CONNECTED & AUTOMATED VEHICLE TECHNOLOGY FOR WORK ZONE SAFETY

WZDx

MDOT

gm

VER-MAC

WZDx is…

WZDx is a simple, open standard for sharing data about planned and active work zone events.

MDOT wants to eliminate work zone injuries and deaths for construction workers and motorists.

11
FATAL WORK ZONE CRASHES IN 2020

4,035
WORK ZONE INVOLVED CRASHES IN 2020

14
WORK ZONE FATALITIES IN 2020

Toward Zero Deaths®
National Strategy on Highway Safety

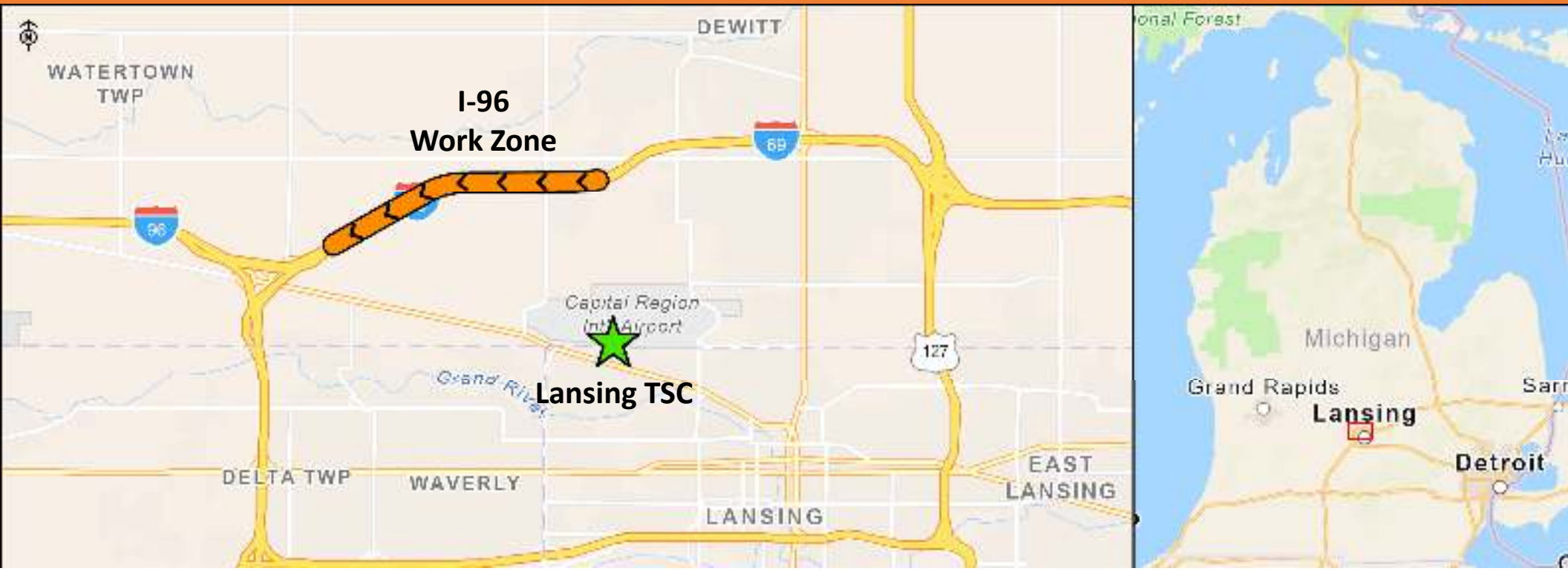
Promoting advances in Smart Work Zone device adoption leads to improved data quality and improves overall safety of the roadway and work zone.








THE NOV 3RD DEMO



Proof of Concept: Work Zone Data Exchange (WZDx) Live Information Sharing

How MDOT can leverage connected vehicle technology to improve work zone safety?

LEVERAGING CONNECTED VEHICLE TECHNOLOGY TO IMPROVE WORK ZONE SAFETY

THE BENEFITS OF SMART WORK ZONES

Improved overall safety of the roadway and work zone

Improved MDOT work zone data quality

Improves automated driving systems (ADS) by recognizing when road construction is active

COMMERCIAL VEHICLE GRANT

This application will demonstrate how MDOT and its partners plan to address the U.S. Department of Transportation's Federal Motor Carrier Safety Administration (FMCSA)'s High Priority – Innovative Technology Deployment's (HP-ITD) goals and objectives by implementing new video detection scene recognition technology, integrated V2X, digital signage, and traffic management safety alerts for work zone management.

BOSCH HNTB MH CORBIN INTEGRAL BLUE VER-MAC

THE NEXT STEPS

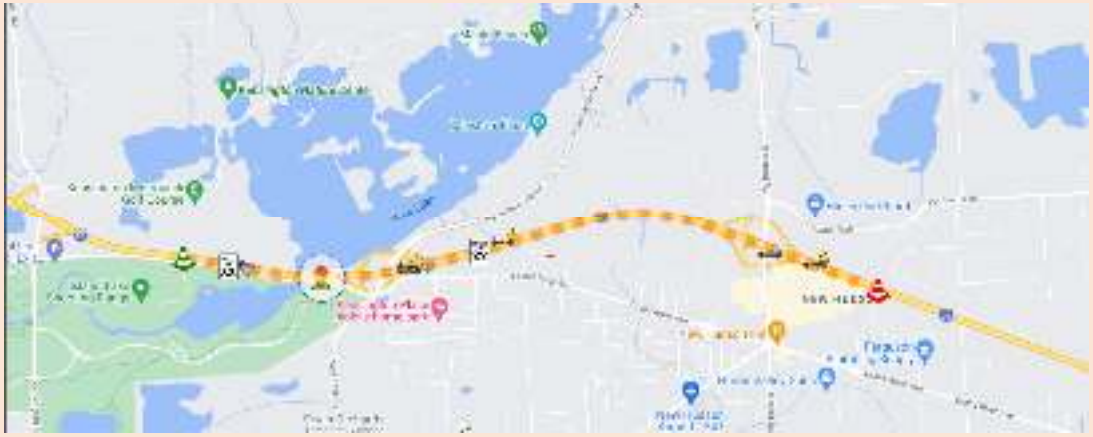
- Utilizing a common passenger vehicle such as a Chevrolet Tahoe
- Testing worker presence in live construction zones
- Utilizing smart work zone devices for information in real time

LEVERAGING CONNECTED VEHICLE TECHNOLOGY TO IMPROVE WORK ZONE SAFETY

Trial our use of new WZDx 4.0 JSON data structures in a GM Chevy Tahoe:

- Workers Present
- Lane Closures from arrow boards
- Variable speed limit
- Road construction start/end points

I-96 FLEX ROUTE CONSTRUCTION PROJECT – 5/18/2022



WZDx FEED

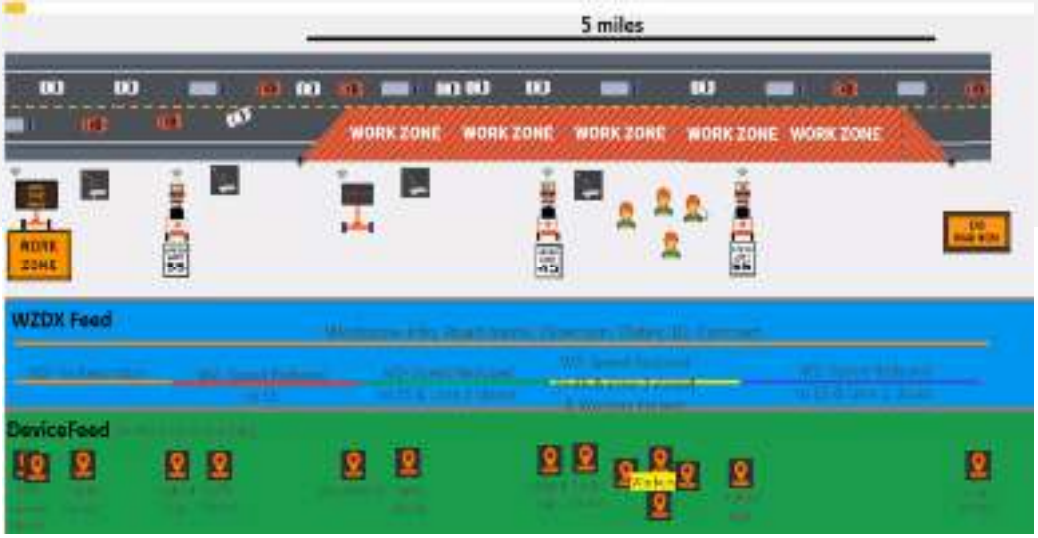
MDOT gm VER-MAC

Leveraging Connected Vehicle Technology To Improve Work Zone Safety




Trial our use of new WZDx 4.0 JSON data structures in a Chevrolet Tahoe:

- Workers Present
- Lane Closures from arrow boards
- Variable speed limit
- Road construction start/end points



Continued Testing with Orange Pavement Markings


Orange Pavement Markings Pilot

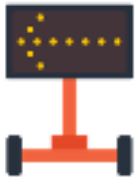
56% of Motorists Report Improved Visibility From Orange Lane Markings

MDOT tested orange pavement markings as both an innovative way to provide delineation and as a reminder to drivers they are in a work zone.

In effort to gauge the impact of orange pavement markings, MDOT conducted a survey on motorists driving through the I-96 work zone.

Our survey showed that over 93% of respondents noticed the orange markings within the work zone.

Commercial Vehicle FMCSA Grants



Connected Traffic Control Objects

Vendor Backend Data Aggregation

Agency Backend Data Publication

CMV Data Distribution Mediums

Real-time In-vehicle And Work Zone Alerts

MIXON HILL | HNTB | MH CORBIN | INTEGRAL BLUE

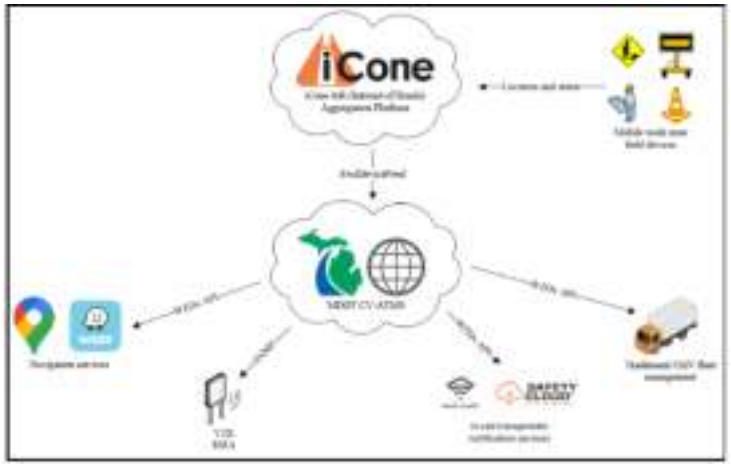
Safety Alerts for Work Zones (SAFZONE)

Figure 6: Safety Alerts For work ZONE (SAFZONE) system overview

- FMCSA grant awarded in 2021
- Improving static work zones

Kimley»Horn | iCone | VER-MAC

Partnering Automated Work Zones (PAWZ)



- Interstates 94, 96, 696, 75, and 275
- Improving mobile work zones for CMV

Enabling A Safer, More Connected Roadway

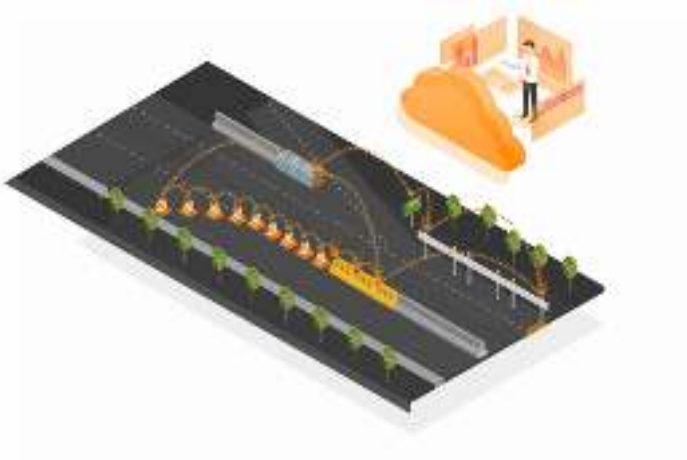
www.pi-lit.com info@pi-lit.com (949) 415-9411

pi·lit

Bringing the cloud to the road

Impact Detection System
3M Partnership

Pi-Link Vehicle to Cloud Connectivity



Connected WZ:

- Equipment Tagging
- Sequential Guidance

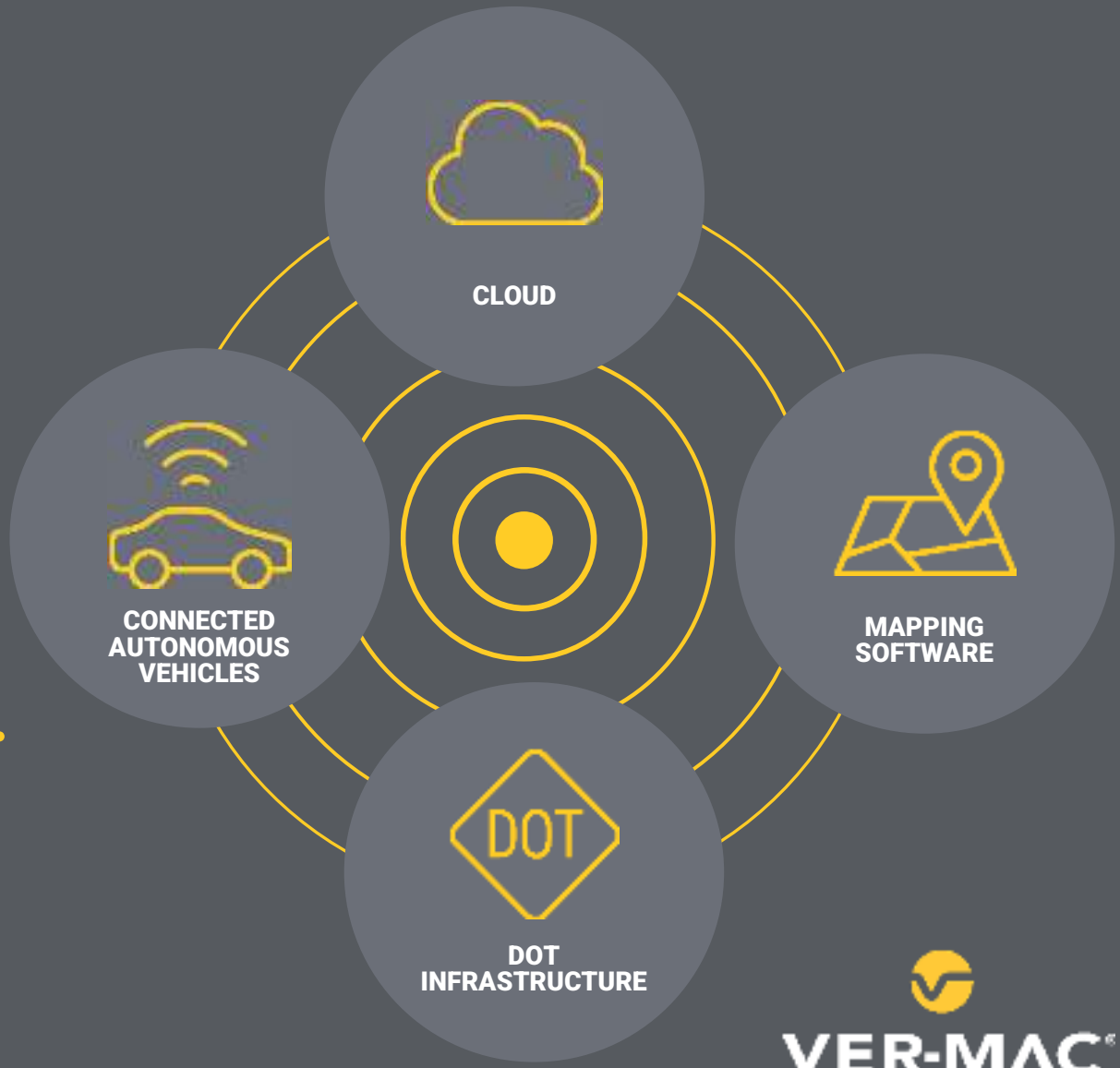
US-127 Demo


ROAD WORK AHEAD
ROAD WORK END
ROAD WORK END
ROAD WORK AHEAD


GEBS

LOW-COST SOLUTION

THAT CONNECTS WORK ZONE TRAFFIC CONTROL DEVICES TO…



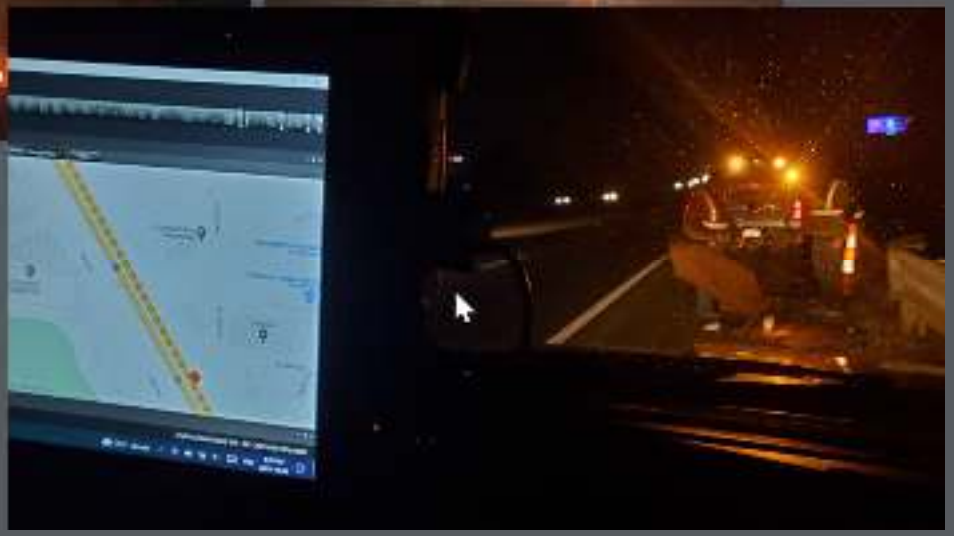
VER-MAC®

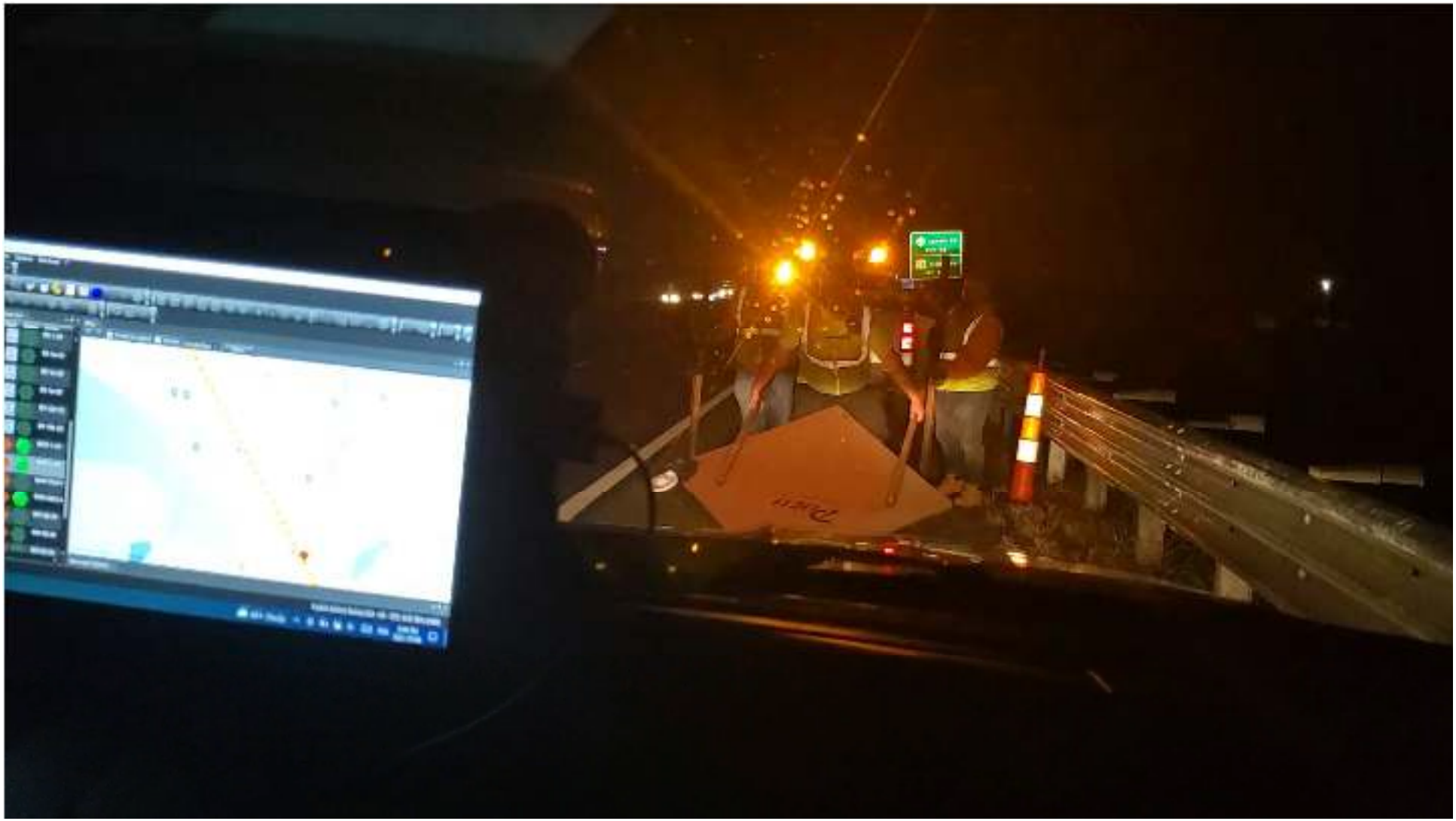
KNOW

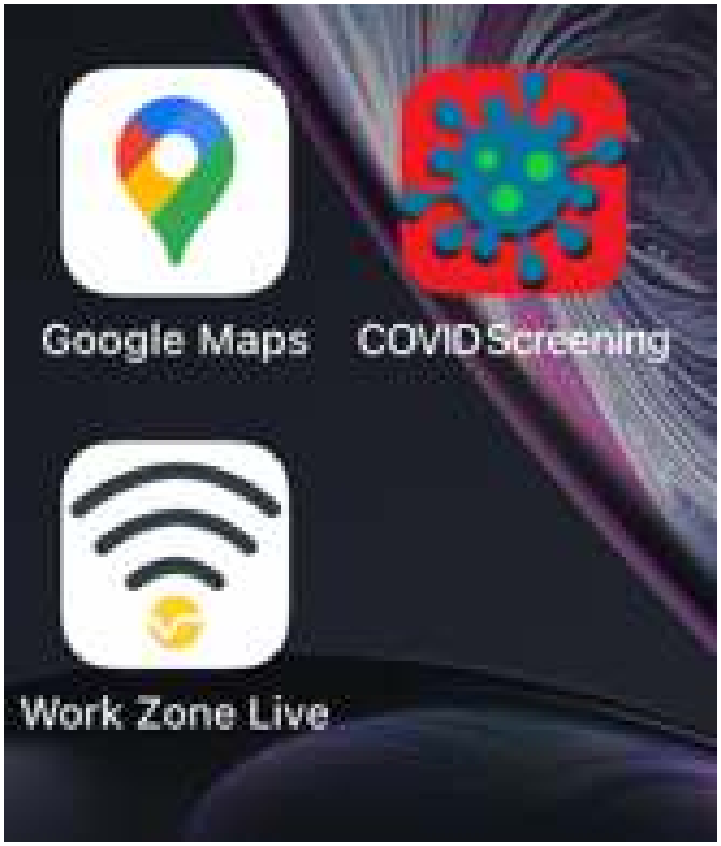
IN REAL TIME WHEN TRAFFIC CONTROL DEVICES ARE ADDED TO THE ROADWAY

Technologies

MI- Oct 2021

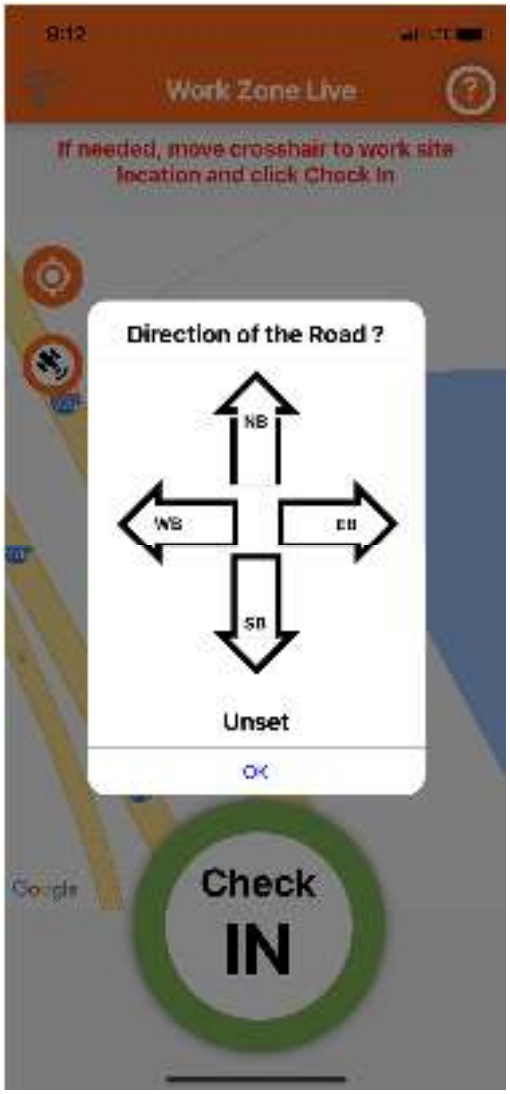


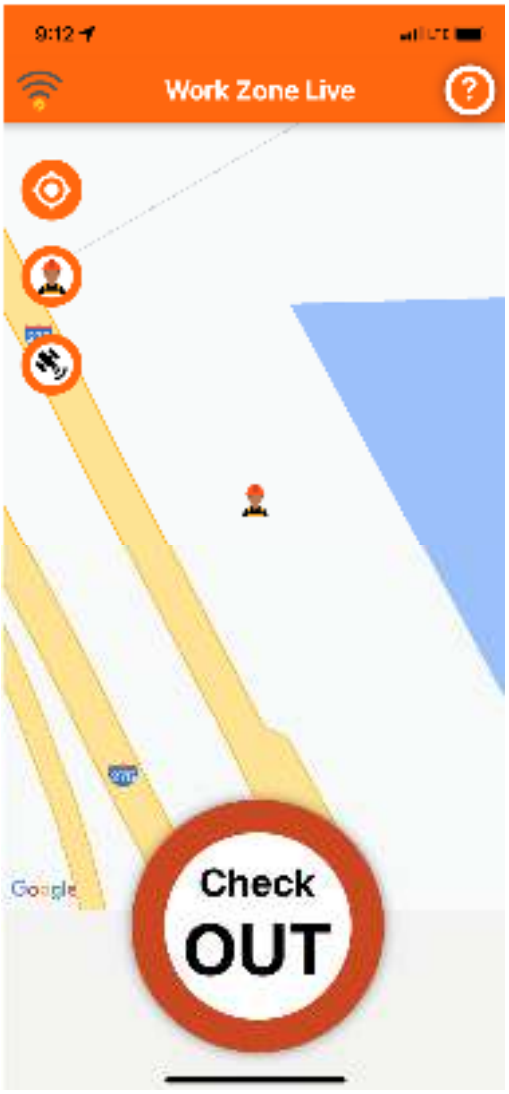



Google Maps
COVID Screening
Work Zone Live


Work Zone Live
If needed, move crosshair to work site location and click Check In
Check
IN


9:12
Work Zone Live
If needed, move crosshair to work site location and click Check In
Are you sure?
CANCEL
Check
IN


9:12
Work Zone Live
If needed, move crosshair to work site location and click Check In
Direction of the Road ?
NB
WB
EB
SB
Unset
OK
Check
IN


9:12
Work Zone Live
Check
OUT


SPEED
LIMIT
45


SPEED
LIMIT
60


SPEED
LIMIT
55


SPEED
LIMIT

Toward Zero Deaths
National Strategy on Highway Safety

Why Should IOO's Smarten their Work Zones

Information Dissemination:
Sending messages to vehicles and non-motorized users

Measurement of Effectiveness and Efficiency:
Safety and Mobility

Economic & Societal Savings:
Cost-reduction in auto related issues


GREAT SCOTT!
THE FUTURE IS COMING, AND I'M NOT SURE WE'RE READY FOR IT