



# Introducing Intelligence into the Work Zone

Neil Boudreau

MassDOT – Highway Division



# Overview of Presentation

- 1) Variable Speed Limits in Work Zones
- 2) Radar Speed Feedback Signs
- 3) Smart Arrow Boards
- 4) The Big Picture – Digitally Mapping Work Zones



# Variable Speed Limit (VSL) Systems

Issue: many states struggle with how to get motorists to reduce speeds through the work zone

- Need statutory authority to reduce regulatory limits
- Need to define time when workers are present requiring reduction

Solution: VSL systems can be deployed to allow DOTs to dynamically reduce speed during active construction



# Proposed Massachusetts VSL Program

## WHY

- Work zones are dynamic with highly variable traffic and road conditions, meaning the appropriate speed can vary during project duration.
- Static speed limits that are established through a regulatory process are only good for the geometric conditions on that roadway.
- Flexibility to adjust the posted speed limit based on the prevailing

## OBJECTIVES

- Increase compliance and credibility of the posted speed limit
- The speed limit shall be effective when signs giving notice of that speed limit are prominently displayed and construction, repair, maintenance or survey work is being performed

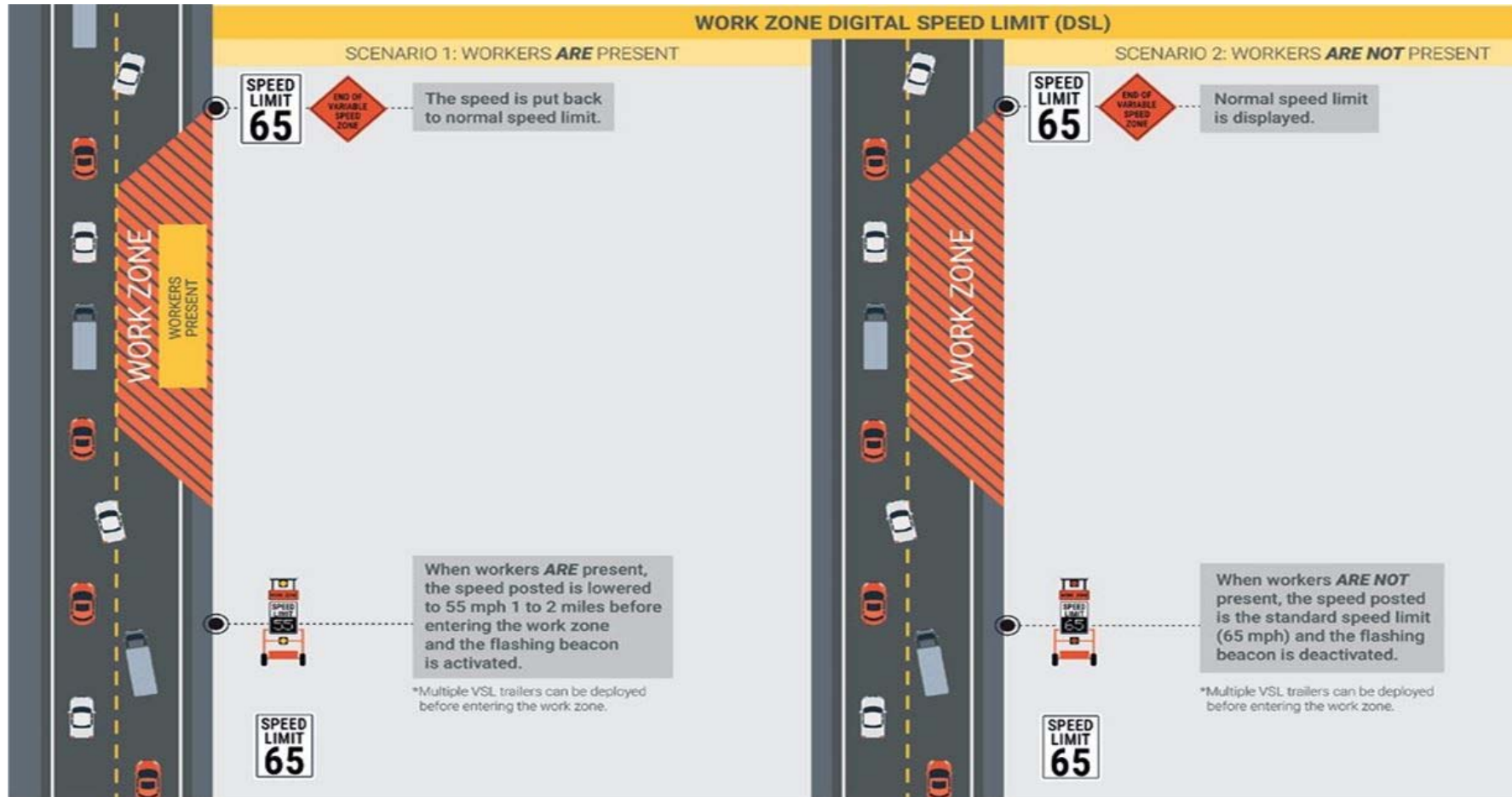
*Tip:* When using VSL system, it is helpful to use beacons to signify there is active work



Source: VER-MAC



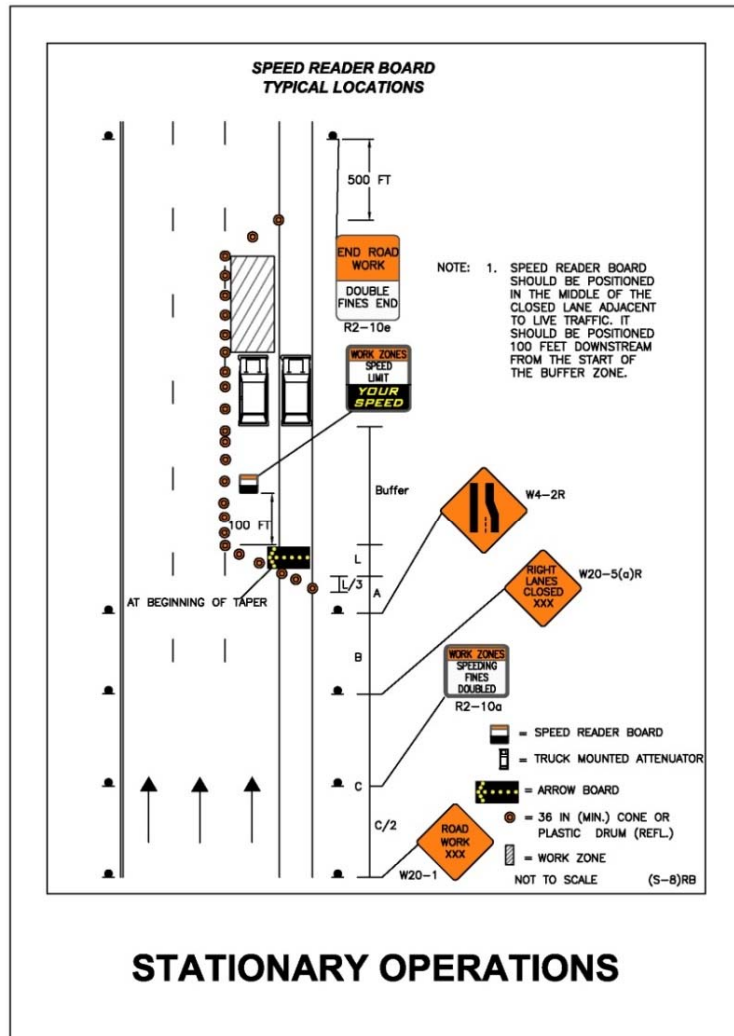
# Variable Speed Limit Application



*Tip:* Develop an easy to understand graphic to get media/public buy-in

Source: VER-MAC / OHIO DOT

# Speed Feedback Signs



*Tip:* Flashers used only if workers present and actively working

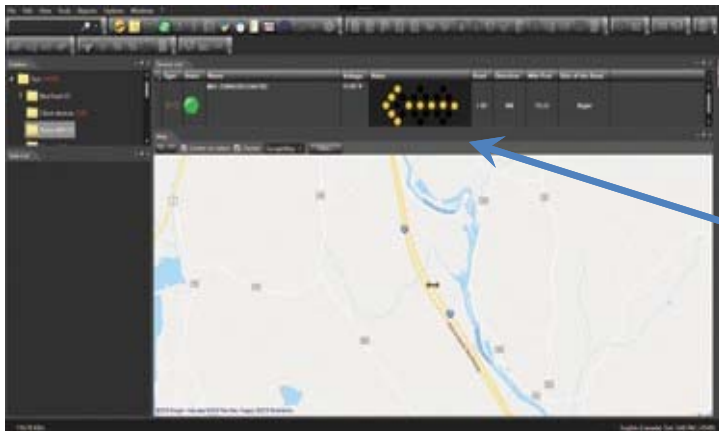
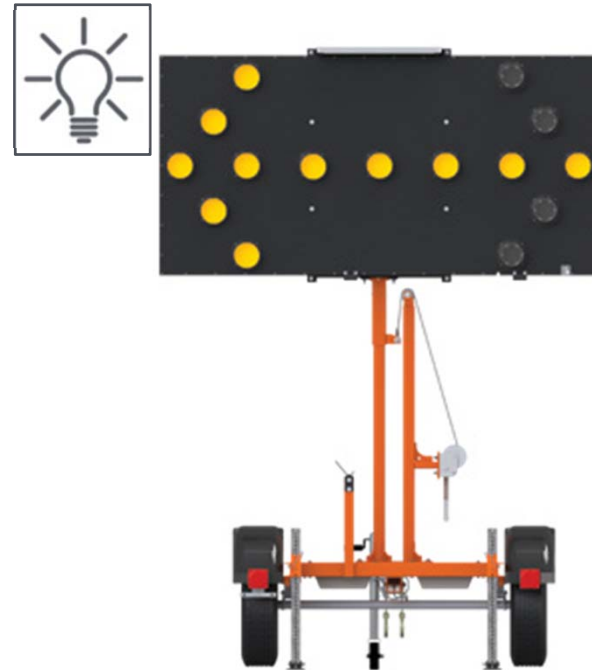
# Smart Arrow Boards

## SMART ARROWBOARD OBJECTIVES:

- Provide DOT with arrowboard lane closure information
- Provide record of arrowboard activation and history
- Provide GPS location of all arrowboards in field
- Provide more accurate information about closures to 3rd party data and connected vehicles

## SMART ARROWBOARD APPLICATIONS

- Work zone that has a lane closure with arrowboard
- Utility and maintenance crews
- Rolling lane closures
- Nighttime asphalt paving & bridge deck repair



Voltage	Value	Road	Direction	Mile Post	Side of the Road
12.02 V		I-87	NB	75.52	Right

Source: VER-MAC

# Operation of Smart Arrow Board



Source: Work Area Protection

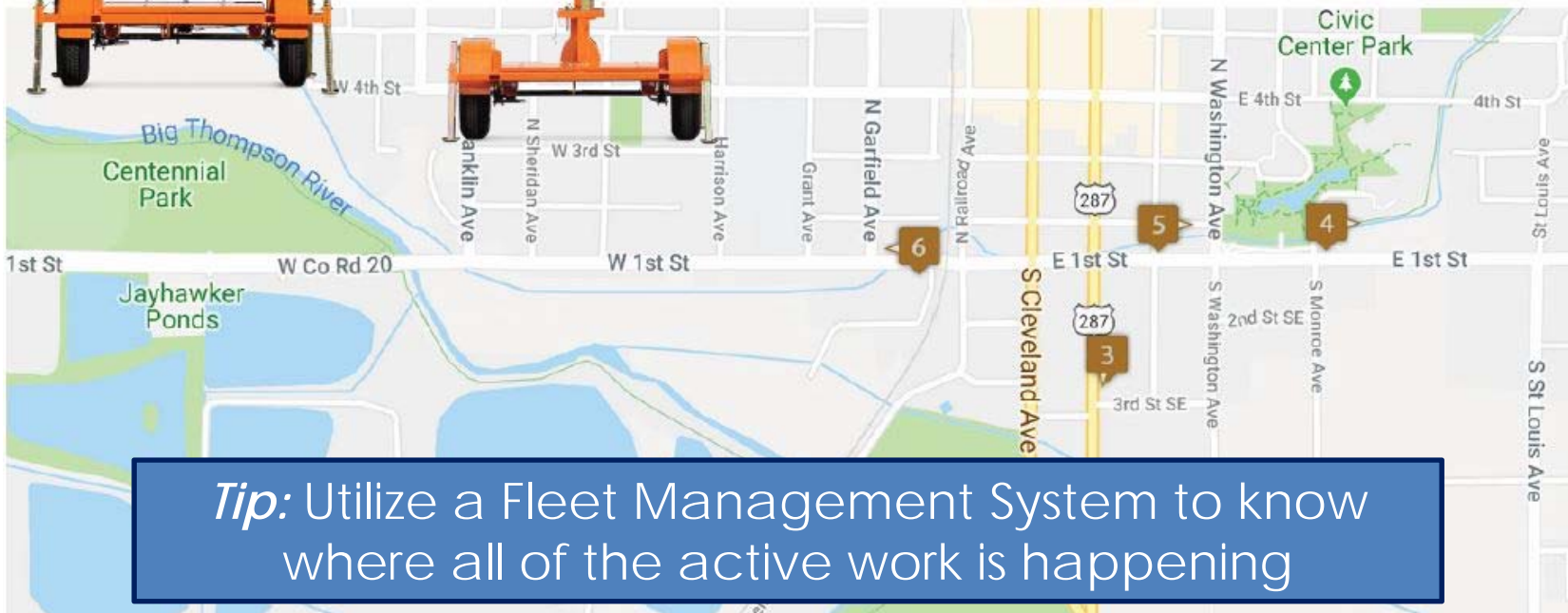
*Tip:* Potential for Add-On components to make existing equipment "smart"



# Connected Arrow Boards



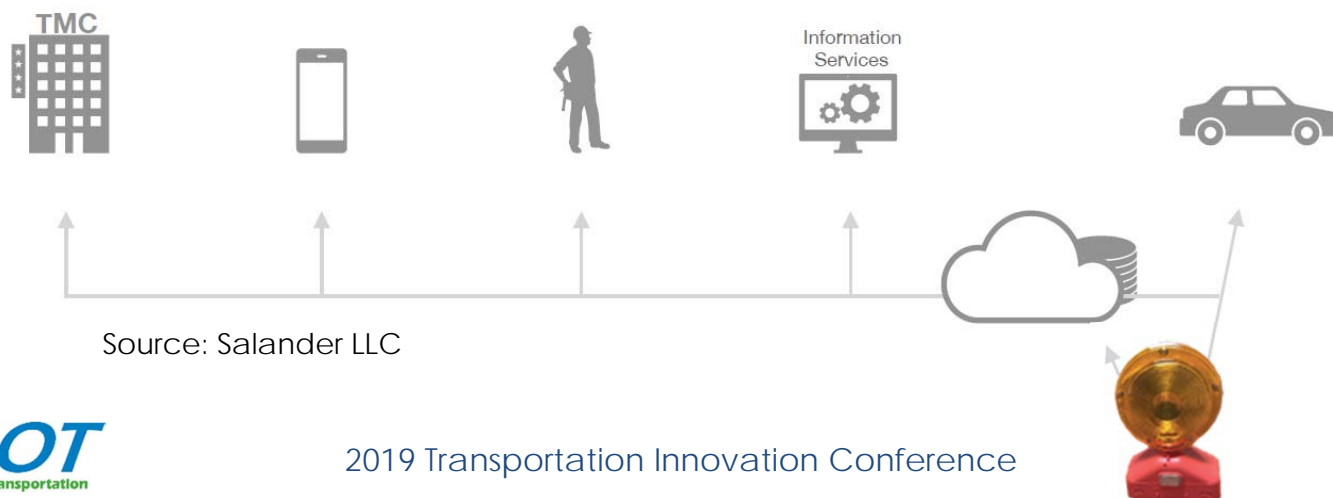
- View location and compass bearing on detailed map
- Monitor pattern being displayed, voltages and alarms
- Receive system alerts via text or email
- Review operation history log



# Digital Mapping of Work Zones

## Why? What is the “Big Picture” benefit?

- Sensor technology used to digitally record the start and end points of a work zone
- Allows for the DOT to know where all of the active work zones are on their freeways
- Data can be absorbed by the traffic service providers and ultimately provide better quality information to the public that uses these services



# Thank you!

