2016 Design Standards
MOT/600 Series

Roadway Design Office Updates

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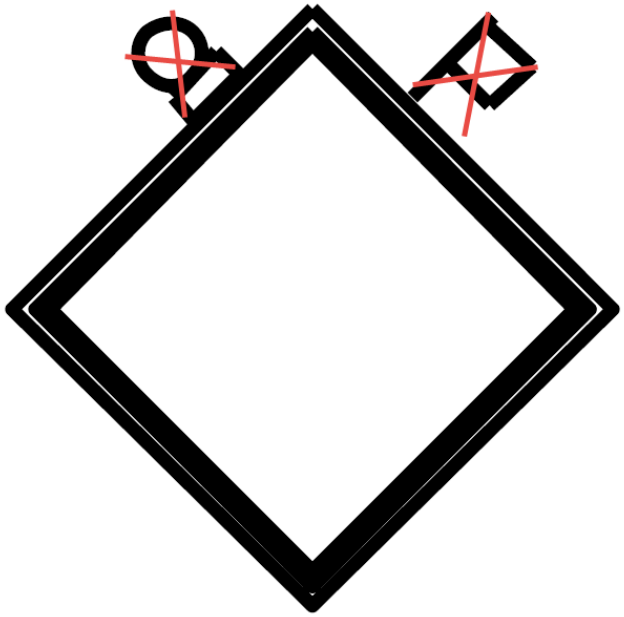
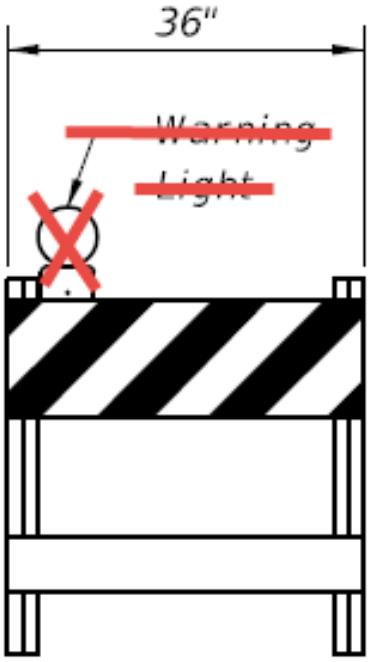
Index 600 Series

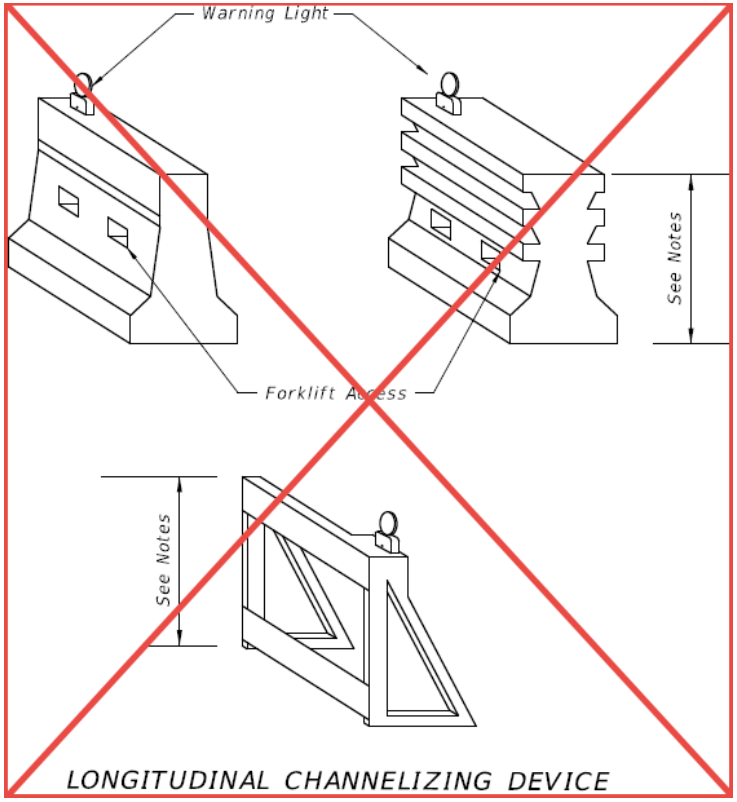
- Removed warning lights and flags from Work Zone Signs.
- Removed warning lights from all channelizing devices.
- For more information, see RDB 15-10: Temporary Traffic Control – Warning Lights and Flags

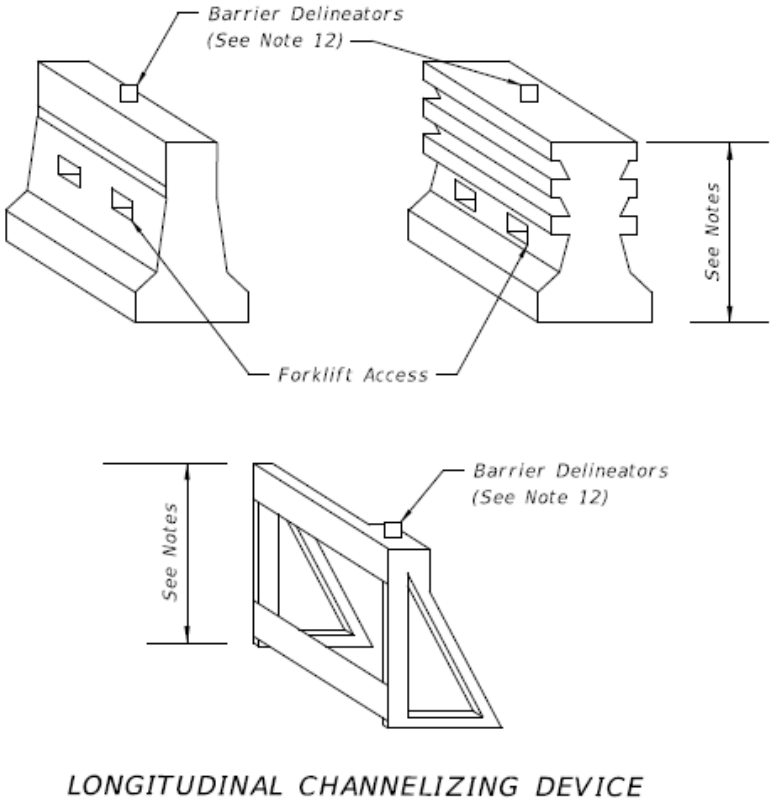




Index 600 Series

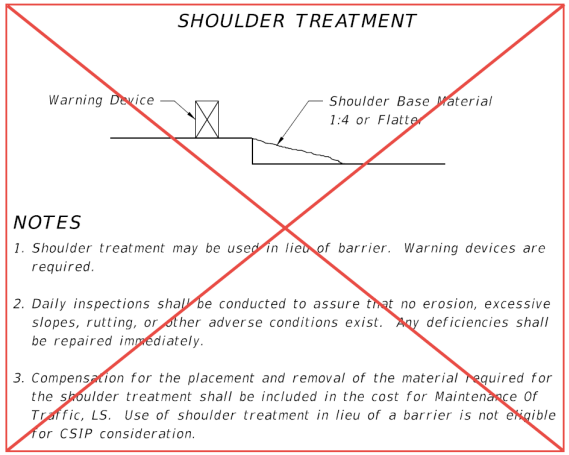
- For Barriers and Longitudinal Channelizing Devices, Barrier Delineators are now used instead of Warning Lights

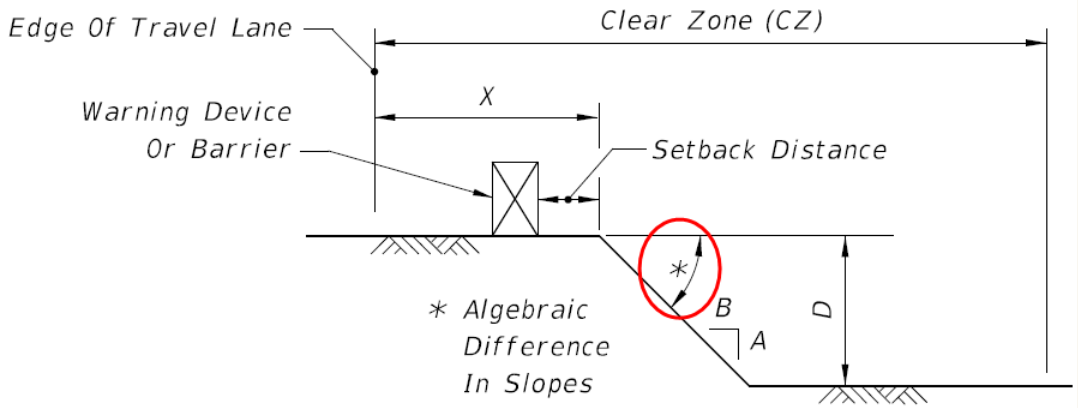




Index 600

- Drop-Off Conditions





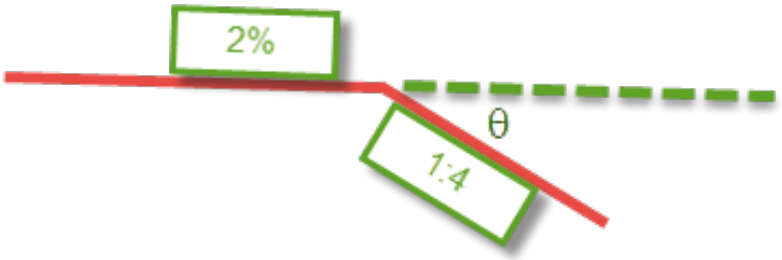
DROP-OFF CONDITION DETAIL

2. A drop-off is defined as a drop in elevation, parallel to the adjacent travel lanes, greater than 3" with slope (A:B) steeper than 1:4 and an algebraic difference in slopes greater than 0.25 (See Drop-off Condition Detail). When drop-offs occur within the clear zone due to construction or maintenance activities, protection devices are required (See Table 1).

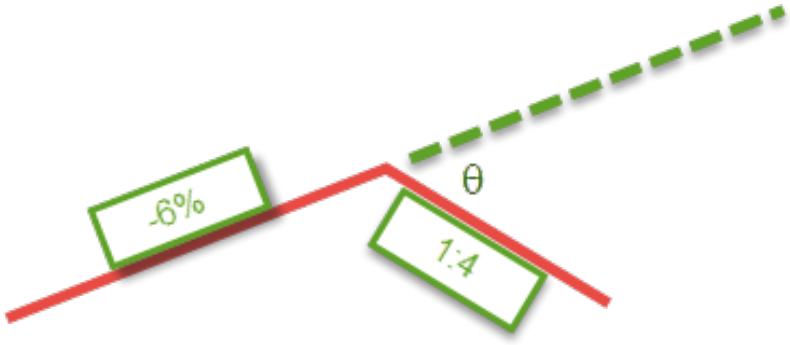
3. Drop-offs may be mitigated by placement of slopes with optional base material per Specifications Section 285. Slopes shallower than 1:4 may be required to avoid algebraic difference in slopes greater than 0.25. Include the cost for the placement and removal of the material in Maintenance of Traffic, LSD. Use of this treatment in lieu of a barrier is not eligible for CSIP consideration. Conduct daily inspections for deficiencies related to erosion, excessive slopes, rutting or other adverse conditions. Repair any deficiencies immediately.

Index 600

- Drop-Off Conditions



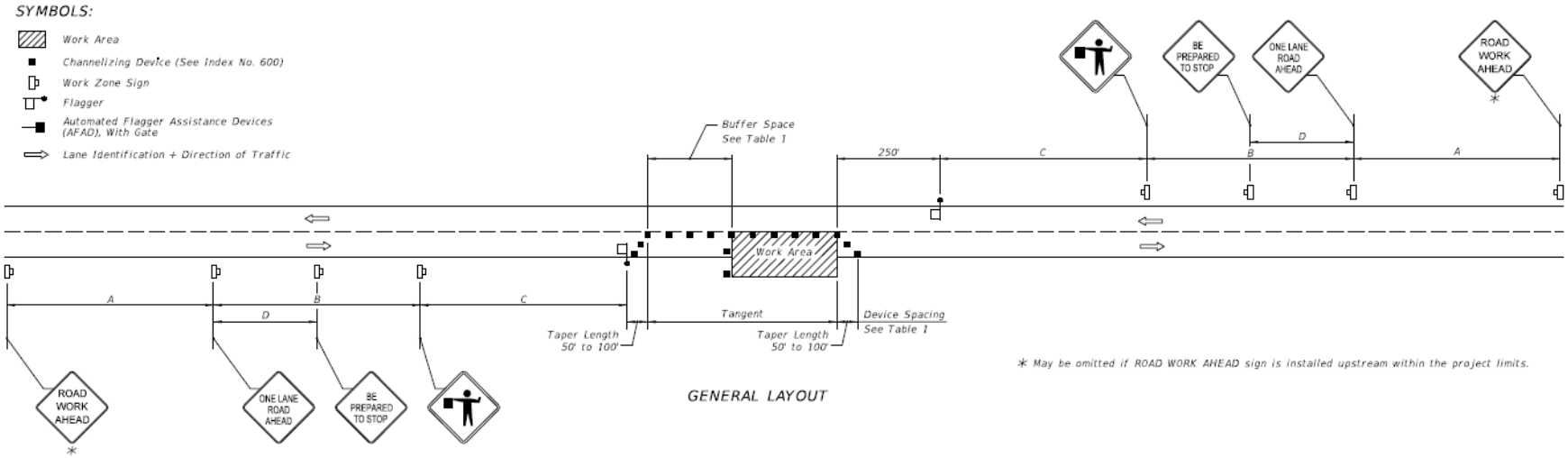
OK



NOT OK

Index 603: Reorganized

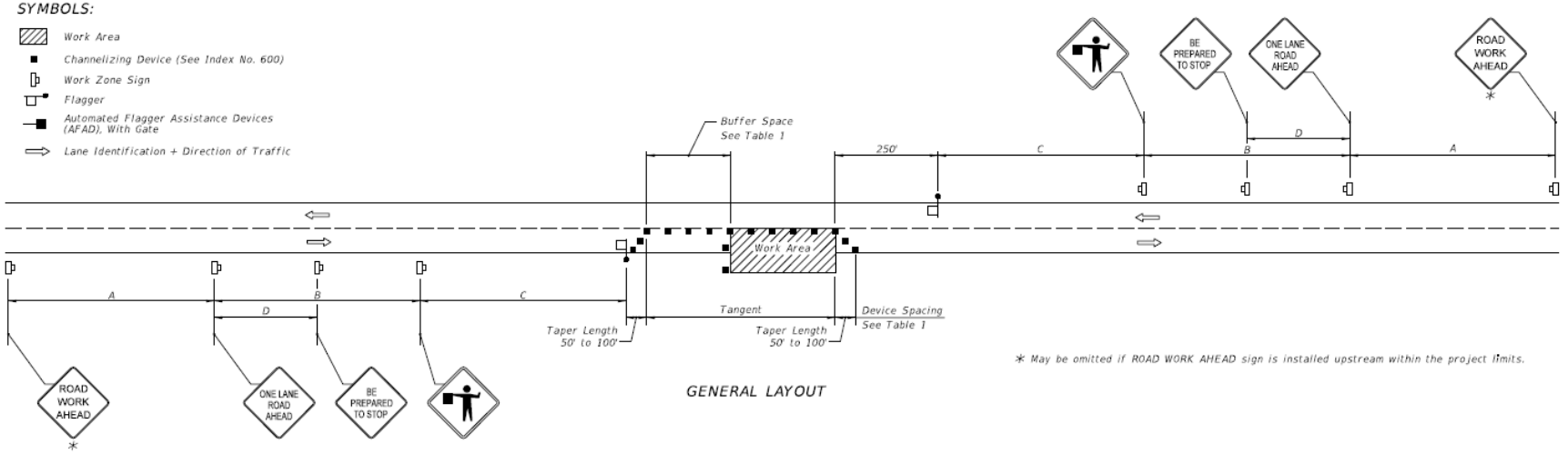
- Temporary Raised Rumble Strips were removed from Index 600, Sheet 4 and merged with Index 603
- New Special Conditions:
  - Index 635 (RR Crossing) deleted; merged with Index 603
  - New Center Line Rumble Striping requirements created need for a <u>standard</u> MOT scheme for work encroaching centerline.



Index 603: Reorganized

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

* May be omitted if ROAD WORK AHEAD sign is installed upstream within the project limits.

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

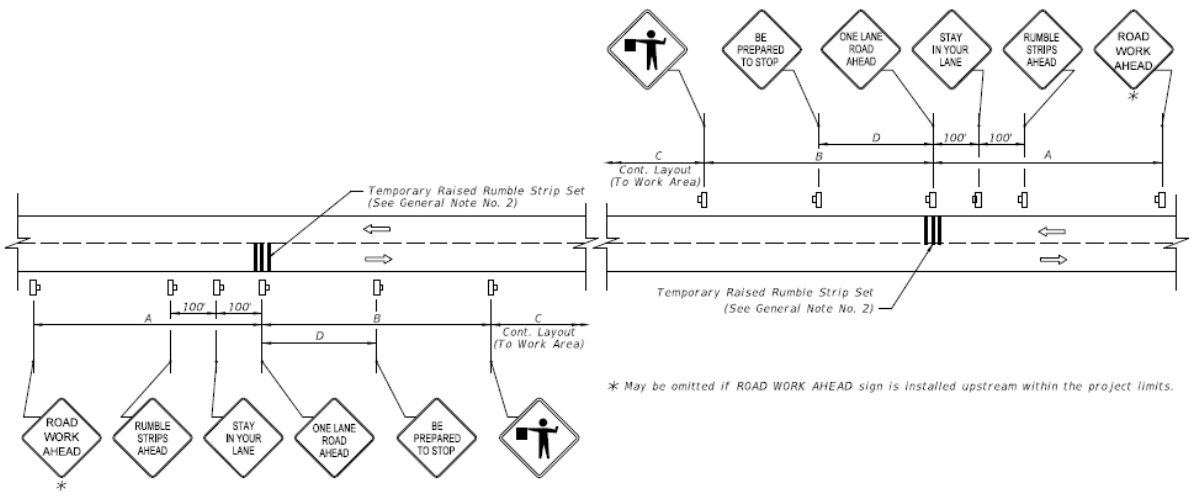
Posted Speed	DEVICE SPACING: Maximum Spacing of Cones or Tubular Markers		Maximum Spacing of Type I or Type II Barricades/Panels/Drums		Distance Between Signs				Buffer Space
	On a Taper	On a Tangent	On a Taper	On a Tangent	A	B	C	D	
25	20'	50'	20'	50'	200'	200'	200'	100'	155'
30	20'	50'	20'	50'	200'	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.

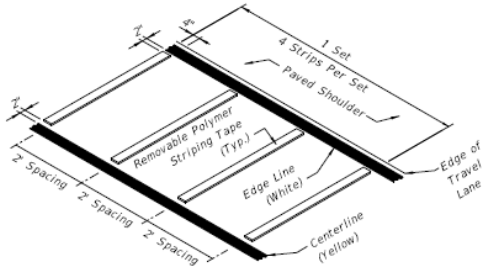
LAST REVISION 07/01/15	REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY	INDEX NO. 603	SHEET NO. 1 of 3

Index 603: Reorganized

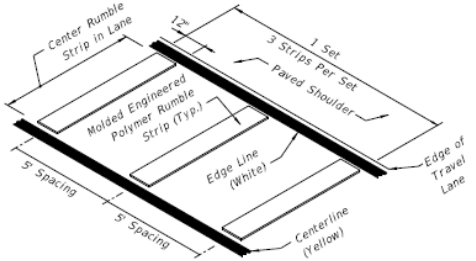


* May be omitted if ROAD WORK AHEAD sign is installed upstream within the project limits.

LAYOUT FOR TEMPORARY RAISED RUMBLE STRIPS
WHEN REQUIRED WITH ADDITIONAL SIGNS

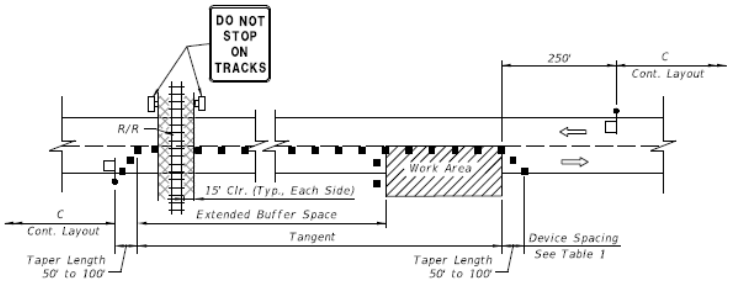


OPTION 1 - REMOVABLE POLYMER STRIPING TAPE
RUMBLE STRIP SET

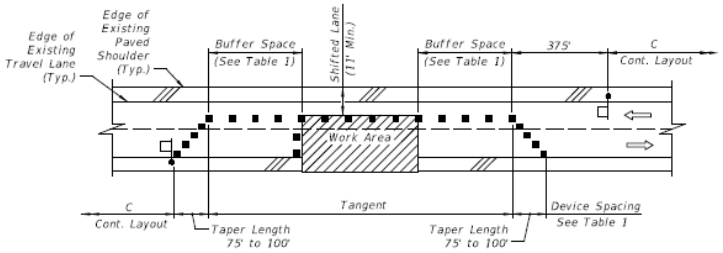


OPTION 2 - MOLDED ENGINEERED POLYMER
RUMBLE STRIP SET

TEMPORARY RAISED RUMBLE STRIPS



LAYOUT FOR RAILROAD CROSSING
BUFFER SPACE EXTENSION

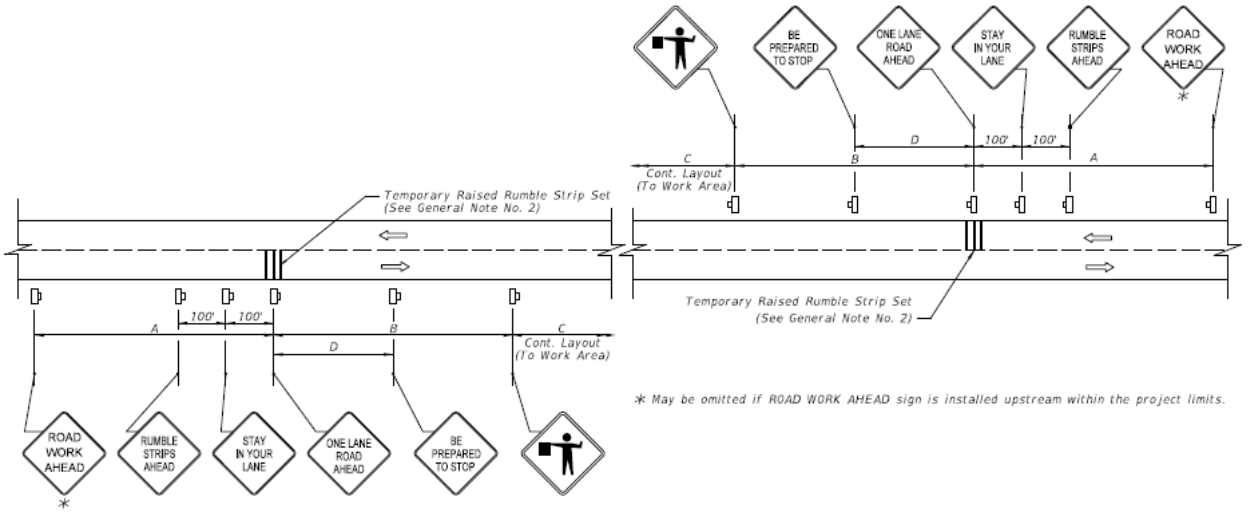


LAYOUT FOR TEMPORARY LANE SHIFT TO SHOULDER
WHEN WORK AREA ENCROACHES ON THE CENTERLINE

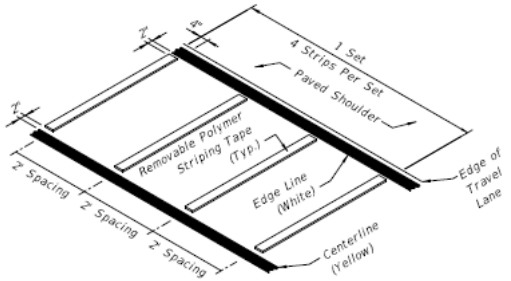
SPECIAL CONDITIONS

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

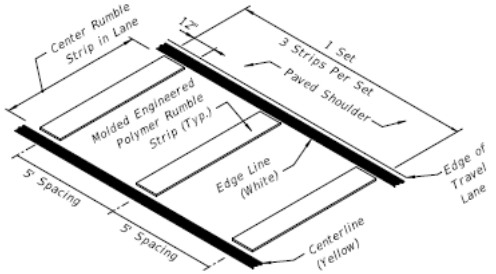
Index 603: Temporary Raised Rumble Strips



LAYOUT FOR TEMPORARY RAISED RUMBLE STRIPS
WHEN REQUIRED WITH ADDITIONAL SIGNS



OPTION 1 - REMOVABLE POLYMER STRIPING TAPE
RUMBLE STRIP SET

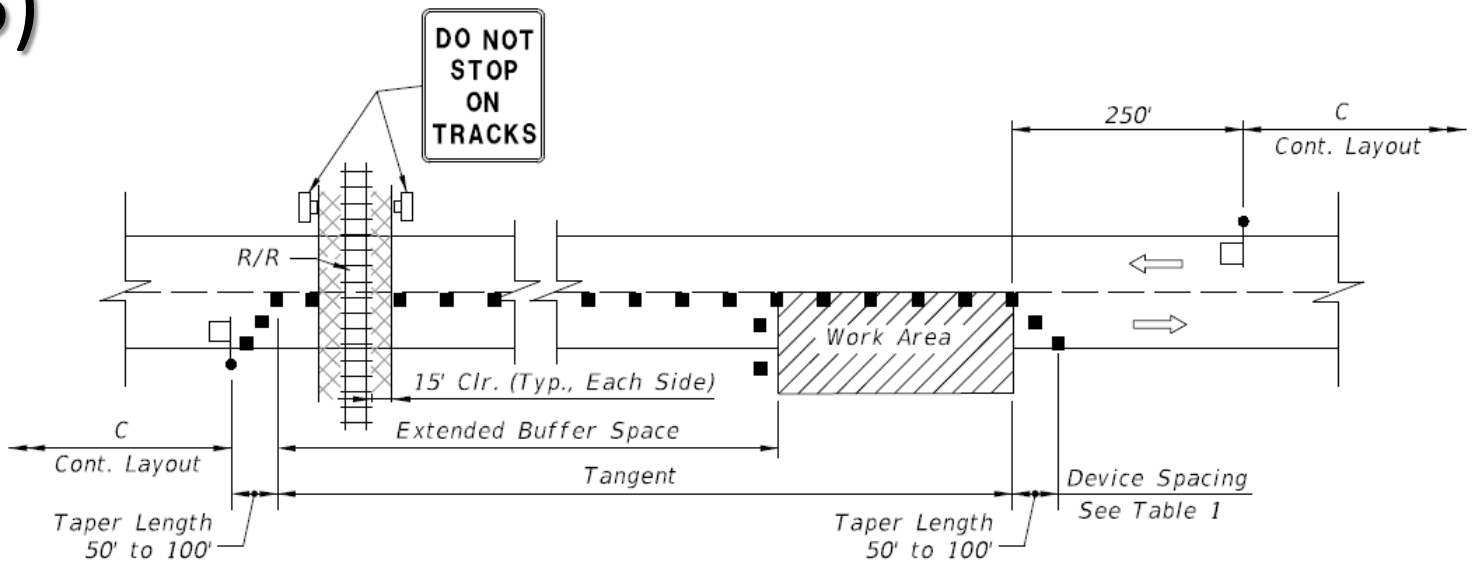


OPTION 2 - MOLDED ENGINEERED POLYMER
RUMBLE STRIP SET

TEMPORARY RAISED RUMBLE STRIPS

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.

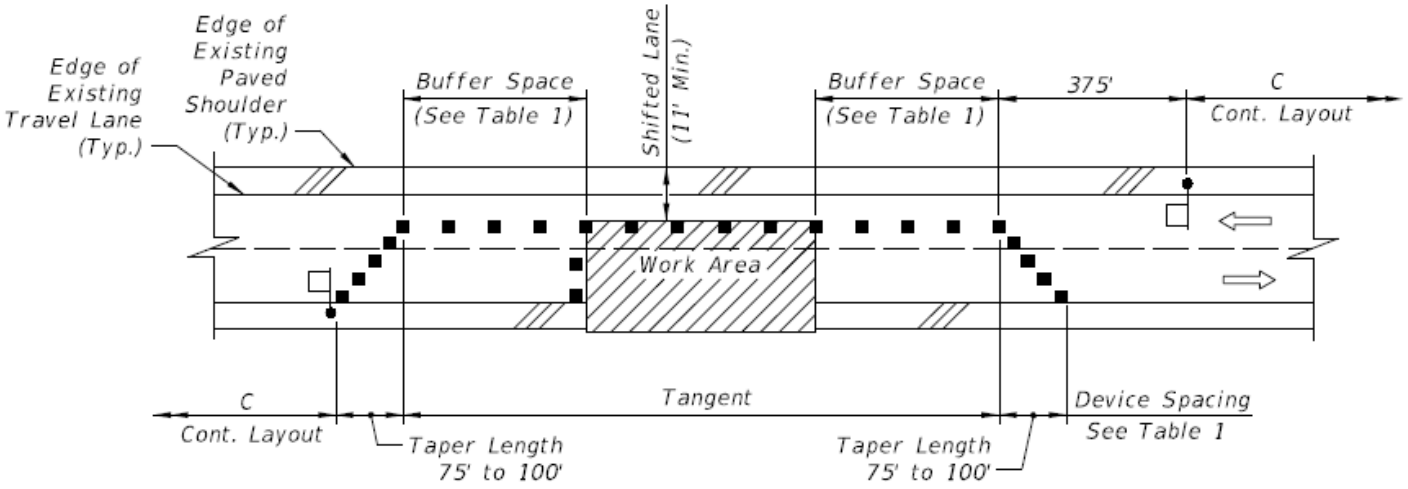
Index 603: Railroad Crossings (From Index 635)



LAYOUT FOR RAILROAD CROSSING
BUFFER SPACE EXTENSION

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.

Index 603: Encroaching Centerline



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

SPECIAL CONDITIONS

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.*

Index 603: Reorganized

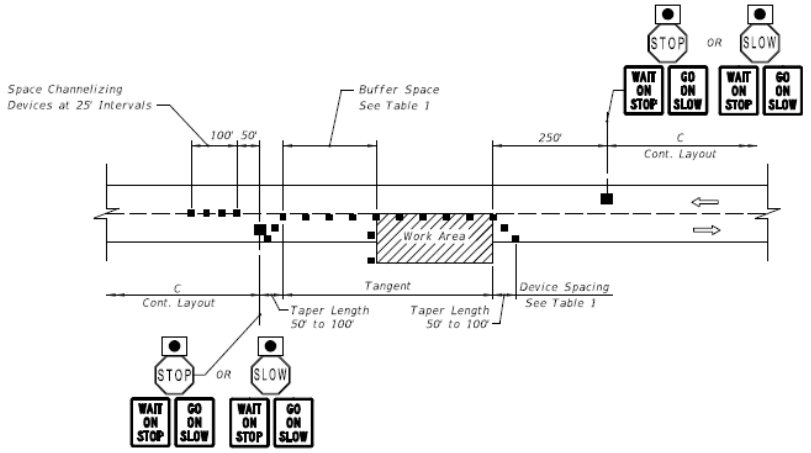
AUTOMATED FLAGGER ASSISTANCE DEVICES NOTES:

1. Illuminate the flagging station when the AFAD is used at nighttime.

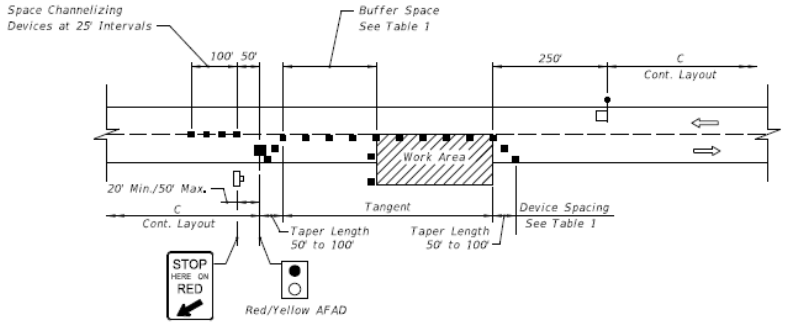
2. When the AFAD is not in use, remove or cover signs and move AFAD device outside the clear zone or shield it with a barrier or crash cushion.

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



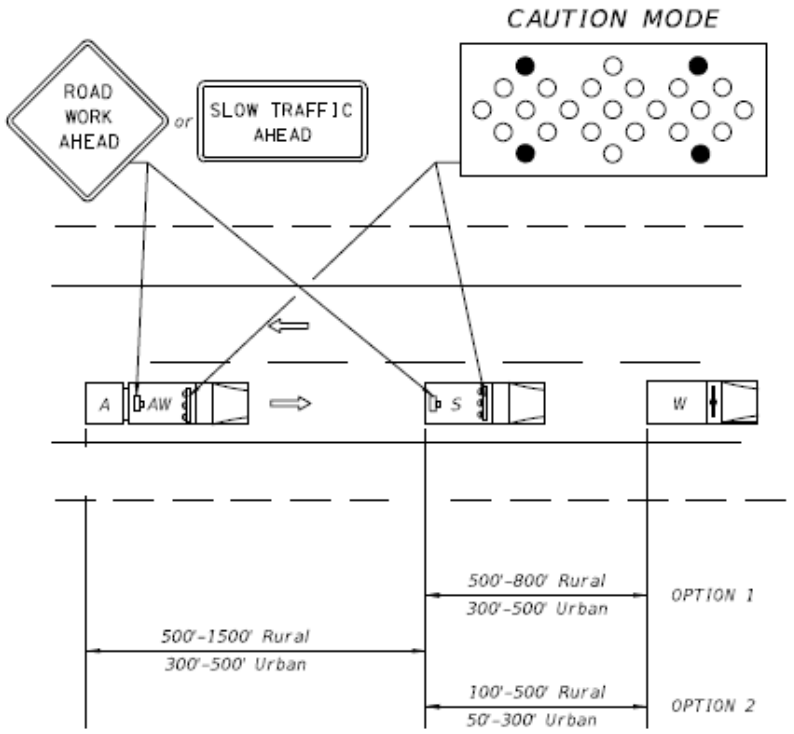
LAYOUT FOR RED/YELLOW AFAD
METHOD 2 - 1 AFAD & FLAGGER

AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADs)

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

Index 607: Added Option 2

- Requested by the Materials Office
- Intended to allow the drivers of the Shadow Vehicles to position themselves closer to the Work Vehicle
- Reduce the likelihood of vehicles entering the Work Area between the Shadow Vehicle and the Work Vehicle



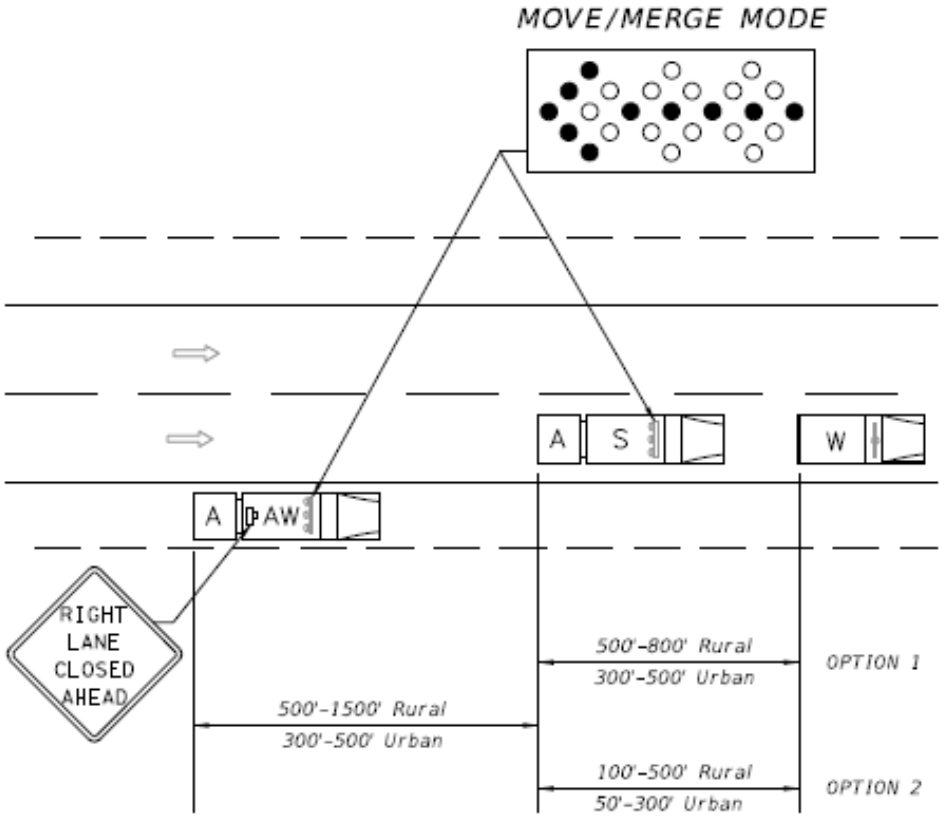
OPTION 1: Advance Warning Vehicle is optional and is to be operated in the shoulder when feasible. If an Advance Warning Vehicle is operated in the shoulder, an approved Truck Mounted Attenuator is required on both the Advance Warning and Shadow Vehicles. If an Advance Warning Vehicle is operated in the lane behind the Shadow Vehicle, an approved Truck Mounted Attenuator will be required on the Advance Warning Vehicle, but not required on the Shadow Vehicle. The Advance Warning Arrow Board and Warning Sign is required on both the Advance Warning and Shadow Vehicles.

OPTION 2: Advanced Warning Vehicle is required and must be operated in the lane behind the Shadow Vehicle. An approved Truck Mounted Attenuator will be required on the Advance Warning Vehicle but not required on the Shadow Vehicle. The Advance Warning Arrow Board and Warning Sign is required on both the Advance Warning and Shadow Vehicles.

WORK IN TRAVEL WAY
(Option 2 Shown, Option 1 Similar)

Index 619: Added Option 2

- Requested by the Materials Office
- Intended to allow the drivers of the Shadow Vehicles to position themselves closer to the Work Vehicle
- Reduce the likelihood of vehicles entering the Work Area between the Shadow Vehicle and the Work Vehicle



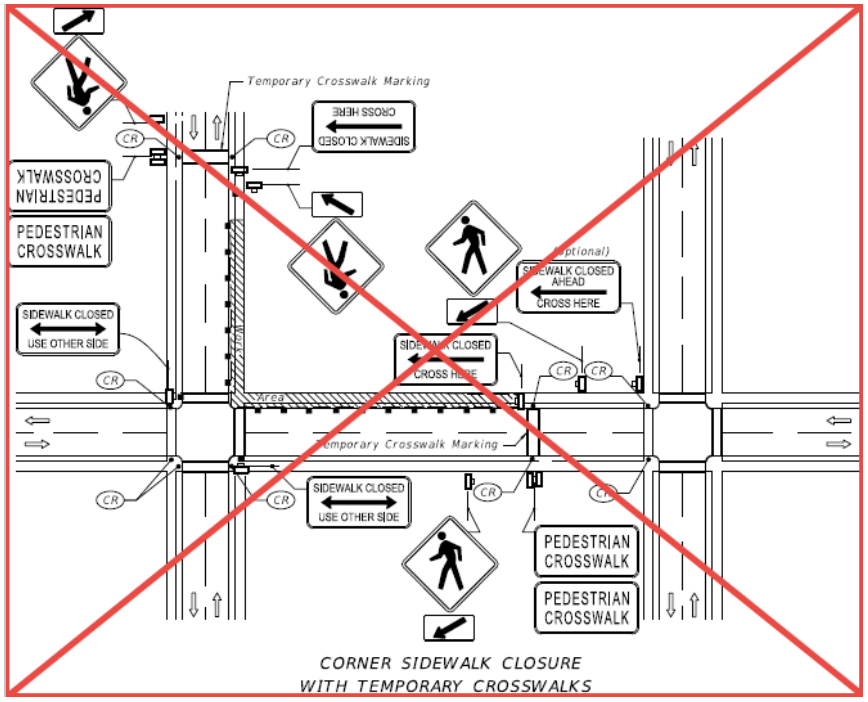
OPTION 1: Advance Warning Vehicle may be operated in the lane behind the Shadow Vehicle where adequate shoulder width is not available. Approved Truck Mounted Attenuators are required on both the Advance Warning Vehicle and the Shadow Vehicle.

OPTION 2: Advance Warning Vehicle must be operated in the lane behind the Shadow Vehicle. Approved Truck Mounted Attenuators are required on both the Advance Warning Vehicle and the Shadow Vehicle.

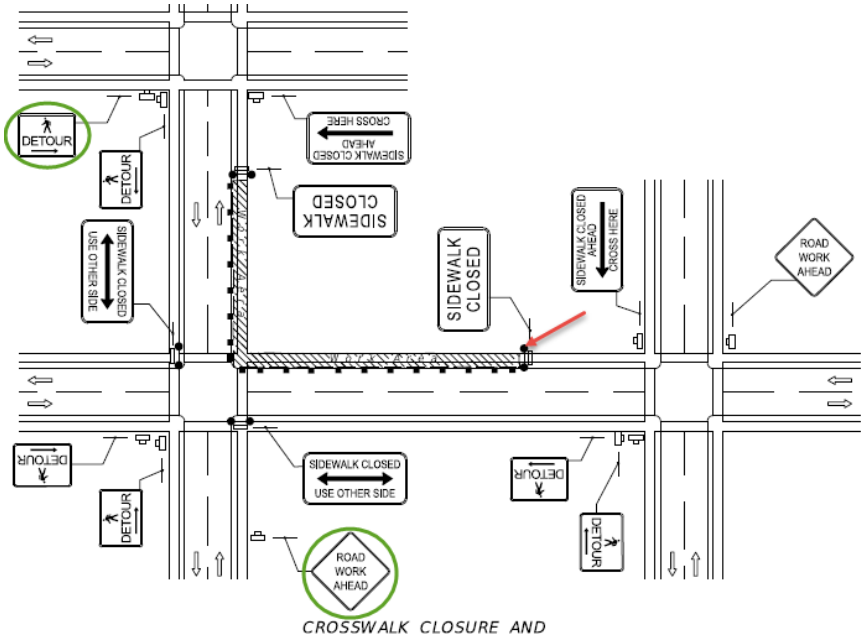
WORK WITHIN TRAVEL LANE
(Option 1 Shown, Option 2 Similar)

Index 660:

- Modified to be more in-line with MUTCD Typical Applications
- Utilized Pedestrian LCDs
- Removed Temporary Mid-block Crossings from the Index
  - May still be used; project-specific with proper justification



CORNER SIDEWALK CLOSURE
WITH TEMPORARY CROSSWALKS

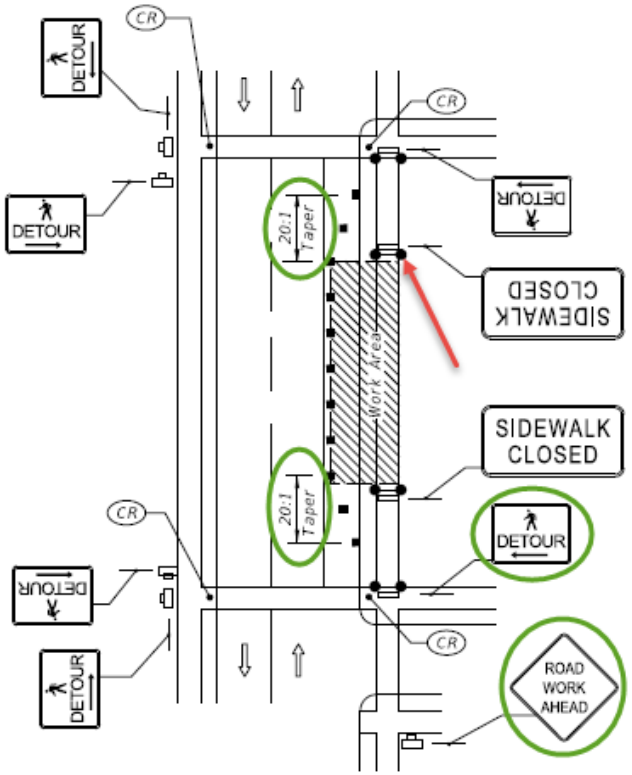


CROSSWALK CLOSURE AND
PESESTRIAN DETOUR

Index 660: Sidewalk Detour

- Utilized Pedestrian LCDs
- Clarified Detour Information

MID-BLOCK SIDEWALK CLOSURE

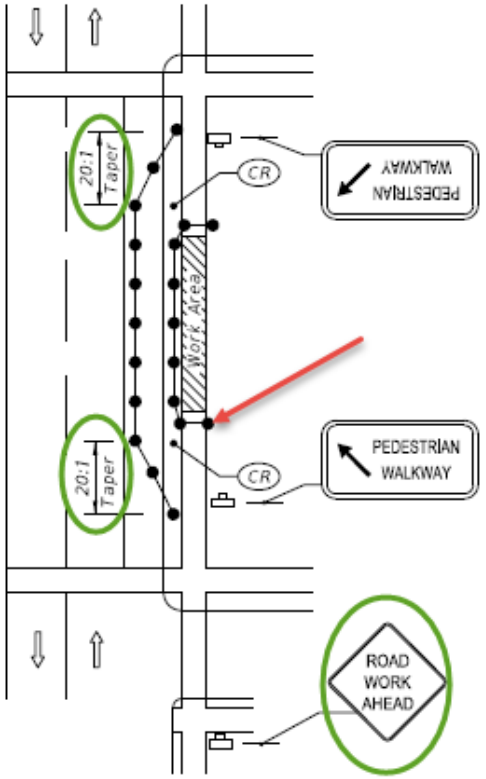


SIDEWALK DETOUR

Index 660: Sidewalk Diversion

- Utilized Pedestrian LCDs
- Clarified Diversion Information

MID-BLOCK SIDEWALK CLOSURE
WITH TEMPORARY WALKWAY



SIDEWALK DIVERSION

New Team Member in the Roadway Design Standards Section

Maintenance of Traffic Engineer

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Maintenance of Traffic (MOT) will transition to:
Temporary Traffic Control (TTC)

Keep a look out for coming changes to TTC requirements to be more consistent with the MUTCD

Coming Soon:

- New Statewide Lane Closure Procedure
- New Temporary Traffic Control Training Handbook (See Proposed Changes to Specifications Section 105)

Questions

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