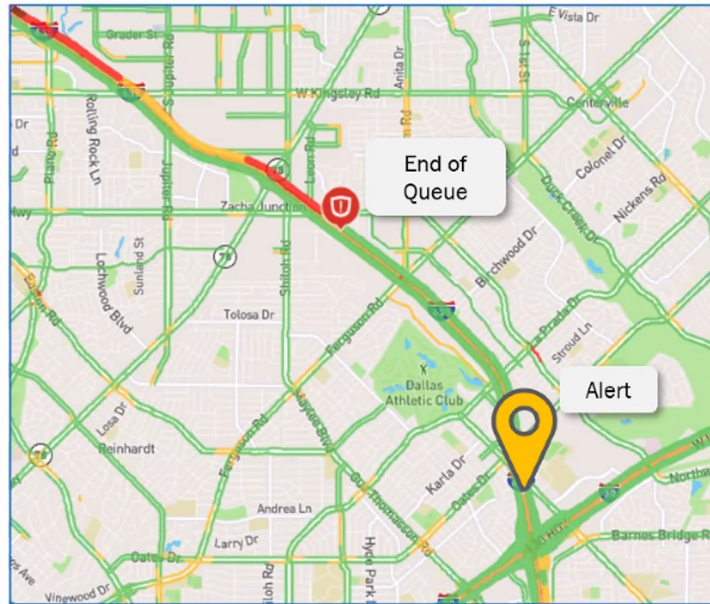
In-Cab Alerts



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



Congestion

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



Effective?

Effectiveness Study by Drivewyze



Preliminary results show that alerts do positively impact driving behavior relative to drivers not alerted.



Study conducted for I-95 Southbound Work Zone near Fayetteville, for January 14, 2022 – March 4, 2022 based on 4220 visits.



Special Enforcement Teams

Collision Reduction Enforcement Team (CRET)

- **Selected members from each traditional district to create**
- **Trained 99 members since November 2020**
- **Educating non CMV to interact with CMVs**
- **Fatal focus on interstates (Top 3)**
- **4-5 miles before / after**

Work Zone Demo

Colleen Lippert

Challenges

Work Zone Challenges

- 1. Modernization of work zone tracking systems**
- 2. Persistent behavior change**
 - **Message boards**
- 3. Unannounced (Popup) Short Term Work Zones**
- 4. Long areas on non-obvious Work Areas**

Questions?