1. If system fails see "Smart Work Zone System Failure Protocol" provision.

2. Locate side fire traffic sensor prior to any open ramps.

3. Miniature PCMS (6" wide, 12+ inch characters) allowed for PCMS1 & 2.

4. Adjust signs/components to avoid conflicts with sequential arrow signs or other traffic control devices/narrow shoulders and ramps.

5. Locate PCMS per standard specification 1-10.3(3)c. PCMS may be placed with 10+ inch characters acceptable. Transverse traffic safety drums (sensor speed data) is acceptable when accurate within 5+/- minutes.

6. In lieu of travel time readers, alternative methods (such as using traffic sensor output data) is acceptable when accurate within 5+/- minutes.

7. Optional. Remove PCMS when dissipating queues are less than 5.5 miles.

8. PCMSs per standard specification 1-10.3(3)c. PCMS may be placed with 10+ inch characters acceptable. Transverse traffic safety drums (sensor speed data) is acceptable when accurate within 5+/- minutes.

9. Realloc to remain 0.5+ mile in advance of queue truck-mounted PDM with 10+ inch characters acceptable. Transverse traffic safety drums optional. Remove PDM when dissipating queues are less than 5.5 miles. PCMSs per standard specification 1-10.3(3)c. PCMS may be placed with 10+ inch characters acceptable. Transverse traffic safety drums (sensor speed data) is acceptable when accurate within 5+/- minutes.

10. If traffic queues reach 5.5 miles place additional PCMS at 7 miles. Relocate to remain 0.5+ mile in advance of queue truck-mounted PDM with 10+ inch characters acceptable. Transverse traffic safety drums optional. Remove PDM when dissipating queues are less than 5.5 miles. PCMSs per standard specification 1-10.3(3)c. PCMS may be placed with 10+ inch characters acceptable. Transverse traffic safety drums (sensor speed data) is acceptable when accurate within 5+/- minutes.

**Legend**

- Traffic Safety Drum
- Traffic Sensor
- Fire Traffic Sensor
- Portable Travel Time Reader
- Sequential Arrow Sign
- Portable Changeable Message Sign
- Pan/Tilt/Zoom Camera

**6-Mile Smart Work Zone System**

**Freeway (3 Lanes): Single Left Lane Closure**

**NOT TO SCALE**

- Single Left Lane Closure Traffic Control Plan
- With PCMS in advance of lane closure taper removed.
1. This plan is used in conjunction with applicable lane-to-lane freeway double-lane left lane closure traffic control plan (with PCMs in advance of lane closure taper removed).

2. See Smart Work Zone System (SWZS) special provision or RFP for details.

3. Modifications to PCMs messages shall be accepted by the engineer if changeable values based on real-time travel delay times.

4. Adjustment of components to avoid conflicts with sequential arrow signs or other traffic control devices, narrow shoulders, and ramps.

5. Locate PCMs per standard specification 1-10.3(3)C. PCMs may be placed on opposite shoulder but avoid ramp areas when located behind barriers/vardosal/ or within closure transverse traffic lane or optional.

6. Miniature PCMs (~6' wide, 12+ inch characters) allowed for PCMs1 & 2.

7. In lieu of travel time readers, alternative methods such as using traffic sensor data is acceptable when accurate within 5-minute intervals.

8. Locate side fire traffic sensor prior to any open ramps.

9. If system fails see "Smart Work Zone System Failure Protocol" provision.

10. If traffic queues reach 5.5 miles place additional PCMs at 7 miles. Relocate to remand 0.1+/- mile in advance of queue truck-mounted PCMs with 10+ inch characters across lane to lane. Transverse traffic lane is optional. Remove PCMs when dissipation queues are less than 5.5 miles. PCMs measured traffic backups present. Watch for slow traffic.

11. PCMs may be placed on opposite shoulder but avoid ramp areas when located behind barriers/vardosal or within closure transverse traffic lane or optional.

12. Traffic delays are measured from here.
6-MILE SMART WORK ZONE SYSTEM
FREEWAY (3 LANES): SINGLE LEFT LANE CLOSURE

NOT TO SCALE

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<th>Queue Location (miles)</th>
<th>Traffic Sensors</th>
<th>Traffic Condition</th>
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1. This plan is used in conjunction with applicable lane-freeway double left lane closure traffic control plan (with PCMS in advance of lane closure taper removed).

2. See smart work zone system (SWZ) special provision or RFP for details.

3. Modifications to PCMS messages shall be accepted by the engineer if values are changeable and based on real-time travel delay times.

4. Adjust sizes/components to avoid conflicts with sequential arrow signs or other traffic control devices.

5. Locate PCMS per standard specification, i.e., <0.5 sec PCMS may be placed on opposite shoulder but avoid sharp corners when located beyond barriers/guardrail or within closure transverse traffic devices.


7. In lieu of travel time readers, alternative methods (such as using traffic sensor input data) is acceptable when accurate within ±5 minutes.

8. Locate side fire traffic sensor prior to any open ramps.

9. System fails see “smart work zone system failure protocol” provision.

10. If traffic queues reach 5.5 miles place additional PCMS at 7 miles. Relocate to remain 0.5+/- mile in advance of queue truck-mounted PCMS with 10+ inch characters acceptable. Remove transverse traffic devices, optional. Remove PCMS when dissipating queues are less than 5.5 miles.
DESIGNER NOTES:

REGION TRAFFIC OFFICES WILL DETERMINE IF SMART WORK ZONE SYSTEMS ARE NEEDED FOR EACH PROJECT USING WORK ZONE TRAFFIC ANALYSIS. FOR MORE INFORMATION SEE TRAFFIC MANUAL SECTION 5-17. A “Work Zone Queueing Mitigation” AND SECTION 5-9 “Work Zone Traffic Analysis.”

A. FOR DESIGN-BID-BUILD PROJECTS: INCLUDE THE “SMART WORK ZONE SYSTEM” GENERAL SPECIAL PROVISIONS LISTED BELOW:
1.10.3(3).OPT1.FR1 Specifications
1.10.4(3).OPT2.GR1 Measurement (Traffic Control as Bid Items)
1.10.5(2).OPT3.GR1 Payment

B. FOR DESIGN-BUILD PROJECTS: EMAIL STATE WORK ZONE ENGINEERS (HQWORKZONE@WSDOT.WA.GOV) FOR RFP SPECIFICATIONS UNTIL THEY ARE INCLUDED IN THE STATE-WIDE RFP TEMPLATE (ESTIMATED 2023).

C. IF ACTUAL QUEUES REGULARLY EXCEED 6 MILES, THEN USE THE 9-MILE SMART WORK ZONE SYSTEM (TC172), CONTACT STATE WORK ZONE ENGINEERS (HQWORKZONE@WSDOT.WA.GOV) FOR GUIDANCE.

D. TO MATCH THE GENERAL SPECIAL PROVISIONS, TRAFFIC SAFETY DRUMS SHOULD BE USED AS SHOWN IN THE TRAFFIC CONTROL PLAN. HOWEVER, THE GSP AND TYPICAL TRAFFIC CONTROL PLAN CAN BE MODIFIED TO REFLECT REGION’S STANDARD PRACTICE REGARDING CHANNELIZATION DEVICES.

E. EXCEPT FOR DESIGN-BUILD PROJECTS WHEN THE RFP REQUIRES THEM, PAN-TILT-ZOOM CAMERAS (PTZ CAMERAS) ARE OPTIONAL AND MAY BE DELETED OR RELOCATED TO DIFFERENT PCM’S AS DESIRED. THE PTZ CAMERAS ARE INTENDED TO BE USED REMOTELY BY THE REGION TRAFFIC MANAGEMENT CENTER TO MONITOR INCIDENTS AND QUEUING IN REAL TIME.

F. THE SIDE-FIRE RADAR IS USED TO OBTAIN VOLUME AND SPEED DATA PER GSP/RFP REQUIREMENTS. THE TRAFFIC SENSORS ARE TYPICALLY DOPPLER RADAR AND USED TO CONTROL THE PCMS MESSAGE DISPLAYS.

MODIFYING SMART WORK ZONE SYSTEM TRAFFIC CONTROL PLANS

THESE TRAFFIC CONTROL PLANS ARE TYPICAL AND MAY BE MODIFIED FOR SITE SPECIFIC SITUATIONS AND/OR WSDOT REGION TRAFFIC PRACTICES. CONTACT STATE WORK ZONE ENGINEERS (HQWORKZONE@WSDOT.WA.GOV) FOR ADDITIONAL GUIDANCE IF NEEDED.

THESE SMART WORK ZONE SYSTEMS ARE VERY ADAPTABLE TO A VARIETY OF SITUATIONS, INCLUDING BEING USED ON MULTIPLE ROADWAYS CONCURRENTLY LEADING INTO A QUEUED WORK ZONE.

6-MILE SMART WORK ZONE SYSTEM

FREEWAY (3 LANES): SINGLE & DOUBLE LEFT LANE CLOSURE

NOT TO SCALE