

- NOTES:**
1. THIS SMART WORK ZONE SYSTEM USED IN CONJUNCTION WITH A 3-LANE 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 MESSAGES AS SHOWN UNLESS MODIFICATIONS ARE ACCEPTED BY THE ENGINEER.
 4. TRANVERSE DRUMS NOT REQUIRED PRIOR TO SMART WORK ZONE SYSTEM COMPNENTS WHEN PLACED BEHIND BARRIER, 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 WSDOT STANDARD SPECIFICATION 1-10.3(3)C.
 8. ALL COMPONENTS MAY NOT BE NEEDED DEPENDING ON ACTUAL TRAFFIC QUEUES. 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 SYSTEM FAILURE, SEE SPECIAL PROVISIONS "SMART WORK ZONE SYSTEM FAILURE PROTOCOL".

LEGEND

TEMPORARY SIGN LOCATION

TRAFFIC SAFETY DRUM

TRAFFIC SENSOR

PORTABLE TRAVEL TIME READER

SEQUENTIAL ARROW SIGN

PORTABLE CHANGEABLE MESSAGE SIGN

SYMBOL	TRIGGER SPEED (mph)	TRAFFIC CONDITION
FF	35+	Free Flow
SL	<35	Slowed

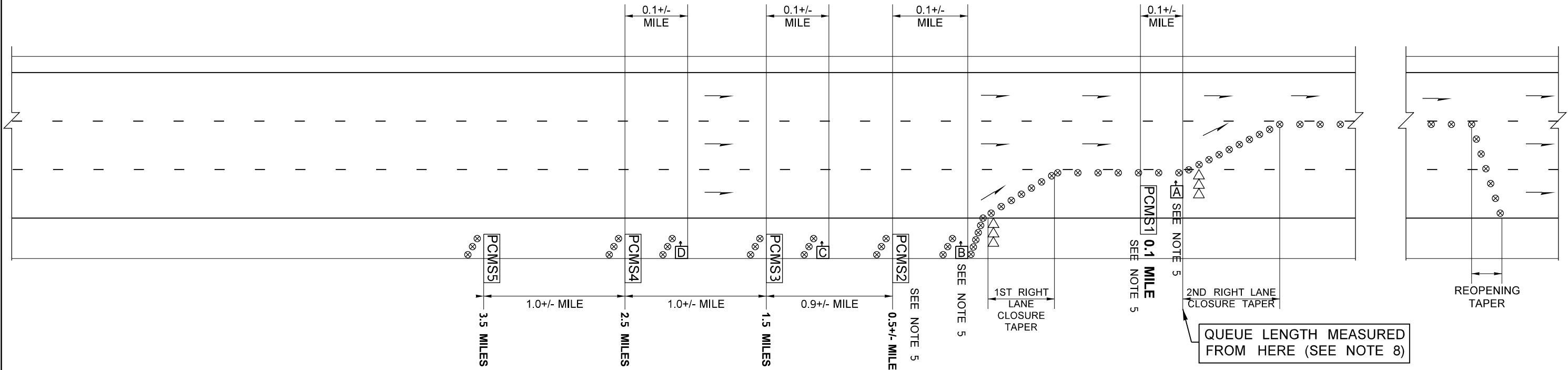
QUEUE LENGTH (miles)	TRAFFIC SENSORS				PCMS 5		PCMS 4		PCMS 3		PCMS 2		PCMS 1	
	D	C	B	A	1	2	1	2	1	2	1	2	1	2
					2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC
None	FF	FF	FF		(Blank)	(Blank)	(Blank)	(Blank)	RIGHT LANE CLOSED	1 MILE AHEAD	(Blank)	(Blank)		
0.01 TO 0.9	FF	FF	SL		(Blank)	(Blank)	1 LANE CLOSED AHEAD	TRAFFIC BACKUPS PRESENT	SLOW OR STOPPED TRAFFIC	NEXT 1 MILE	(Blank)	(Blank)		
0.91 TO 1.9	FF	SL	SL		1 LANE CLOSED AHEAD	TRAFFIC BACKUPS PRESENT	SLOW OR STOPPED TRAFFIC	NEXT 2 MILES	ZIPPER MERGE AHEAD	USE ALL OPEN LANES	RIGHT 2 LANES	TAKE TURNS AT MERGE		
> 1.91	SL	SL	SL		SLOW OR STOPPED TRAFFIC	NEXT 3 MILES	2 MILE BACKUP	## MINUTE DELAY	ZIPPER MERGE AHEAD	USE ALL OPEN LANES	RIGHT 2 LANES	TAKE TURNS AT MERGE		

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

(QUEUES UP TO 3 MILES)

NOT TO SCALE

FILE NAME C:\Users\LintzF\Desktop\Work Zone TCPs\156Fwy3MileSWZS2Rt.dgn				REGION NO. STATE		FED.AID PROJ.NO.				Washington State Department of Transportation		Plot 1	
TIME 3:04:21 PM				10 WASH		PLAN REF NO TC156							
DATE 6/20/2019				JOB NUMBER								SHEET 1 OF 2 SHEETS	
PLOTTED BY LintzF				CONTRACT NO.		LOCATION NO.						SMART WORK ZONE SYSTEM	
DESIGNED BY HAAPALA & LINTZ													
ENTERED BY F. LINTZ													
CHECKED BY S. HAAPALA													
PROJ. ENGR.													
REGIONAL ADM.	REVISION	DATE	BY					DATE		DATE			



- NOTES:**
1. THIS SMART WORK ZONE SYSTEM USED IN CONJUNCTION WITH A 3-LANE FREEWAY DOUBLE 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 MESSAGES AS SHOWN UNLESS MODIFICATIONS ARE ACCEPTED BY THE ENGINEER.
 4. TRANVERSE DRUMS NOT REQUIRED PRIOR TO SMART WORK ZONE SYSTEM COMPONENTS WHEN PLACED BEHIND BARRIER, BEHIND GUARDRAIL, OR WITHIN A CLOSED LANE.
 5. ADJUST AS NEEDED TO AVOID CONFLICTS WITH LANE CLOSURE SEQUENTIAL ARROW BOARD AND CHANNELIZATION DEVICES.
 6. LOCATE PCMS PER WSDOT STANDARD SPECIFICATION 1-10.3(3)C.
 7. ALL COMPONENTS MAY NOT BE NEEDED DEPENDING ON ACTUAL TRAFFIC QUEUES. MODIFICATIONS TO BE ACCEPTED BY ENGINEER.
 8. QUEUE LENGTH IS CALCULATED FROM THE BEGINNING OF THE FIRST LANE CLOSURE TAPER.
 9. IN THE EVENT OF A SYSTEM FAILURE, SEE SPECIAL PROVISIONS "SMART WORK ZONE SYSTEM FAILURE PROTOCOL".

LEGEND

- TEMPORARY SIGN LOCATION
- TRAFFIC SAFETY DRUM
- TRAFFIC SENSOR
- PORTABLE TRAVEL TIME READER
- SEQUENTIAL ARROW SIGN
- PORTABLE CHANGEABLE MESSAGE SIGN

SYMBOL	TRIGGER SPEED (mph)	TRAFFIC CONDITION
FF	35+	Free Flow
SL	<35	Slowed

QUEUE LENGTH (miles)	TRAFFIC SENSORS				PCMS 5		PCMS 4				PCMS 3		PCMS 2		PCMS 1	
	D	C	B	A	1	2	1	2	1	2	1	2	1	2	1	2
	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC
None	FF	FF	FF	FF	(Blank)	(Blank)	(Blank)	(Blank)	2 RIGHT LANES CLOSED	1 MILE AHEAD	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)
< 0.4 +/-	FF	FF	FF	SL	(Blank)	(Blank)	(Blank)	(Blank)	2 LANES CLOSED AHEAD	TRAFFIC BACKUPS PRESENT	SLOW OR STOPPED TRAFFIC	NEXT 0.5 MILE	(Blank)	(Blank)	(Blank)	(Blank)
0.41 - 1.4	FF	FF	SL	SL	(Blank)	(Blank)	2 LANES CLOSED AHEAD	TRAFFIC BACKUPS PRESENT	SLOW OR STOPPED TRAFFIC	NEXT 1.5 MILES	RIGHT 2 LANES	TAKE TURNS AT MERGE	MINIMIZE DELAYS FOR ALL	TAKE TURNS AT MERGE	(Blank)	(Blank)
1.41 to 2.4	FF	SL	SL	SL	2 LANES CLOSED AHEAD	TRAFFIC BACKUPS PRESENT	SLOW OR STOPPED TRAFFIC	NEXT 2.5 MILES	ZIPPER MERGES AHEAD	USE ALL OPEN LANES	RIGHT 2 LANES	TAKE TURNS AT MERGE	MINIMIZE DELAYS FOR ALL	TAKE TURNS AT MERGE	(Blank)	(Blank)
> 2.41	SL	SL	SL	SL	SLOW OR STOPPED TRAFFIC	NEXT 3.5 MILES	2.5 MILE BACKUP	## MINUTE DELAY	ZIPPER MERGES AHEAD	USE ALL OPEN LANES	RIGHT 2 LANES	TAKE TURNS AT MERGE	MINIMIZE DELAYS FOR ALL	TAKE TURNS AT MERGE	(Blank)	(Blank)

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

(QUEUES UP TO 3 MILES)

NOT TO SCALE

FILE NAME C:\Users\LintzF\Desktop\Work Zone TCPs\156Fwy3MileSWZS2Rt.dgn				REGION NO. STATE		FED.AID PROJ.NO.								Plot 2	
TIME 3:04:22 PM		DATE 6/20/2019		10 WASH		PLAN REF NO TC156									
PLOTTED BY LintzF														SHEET 2 OF 2 SHEETS	
DESIGNED BY HAAPALA & LINTZ														SMART WORK ZONE SYSTEM	
ENTERED BY F. LINTZ															
CHECKED BY S. HAAPALA															
PROJ. ENGR.															
REGIONAL ADM.		REVISION		DATE		BY									

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).

PCMS 1	
1	2
SLOW TRAFFIC AHEAD	NEXT # MILES
2.0 SEC	2.0 SEC

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 SO,THE THREE TRANSVERSE DRUMS ARE OPTIONAL.

REMOVE WHEN QUEUE NO LONGER PRESENT.

= APPROXIMATE QUEUE LENGTH ROUNDED UP TO NEAREST MILE

LOCATE PCMS PER WSDOT STANDARD SPECIFICATION 1-10.3(3)C.

PCMS 2	
1	2
RIGHT LANE CLOSED	1 MILE AHEAD
2.0 SEC	2.0 SEC

FIELD LOCATE 1/4 +/- MILE IN ADVANCE OF W20-1 SIGN.


LOCATE PCMS PER WSDOT STANDARD SPECIFICATION 1-10.3(3)C.

PCMS 2	
1	2
2 RIGHT LANES CLOSED	1 MILE AHEAD
2.0 SEC	2.0 SEC

FIELD LOCATE 1/4 +/- MILE IN ADVANCE OF W20-1 SIGN.

LOCATE PCMS PER WSDOT STANDARD SPECIFICATION 1-10.3(3)C.

FREEWAY (3 LANES): SMART WORK ZONE SYSTEM FOR DOUBLE RIGHT LANE CLOSURE
(QUEUES UP TO 3 MILES)
NOT TO SCALE

FILE NAME C:\Users\LintzF\Desktop\Work Zone TCPs\156Fwy3MileSWZS2Rt.dgn				REGION NO. STATE		FED.AID PROJ.NO.				Washington State Department of Transportation	Plot 3
TIME 3:04:22 PM				10 WASH	PLAN REF NO TC156						
DATE 6/20/2019				JOB NUMBER							SHEET
PLOTTED BY LintzF				CONTRACT NO.	LOCATION NO.						OF
DESIGNED BY HAAPALA & LINTZ											
ENTERED BY F. LINTZ											
CHECKED BY S. HAAPALA											
PROJ. ENGR.											
REGIONAL ADM.	REVISION	DATE	BY				P.E. STAMP BOX	P.E. STAMP BOX		DESIGNER GUIDANCE	SHEETS