





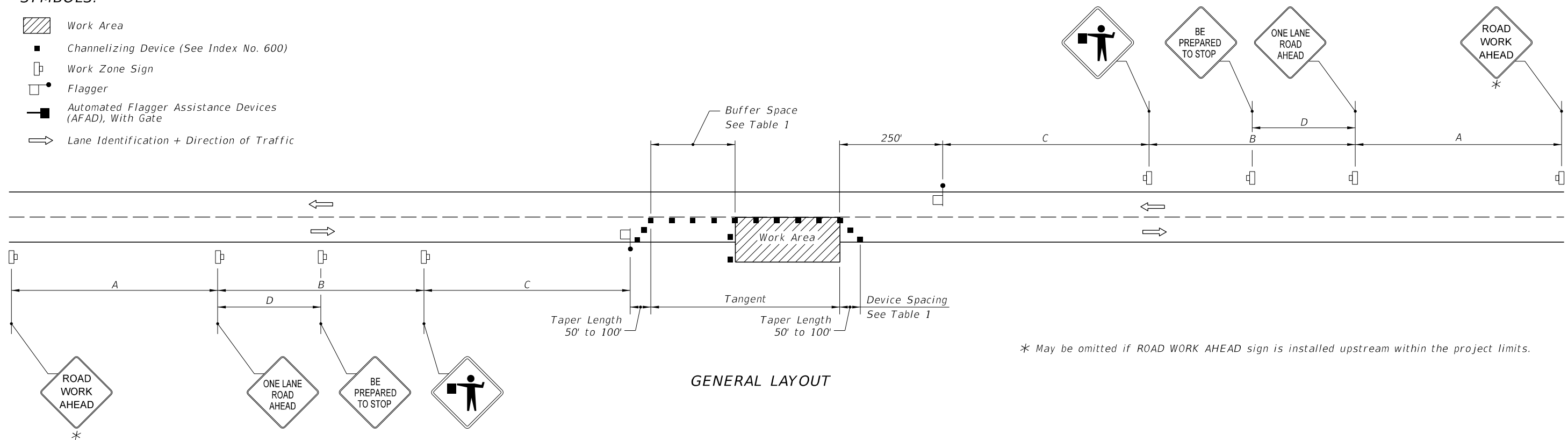


SYMBOLS:

-  Work Area
-  Channelizing Device (See Index No. 600)
-  Work Zone Sign
-  Flagger
-  Automated Flagger Assistance Devices (AFAD), With Gate
-  Lane Identification + Direction of Traffic



GENERAL LAYOUT

GENERAL NOTES:

1. Special Conditions may be required in accordance with these notes and the following sheets.
2. If the Work Area encroaches on the Centerline, use the Layout for Temporary Lane Shift to Shoulder on Sheet 2 only if the Existing Paved Shoulder width is sufficient to provide for an 11' lane between the Work Area and the Edge of Existing Paved Shoulder. Reduce the posted speed when appropriate.
3. Temporary Raised Rumble Strips:
 - a. Use when both of the following conditions are met concurrently:
 - i. Existing Posted Speed is 50 mph or greater;
 - ii. Work duration is greater than 60 minutes.
 - b. Use a consistent Strip color throughout the work zone.
 - c. Place each Rumble Strip Set transversely across the lane at locations shown.
 - d. Use Option 1 or Option 2 as shown on Sheet 2. Use only one option throughout work zone.
4. Additional one-way control may be provided by the following means:
 - a. Flag-carrying vehicle;
 - b. Official vehicle;
 - c. Pilot vehicles;
 - d. Traffic signals.

When flaggers are the sole means of one-way control, the flaggers must be in sight of each other or in direct communication at all times.
5. When a side road intersects the highway within the TTC zone, place additional TTC devices in accordance with other applicable TCZ Indexes.
6. The two channelizing devices directly in front of the work area may be omitted provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.

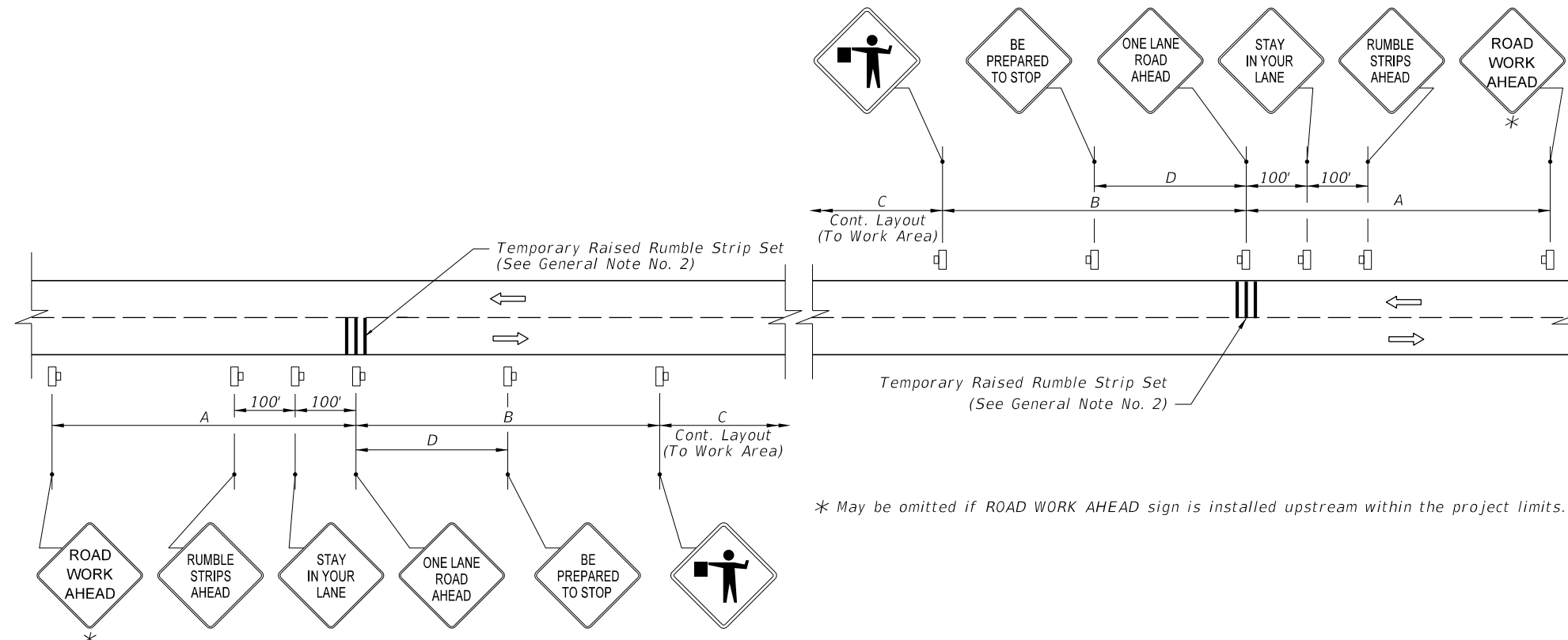
7. When Buffer Space cannot be attained due to geometric constraints, use the greatest attainable length, not less than 200 ft.
8. Railroad Crossings:
 - a. If an active railroad crossing is located closer to the Work Area than the queue length plus 300 feet, extend the Buffer Space as shown on Sheet 2.
 - b. If the queuing of vehicles across an active railroad crossing cannot be avoided, provide a uniformed traffic control officer or flagger at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic train warning devices are in place.
9. ROAD WORK AHEAD and the BE PREPARED TO STOP signs may be omitted if all of the following conditions are met:
 - a. Work operations are 60 minutes or less.
 - b. Speed limit is 45 mph or less.
 - c. There are no sight obstructions to vehicles approaching the work area for a distance equal to the Buffer Space shown in Table 1.
 - d. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.
 - e. Volume and complexity of the roadway has been considered.
 - f. If a railroad crossing is present, vehicles will not queue across rail tracks.
 - g. AFADs are not in use.
10. See Index 600 for general TCZ requirements and additional information.
11. Automated Flagger Assistance Devices (AFADs) may be used in accordance with the Notes on Sheet 3.

TABLE 1									
Posted Speed	DEVICE SPACING				Distance Between Signs				Buffer Space
	Maximum Spacing of Cones or Tubular Markers		Maximum Spacing of Type I or Type II Barricades/Panels/Drums						
	On a Taper	On a Tangent	On a Taper	On a Tangent	A	B	C	D	
25	20'	50'	20'	50'	200'	200'	200'	100'	155'
30	20'	50'	20'	50'	200'	200'	200'	100'	200'
35	20'	50'	20'	50'	200'	200'	200'	100'	250'
40	20'	50'	20'	50'	200'	200'	200'	100'	305'
45	20'	50'	20'	50'	350'	350'	350'	175'	360'
50	20'	50'	20'	100'	500'	500'	500'	250'	425'
55	20'	50'	20'	100'	2640'	1500'	1000'	500'	495'
60	20'	50'	20'	100'	2640'	1500'	1000'	500'	570'
65	20'	50'	20'	100'	2640'	1500'	1000'	500'	645'
70	20'	50'	20'	100'	2640'	1500'	1000'	500'	730'

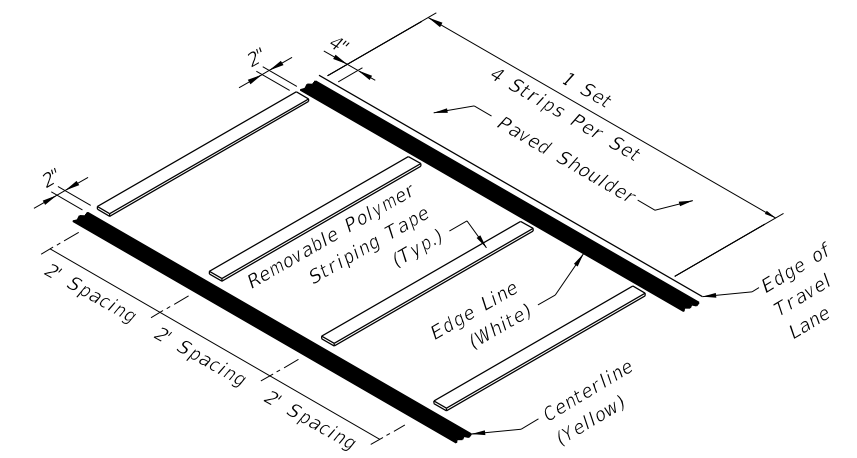
CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA BETWEEN THE CENTERLINE AND A LINE 2' OUTSIDE THE EDGE OF TRAVEL WAY.

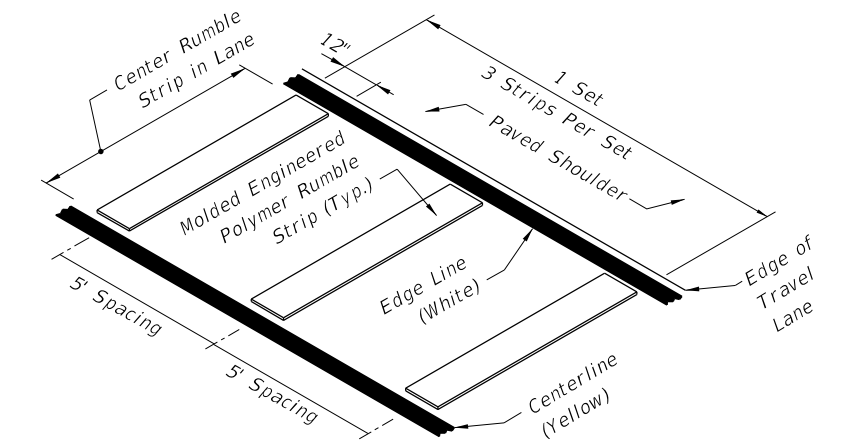
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LAYOUT FOR TEMPORARY RAISED RUMBLE STRIPS WHEN REQUIRED WITH ADDITIONAL SIGNS

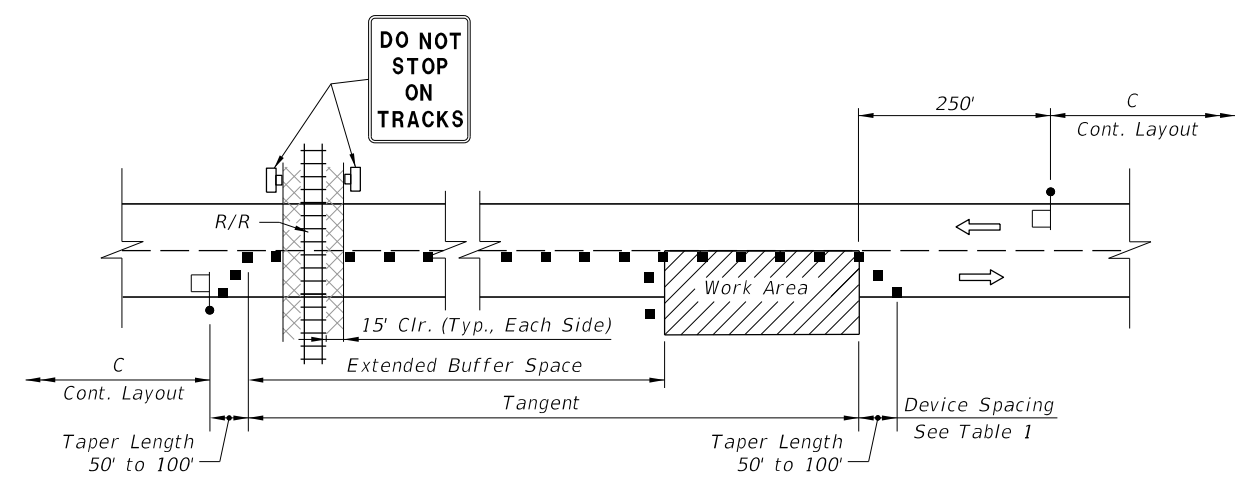


OPTION 1 - REMOVABLE POLYMER STRIPING TAPE RUMBLE STRIP SET

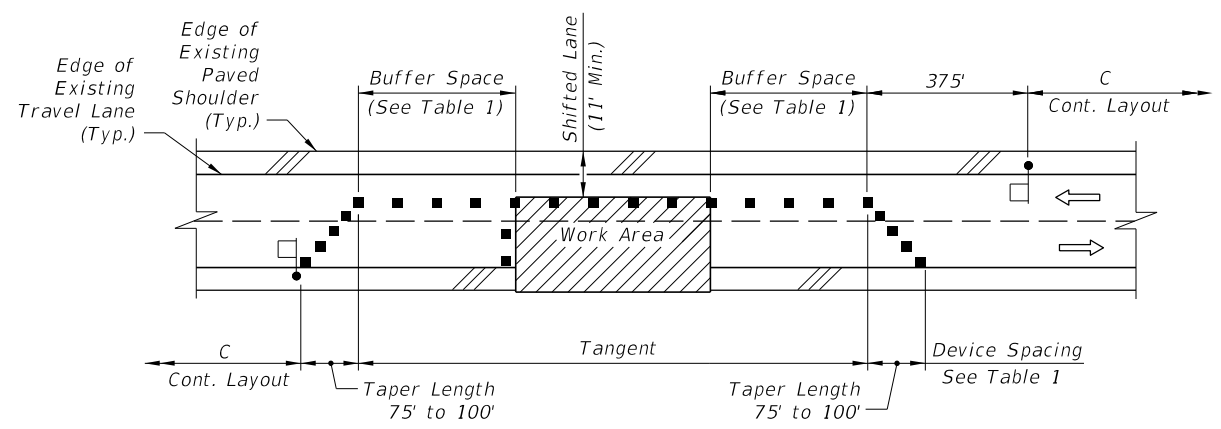


OPTION 2 - MOLDED ENGINEERED POLYMER RUMBLE STRIP SET

TEMPORARY RAISED RUMBLE STRIPS



LAYOUT FOR RAILROAD CROSSING BUFFER SPACE EXTENSION



LAYOUT FOR TEMPORARY LANE SHIFT TO SHOULDER WHEN WORK AREA ENCROACHES ON THE CENTERLINE

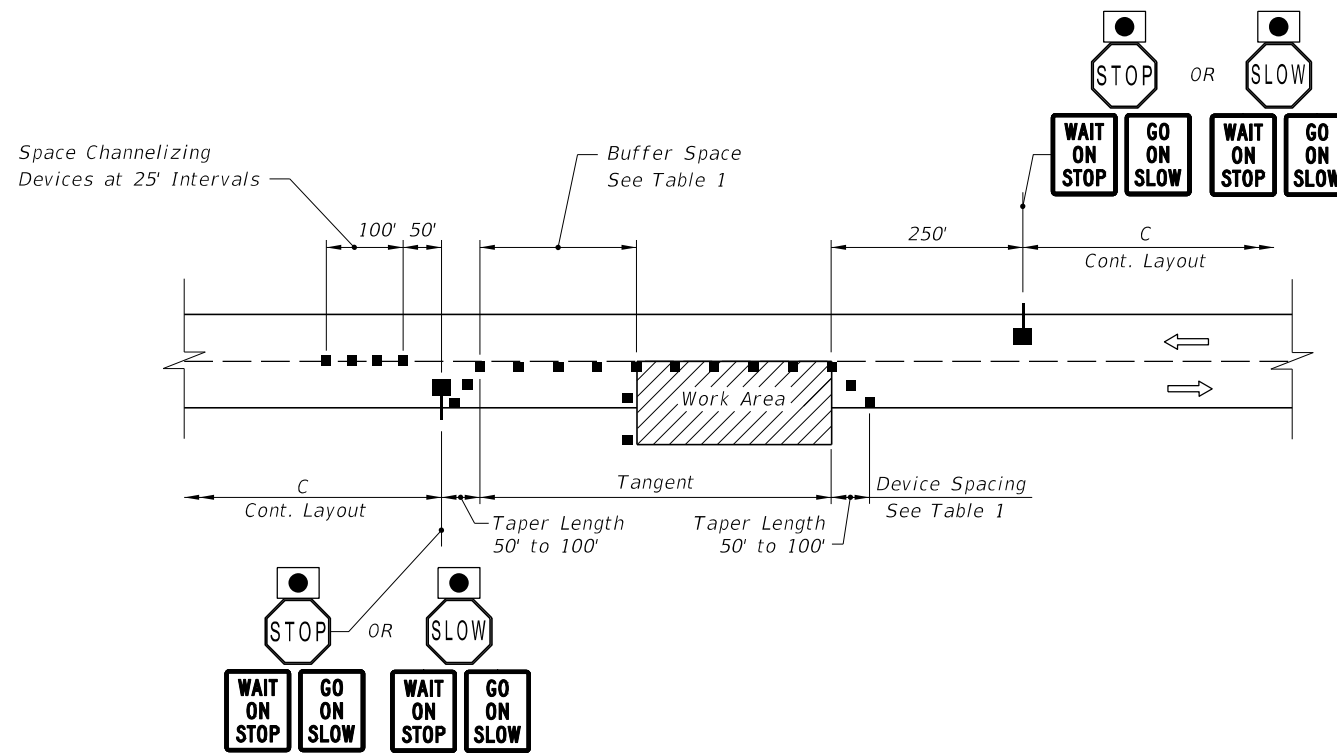
SPECIAL CONDITIONS

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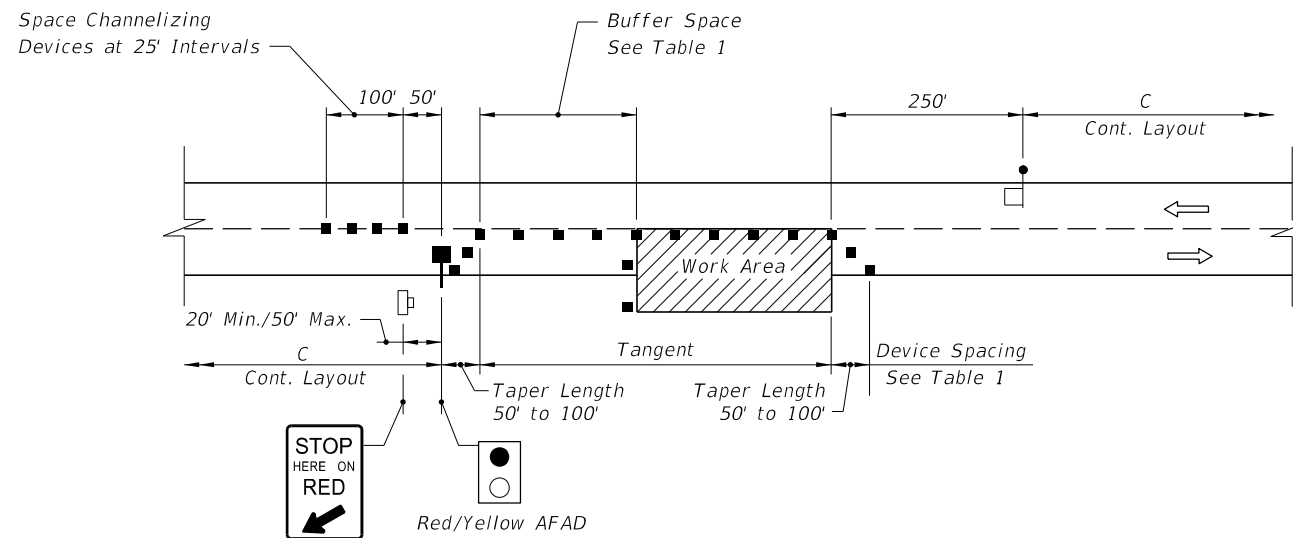
LAST REVISION 07/01/15	DESCRIPTION:		2016 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY		INDEX NO. 603	SHEET NO. 2 of 3
REVISION							

AUTOMATED FLAGGER ASSISTANCE DEVICES NOTES:

1. Illuminate the flagging station when the AFAD is used at nighttime.
2. When the AFAD is not in use, remove or cover signs and move AFAD device outside the clear zone or shield it with a barrier or crash cushion.
3. Only qualified flaggers who have been trained in the operation of the AFAD may operate the AFAD. When in use, each AFAD must be in view of and attended at all times by the flagger operating the device. Use two flaggers and one of the following methods in the deployment of AFAD's:
 - Method 1: Place an AFAD at each end of the temporary traffic control zone.
 - Method 2: Place an AFAD at one end of the temporary traffic control zone and a flagger at the opposite end.
4. A single flagger may simultaneously operate two AFAD's (Method 1) or may operate a single AFAD on one end of the temporary traffic control zone while being the flagger at the opposite end of the temporary traffic control zone (Method 2) if all four of the following conditions are present:
 - a. The flagger has an unobstructed view of the AFAD(s);
 - b. The flagger has an unobstructed view of approaching traffic in both directions;
 - c. For Method 1, the AFAD's are less than 800 ft apart. For Method 2, the AFAD and the flagger are less than 800 ft apart.
 - d. Two trained flaggers are available on-site to provide normal flagging operations should an AFAD malfunction.




LAYOUT FOR STOP/SLOW AFAD
METHOD 1 - 2 AFAD's



LAYOUT FOR RED/YELLOW AFAD
METHOD 2 - 1 AFAD & FLAGGER

AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADs)

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LAST REVISION 07/01/15	REVISION	DESCRIPTION:	 2016 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY	INDEX NO. 603	SHEET NO. 3 of 3
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