



HAAS ALERT

# Protecting At-Risk Pedestrians

REAL-TIME CONNECTED  
ROADWAY SAFETY

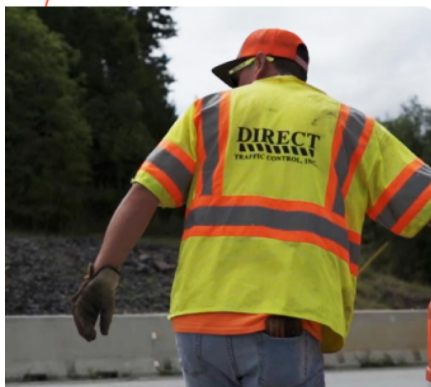




a disabled motorist is  
struck by an oncoming  
driver every 7 minutes

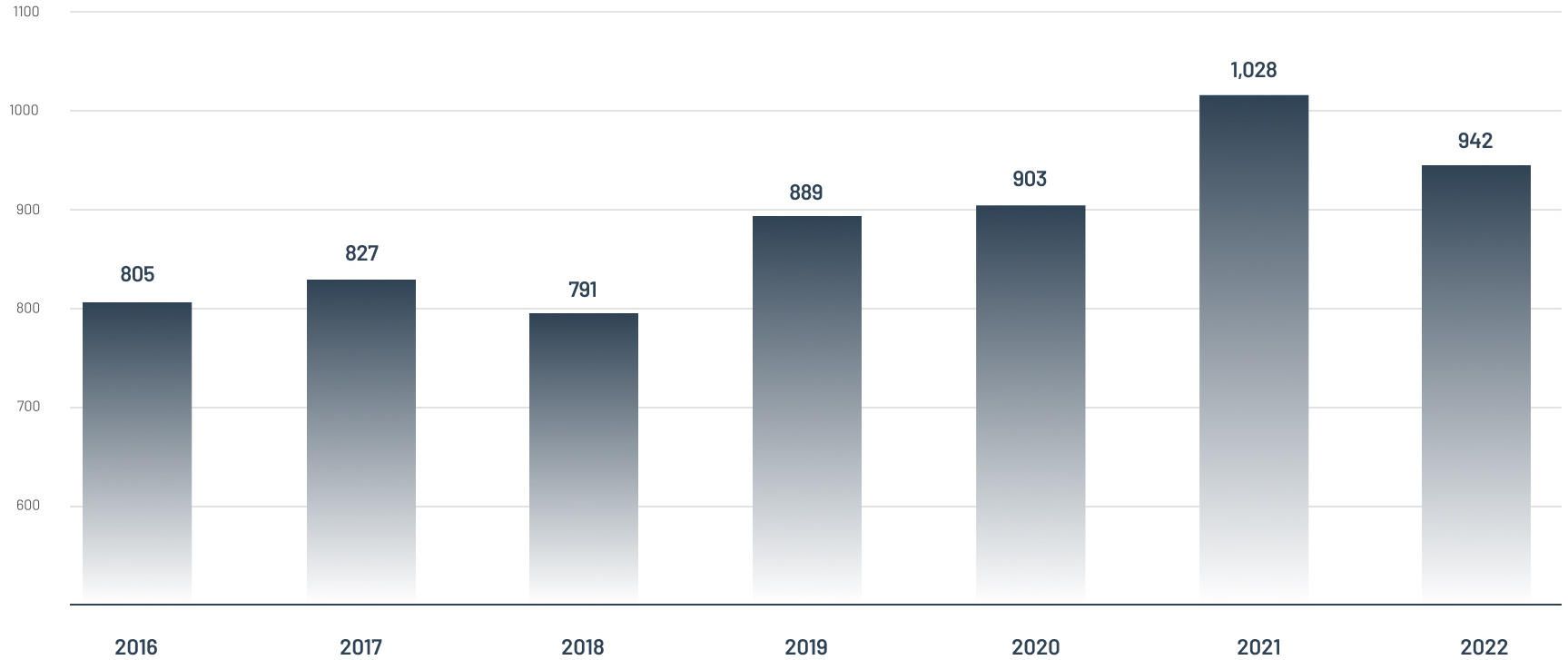
# 38,880

responders are at risk of  
a collision everyday



# Total Incident and Work Zone Fatalities

Source: National Safety Council, NHTSA



# 43.5 Million

NASDPTS estimated that approximately **43.5 million stop arm violations** occurred in the 2023-2024 school year.

students face heightened collision risk crossing streets to board and exit their bus



## Laws, Education, and Enforcement



# Digital Alerting

refers to a system that provides electronic hazard warning to drivers.

NHTSA 405(h) Priority Safety Programs – Preventing Roadside Deaths

NFPA – Digital Alert Warning System

Euro NCAP – Local Hazard Warning

FHWA Next Gen TIM – Responder-to-Vehicle (R2V) Technology



DISABLED MOTORIST AHEAD



WORK ZONE AHEAD



EMERGENCY VEHICLE APPROACHING



TOW TRUCK ON SCENE

# Advance Hazard / Collision Warning

**NTSB** | National  
Transportation  
Safety Board

**MULTIPLE VEHICLE COLLISION WITH FIRE  
DURING FOG NEAR MILEPOST 118  
ON INTERSTATE 40, MENIFEE, ARKANSAS  
JANUARY 9, 1995**

**and**

**SPECIAL INVESTIGATION  
OF COLLISION WARNING TECHNOLOGY**



**SAFETY  
CLOUD<sup>®</sup>**  
POWERED BY HAAS ALERT





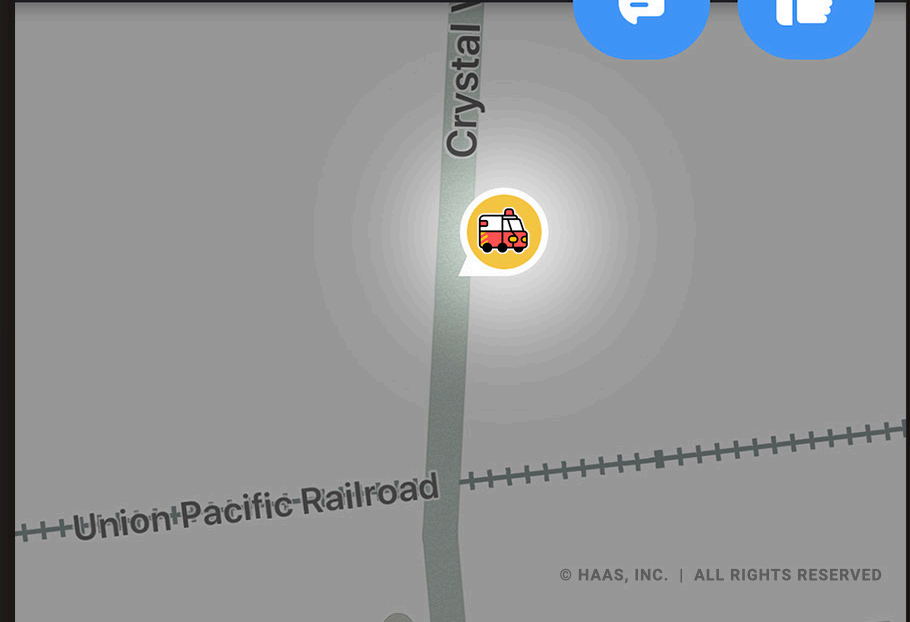
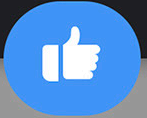
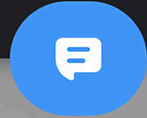
Emergency vehicle

**0.4 miles away**

Crystal Valley Rd, Crystal Valley  
"Emergency vehicle on scene"



1 min ago by HAAS Alert

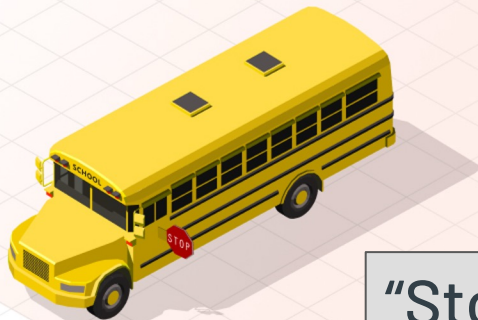
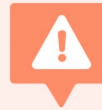


# Safety Cloud Digital Alerting

When students are boarding and exiting the school bus, Safety Cloud alerts approaching drivers to warn them of the stopped bus ahead.



SCHOOL BUS STOPPED AHEAD



“Stopped School Bus Ahead”  
alert led to 5mph speed  
reduction within 7 seconds



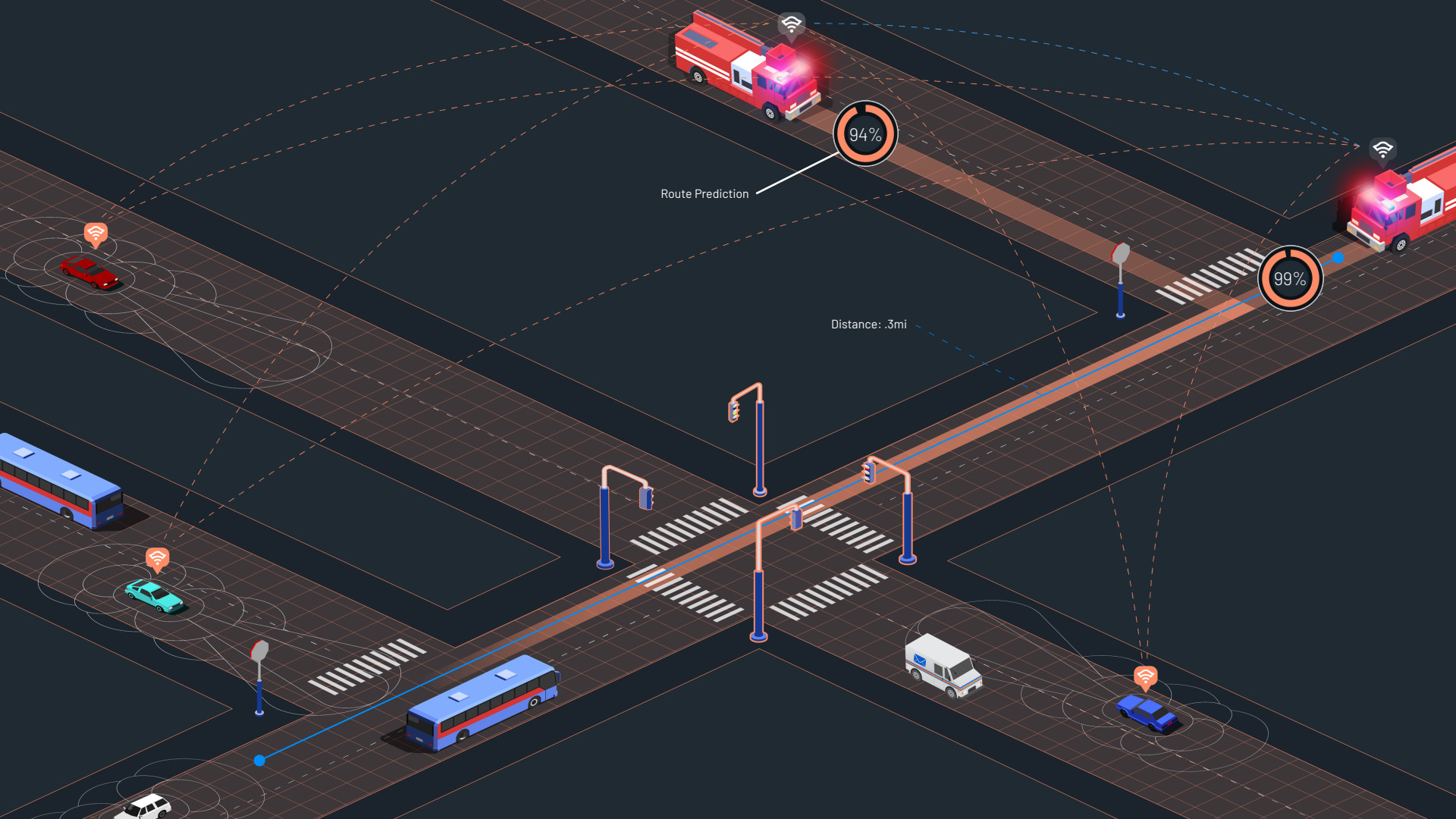
Drivers receive digital alerts **up to 30 seconds in advance** before approaching the stopped school bus

## How It Works:

Safety Cloud integrates directly to the school bus, and no additional actions are required to start alerting.

When students are boarding and exiting the school bus, Safety Cloud automatically begins broadcasting alerts to oncoming drivers in their vehicles via navigation apps and existing connectivity, alerting them of the school bus stopped ahead.



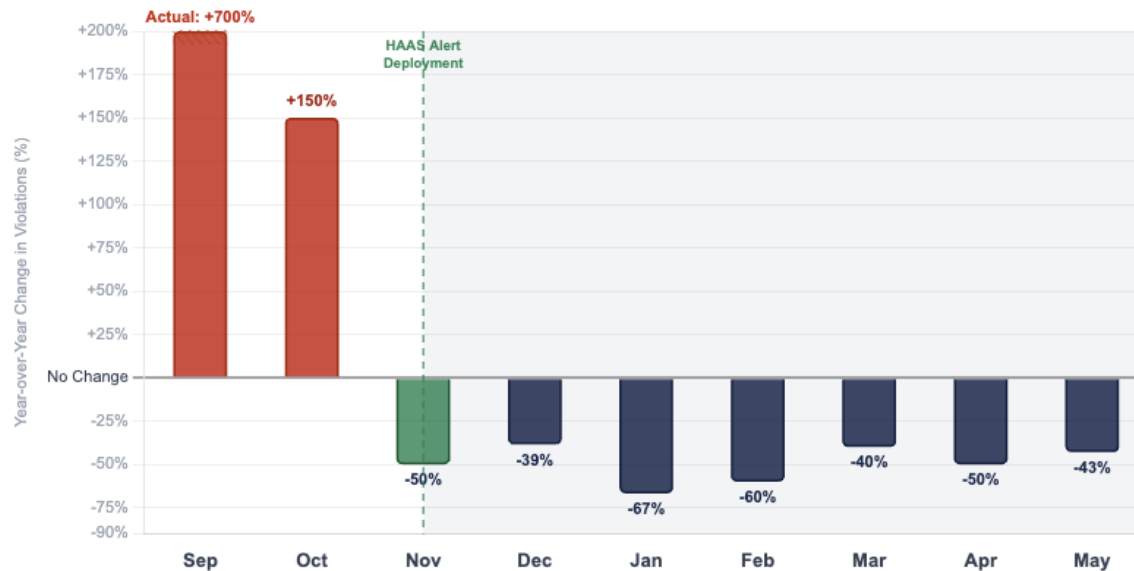


Route Prediction

Distance: .3mi

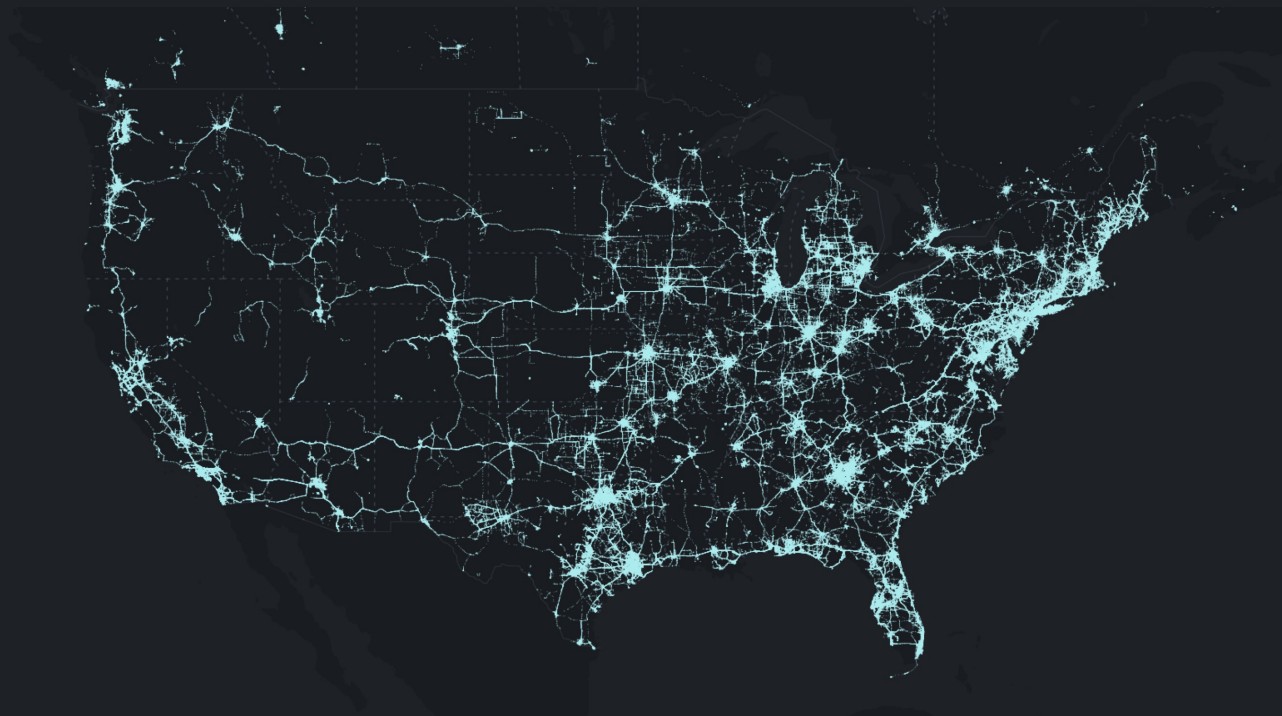
MILLSTONE TOWNSHIP SCHOOL DISTRICT · 2025-2026 VS. 2024-2025

## Stop Arm Violations: Year-over-Year % Change by Month



■ Violation increase vs. prior year   ■ HAAS Alert deployment month   ■ Violation reduction (HAAS Alert active)

## Cars are Talking



5,000 + Fleets / Agencies

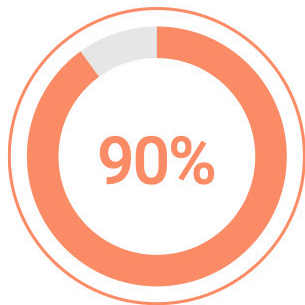
Deployment spans rural, statewide, and metro areas

Interoperable across first responders, tow, connected infrastructure, DOT

---

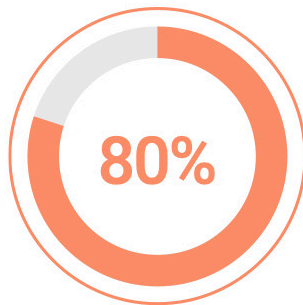
3 million+ connected consumer vehicles, plus Waze and Apple Maps

Over 30 million driver alerts per month



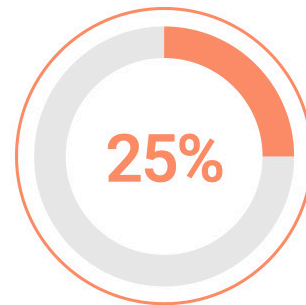
**The odds of a crash were up to 90% lower when drivers received an advance alert.**

Source: Drucker CJ, "An epidemiological approach to emergency vehicle advanced warning system development: A two-phase study", University of Minnesota, Dec 2013.



**Digital alerting helped to reduce hard-braking events on the interstate by 80%.**

Source: Purdue University, Evaluation of the Impact of Queue Trucks with Navigation Alerts, 2021.



**Analysis showed a 25% reduction in speed seconds after an alert.**

Source: D.C. Fire and EMS Department



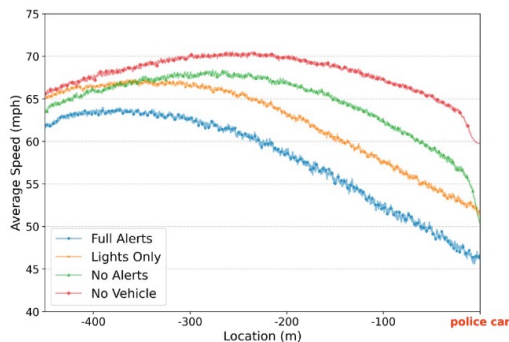
## Slow Down Move Over Impact: University of Illinois study with IDOT and ISP - 2026

### Slow Down:

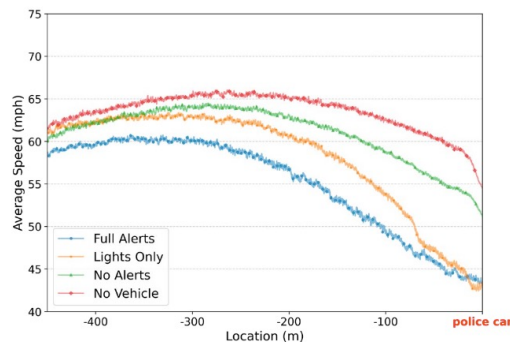
- 5mph speed reduction
- 3x earlier deceleration
- Elimination of hard braking

### Move Over:

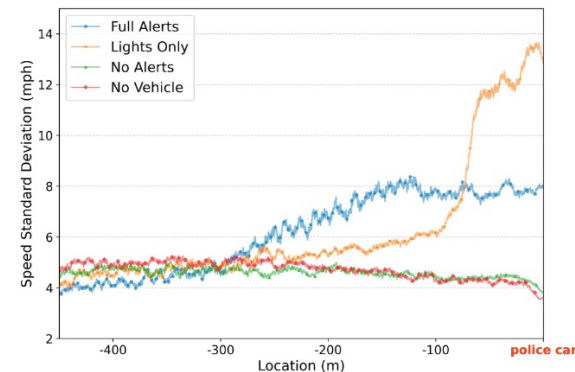
- 2x earlier lane changes
- Violation rate reduced from 36% to 15.8%



(A) Inner Lane



(B) Outer Lane



(B) Outer Lane

## Is this a pedestrian issue?

### NATIONWIDE, 2023

176 of 899 total work zone fatalities

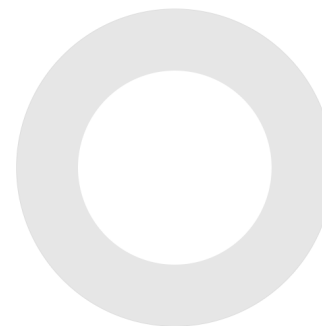


176 pedestrian  
fatalities

723 in-vehicle  
fatalities

### MINNESOTA, 2023

0 of 11 total work zone fatalities



0 pedestrian  
fatalities

11 in-vehicle  
fatalities



# HAAS ALERT

## RESHAPING ROAD SAFETY AROUND THE WORLD

---

Our Mission is to transform road safety by building lifesaving mobility solutions that save lives and redefine safety for all roadway users.

We envision a connected, collision-free world where everyone gets home safely. This vision isn't just a distant dream. It's the driving force behind every innovation we create and every solution we offer.