NOTES:

1. This plan is used in conjunction with applicable 2-LANE FREEWAY SINGLE RIGHT 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 they are reasonable and based on real-time travel delay times.

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

5. Locate PCMSs per standard specification 1-10.3(3)C. PCMS may be placed on barrier/guardrail or within closure, transverse traffic drums optional.


7. In lieu of travel time readers, alternative methods (such as using traffic sensor speed data) is acceptable when accurate within 5-10 minutes.

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 miles, place additional PCMS at 6.5 miles. Relocate to remain 0.5+ mile in advance of queue truck-mounted PCMS with 10-12 inch characters acceptable transverse traffic safety drums optional. Remove PCMS when dissipating queues are less than 5 miles. PCMS message: Traffic Backups Present / Watch for Slow Traffic.

### Queue Location Measured from Here

<table>
<thead>
<tr>
<th>Queue Location (miles)</th>
<th>PCMS 7</th>
<th>PCMS 6</th>
<th>PCMS 5</th>
<th>PCMS 4</th>
<th>PCMS 3</th>
<th>PCMS 2</th>
<th>PCMS 1</th>
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</tr>
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<td>0.91 TO 1.9</td>
<td>FF</td>
<td>FF</td>
<td>FF</td>
<td>FF</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
</tr>
<tr>
<td>1.91 TO 2.5</td>
<td>FF</td>
<td>FF</td>
<td>FF</td>
<td>FF</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
</tr>
<tr>
<td>2.91 TO 3.9</td>
<td>FF</td>
<td>FF</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
</tr>
<tr>
<td>3.91 TO 4.9</td>
<td>FF</td>
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<td>SL</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
</tr>
<tr>
<td>4.91</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
</tr>
</tbody>
</table>

### Traffic Control

- **Traffic Condition**: FF = Free Flow, FF = Flow Restricted
- **Traffic Sensors**: FF = Fixed Flow, FF = Flow Restricted
- **PCMS**: FF = Free Flow, FF = Flow Restricted
- **Queue Location**: FF = Free Flow, FF = Flow Restricted

### Typical Traffic Control Plans

- **6-MILE SMART WORK ZONE SYSTEM**: Freeway (2 Lanes): Single Right Lane Closure
- **NOT TO SCALE**

---

**Legend**

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

---

**PCMS Message:** TRAFFIC BACKUPS PRESENT / WATCH FOR SLOW TRAFFIC

---

**Notes:**

1. This plan is used in conjunction with applicable 2-LANE FREEWAY SINGLE RIGHT LANE CLOSURE TRAFFIC CONTROL PLAN (WITH PCMS IN ADVANCE OF LANE CLOSURE, TAPER REMOVED).

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7. In lieu of travel time readers, alternative methods (such as using traffic sensor speed data) is acceptable when accurate within 5-10 minutes.

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 miles, place additional PCMS at 6.5 miles. Relocate to remain 0.5+ mile in advance of queue truck-mounted PCMS with 10-12 inch characters acceptable transverse traffic safety drums optional. Remove PCMS when dissipating queues are less than 5 miles. PCMS message: Traffic Backups Present / Watch for Slow Traffic.
**NOTES:**
1. THIS PLAN IS USED IN CONJUNCTION WITH APPLICABLE 2-LANE FREEWAY SINGLE RIGHT LANE CLOSURE TRAFFIC CONTROL PLAN (WITH PCMS IN ADVANCE OF LANE CLOSURE, TAPER REMOVED).
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4. ADJUST SWZS COMPONENTS TO AVOID CONFLICTS WITH SEQUENTIAL ARROW SIGNS OR OTHER TRAFFIC CONTROL DEVICES, NARROW SHOULDERS, AND RAMPS.
5. LOCATE PCMSs PER STANDARD SPECIFICATION 1-10.3(3)C. PCMS MAY BE PLACED ON OPPOSITE SHOULDER BUT AVOID RAMP GORES WHEN LOCATED BEHIND BARRIER/GUARDRAIL OR WITHIN CLOSURE, TRANSVERSE TRAFFIC DRUMS, OREDURE, AND RAMPS.
6. MINTURE PCMS (~5-WIDE, 12+ INCH CHARACTERS) ALLOWED FOR PCMS1.
7. IN LIEU OF TRAVEL TIME READERS, ALTERNATIVE METHODS (SUCH AS USING TRAFFIC SENSOR SPEED DATA) IS ACCEPTABLE WHEN ACCURATE WITHIN 5+/- MINUTES.
8. LOCATE PORTABLE TRAVEL TIME READER PRIOR TO ANY OPEN RAMPS.
9. IF SYSTEM FAILS SEE "SMART WORK ZONE SYSTEM FAILURE PROTOCOL" PROVISION.
10. IF TRAFFIC QUEUES REACH 5 MILES, PLACE ADDITIONAL PCMS AT 5 MILES.
11. PORTABLE TRAVEL TIME READERS IN ADVANCE OF QUEUE ITEMIZED PCMS WITH 10+ INCH CHARACTERS ACCEPTABLE TRANSVERSE TRAFFIC SAFETY DRUMS, ORURE, AND RAMPS.

PCMS 5

---

### QUEUE Location (miles)

<table>
<thead>
<tr>
<th>Location No.</th>
<th>Queue Condition</th>
<th>Traffic Sensors</th>
<th>FF</th>
<th>FS</th>
<th>FF</th>
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<th>FF</th>
<th>FF</th>
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</thead>
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<td>TRAFFIC BACKUPS PRESENT</td>
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<td>TRAFFIC DELAY</td>
<td>NEXT TO MERGE</td>
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<td>TRAFFIC BACKUPS PRESENT</td>
<td>TRAFFIC DELAY</td>
<td>NEXT TO MERGE</td>
</tr>
</tbody>
</table>

### 6-MILE SMART WORK ZONE SYSTEM

**FREEWAY (2 LANES): SINGLE RIGHT LANE CLOSURE**

*NOT TO SCALE*

---

**Legend:**
- **Traffic Safety Drum**
- **Portable Traffic Sensor**
- **Sequential Arrow Sign**
- **Portable Travel Time Reader**
- **Portable Changeable Message Sign**
- **Pan-Tilt-Zoom Camera**

---

**Department of Transportation**

Washington State Department of Transportation

**Typical Traffic Control Plans**

**TC165**

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**Checked by:** S. Haapala

**Date:**

---

**Plotter:** L. Fanti

**Designed by:** Haapala & Fanti

**Prepared by:** L. Fanti

**Date:**

---

**Regional Adm.:**

**Revision Date:**

---

**Plan Title:** Washington State Transportation Department

**Job Number:**

---

**File Name:** C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\165Fwy6MileSWZS1Rt.dgn

**Time:** 8:14:38 AM

**Plan Reference:**

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**Photo:**

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**Notes:**

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4. ADJUST SWZS COMPONENTS TO AVOID CONFLICTS WITH SEQUENTIAL ARROW SIGNS OR OTHER TRAFFIC CONTROL DEVICES, NARROW SHOULDERS, AND RAMPS.
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---

**PCMS Message:** TRAFFIC BACKUPS PRESENT / WATCH FOR SLOW TRAFFIC
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 5-17A "Work Zone Queuing Mitigation" AND SECTION 5-9 "Work Zone Traffic Analysis."

A. FOR DESIGN-BID-BUILD PROJECTS, INCLUDE 3 OF THE "SMART WORK ZONE SYSTEM" GENERAL SPECIAL PROVISIONS LISTED BELOW:
- 1-10.3(3) OPT3 FR1 Specifications
- 1-10.4(2) OPT5 GR1 Measurement (Traffic Control as Bid Items)
- 1-10.4(3) OPT2 GR1 Measurement (Traffic Control as Lump Sum)
- 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, USE THE 6-MILE SMART WORK ZONE SYSTEM (TC175).

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 PCMs 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 PCSM 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 (2 LANES): SINGLE RIGHT LANE CLOSURE
NOT TO SCALE

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

DESIGNER NOTES:

TC165