

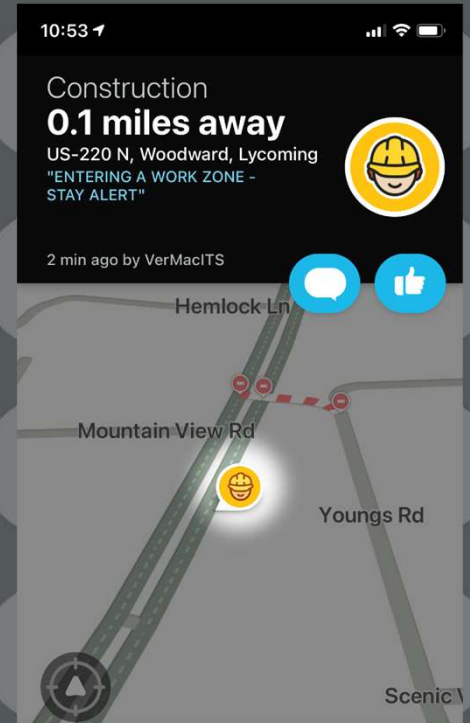
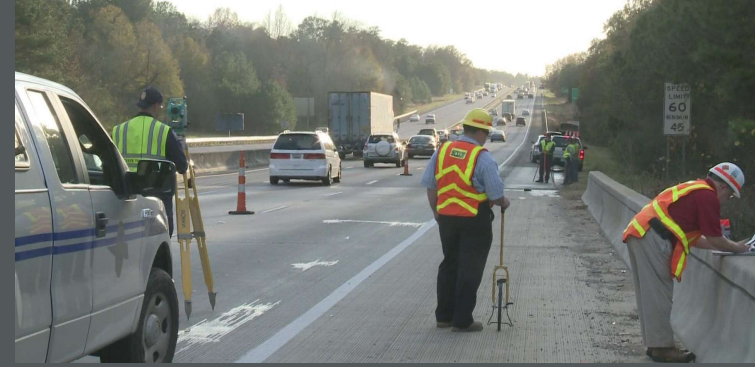


VER-MAC[®]

Putting **Vulnerable** Road **Workers** on the Map



**2023 ANNUAL MEETING
MAY 1-3, 2023 | ST. CHARLES, MISSOURI**



AGENDA



01

The Problem

02

WZDx / CWZ
Updates

03

Connected
Devices

04

Demonstrations

05

ATSSA Efforts

06

Q&A

The Problem

The History & Issues

01



Vulnerable Road Workers



Who is a Vulnerable Road User (VRU)?

Florida Statute 316.027(1)(b)
“Vulnerable road user” is a pedestrian, including a person actually engaged : in work upon a highway, or in upon utility facilities along a highway, or engaged in the provision of emergency services within the work right of way.



Not much has changed in the past 100 years for road worker safety



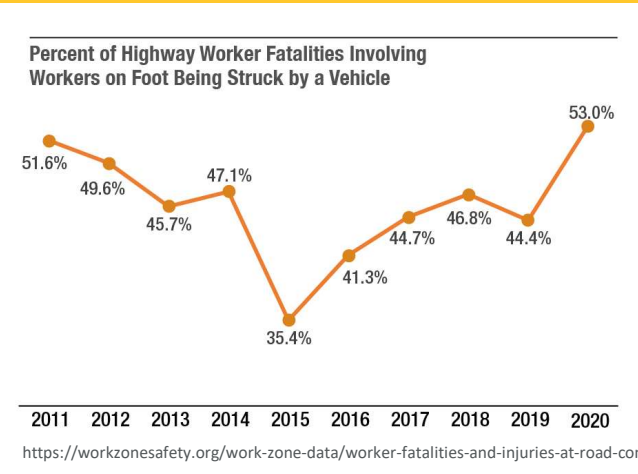
Reflective materials replaced armor in the 1930's



More and better reflective materials for the past 90 years



No significant safety improvements



<https://workzonesafety.org/work-zone-data/>



DRIVER AWARENESS

The #1 Problem in Work Zones = Distracted Drivers

- Low to no driver reaction time
- Illegal cell phone usage
- **Rear-End Crashes** and **Work Area Intrusions** are the most common outcomes
- We need to regain the driver's attention!!!





DRIVER AWARENESS

- Driver Inattention is our biggest problem in WZ's
- We need to get and keep the driver's attention

STAY FOCUSED

WHEN TRAVELING THROUGH WORK ZONES, AVOID ALL DISTRACTIONS

OUR ROADS SAFETY
Partnership for Responsible Driving
www.ShoreTheRoadSafely.gov



A Moment Can Save a Life

When driving in a work zone, pay attention. Someone's future is in your hands.

A car going 55 mph travels the length of **1.25 football fields** in the **4.6 seconds** it takes to read a text*

765 people died in roadway work zone crashes in the U.S. in 2016...

- 14%** were pedestrians
- 19%** were construction workers
- 67%** were drivers and passengers

80% chance of fatality when struck by a vehicle going 40 mph

3.6x increased chance you'll crash when using a cell phone

16% of fatal work zone accidents are caused by distracted driving

Average number of texts sent/received per day: **32** Texts requiring an answer while you are driving: **0**

Visit www.WatchFor.US

WATCH FOR .US

WZDx – CWZ UPDATES

02



WZDx (Work Zone Data Exchange)

THE IMPORTANCE OF WZDx




Putting work zones on the map and into vehicles.
Saving lives.

Learn more and become involved
 in the future of work zone management
<https://ops.fhwa.dot.gov/wz/wzdx/index.htm>

Sponsored by

 U.S. Department of Transportation
 Federal Highway Administration

THANK YOU WZDx PARTNERS



More than 100 organizations involved.



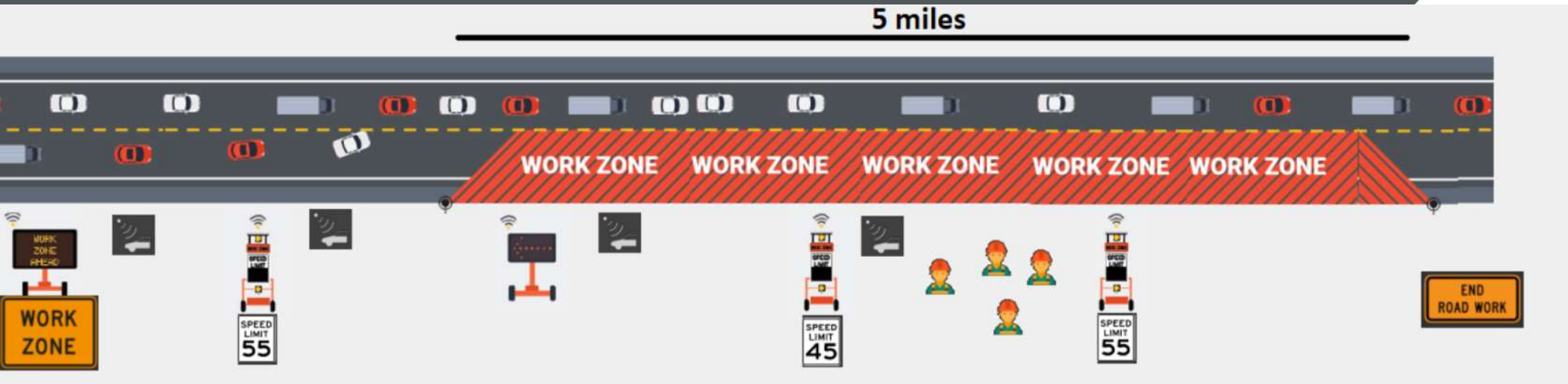
Small Actions + Many Organizations = BIG Impact

Learn more and become involved
 in the future of work zone management
<https://ops.fhwa.dot.gov/wz/wzdx/index.htm>

Sponsored by

 U.S. Department of Transportation
 Federal Highway Administration

WZDx vs WZ Connected Device Feeds



WZDX Feed

Workzone info, Road name, Direction, Dates, ID, Contract

WZ- no Restriction

WZ- Speed Reduced to 55

WZ- Speed Reduced to 55 & Lane 2 closed

WZ- Speed Reduced to 45 & Lane 2 closed & Workers Present

WZ- Speed Reduced to 55 & Lane 2 closed

DeviceFeed (Device location and Data)



WZDx Transition to CWZ in 2023-2024

- WZDx v4.2 was approved Feb, 2023
- WZDx Becoming ITS Standard known as CWZ (Connected Work Zones)
 - SAE (Society of Automotive Engineers)
 - ITE (Institute of Transportation Engineers)
 - Also involves AASHTO & NEMA
- CWZ Voting Members 50% Automotive & 50% (IOO) Agencies
- Sharing the data to interested stakeholders



Smart – Connected - Digital

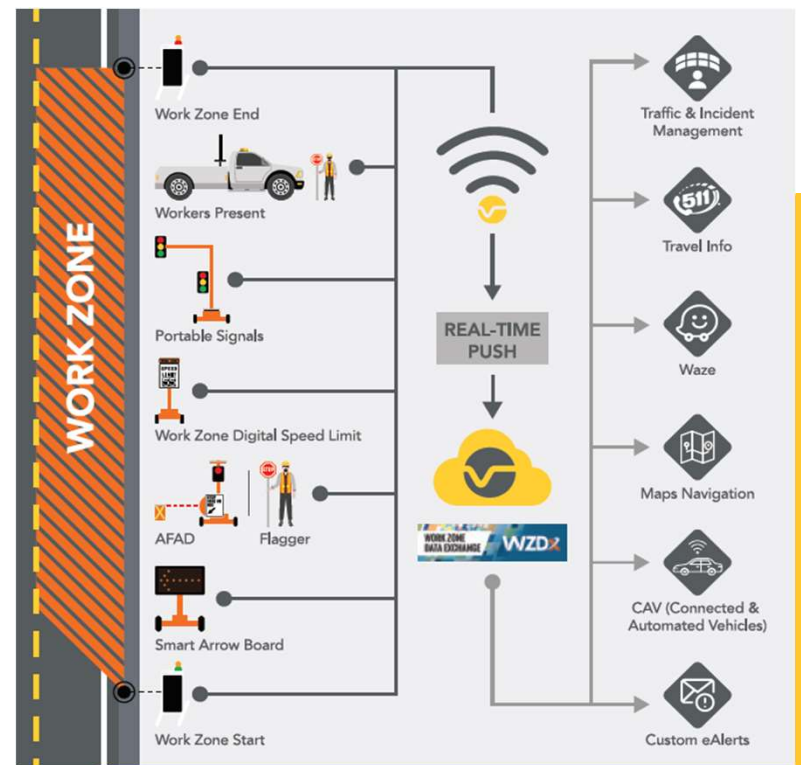
Today, people are Connected



Cars are connected



Now, Work Zones are Connected



Now we shine a light
on vulnerable workers
& put them on the
map & into CV's



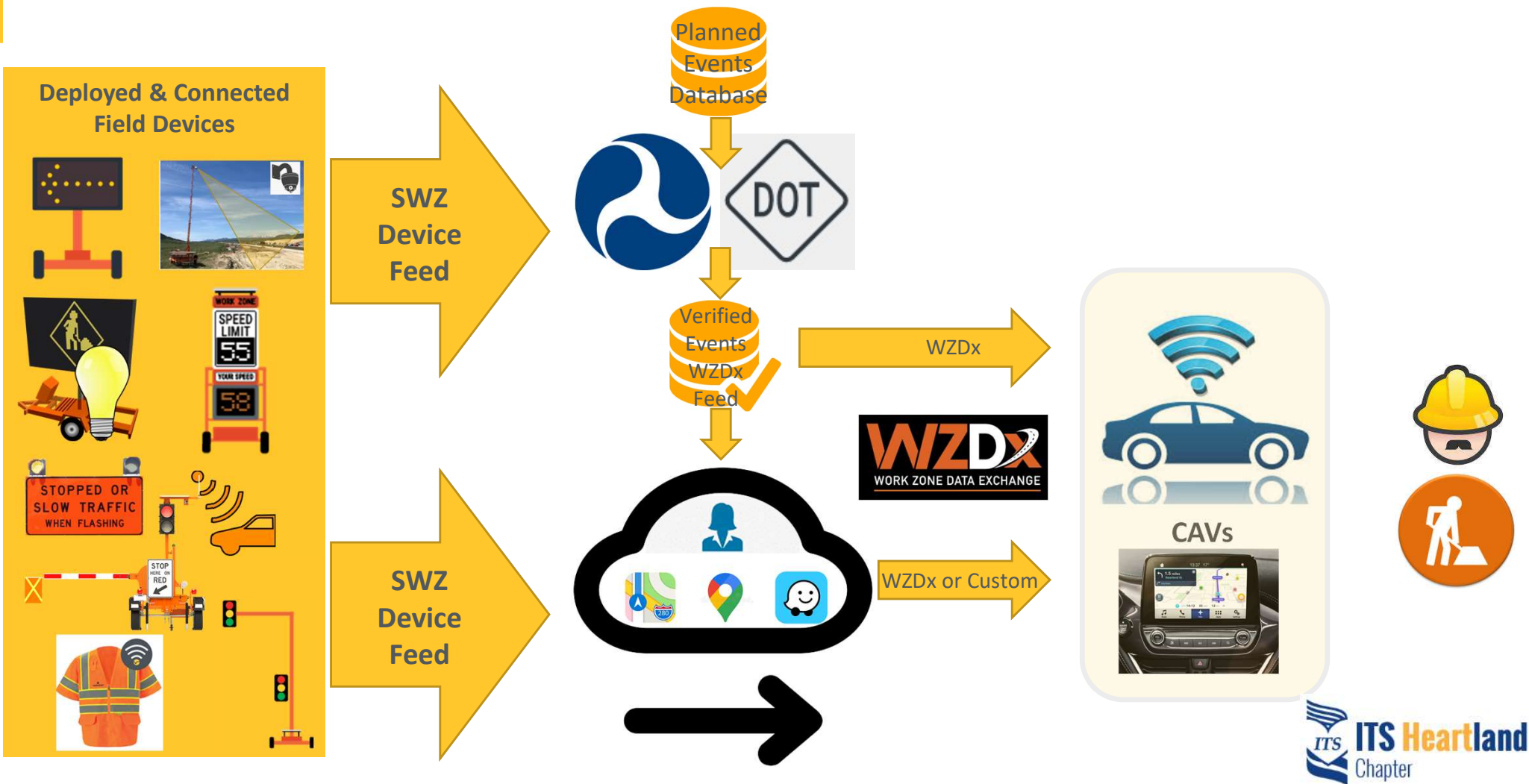
CONNECTED DEVICES

Get critical info to
those who need it

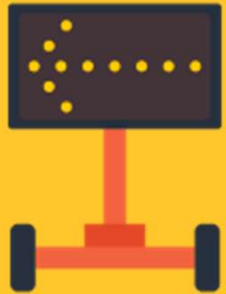
03



HOW CONNECTED DEVICES FIT INTO BIG PICTURE



CONNECTED WORK ZONE FIELD DEVICE TYPES



Arrow Boards



Camera Trailers



Portable
Message Signs



Flashing Beacons

Portable Traffic
Signals



Hybrid Signs



AFADs



Traffic Sensors



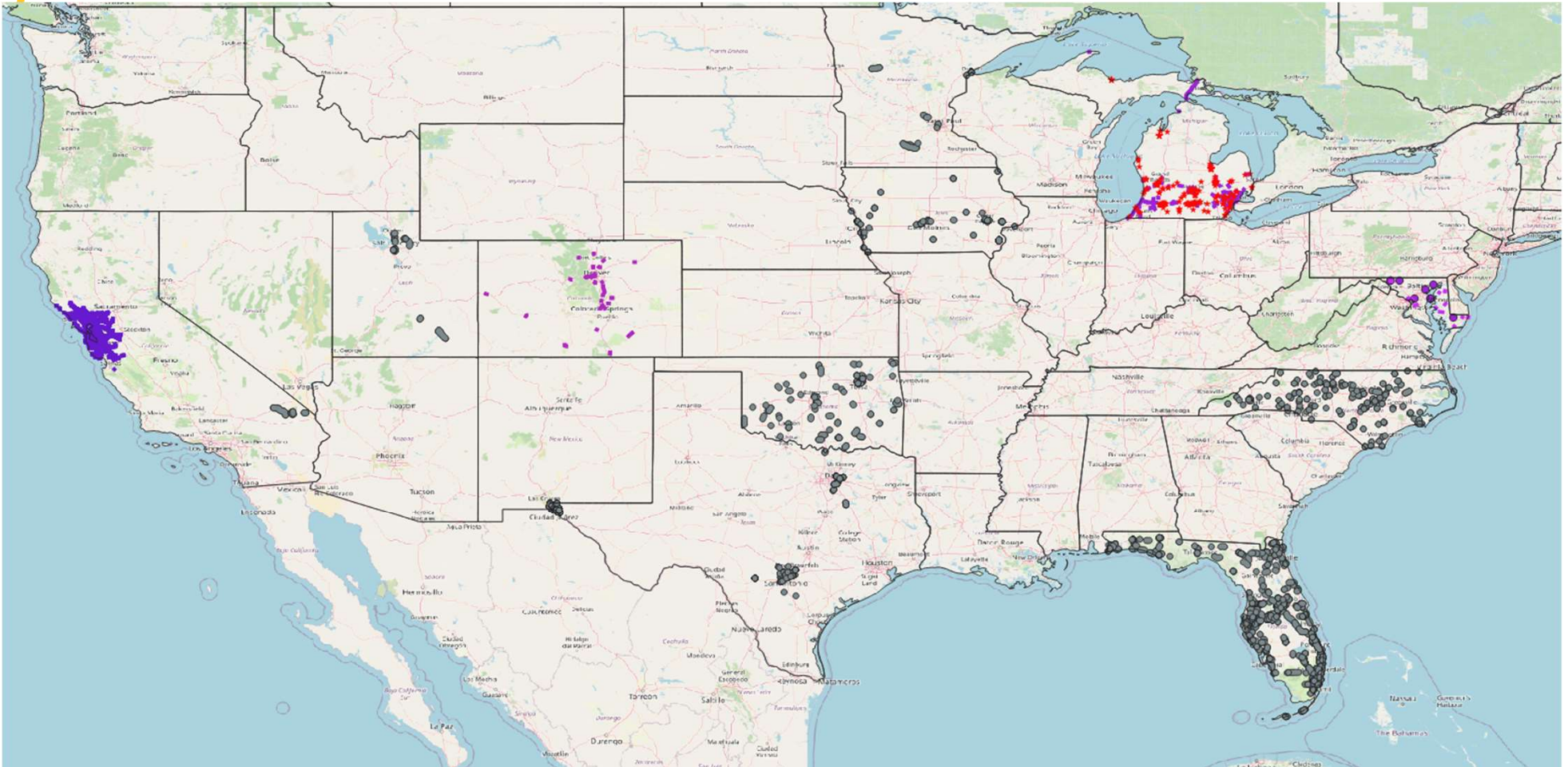
Location Markers



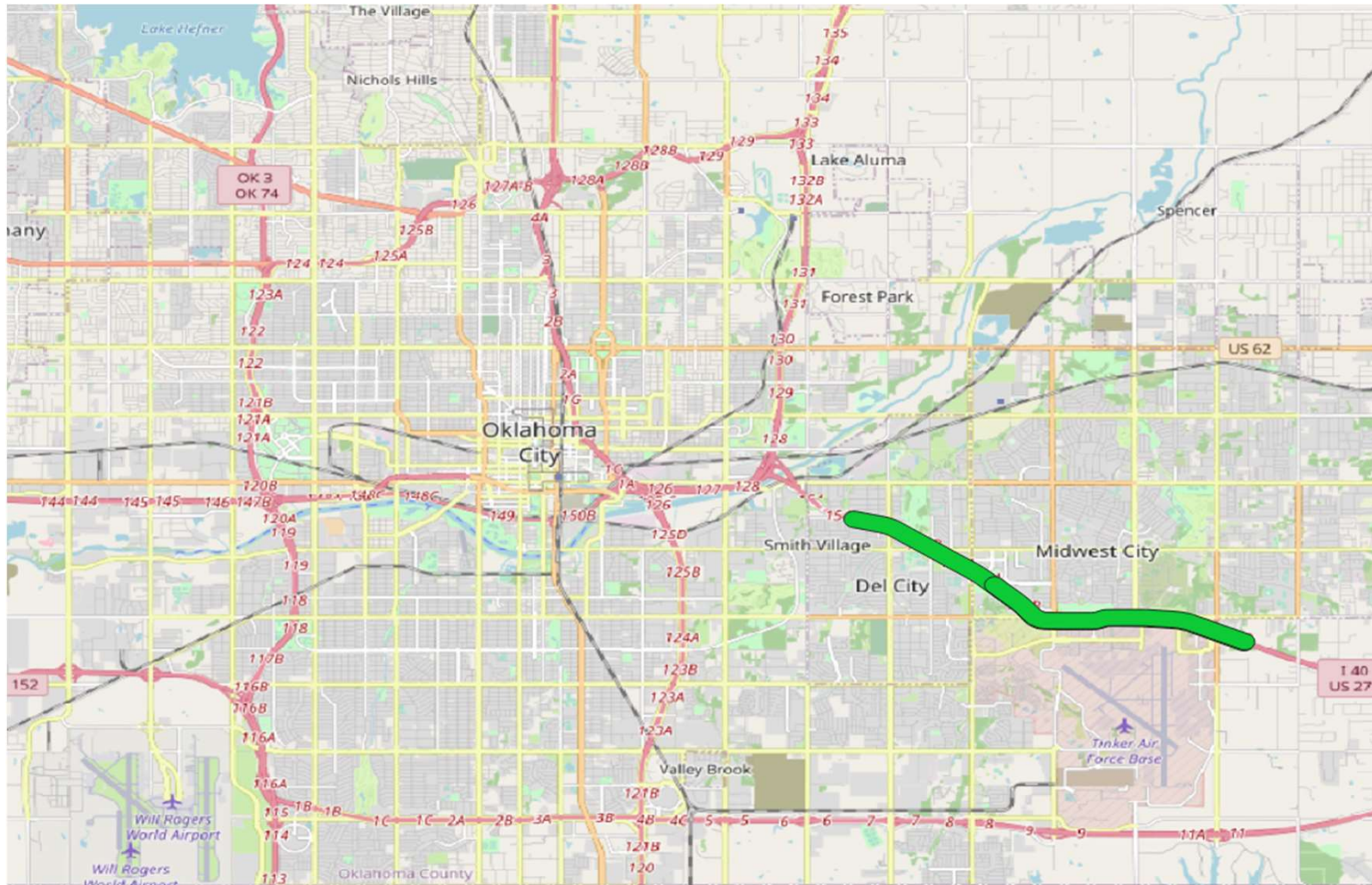
Connected
Workers

Published WZDx Work Zones

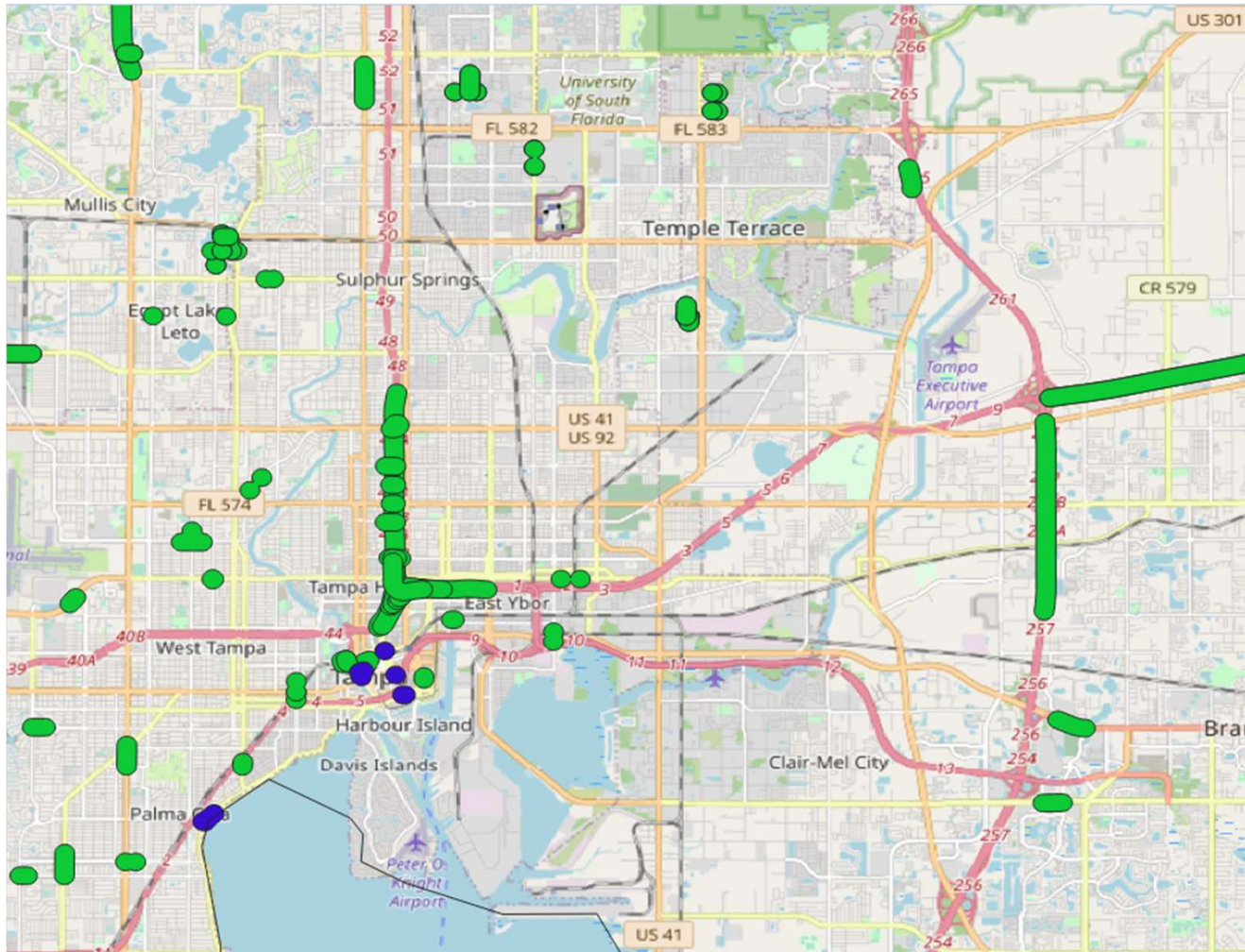
Not all active work zones are represented. How can this improve?



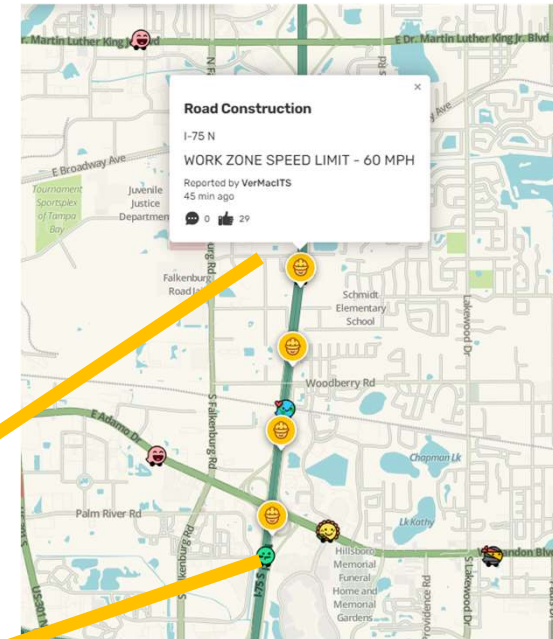
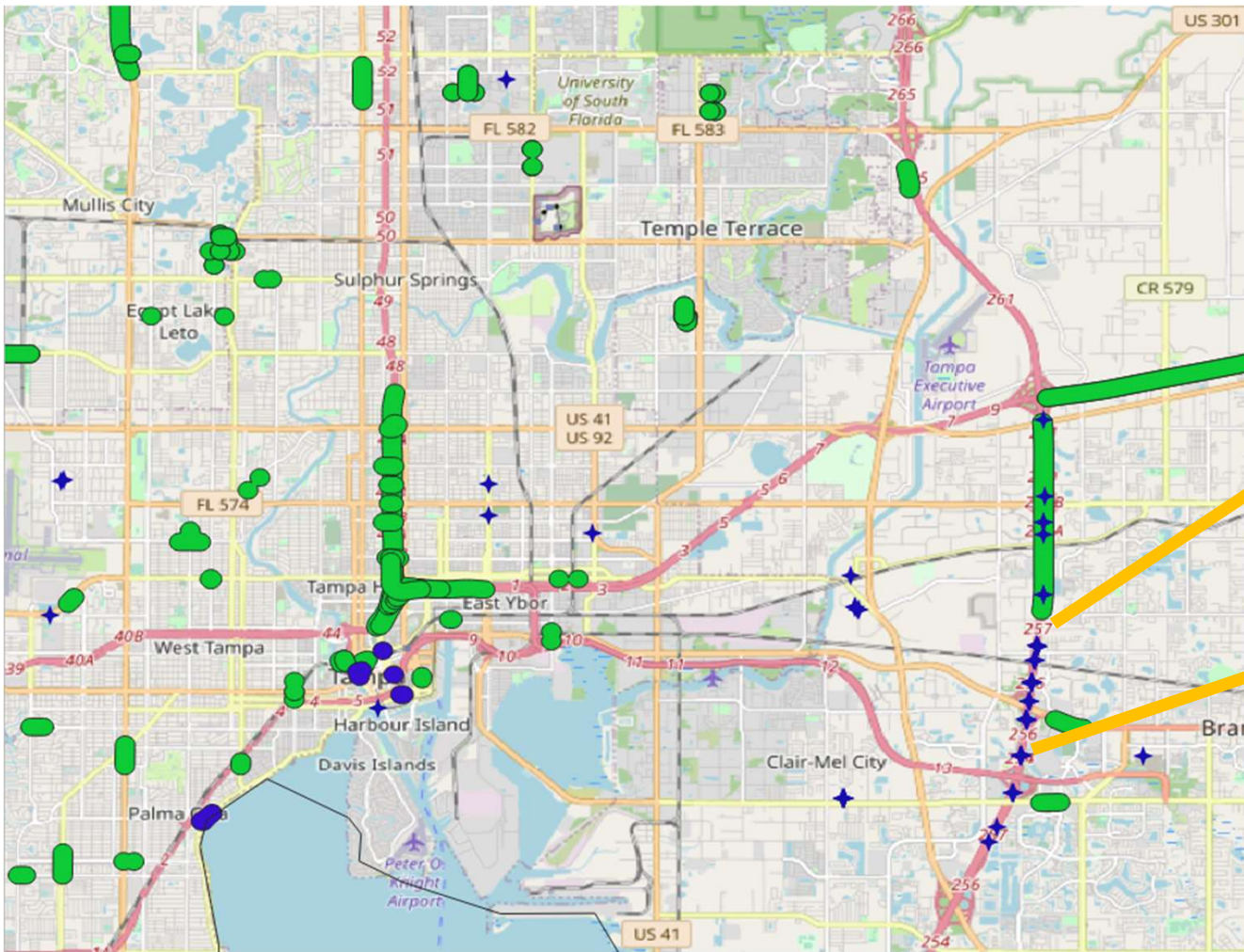
Oklahoma City- Only Shows 1 Work Zone in WZDx



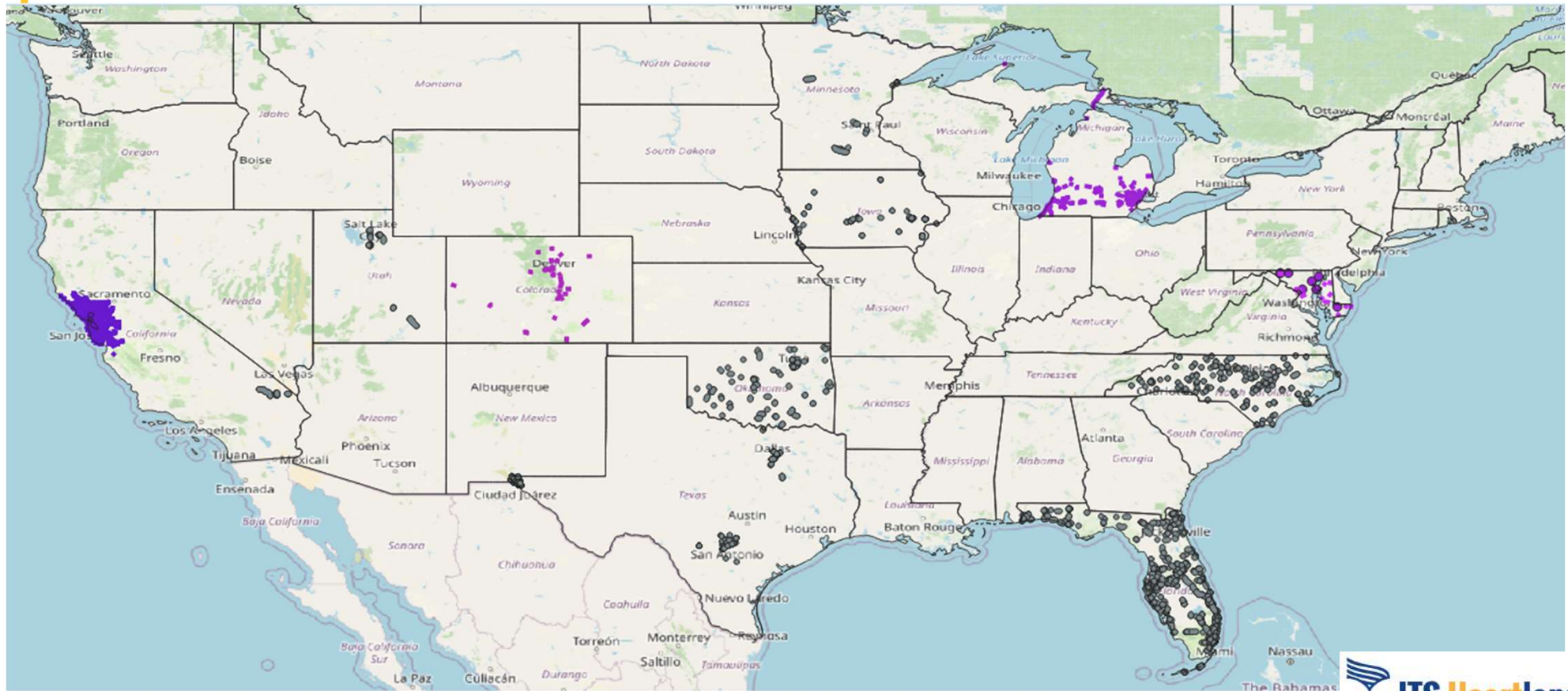
Tampa, FL Published Work Zones



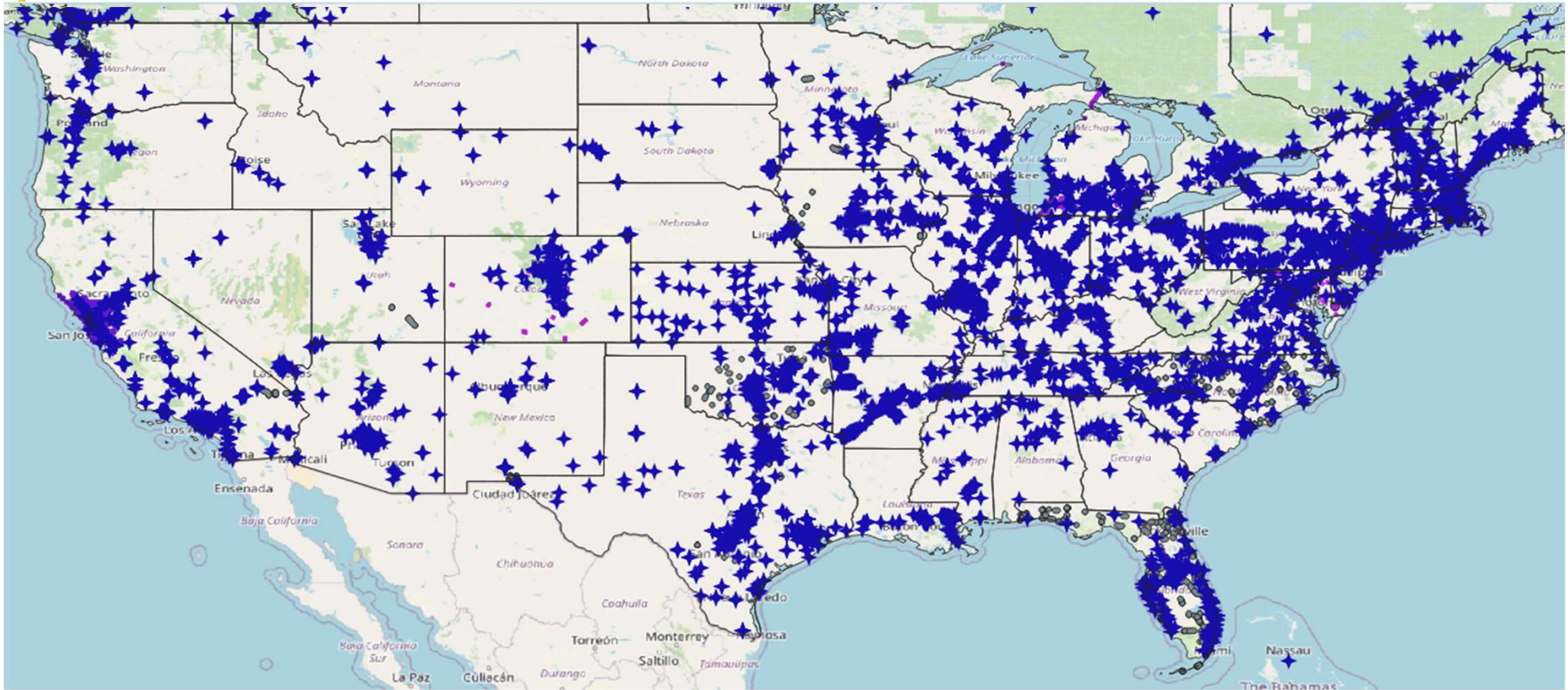
Tampa, FL – Actual Work Area vs. MOT Area



Bring your WZDx Data to a Next Level (Today)

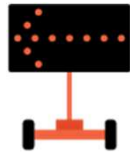


Connected WZ with Connected Devices





Know Where All Your Active Work Zones Are!



Know Where All Your Active Lane Closures Are!



Know When Speeds are Reduced in WZ's



Know When Workers & Present & Exposed



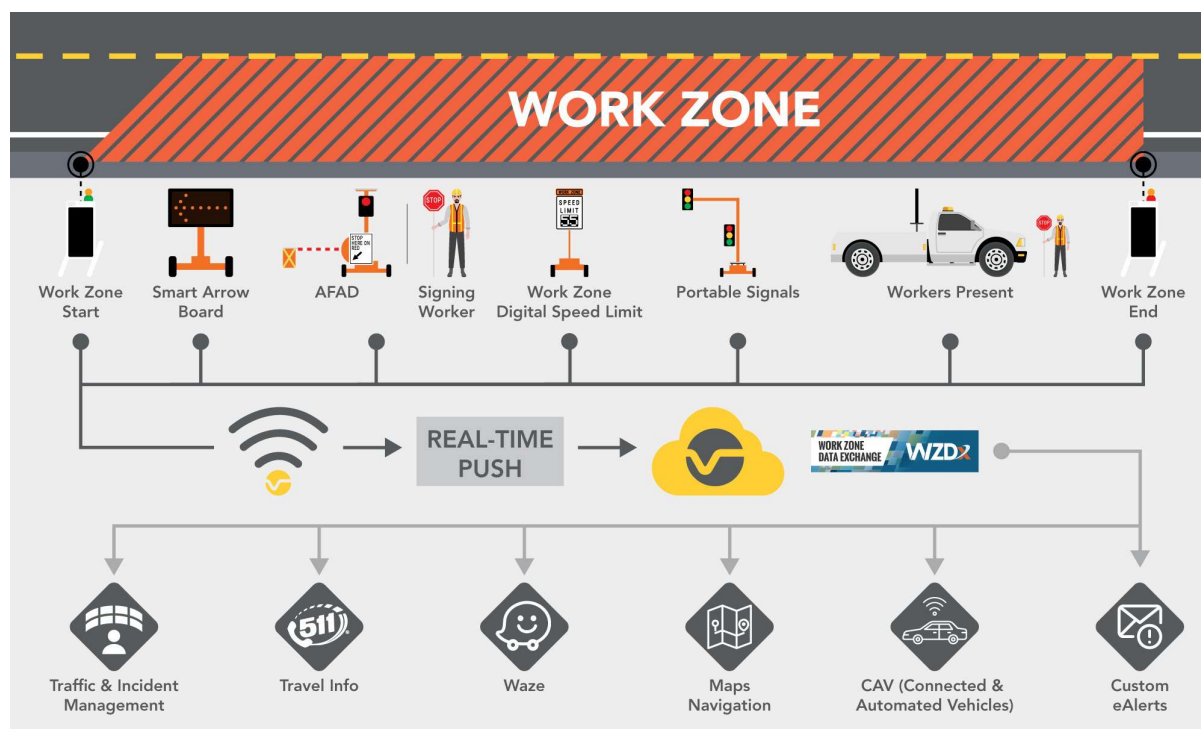
Almost all WZ devices can now connect to the cloud.

Critical Info

What critical Work Zone info do you want?

What info should we push into CVs (Connected Vehicles)?

CRITICAL CONNECTED EQUIPMENT



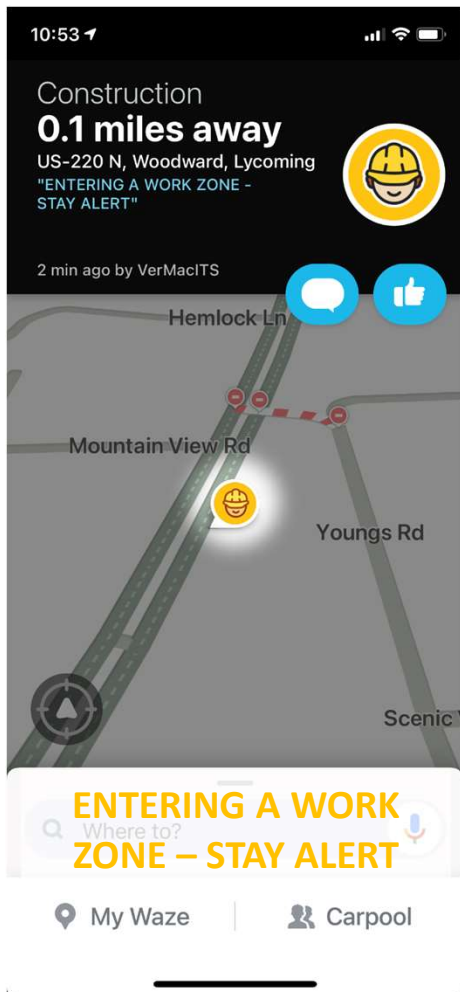
Share critical information with:

- Motorists
- Agencies
- Navigational companies

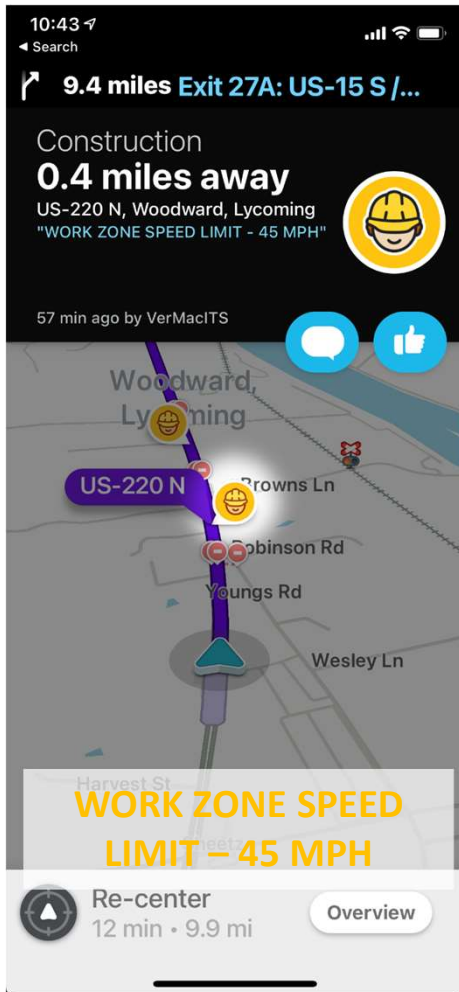
Data feeds are available for

- WZDx
- Waze
- Customized API feeds

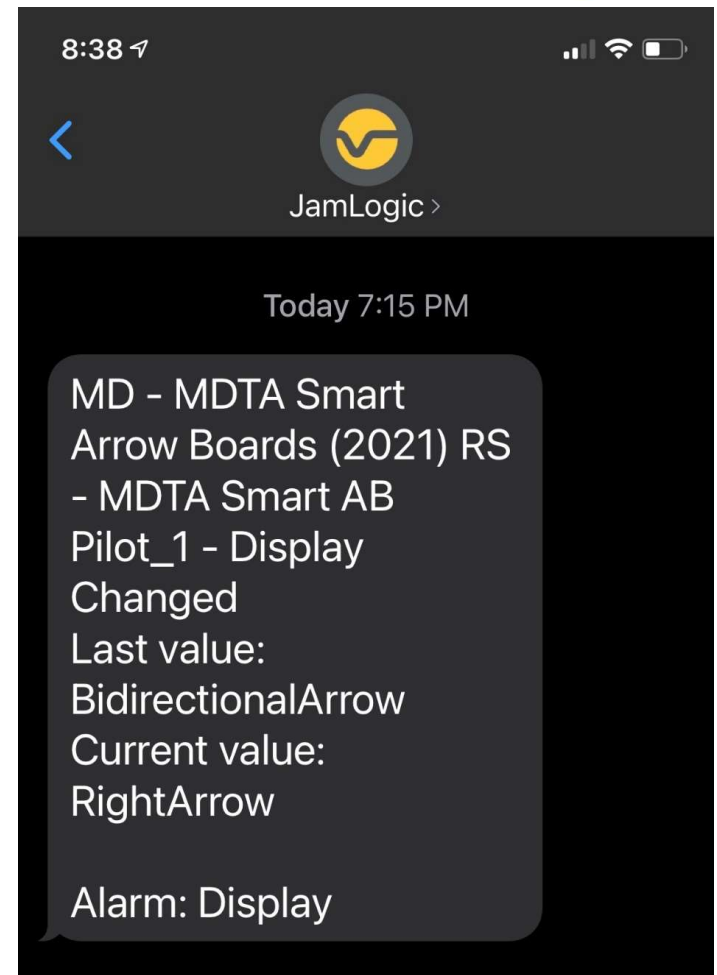
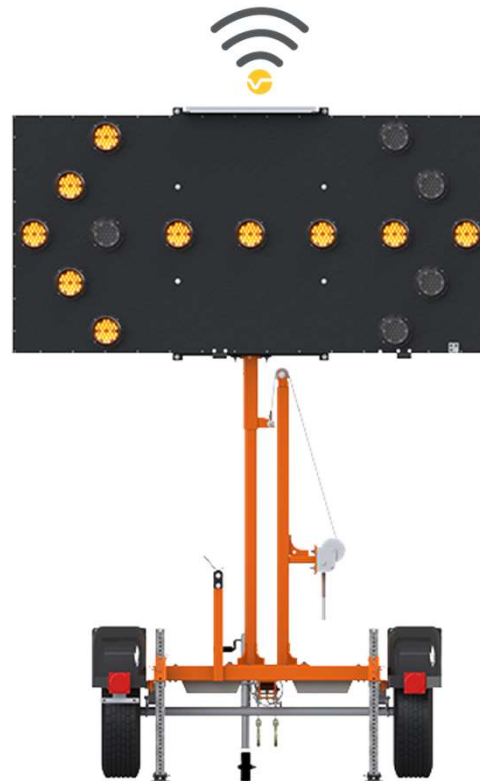
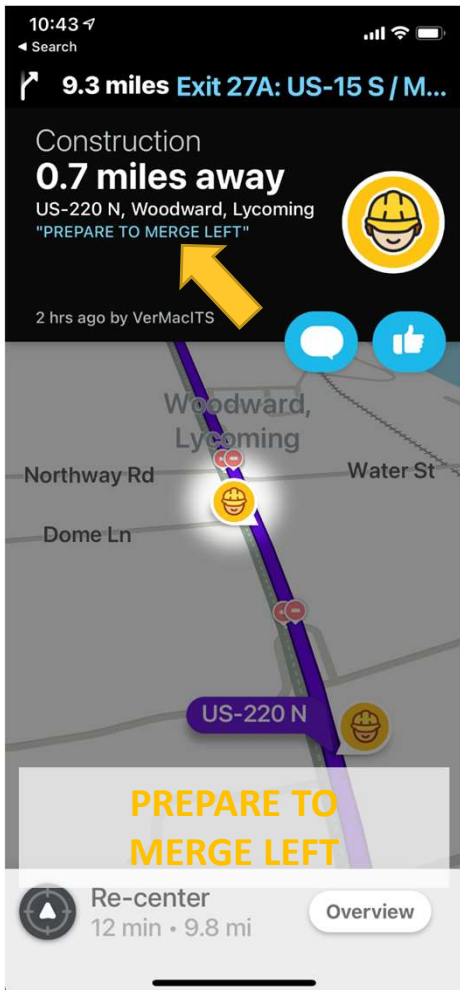
WAZE ALERTS – HELP WAKE UP DRIVERS



WAZE ALERTS – NOTIFY OF LOWER WZ SPEED LIMITS



WAZE ALERTS – NOTIFY of LANE CLOSURE



Connected Worker Presence Vest

A Worker Presence module can be installed on most safety vests.

**Light, Rugged & Waterproof
Connectivity Module**

**24 Hour Battery
Recharge/Swap Units Daily**

Recharges via USB Cable



**No action required
beyond just wearing it**

**When workers enter
defined work areas,
they are auto-activated**

Proactive Safety

See and be seen.



+

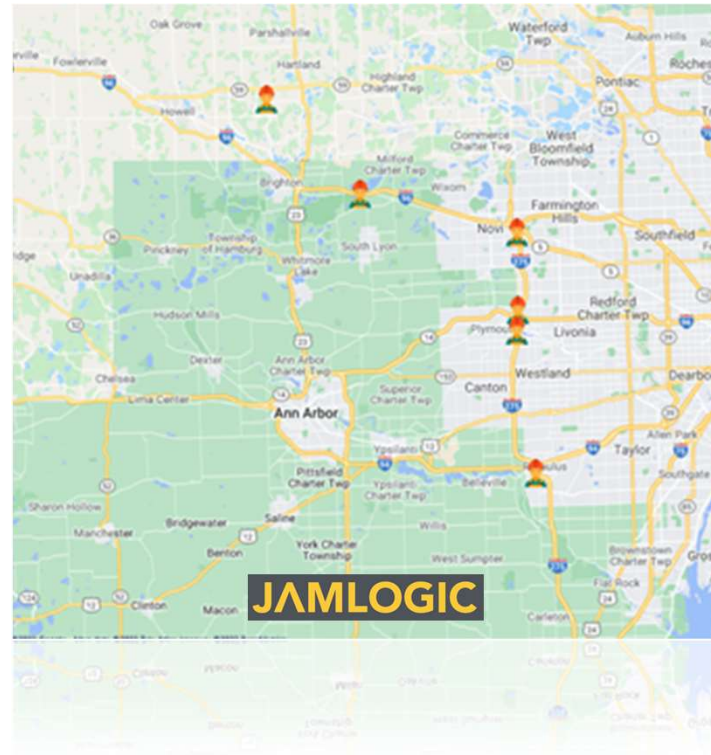


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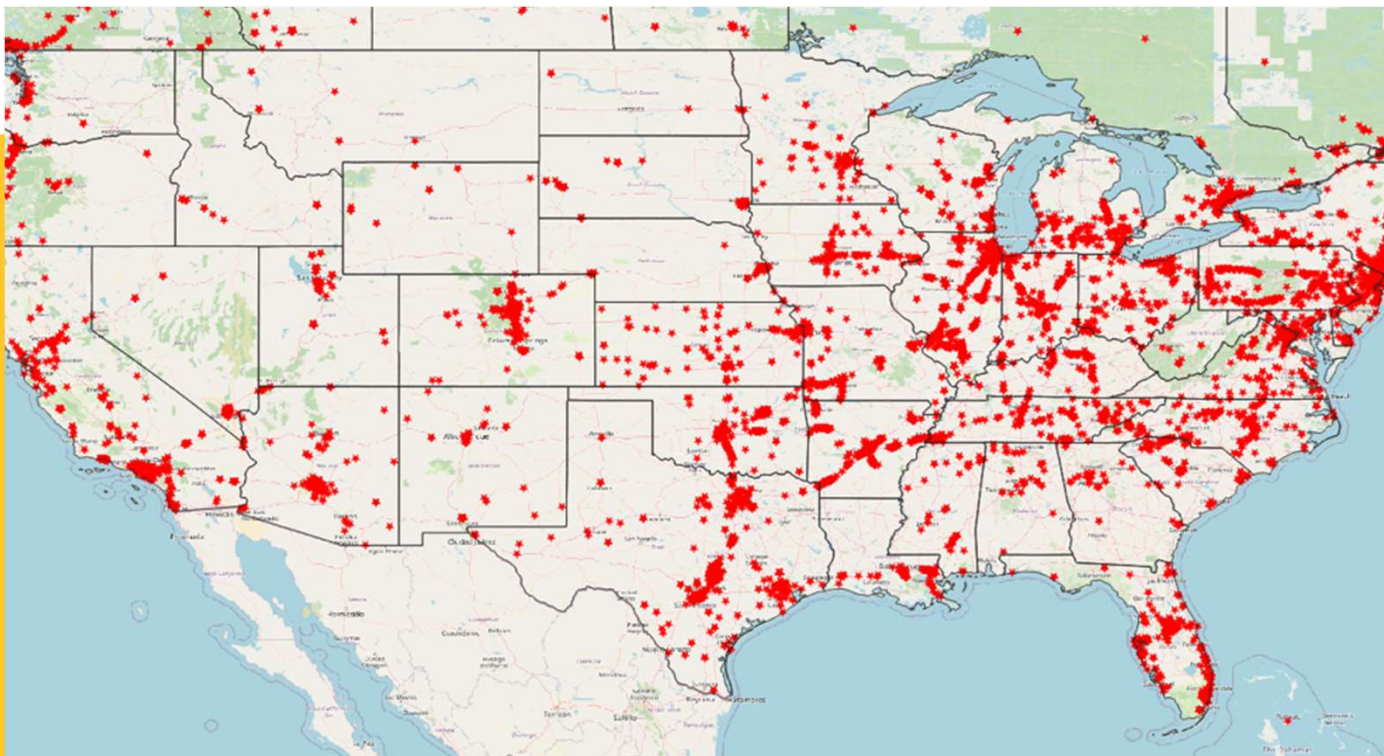


Vests Are Going Digital

Extend worker visibility!
Be seen by all on digital platforms.



Know When Your **Work Zones** are **ACTIVE**



Have your work zone become active as soon as a worker is present

Smart Devices Categories

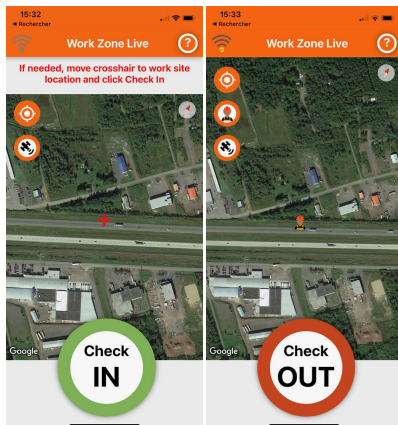
Cost over 5 years	\$	\$\$	\$\$\$
			
GPS Location	Yes	Yes	Yes
Remote changes/Status	No	No	Yes
Alert if moved by unauthorized person	No	Yes	Yes
Cellular fees	No	Yes	Yes
Power	Battery – Last months-years	Battery - Last week-Month	Solar and batteries- Autonomous
Size	Very small	Small-Medium	Large

DEMONSTRATIONS

04

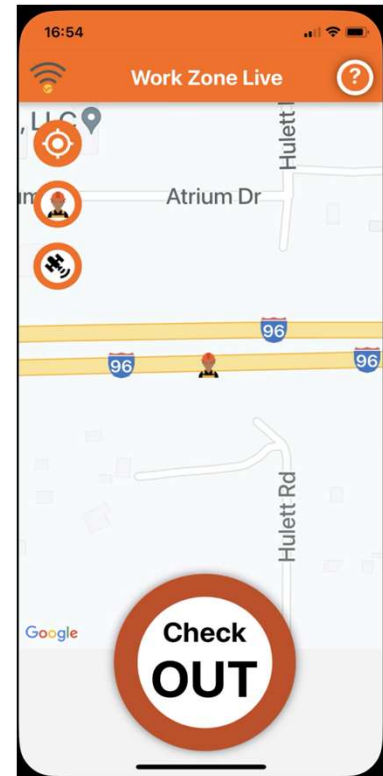
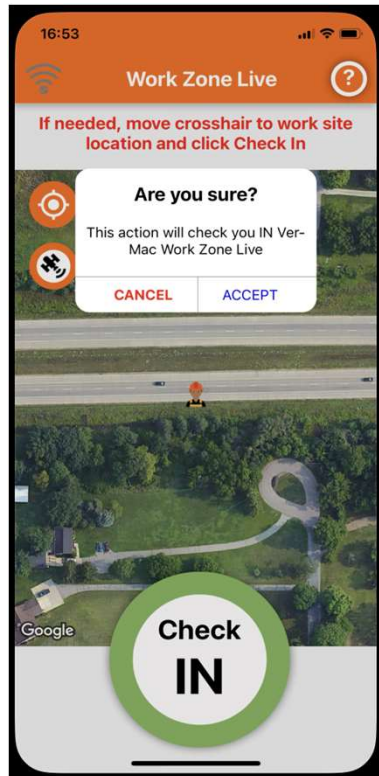
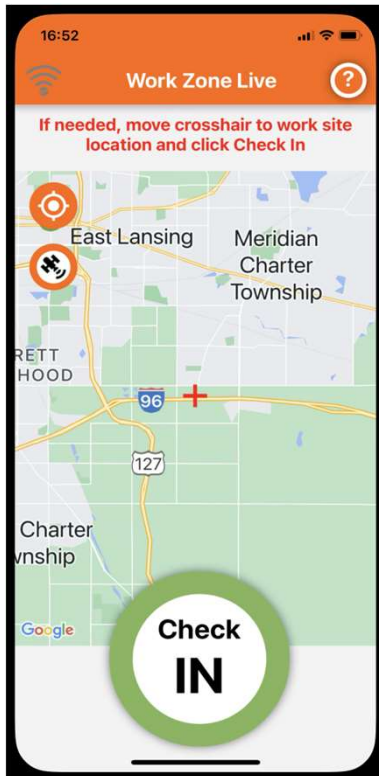
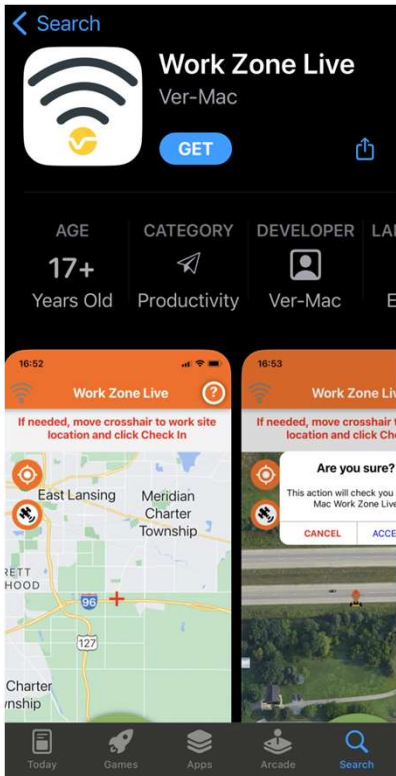


WORKER PRESENCE INPUT METHODS



- Phone or Radio call- Manual processing
- Camera-based monitoring (video analytics)
- Smart Equipment (Connected Truck, Cones)
- Mobile Applications
- Smart Wearable (vest, watch, hat)

Smart Phone Apps



ADVANTAGES: Inexpensive, Readily Available (using existing technology) & Quick/Easy to Use

DISADVANTAGES: Human Error (very common), Privacy Concerns

Live Demo

MDOT – GM – Ver-Mac
(May 2022)

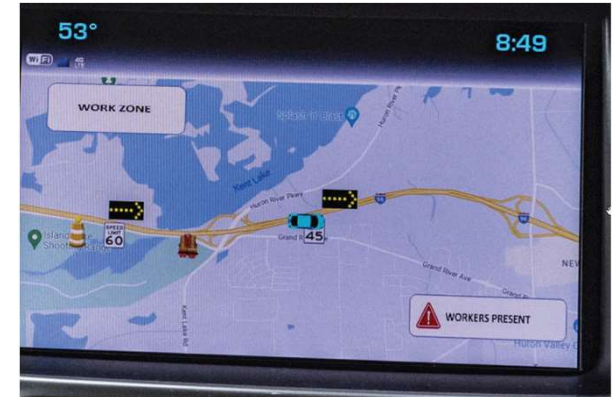
GM in-dash display

Workers Present

Lane Closures from arrow boards

Digital speed limit display

Road construction start/end markers



Pictured: Interior of a Chevrolet Tahoe

Connected Devices in Connected Vehicles

Partnership for Michigan road safety:



VIDEO LINK

<https://youtu.be/w4miSHq0ks>

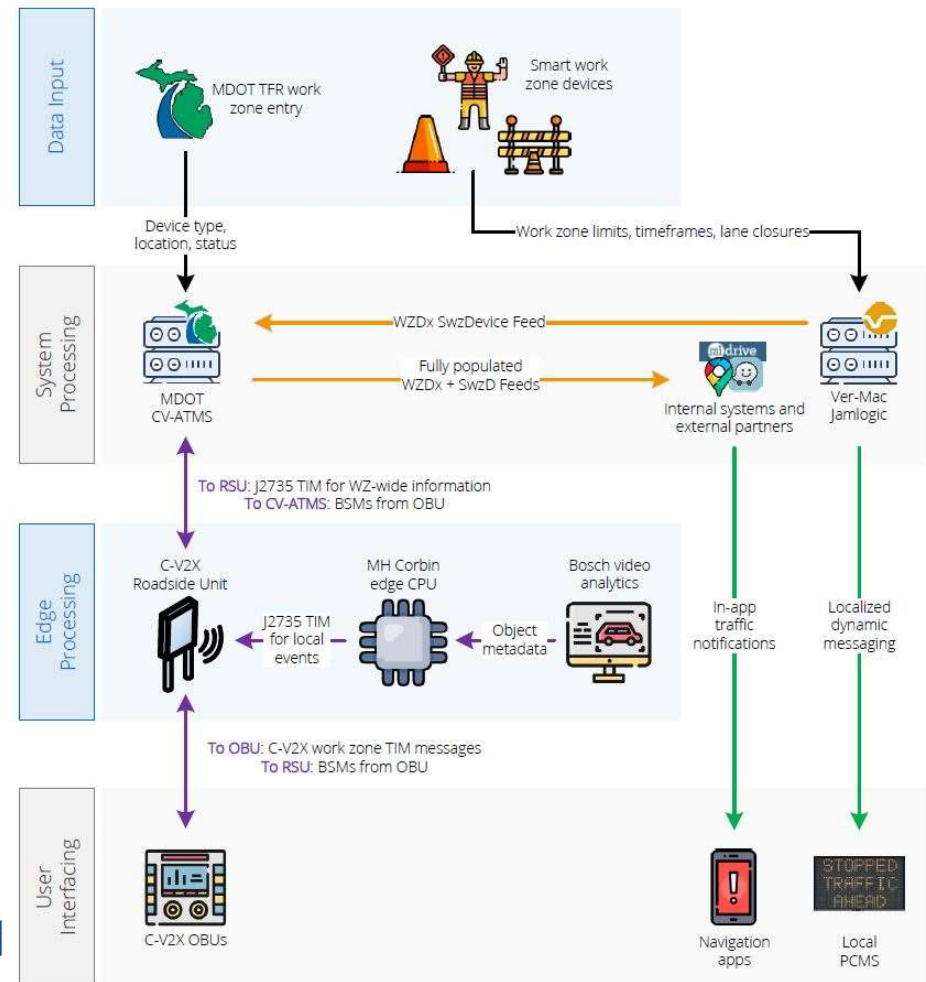


Connecting Work Zones to CMV's



Commercial Motor Vehicle / CWZ Grant Projects

- 1) WZ Info into CMVs
- 2) Mobile/Moving WZ info into CMVs



ATSSA EFFORTS

Promote Connected
Arrow Boards

05

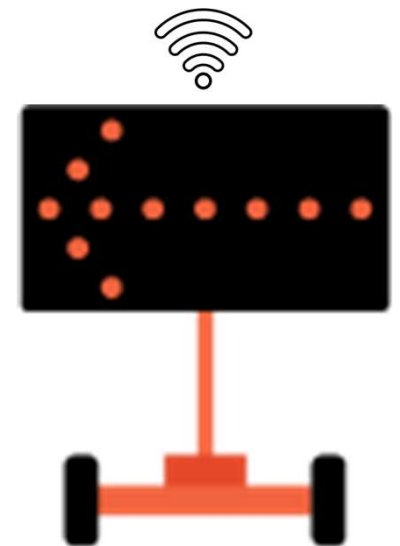




WZ ITS Subcommittee & TCC

WILL PUBLISH CONNECTED ARROW BOARD – PROMOTION SHEET

- Connected Arrows Boards are Proven & Cost-Effective
- Help promote spec changes to DOT upper Management & Politicians
- Promote the BENEFITS
- Highlight the STAKEHOLDERS
 - Connected Vehicles & Apps
 - Traffic Management Centers & Navigation Companies
- Provide Peer-to-Peer endorsements via ATSSA



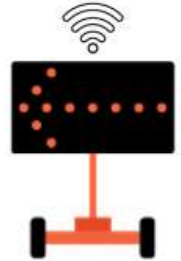
Connected Arrow Boards

CONNECTED ARROW BOARDS

REAL-TIME ACTIVE LANE CLOSURE INFORMATION
ENHANCE DRIVER AWARENESS = SAFER WORK ZONES

BENEFITS

- Know **WHERE** lane closures are in Real-Time.
- Log **WHEN** lane closures happened.
- Alert drivers of **WHICH** way to Merge.
- Reduce Crashes before Closure/Taper.
- Add to **ANY** existing equipment. (< 1 hour)
- Nothing new to learn for field personnel.
- Real-Time data using WZDx protocols for **ACTIVE** lane closures.



Connected Vehicles & Apps

WZDx



Traffic Management Centers, Navigation Systems & 511

CONNECT & GET ON BOARD TODAY

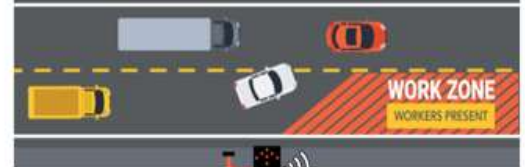
Join the **more than 3,000** Connected Arrow Boards already on the road!

Iowa DOT has required Connected Arrow Boards on all Interstate & State Highway Projects for several years...with no issues and at an extra cost of only ~\$1.85/day (rental cost/unit).

There is nothing stopping you from making your roads **SAFER** today!



Inform Motorists of ALL ACTIVE Lane Closures



Contact ATSSA Innovation and Technical Services
For Sample Specs & Details

Melodie.Melout@atssa.com



Insert QR Code Here

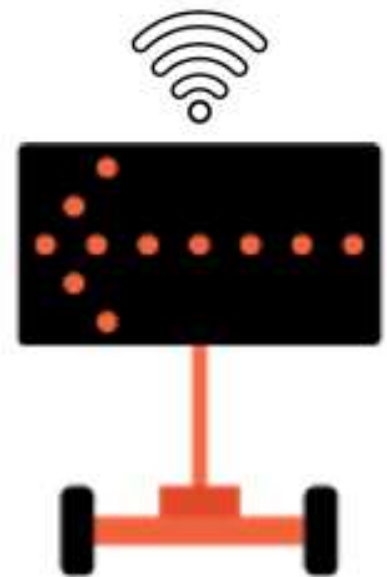


CONNECTED ARROW BOARDS

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Melodie.Matout@atssa.com



Insert QR Code Here





Advanced Driver Alerts (Apps or In-Vehicle Infotainment Displays)



Alert Drivers = Safer Work Zones (Audible Alerts are Best)



Critical Verified Real-Time Info
(Lane Closure, Lower Speeds Exposed Workers)



Proven Technology Ready for Today
(Track all WZ's or at least Active Lane Closures)



Easy to Use & Deploy
Non-Technical Changes for Field Personnel

Benefits of Connecting Work Zones

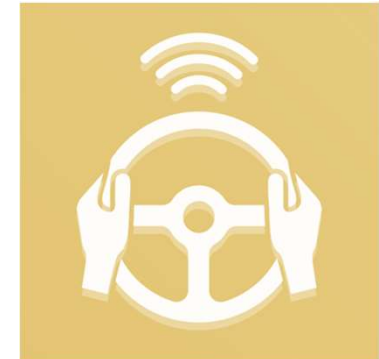
SAFER



WORKERS



CUSTOMERS



BUSINESS



Let's Take
Work Zones
to the Next Level.





Q&A TIME

TODD FOSTER

VP of ITS Engineering

todd.foster@ver-mac.com

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Check out our complete product line at:

VER-MAC.COM

