1. THIS SMART WORK ZONE SYSTEM IS USED IN CONJUNCTION WITH A FREEWAY SINGLE RIGHT LANE CLOSURE TRAFFIC CONTROL PLAN. DELETE ANY PCMS SHOWN PRIOR TO LANE CLOSURE TAPER SHOWN ON THAT PLAN.

2. SYSTEM TO BE OPERATED AND CONTROLLED BY A SMART WORK ZONE SYSTEM TECHNICIAN INDEPENDENTLY BUT IN COLLABORATION WITH THE TRAFFIC CONTROL SUPERVISOR.

3. PLACE SYSTEM COMPONENTS AND PROGRAM ALL PCMS SYSTEMS IN THE WORK ZONE. DELETE ANY PCMS SHOWN PRIOR TO LANE CLOSURE TAPER SHOWN ON THAT PLAN.

4. TRAVERSE DRUMS NOT REQUIRED PRIOR TO SMART WORK ZONE SYSTEM COMPONENTS WHEN PLACED, BEHIND GUARDRAIL OR WITHIN A CLOSED LANE.

5. PCMS 1 AND TRAFFIC SENSOR A ARE NOT NEEDED FOR SINGLE LANE CLOSURE BUT MAY BE STAGED FOR THE SECOND LANE CLOSURE.

6. ADJUST AS NEEDED TO AVOID CONFLICTS WITH LANE CLOSURE SEQUENTIAL ARROW BOARD AND CHANNELIZATION DEVICES.

7. LOCATE PCMS PER WIDOT STANDARD SPECIFICATION 1.10.3.3C.

8. ALL COMPONENTS MAY NOT BE NEEDED DEPENDING ON ACTUAL TRAFFIC QUEUE MODIFICATIONS TO BE ACCEPTED BY ENGINEER.

9. QUEUE LENGTH IS CALCULATED FROM THE BEGINNING OF THE FIRST LANE CLOSURE TAPER.

10. IN THE EVENT OF A PCMS FAILURE, SEE SPECIAL PROVISIONS "SMART WORK ZONE SYSTEM FAILURE PROTOCOL.

LEGEND:
- 13 TEMPORARY SIGN LOCATION
- ★ TRAFFIC SAFETY DRUM
- 🌇 PORTABLE TRAVEL TIME READER
- ☛ PORTABLE SEQUENTIAL ARROW SIGN
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN

FREEWAY (3 LANES): SMART WORK ZONE SYSTEM FOR SINGLE RIGHT LANE CLOSURE (QUEUES UP TO 3 MILES)

NOT TO SCALE

WASHINGTON STATE
Department of Transportation

TC156

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### Notes:
1. This Smart Work Zone System is used in conjunction with PCMS 1-10.3(3)C.
2. System is to be operated and controlled by a Smart Work Zone System technician independently but in collaboration with the Traffic Control Supervisor.
3. Locate PCMS per WSDOT Standard Specification 1-10.3(3). All components may not be needed depending on actual traffic queues. Modifications to be accepted by Engineer.
4. Traffic Drum is not required prior to Smart Work Zone System components when placed behind barrier, guardrail, or within a closed lane.
5. Queue length is calculated from the beginning of the first lane closure taper.
6. In the event of a system failure, see special provisions "Smart Work Zone System Failure Protocol.

### Legend:
- **S** Temporary Sign Location
- **T** Traffic Safety Drum
- **F** Traffic Sensor
- **P** Portable Travel Time Reader
- **C** Sequential Arrow Board
- **B** Changeable Message Sign

### Freeway (3 Lanes): Smart Work Zone System for Double Right Lane Closure
(Queues up to 3 miles)

**NOT TO SCALE**

### Queue Length

<table>
<thead>
<tr>
<th>Traffic Sensors</th>
<th>PCMS 5</th>
<th>PCMS 4</th>
<th>PCMS 3</th>
<th>PCMS 2</th>
<th>PCMS 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>FF</td>
<td>FF</td>
<td>FF</td>
<td>FF</td>
<td>FF</td>
</tr>
<tr>
<td>0.41 to 1.4</td>
<td>FF</td>
<td>FF</td>
<td>FF</td>
<td>LL</td>
<td>LL</td>
</tr>
<tr>
<td>1.41 to 2.4</td>
<td>FF</td>
<td>FF</td>
<td>LL</td>
<td>LL</td>
<td>LL</td>
</tr>
<tr>
<td>&gt; 2.41</td>
<td>LL</td>
<td>LL</td>
<td>LL</td>
<td>LL</td>
<td>LL</td>
</tr>
</tbody>
</table>

### Symbol
- FF: Frame Time
- LL: Frame Time

### Symbol Details
- FF: Frame Time
- LL: Frame Time

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**Department of Transportation**

Washington State

**Smart Work Zone System**

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**Diagram:**
- Freeway (3 Lanes): Smart Work Zone System for Double Right Lane Closure
- Queue Length Measured from Here (see Note B)
DESIGNER NOTES:
A. INCLUDE THE "SMART WORK ZONE SYSTEM" GENERAL SPECIAL PROVISION THAT IS NOW AVAILABLE IN THE CONTRACT SPECIAL PROVISIONS.
B. IF EXPECTED QUEUES EXCEED 3 MILES, SEE MORE COMPLEX SYSTEM ON TC166.
C. THESE TRAFFIC CONTROL PLANS ARE TYPICAL AND MAY BE MODIFIED FOR SITE SPECIFIC SITUATIONS AND/OR WSDOT REGION TRAFFIC PRACTICES.
D. TO MATCH THE GENERAL SPECIAL PROVISIONS, TRAFFIC SAFETY DRUMS SHOULD BE USED AS SHOWN IN THE TRAFFIC CONTROL PLAN.
E. WARNING LIGHTS ON CHANNELIZATION DEVICES ARE OPTIONAL; CONTACT REGION TRAFFIC OFFICES FOR THEIR POLICY.
F. VERTICAL PANEL CHANNELIZATION DEVICES SHALL NOT BE USED.

MODIFYING SMART WORK ZONE SYSTEM TRAFFIC CONTROL PLANS

IF ACTUAL QUEUES ARE LESS THAN EXPECTED, THIS SMART WORK ZONE SYSTEM CAN BE SIMPLIFIED:

IF QUEUES ARE LESS THAN 2 MILES
  * DELETE PCMS 5
  * DELETE TRAFFIC SENSOR D

IF QUEUES ARE LESS THAN 1 MILE
  * SIMPLY USE PCMS 1 & PCMS 2 MESSAGES AS SHOWN IN TYPICAL FREEWAY LANE CLOSURE TRAFFIC CONTROL PLANS (SEE BELOW).

### FREESTYLE (3 LANES): SMART WORK ZONE SYSTEM FOR DOUBLE RIGHT LANE CLOSURE
(QUEUES UP TO 3 MILES)

<table>
<thead>
<tr>
<th>PCMS 1</th>
<th>PCMS 2</th>
<th>PCMS 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLOW TRAFFIC</td>
<td>NEXT 1 MILE</td>
<td>2.0 SEC</td>
</tr>
<tr>
<td>PCMS</td>
<td>PCMS</td>
<td>PCMS</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>1 MILE</td>
<td>1 MILE</td>
<td>1 MILE</td>
</tr>
<tr>
<td>CLOSED</td>
<td>CLOSED</td>
<td>CLOSED</td>
</tr>
</tbody>
</table>

FIELD LOCATE AT LEAST 1/2 MILE IN ADVANCE OF PCMS 2.
RELOCATE AS NEEDED TO REMAIN 1 MILE IN ADVANCE OF QUEUE.
PCMS MAY BE TRUCK MOUNTED IF THE TIMES TRANSMITTED DRUMS ARE OPTIONAL.
REMOVE WHEN QUEUE NO LONGER PRESENT.

## DESIGNER GUIDANCE

**A.** IF EXPECTED QUEUES EXCEED 3 MILES, SEE MORE COMPLEX SYSTEM ON TC166.

**B.** CONTRACT SPECIAL PROVISIONS.

**C.** THE TRAFFIC CONTROL PLAN.

**D.** AND/OR WSDOT REGION TRAFFIC PRACTICES.

**E.** THEIR POLICY.

**F.** VERTICAL PANEL CHANNELIZATION DEVICES SHALL NOT BE USED.

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Washington State Department of Transportation

FILE NAME: C:\Users\LintzF\Desktop\Work Zone TC156\166W20-1 sign.dgn

TIME: 10:44:22 PM
DATE: 6/25/2019

PLOTTED BY: LINTZ
DESIGNED BY: HAAPALA & LINTZ
ENTERED BY: F. LINTZ
CHECKED BY: F. LINTZ

REGIONAL ADM: REVISION DATE BY: P.E. STAMP BOX P.E. STAMP BOX

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**FREEWAY (3 LANES): SMART WORK ZONE SYSTEM FOR DOUBLE RIGHT LANE CLOSURE**

**(QUEUES UP TO 3 MILES) NOT TO SCALE**