





ODOT Work Zone Current Events

2023 ODOT Inspector Training

Work Zones – Current Events

Work Zones – Dynamic Environments



Work Zones – Current Events

Training – Traffic Control Plans Design

- ODOT Design course for Temporary Traffic Control Plans - Workday
- Selfpaced, 6-8 hours
- Consultant Designers required to take



Work Zones – Current Events

Training – Traffic Control Plans Design

- Broad overview of ODOT design
- 7 lessons, basics of TTC and PS&E
- Roadmap

ODOT - ENG - Traffic Control Plans Design

This course provides designers, engineers or technical staff, members of City or County Public Works offices, inspectors, and private consultant engineering firms an introduction to the policy standards and deliverables that serve as the foundation for developing temporary traffic control plans for construction work along Oregon's Highway System. The lessons are not intended to be fully comprehensive, but rather are designed to guide individuals who are working with ODOT to commonly referenced resources. [Show All](#)

[Lessons in This Course](#) | [Additional Course Details](#)

Lessons in This Course Completed 5/1

Lesson	Media
1 Traffic Control Plans Design	Media

START COURSE

Duration: 6 hours | Lessons: 1

Delivery Mode: Self-Directed

[Show](#)

INTRODUCTION

- Lesson 1: General Standards and Practices
- Lesson 2: Anatomy of a Work Zone
- Lesson 3: Temporary Traffic Control Devices (TCD)
- Lesson 4: Traffic Control Measures (TCM)
- Lesson 5: Specifications, Special Provisions, Drawings, and Details
- Lesson 6: Traffic Control Plans Design
- Lesson 7: Traffic Control Cost Estimating
- Resource Links

Work Zones – Current Events

Training – TPAR Design

- ODOT Design course for Temporary Pedestrian Accessible Routes - Workday
- Ready approx. July 2023
- Selfpaced, 2-4 hours
- Consultant Designers required to take

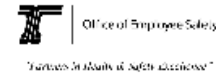


Work Zones – Current Events

Near Misses – Pilot Program

ODOT Transportation Safety/Maintenance collected Near Misses in Work Zones from August – October 2022.

-Expand to all ODOT



Office of Employee Safety
"Protecting the Health & Safety of Employees"



Scan the QR code to report a near miss

Work Zone Near Miss Report

Data as of: October 31, 2022, 5:00PM
Date of collection: August 1 to October 31, 2022

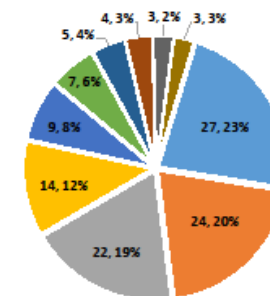
Total number of near misses reported: 118
Average number of near misses per month: 39

Total number of near misses reported per month compared to previous months/years:

Month	Count	Month	Count	Month	Count
August 2022	54	September 2022	34	October 2022	30
August 2021	3	September 2021	2	October 2021	1
August 2020	1	September 2020	2	October 2020	1
August 2019	8	September 2019	0	October 2019	2

Note: During the COVID-19 pandemic years (2020 and 2021), there was a decrease in road travel by the general population that may have impacted the number of safety incidents around work zones.

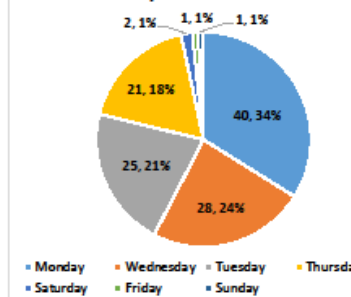
Categories of Near Misses in Work Zones



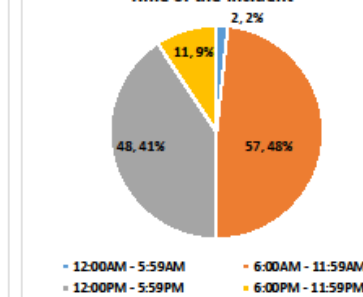
- Vehicle driving around AFAD or human flagger
- Vehicle near collision w/equipment*
- Vehicle near collision w/personnel
- Vehicle failed to follow the pilot car
- Vehicle collision w/equipment
- Threats of violence to personnel
- Other
- Vandalism to equipment
- DUII
- Wrong way motorist

* Equipment – cones, vehicles, AFAD, etc.

Day of the Week



Time of the Incident*



* Note: majority of ODOT work is performed during the daytime hours.

Updated: 16 November 2022

Work Zones – Current Events

Near Misses – Pilot Program

- [Work Zone Near Miss Reporting \(smartsheet.com\)](https://app.smartsheet.com/b/form/d9101a5458bc465aaded9ca47c186736),
<https://app.smartsheet.com/b/form/d9101a5458bc465aaded9ca47c186736>



Scan the QR code to
report a near miss

Work Zone Near Miss Reporting

Crew number

Date of incident or near miss

Time of incident or near miss

Highway number/name

Describe incident or near miss

Submit

[Privacy Notice](#) | [Report Abuse](#)

Work Zone Current Events

TPAR – Construction Considerations

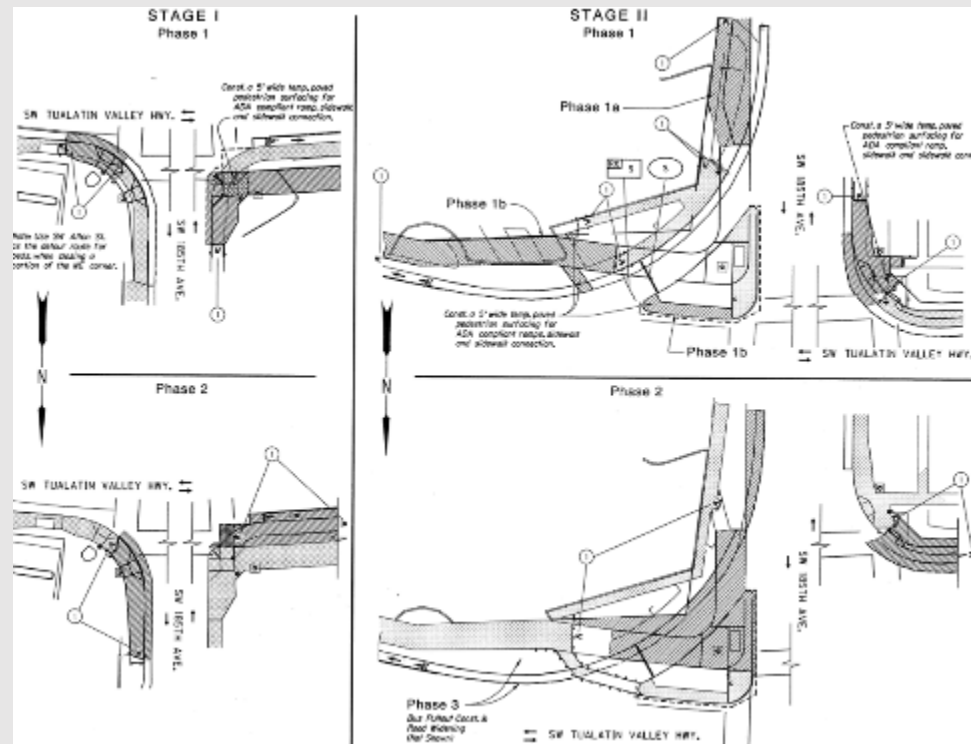
- TPAR's



Work Zone Current Events

TPAR – Construction Considerations

- If Contractor modifies the Traffic Control Plan, need to include a modified TPAR plan.
- ODOT/APWA specs requires modified plans, including TPAR's, to be Stamped by an Engineer.



Work Zone Current Events

TPAR – Construction Considerations

- **It IS Required!**
- **Document TPAR in the Daily Traffic Control Inspection Report / Inspectors Diary (Compliance Reviews)**



Work Zone Current Events

TPAR – Construction Considerations

- It HAS to work!
- Shopping Cart



Work Zone Current Events

TPAR – Construction Considerations

- **It HAS to work, AT ALL TIMES**
- **Maintained, at a minimum check before and after each shift**



Work Zone Current Events

TPAR – Construction Considerations

- It HAS to be maintained



Work Zone Current Events

TPAR – Construction Considerations

- It HAS to be Continuous



Work Zones – Current Events

TPAR – Construction Considerations

- **Caution Tape is not a approved device for TPAR**



Work Zones – Current Events

2022 TPAR Deficiencies

- TPAR Consultant

Suggestions for 2023

- Ramps
 - Develop a qualified products list
 - Asphalt, if used, must be firm
- Sidewalk closures
 - Training to enforce closure of entire width of sidewalk
 - Require mounting of Sidewalk Closure sign on Ped Channelizer
- TPAR
 - Training on minimum width of 48"
 - Require surfaces be firm, smooth and slip resistant
- Eliminate use of caution tape
- Daily review of TPAR for condition PCDs



Work Zones – Current Events

2022 TPAR Deficiencies

- Temporary Ramps –
 - Develop QPL for Ramps - Boardwalk
 - No cold mix asphalt



Work Zones – Current Events

2022 TPAR Deficiencies

- Sidewalk Closures
 - Close entire width
 - Signs mounted on PCD



Work Zones – Current Events

2022 TPAR Deficiencies

- TPAR
 - Width 48"
 - Smooth, firm, and slip resistant surface



Work Zones – Current Events

2022 TPAR Deficiencies

- Eliminate Use of Caution Tape



Work Zones – Current Events

2022 TPAR Deficiencies

- Daily review of TPAR for conditions – maintenance
 - TCIR Reports

**Traffic Control Inspection Report
PHOTOGRAPHS**

Project Name/Location	Date	Contract No.
<div style="border: 1px solid black; height: 100px; width: 100%;"></div> <small>Insert photo in this box. (Click in box and upload photo from computer or source)</small>	<div style="border: 1px solid black; height: 100px; width: 100%;"></div> <small>Insert photo in this box. (Click in box and upload photo from computer or source)</small>	
<small>Photo #</small>	<small>Photo #</small>	
<small>Brief Description</small>	<small>Brief Description</small>	
<div style="border: 1px solid black; height: 100px; width: 100%;"></div> <small>Insert photo in this box. (Click in box and upload photo from computer or source)</small>	<div style="border: 1px solid black; height: 100px; width: 100%;"></div> <small>Insert photo in this box. (Click in box and upload photo from computer or source)</small>	
<small>Photo #</small>	<small>Photo #</small>	
<small>Brief Description</small>	<small>Brief Description</small>	
<div style="border: 1px solid black; height: 100px; width: 100%;"></div> <small>Insert photo in this box. (Click in box and upload photo from computer or source)</small>	<div style="border: 1px solid black; height: 100px; width: 100%;"></div> <small>Insert photo in this box. (Click in box and upload photo from computer or source)</small>	
<small>Photo #</small>	<small>Photo #</small>	
<small>Brief Description</small>	<small>Brief Description</small>	
<small>Add a Photo Page</small>	<small>Delete a Photo Page</small>	

7/26/2014 (Rev. 05/11)

Work Zones – Current Events

TPAR – Crosswalk Closures – LD's

Region 5 Piloting Liquidated Damages, \$51/day/curb ramp, for curb ramp work that closes a adjacent crosswalk past certain amount of time, i.e. 14 days.



Work Zones – Current Events

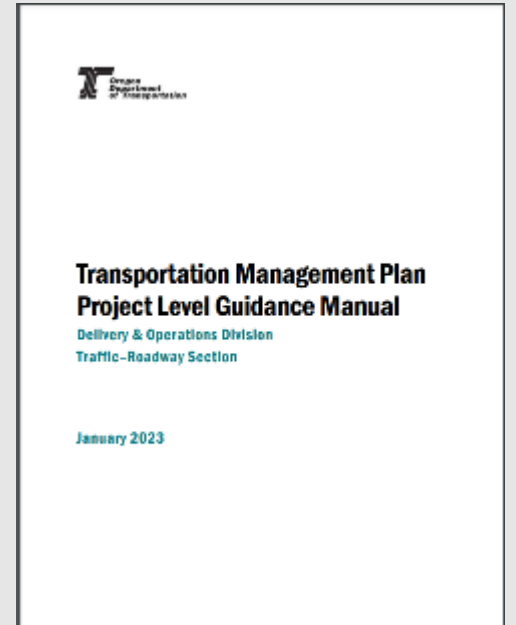
TPAR – Q&A

Q: Support for TPAR ramps as “same or better than original” condition – enforcement. Hard to enforce as an inspector?

A: Enforce the plans. TPAR details should be in the plans.

Q: How is inspector to know original condition if no evidence for TPAR “same or better than original” condition?

A: The Transportation Management Plan (TMP) contract supporting document is supposed to document the existing condition and the plans should reflect what standard to meet.



TPAR

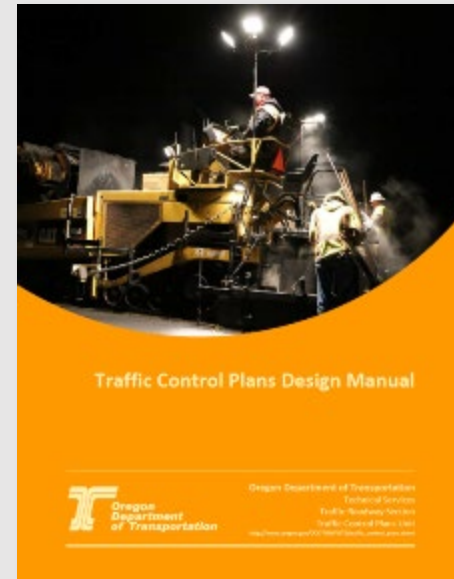
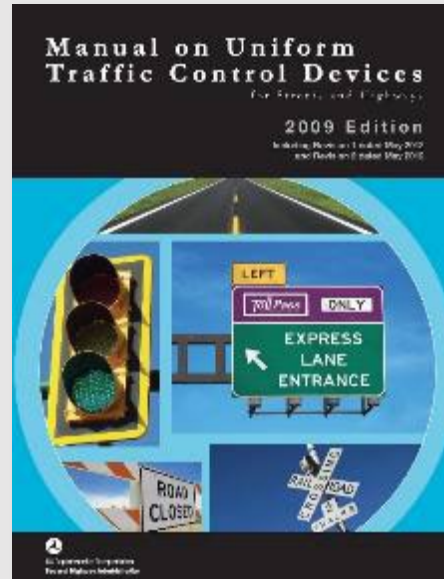
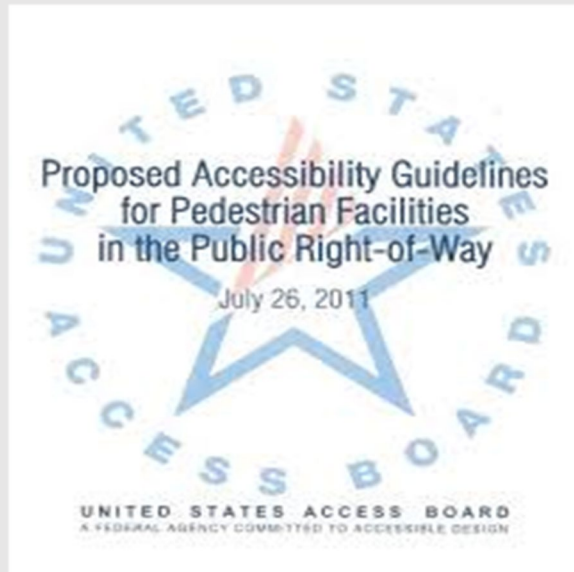
Additional Information

<https://www.oregon.gov/ODOT/Engineering/Pages/Accessibility.aspx>

<https://www.oregon.gov/ODOT/Engineering/Pages/Work-Zone.aspx>

WorkZoneStandards@odot.state.or.us

Monthly TPAR Meeting, 3rd Tuesday of every other month, 1 PM, ODOT TLC




Work Zones – Current Events

TCIR Reports - Update

-Near Miss

-Photos

 **Traffic Control Inspection Report**

Project Name (Section) _____ Date _____ Contract No. _____

Near Miss Details (for documentation of near miss specifically concerning the traffic control configuration from TP&ET into setup plan) (mandatory) (4,000 character)

Near Miss Detail (for near miss unrelated to the traffic control configuration) (optional) (3,000 character)

Design Feedback (optional) (4,000 character)

7/24/2014 09:09:30 AM 3 of 4

Traffic Control Inspection Report PHOTOGRAPHS

Project Name (Section) _____ Date _____ Contract No. _____

<p>insert photo in this box. (Click in box and upload photo from computer or source.) <input type="button" value="X"/></p> <p>Photo # _____</p> <p>Brief Description _____</p>	<p>insert photo in this box. (Click in box and upload photo from computer or source.) <input type="button" value="X"/></p> <p>Photo # _____</p> <p>Brief Description _____</p>
<p>insert photo in this box. (Click in box and upload photo from computer or source.) <input type="button" value="X"/></p> <p>Photo # _____</p> <p>Brief Description _____</p>	<p>insert photo in this box. (Click in box and upload photo from computer or source.) <input type="button" value="X"/></p> <p>Photo # _____</p> <p>Brief Description _____</p>
<p>insert photo in this box. (Click in box and upload photo from computer or source.) <input type="button" value="X"/></p> <p>Photo # _____</p> <p>Brief Description _____</p>	<p>insert photo in this box. (Click in box and upload photo from computer or source.) <input type="button" value="X"/></p> <p>Photo # _____</p> <p>Brief Description _____</p>

7/24/2014 09:09:30 AM

Work Zones – Current Events

QPL/NTMAG

NTMAG – known issue

-Temporary Sign Posts

-Temporary Guardrail

- Historically, there has been no quality documentation requirements for temporary wood post and temporary sign supports for temporary signs. Industry standard has long been to reuse wood posts for temporary signs and wood temporary sign supports, as long as they are in acceptable condition, or to run down and purchase lumber at the local hardware store. The most recent version of the NFTMAG for 00222 Sign Supports refers you to Section 00910 which requires a Quality document of the lumber grading.

Work Zones – Current Events

AFAD

- Purpose of an AFAD:
Control traffic, enable
flagger to be positioned out
of traffic lane.



OREGON DEPARTMENT OF TRANSPORTATION

Traffic–Roadway Section

TECHNICAL SERVICES
Advisory

TOPIC <i>Automated Flagger Assistance Devices</i>	NUMBER <i>TR20-01(A)</i>	SUPERCEDES OR RESCINDS <i>New</i>
APPROVAL <i>Original signed by: Michael Kimlinger, PE State Traffic-Roadway Engineer</i>	EFFECTIVE DATE <i>03/04/2020</i>	VALIDATION DATE

Topic

Automated Flagger Assistance Device (AFADs). AFADs are the preferred temporary traffic control when traffic is being controlled through a two-way, one-lane configuration.

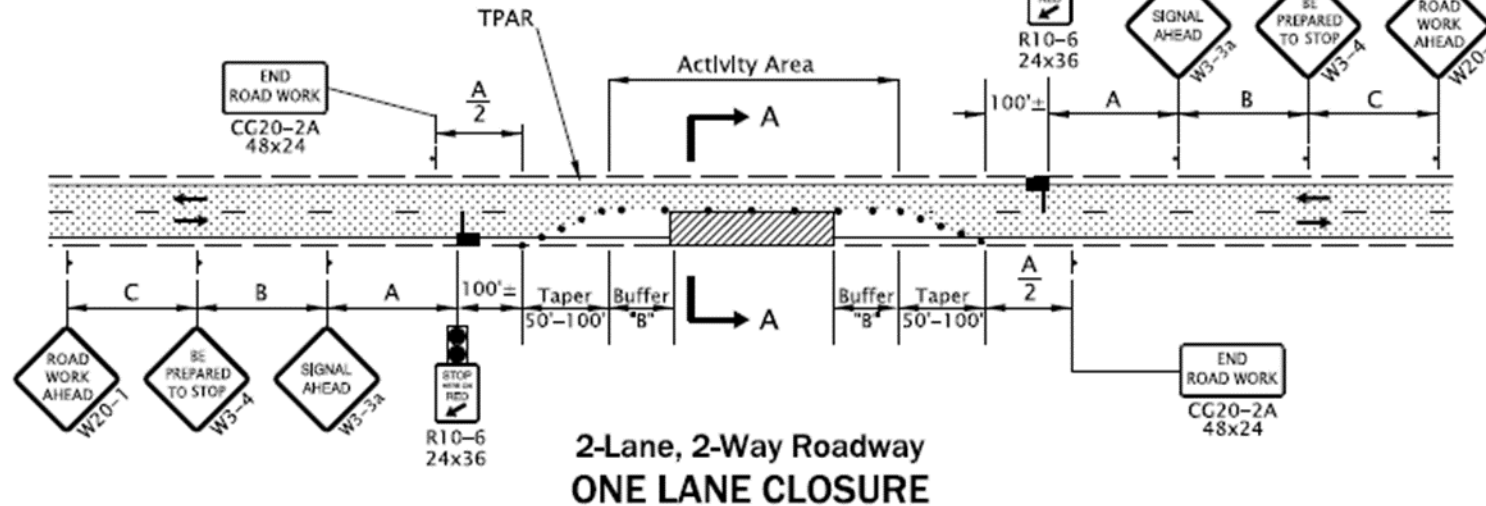
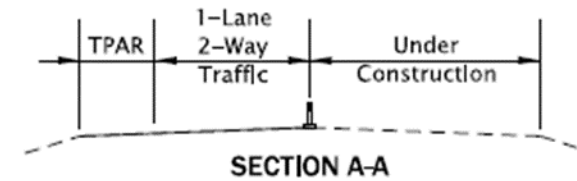
Work Zones – Current Events

AFAD

- Standard Drawings, AFAD vs Flagger

NOTE:

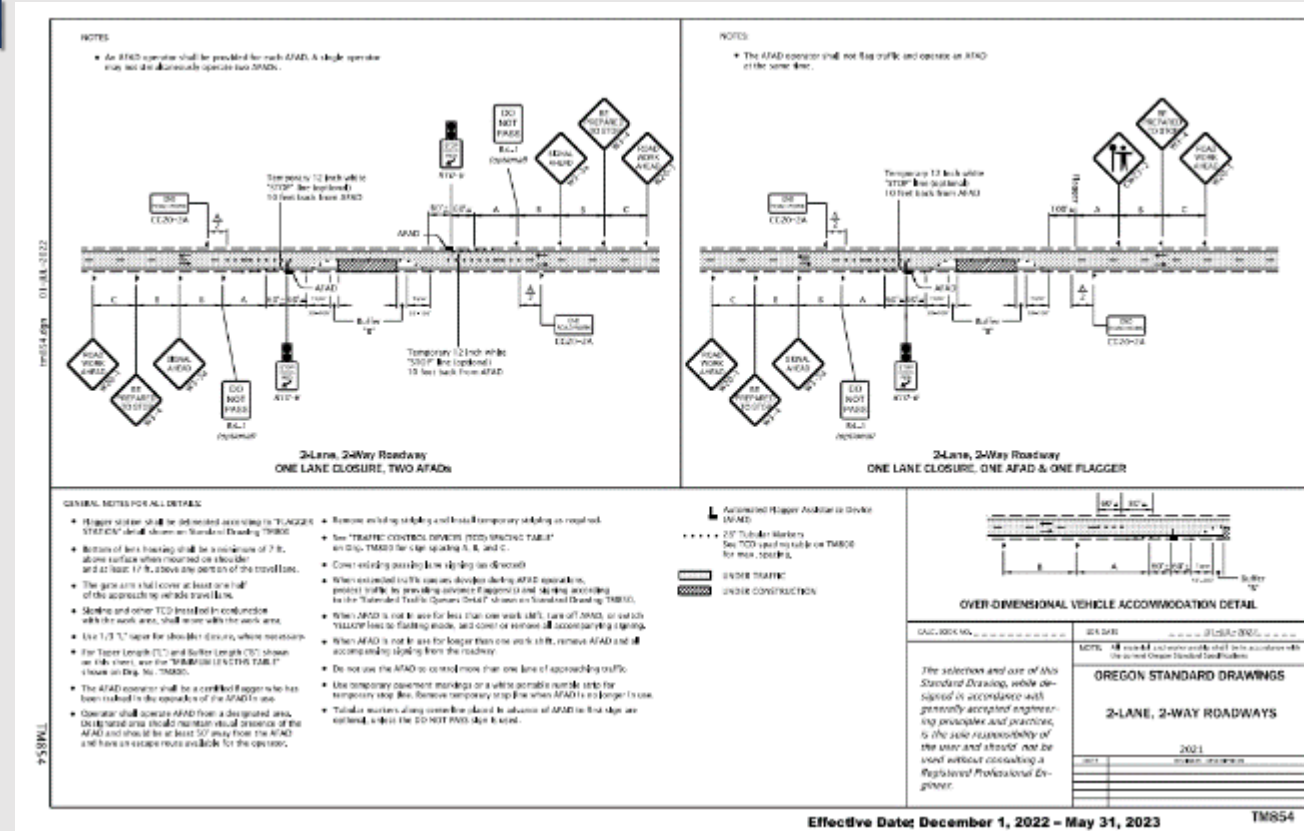
- When using pilot cars with flaggers to control traffic during paving operations, the Tubular Marker spacing along centerline may be increased to 200' within the Activity Area, as shown or as directed,
- Include "WAIT FOR FLAGGER" (CR4-23) signs mounted on Type II Barricade located approx. 50' before each Flagger,
- Coordinate and control pedestrians movements through the TPAR using Flaggers, other TCM, or as directed. When the existing shoulder is greater than or equal to 4' wide, provide a minimum of 4' of width for the TPAR.



Work Zones – Current Events

AFAD

- Best Practices / Lessons Learned
 - Public Familiarity/Respect
 - Enhancements
 - Stop Bar
 - Cones on Centerline, No Passing Sign
 - Rumble Strips
 - Pilot Car
 - Police Enforcement
 - Public Vehicles following Trucks into work zone.



Work Zones – Current Events

Flaggers – Work Zone Tour Deficiency

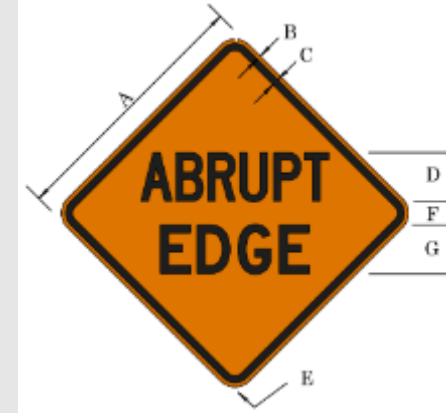
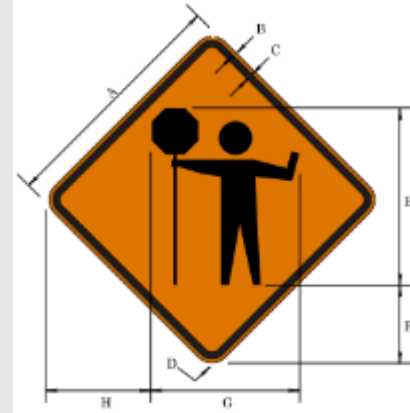
- Flagger Best Practices
 - No distractions, phones
 - Escape Routes
 - Visibility
 - Proper Equipment – PPE, radio, stop/slow sign
 - Q: ORS 807.020 has exemptions from requirement to have a driver's license for work. How does this affect flagger qualifications 00223.30?
 - A: ODOT wants flaggers to be familiar with driving, as a basic part of training, use the drivers license as a proxy for understanding how to drive. Requirement for drivers license will remain.



Work Zones – Current Events

Temporary Digitally Printed Signs

Temporary Signs



TPAR's



Maintenance/Permanent

Work Zones – Current Events

- Work Zone Presence Lighting
What is it?



Source: Ver-Mac Inc.

Work Zones – Current Events

- Work Zone Presence Lighting
With and Without



Work Zones – Current Events

- Work Zone Presence Lighting
Objectives

- Inform drivers of “Active” work zone.
- Improve “conspicuity” through the lane closure.
- Create “uniform” speeds through the lane closure.
- Improve visibility.

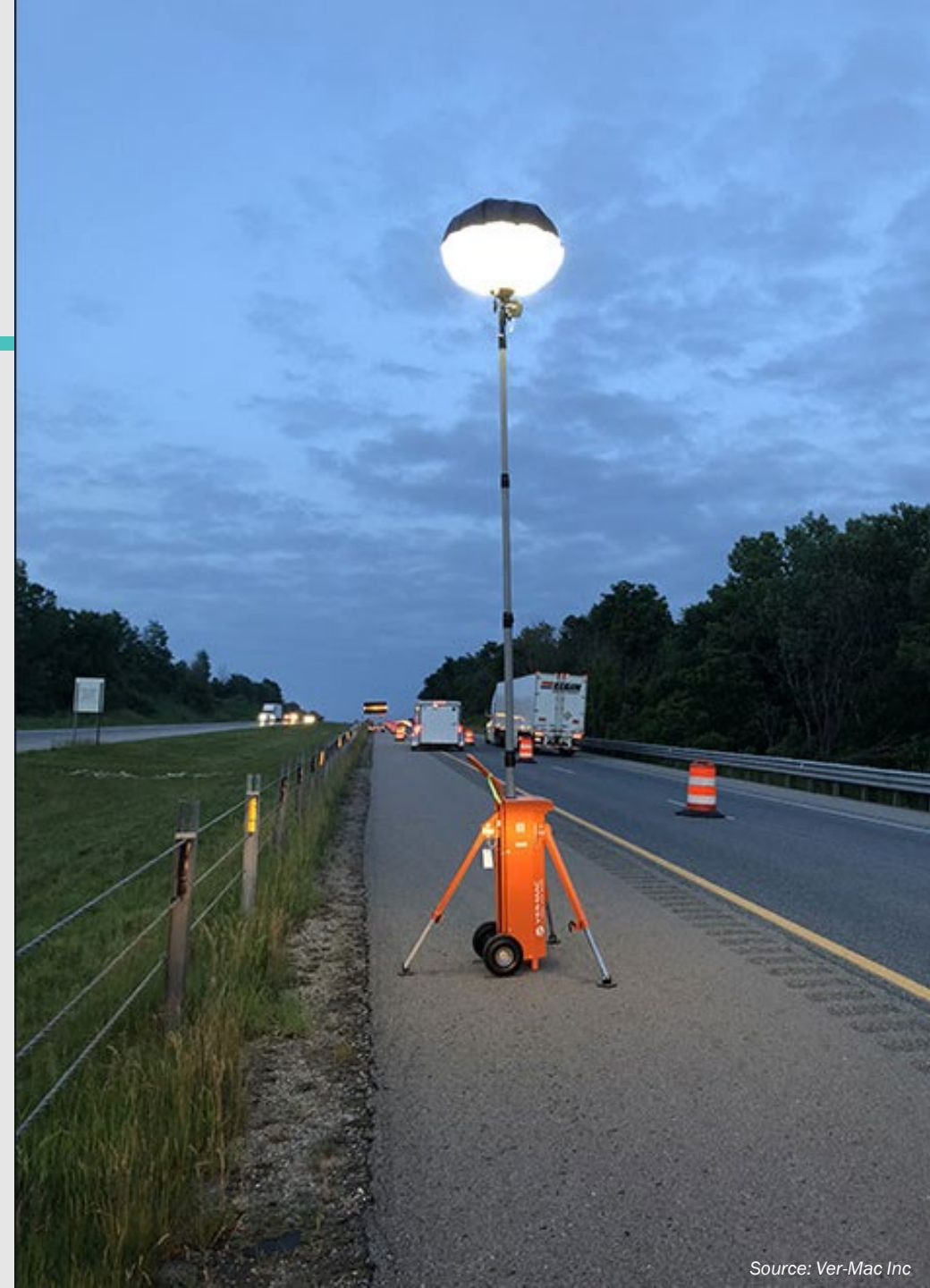


Work Zones – Current Events

- Work Zone Presence Lighting

Work Zone Applications

- Where:
 - Freeway or high speed divided roadways.
- When:
 - Existing ambient lighting is non-existent or very limited.
 - Any nighttime application where lane are taken intermittingly.
- Possible future use:
 - Rural roadway with poor visibility.



Work Zones – Current Events

- Work Zone Presence Lighting
Field Trials by Other States
-

- 2019 – 2020
 - Demo (1 night “before”, 1 night “after”)
 - Michigan
 - Texas
 - New Hampshire
 - Massachusetts
 - Pennsylvania
 - North Carolina
 - Virginia

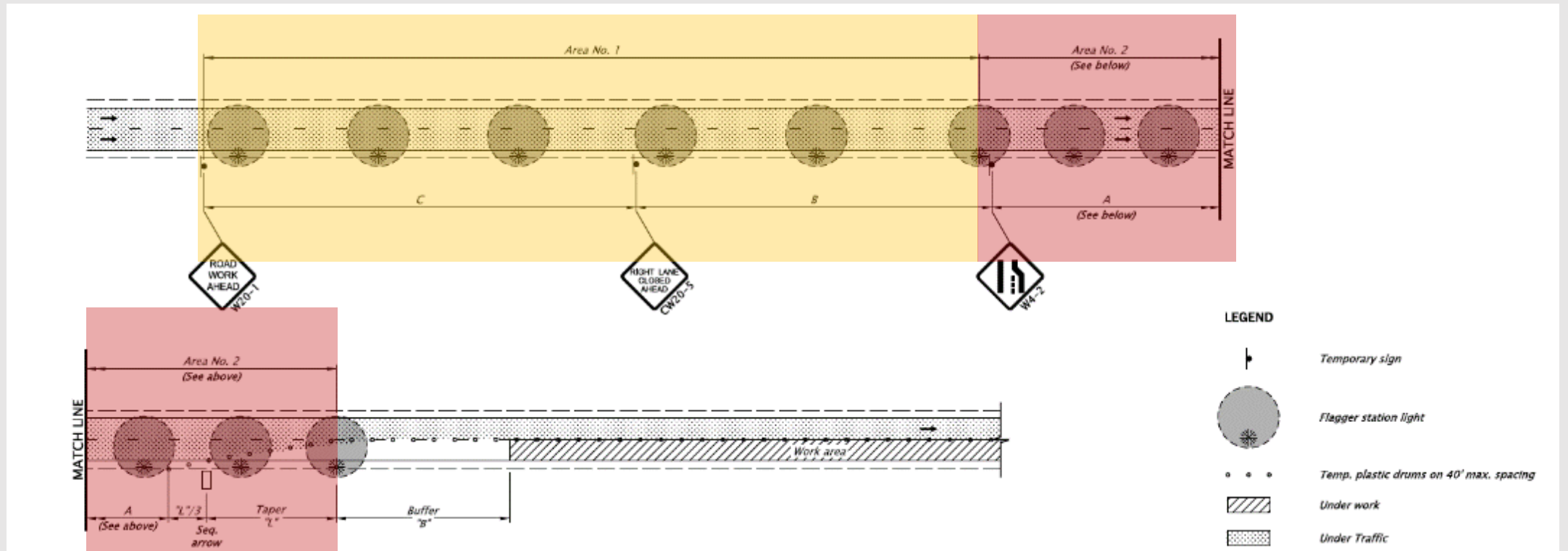
Data Results

Freeway	Sample Size	WZ Speed	Speed Before	Speed After	Speed Reduction
MI (I-75, Bay City)	3,213	65	77.37	71.14	6.23
MI (US 23, Tawas)	1,678	55	56.92	51.27	5.65
MI (I-94, Kalamazoo)	11,191	60	65.19	57.94	7.25
MI (I-94, Jackson)	7,192	60	67.78	62.82	4.96
TX (I-35, Austin)	27,342	55	63.23	58.47	4.76
			63.85	59.68	4.17
			68.80	64.89	3.91
PA (I-76, PA Turnpike)	5,509	50	56.10	52.16	3.94
NC (US17, Wilmington)	3,869	55	57.70	51.94	7.25
TN (I-40, Haywood)	7,865	65	68.76	63.82	4.94
TN (I-75, McMinn County)	12,248	70	74.76	68.89	5.87
VA (I-64, Charlottesville)	36,244	65	67.47	60.62	6.85

Average= 5.48 mph

Work Zones – Current Events

- Work Zone Presence Lighting
Field Setup



Work Zones – Current Events

- Work Zone Presence Lighting
Spacing of Presence Lighting

PRESENCE LIGHTING SPACING TABLE

<i>Light output (Lumens)</i>	<i>Minimum Illuminated Fixture Surface Area (sq. ft.)</i>	<i>Maximum Spacing (ft.)</i>	
		<i>Area No. 1</i>	<i>Area No. 2</i>
<i>14K to 35K</i>	<i>4</i>	<i>640</i>	<i>480</i>
<i>35.1K to 60K</i>	<i>5</i>	<i>800</i>	<i>640</i>
<i>60K +</i>	<i>6</i>	<i>1000</i>	<i>800</i>

Work Zones – Current Events

- Work Zone Presence Lighting
Benefits

- Increase awareness of entering a work zone.
- Guides motorist through the merge area improving safety.
- Reduces speed differential through transition.
- Better visibility for both motorist and workers.

References

- Kite, S. (2019). An Evaluation of the Effectiveness of Digital Speed Limit Signs and Work Zone Presence Lighting on Speed Compliance During Lane Closure Operations. *North Carolina Department of Transportation (NCDOT)*.
- Sakhare et al. (2021). Evaluation of the Impact of Presence Lighting and Digital Speed Limit Trailers on Interstate Speeds in Indiana Work Zones. *Journal of Transportation Technologies*, 11, 157-167
- Ver-Mac (2019). Portable Presence Light: Concept & Results.

Work Zones – Current Events

Mobile Barrier

- Positive Protection
- Small Work Areas
- Portable
- Examples
 - Bridge Joints
 - Pavement Patching
 - Overhead sign work



Work Zones – Current Events

Law Enforcement

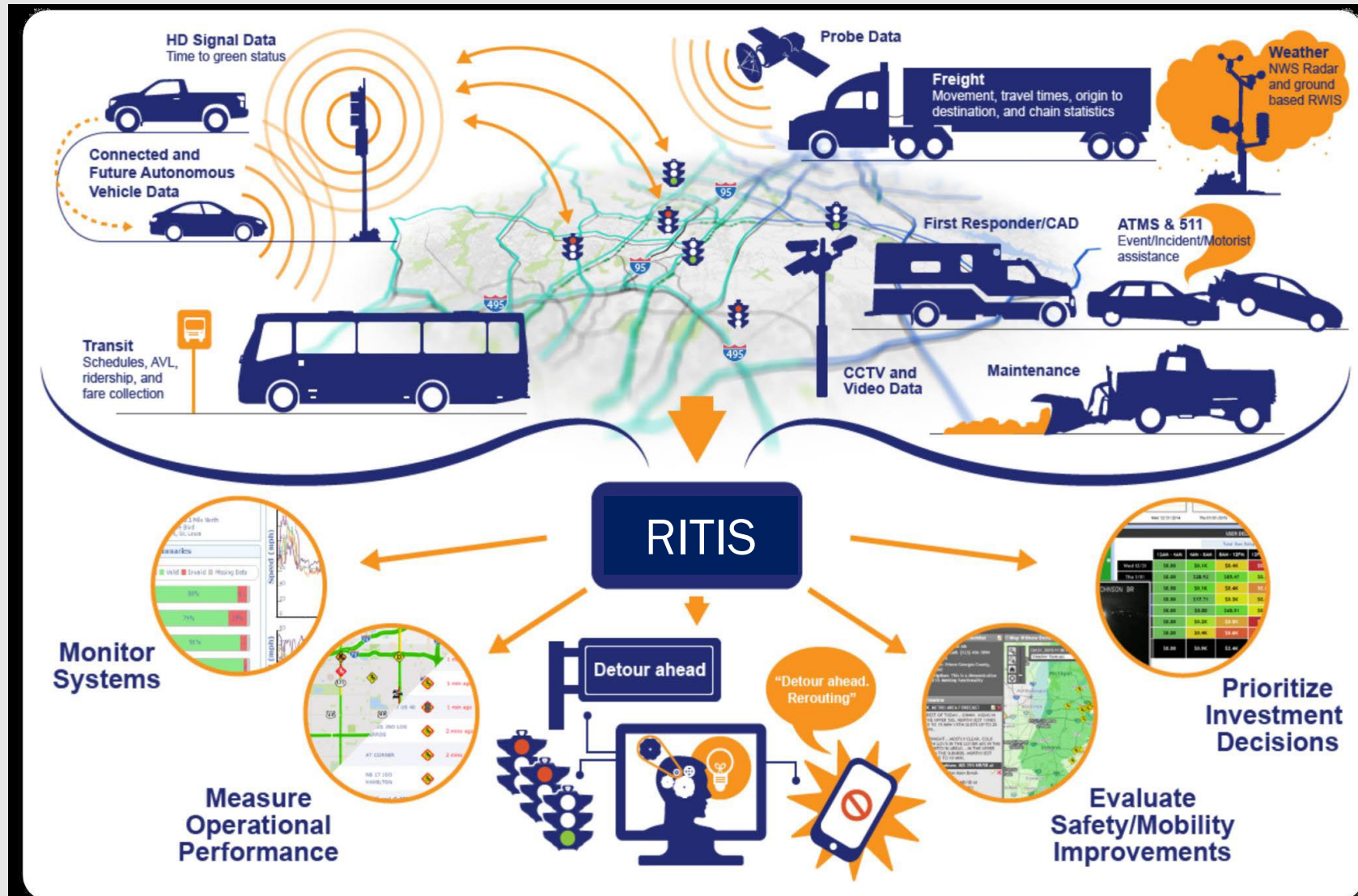
- Program Update
 - New Process, STIP funds vs Grants
 - Built into project development process
 - Planning – forecasting needs for OSP
 - Lessons Learned
 - Early coordination is key
 - WZLE plan



A worker wearing a red safety suit and a hard hat is positioned on a blue scissor lift. The lift is extended to a steel truss structure, likely part of a bridge or overpass. The background consists of a dense forest of green trees. The entire image has a dark blue overlay.

RITIS for a Work Zone

Regional Integrated Transportation Information System (RITIS)



RITIS Work Zone Dashboard

Workzone Activity @ OR217 southbound
 Started: Wed, Dec 22, 2021 at 02:00:00 PM **Beta**

Welcome, Chi Mai | [Help](#) | [Logout](#)
 Using INRIX data

SETTINGS

Comparison to Historical Average

Show...

- Work Zone Bounds
- Posted Speeds (none)
- Associated DMS
- Nearby Cameras (none)
- Nearby Incidents (none)
- Closed Lanes (none)
- Bottlenecks

Current Conditions Bounds...

5 miles upstream

5 miles downstream

Configure Alerts

CURRENT CONDITIONS

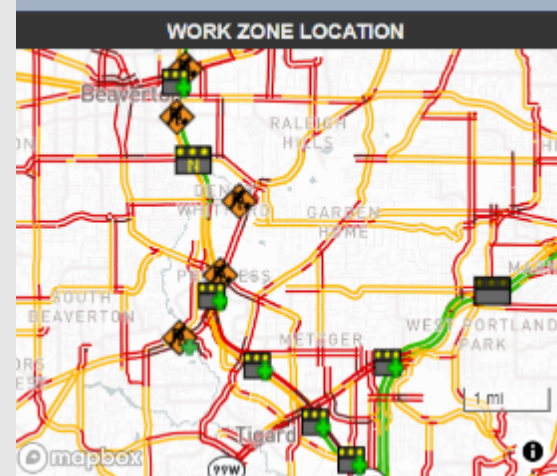
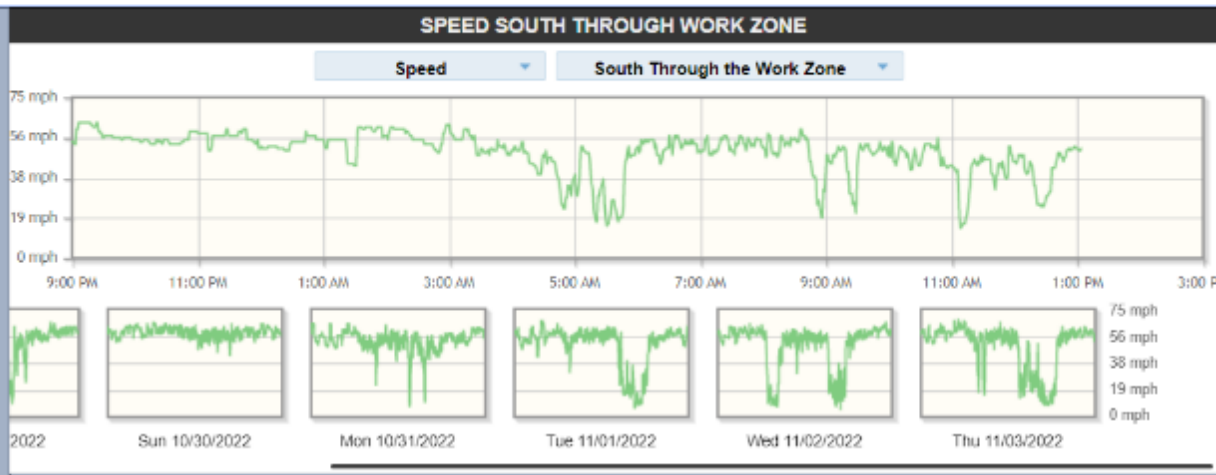
↓ SOUTH ↓

5.1 mi upstream

No Road Information

No Road Information

5.1 mi downstream

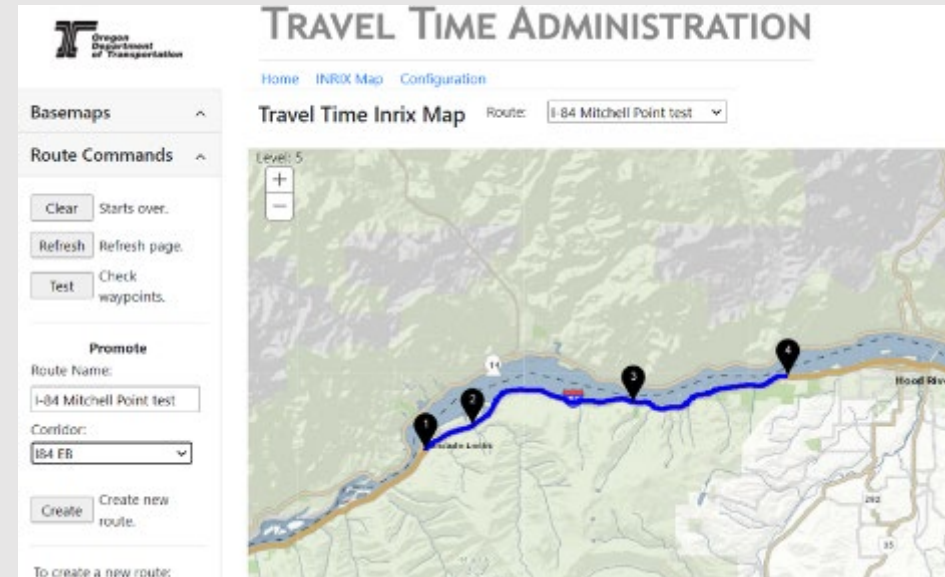
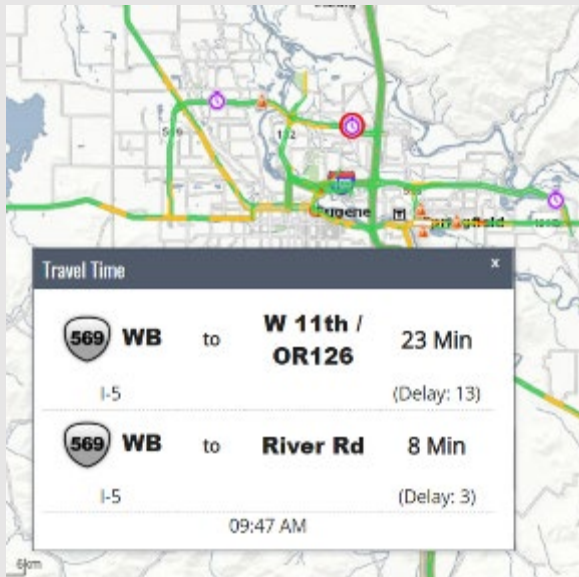


USER DELAY COST

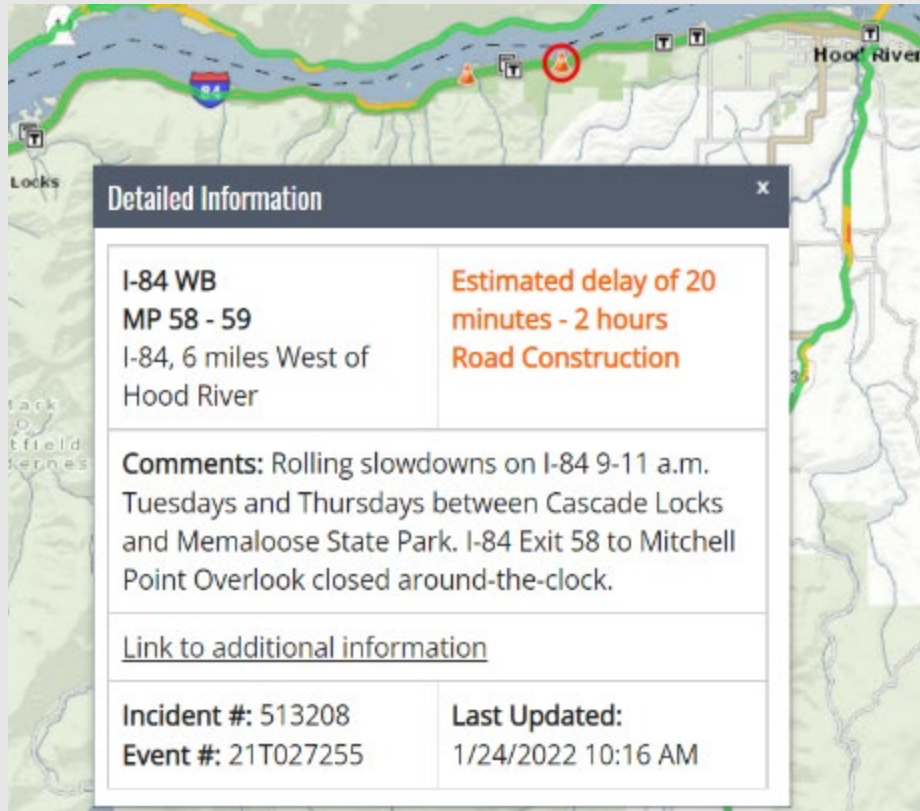
Total Delay

	12AM - 4AM	4AM - 8AM	8AM - 12PM	12PM - 4PM	4PM - 8PM	8PM - 12AM	Daily Totals
Fri 10/28	19m 12s	2h 31m 12s	48h 45m	141h	44h 33m 36s	N/A	237h
Sat 10/29	12m	52m 48s	72h 21m	35h 15m	N/A	N/A	109h
Sun 10/30	16m 48s	7m 48s	28m 48s	4h 25m 48s	2h 12m	18m 36s	7h 49m 48s
Mon 10/31	46m 48s	3h 45m 36s	11h 31m 12s	39h 40m 48s	12h 22m 12s	1h 15m 36s	69h 22m 12s
Tue 11/01	49m 12s	4h 51m 36s	3h 10m 48s	50h 13m 12s	115h	51m 36s	175h
Wed 11/02	19m 48s	60h 13m 48s	38h 55m 48s	29h 48m 36s	79h 39m 36s	30m 36s	209h
Thu 11/03	24m	4h 30m 36s	15h 20m 24s	68h 41m 24s	137h	27m	226h
Hourly Totals	3h 7m 48s	76h 53m 24s	191h	369h	390h	3h 23m 24s	Grand Total: 1,033h

Probe Data Applications for Traveler Information, Work Zone Delay, and Queue Detection



TripCheck Event Information



A screenshot of a TripCheck event information window. The window is titled "Detailed Information" and contains the following text:

I-84 WB
MP 58 - 59
I-84, 6 miles West of Hood River

Estimated delay of 20 minutes - 2 hours
Road Construction

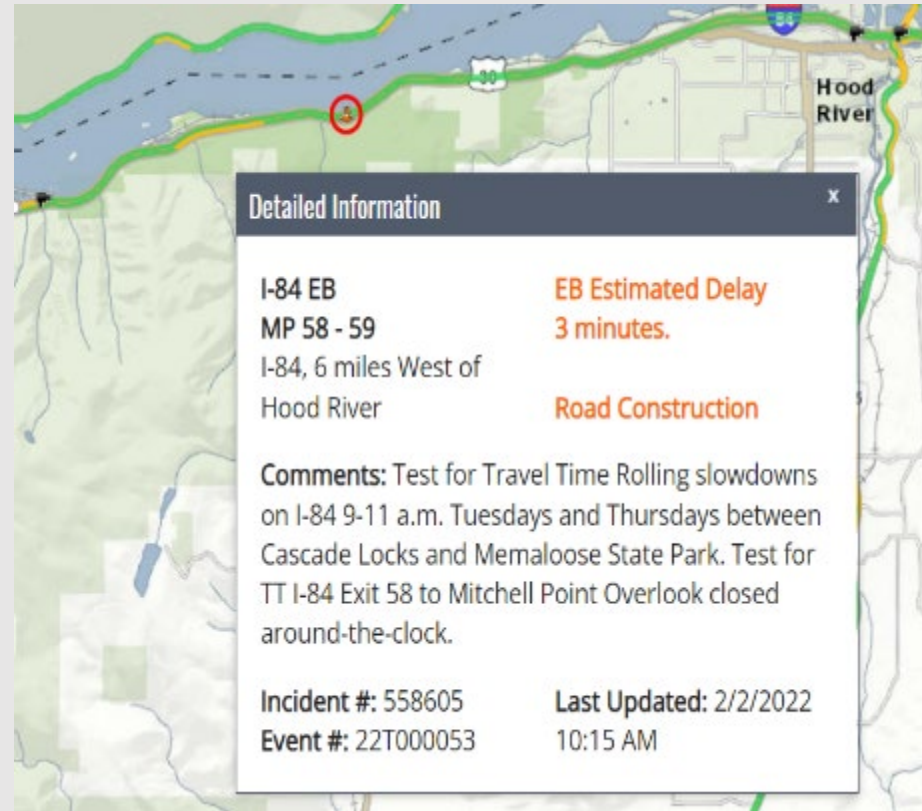
Comments: Rolling slowdowns on I-84 9-11 a.m. Tuesdays and Thursdays between Cascade Locks and Memaloose State Park. I-84 Exit 58 to Mitchell Point Overlook closed around-the-clock.

[Link to additional information](#)

Incident #: 513208
Event #: 21T027255

Last Updated:
1/24/2022 10:16 AM

Before



A screenshot of a TripCheck event information window. The window is titled "Detailed Information" and contains the following text:

I-84 EB
MP 58 - 59
I-84, 6 miles West of Hood River

EB Estimated Delay
3 minutes.

Road Construction

Comments: Test for Travel Time Rolling slowdowns on I-84 9-11 a.m. Tuesdays and Thursdays between Cascade Locks and Memaloose State Park. Test for TT I-84 Exit 58 to Mitchell Point Overlook closed around-the-clock.

Incident #: 558605
Event #: 22T000053

Last Updated: 2/2/2022
10:15 AM

After

Congestion notifications

Assigned

Automated Congestion Cleared
Automated Congestion Detected
Automated Congestion Persists

Wed 5/25/2022 3:09 PM
 TOCNotif@odot.state.or.us
ATM Congestion Detected
To

_Location: OR-217 SB construction - 21T119060 Route: OR-217 SB for 9060 Delay: 11 min Detected: 5/25/2022 3:08:42 PM

Wed 5/25/2022 3:39 PM
 TOCNotif@odot.state.or.us
ATM Congestion Persists
To

_Location: OR-217 SB construction - 21T119060 Route: OR-217 SB for 9060 Delay: 13 min Detected: 5/25/2022 3: 38:42 PM

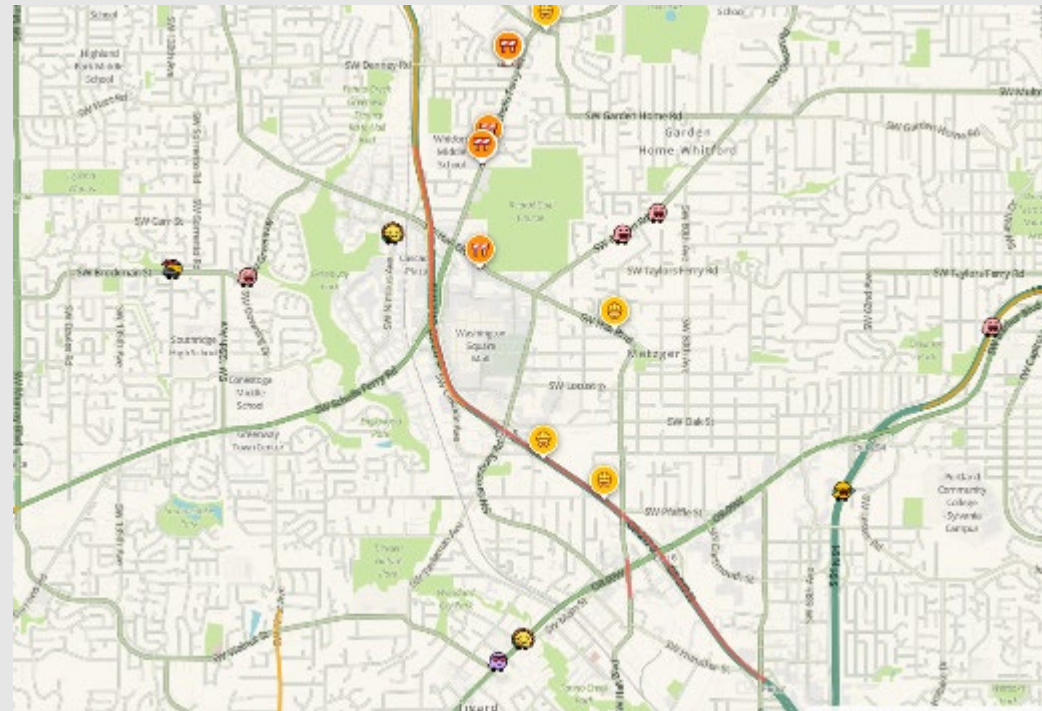
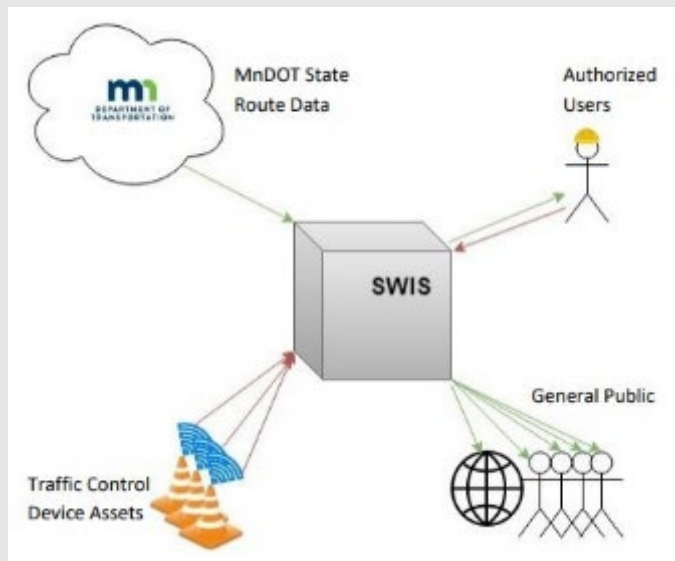
Wed 5/25/2022 4:49 PM
 TOCNotif@odot.state.or.us
ATM Congestion Cleared
To

Congestion is all Clear. Location: OR-217 SB construction - 21T119060 Route: OR-217 SB for 9060 Timestamp: 5/25/2022 4:48:42 PM

Work Zones – Current Events

ODOT Smart Work Zones

- Realtime Workzone and Traveler Information
- Network
- SPR860 – Real-time Lane Closure Info



Work Zones – Current Events

ODOT Smart Work Zones

- Smart Lane Closures, multilane highways
 - Arrow Boards

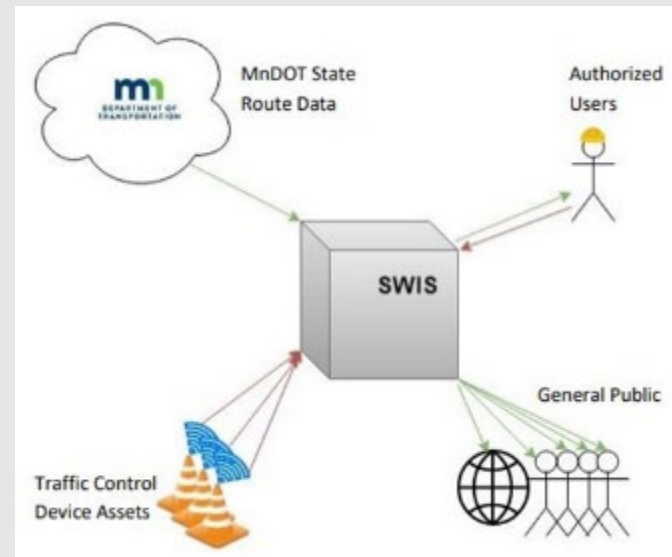


<https://www.streetSMARTrental.com/smart-work-zones/smart-arrow-boards/>

Work Zones – Current Events

ODOT Smart Work Zones

- Smart Lane Closures, 2 lane roads
 - Lane Closure Virtual Identification



Work Zones – Current Events

Current ODOT Research

- SPR839 – Work Zone Setup



- SPR855 – Residual Lane Markings



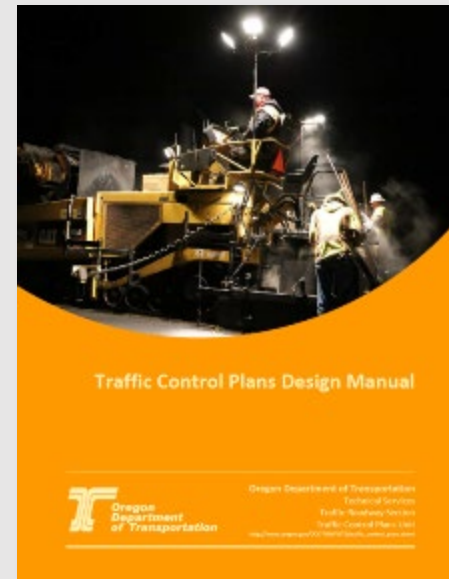
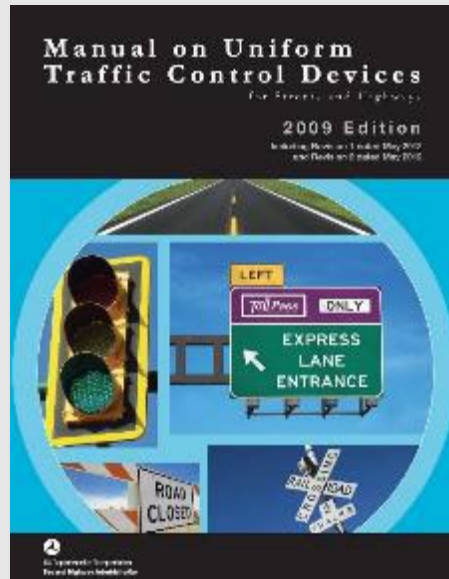
- SPR860 – Real-time Lane Closure Info

Work Zone Resources

Additional Information

<https://www.oregon.gov/ODOT/Engineering/Pages/Work-Zone.aspx>

Email: WorkZoneStandards@odot.state.or.us





Questions?

Thank you.
