
Index 600

General Information for Traffic Control Through Work Zones

ORIGINATION

Date: 7/3/2017

Name: Ed Cashman

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COMMENTARY

Sheet 2: No Change.

Sheet 5: Updated Notes.

Sheet 9: Changed warning to channelizing. Deleted "Warning Device Notes" and table. Deleted bicyclist from "Pedestrian and/or Bicyclist Way Drop-off Condition Notes".

COMMENTS AND RESPONSES

BLACK = Industry Review Comments **RED** = Standard Plans Response

Name: Daniel Strickland, P.E.

Date: Thursday, August 31, 2017 11:17 AM

COMMENT:

1. Sheet 2: Under the "Travel Way" definition, add a reference to the drawing depicted on sheet 12 of this index.
2. Sheet 2: Under the "Temporary Traffic Control Devices" section, recommend modifying the 3rd paragraph to say "...shall be delineated with a ~~temporary traffic control device~~ channelizing device placed at each corner..."
3. Sheet 5: The redlines indicate updated notes, but the revised sheet is missing.
4. Sheet 9: Recommend revising the Drop-off Condition Detail (left drawing) to say "Travel Way" instead of "Edge of Travel Lane".
5. Sheet 9: The Warning Device Notes and Table 2 (bottom left of sheet) were deleted in the revisions, but not shown that way in the redlines.

RESPONSE:

September 13, 2017 – Agree with comments 2-5. No change for first comment because this may cause additional confusion. Changes made.

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General Information for Traffic Control Through Work Zones

Name: Christian Cummings

Date: Monday, September 18, 2017 1:15 PM

COMMENT:

Sheet 9 of 12 states that Table 2 “Warning Device Spacing” is “updated”. However, the table appears to be excluded from the draft provided. Therefore we are unable to be review or comment on the change.

RESPONSE:

September 19, 2017 – The redline was incorrect. The table is proposed to be deleted and the terminology for Warning Device changed to Channelizing Device.

DEFINITIONS

Regulatory Speed (In Work Zones)

The maximum permitted travel speed posted for the work zone is indicated by the regulatory speed limit signs. The work zone speed must be shown or noted in the plans. This speed should be used as the minimum design speed to determine runoff lengths, departure rates, flare rates, lengths of need, clear zone widths, taper lengths, crash cushion requirements, marker spacings, superelevation and other similar features.

Advisory Speed

The maximum recommended travel speed through a curve or a hazardous area.

Travel Way

The portion of the roadway for the movement of vehicles. For traffic control through work zones, travel way may include the temporary use of shoulders and any other permanent or temporary surface intended for use as a lane for the movement of vehicular traffic.

- a. Travel Lane: The designated widths of roadway pavement marked to carry through traffic and to separate it from opposing traffic or traffic occupying other traffic lanes.
- b. Auxiliary Lane: The designated widths of roadway pavement marked to separate speed change, turning, passing and climbing maneuvers from through traffic.

Detour, Lane Shift, and Diversion

A detour is the redirection of traffic onto another roadway to bypass the temporary traffic control zone. A lane shift is the redirection of traffic onto a different section of the permanent pavement. A diversion is the redirection of traffic onto a temporary roadway, usually adjacent to the permanent roadway and within the limits of the right of way.

Aboveground Hazard

An aboveground hazard is any object, material or equipment other than traffic control devices that encroaches upon the travel way or that is located within the clear zone which does not meet the Department's safety criteria, i.e., anything that is greater than 4" in height and is firm and unyielding or doesn't meet breakaway requirements.

TEMPORARY TRAFFIC CONTROL DEVICES

All temporary traffic control devices shall be ON the Department's Approved Products List (APL). Ensure the appropriate APL number is permanently marked on the device in a readily visible location.

All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. **channelizing device** short periods of time, temporary traffic control devices appropriate shall be removed or covered.

Arrow Boards, Portable Changeable Message Signs, Radar Speed Display Trailer, Portable Regulatory Signs, and any other trailer mounted device shall be delineated with a temporary traffic control device placed at each corner when in use and shall be moved outside the travel way and clear zone or be shielded by a barrier or crash cushion when not in use.

PEDESTRIAN AND BICYCLIST

When an existing pedestrian way or bicycle way is located within a traffic control work zone, accommodation must be maintained and provision for the disabled must be provided.

Only approved pedestrian longitudinal channelizing devices may be used to delineate a temporary traffic control zone pedestrian walkway.

Advanced notification of sidewalk closures and marked detours shall be provided by appropriate signs.

OVERHEAD WORK

Work is only allowed over a traffic lane when one of the following options is used:

OPTION 1 (OVERHEAD WORK USING A MODIFIED LANE CLOSURE)

Overhead work using a modified lane closure is allowed if all of the following conditions are met:

- a. Work operation is located in a signalized intersection and limited to signals, signs, lighting and utilities.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- e. Aerial lift equipment is placed directly below the work area to close the lane.
- f. Traffic control devices are placed in advance of the vehicle/equipment closing the lane using a minimum 100 foot taper.
- g. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.

OPTION 2 (OVERHEAD WORK ABOVE AN OPEN TRAFFIC LANE)

Overhead work above a open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within an area bounded by 2 feet outside the edge of travel way and 18 feet high.
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
- g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

OPTION 3 (OVERHEAD WORK ADJACENT TO AN OPEN TRAFFIC LANE)

Overhead work adjacent to an open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 1 day or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within 2 foot from the edge of travel way up to 18' height. Above 18' in height, no encroachment by any part of the work activities and equipment over the open traffic lane (except as allowed in Option 2 for work operations of 60 minutes or less).
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
- g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

OPTION 4 (OVERHEAD WORK MAINTAINING TRAFFIC WITH NO ENCROACHMENT BELOW THE OVERHEAD WORK AREA)

Traffic shall be detoured, shifted, diverted or paced as to not encroach in the area directly below the overhead work operations in accordance with the appropriate standard index drawing or detailed in the plans. This option applies to, but not limited to, the following construction activities:

- a. Beam, girder, segment, and bent/pier cap placement.
- b. Form and falsework placement and removal.
- c. Concrete placement.
- d. Railing construction located at edge of deck.
- e. Structure demolition.

OPTION 5 (CONDUCTOR/CABLE PULLING ABOVE AN OPEN TRAFFIC LANE)

Overhead cable and/or de-energized conductor installations initial pull to proper tension shall be done in accordance with the appropriate Standard Index or temporary traffic control plan.

Continuous pulling operations of secured cable and/or conductors are allowed over open lane(s) of traffic with no encroachment by any part of the work activities, materials or equipment within the minimal vertical clearance above the travel way. The utility shall take precautions to ensure that pull ropes and conductors/cables at no time fall below the minimum vertical clearance.

On Limited Access facilities, a site specific temporary traffic control plan is required. The temporary traffic control plan shall include:

- a. The temporary traffic control set up for the initial pulling of the pull rope across the roadway.
- b. During pulling operations, advance warning consisting of no less than a Changeable Message Sign upstream of the work area with alternating messages, "Overhead Work Ahead" and "Be Prepared to Stop" followed by a traffic control officer and police vehicle with blue lights flashing during the pulling operation.

RAILROADS

Railroad crossings affected by a construction project should be evaluated for traffic controls to reduce queuing on the tracks. The evaluation should include as a minimum: traffic volumes, distance from the tracks to the intersections, lane closure or taper locations, signal timing, etc.

SIGHT DISTANCE


Tapers: Transition tapers should be obvious to drivers. If restricted sight distance is a problem (e.g., a sharp vertical or horizontal curve), the taper should begin well in advance of the view obstruction. The beginning of tapers should not be hidden behind curves.

Intersections: Traffic control devices at intersections must provide sight distances for the road user to perceive potential conflicts and to traverse the intersection safely. Construction equipment and materials shall not restrict intersection sight distance.

ABOVEGROUND HAZARD

Aboveground hazards (see definitions) are to be considered work areas during working hours and treated with appropriate work zone traffic control procedures. During nonworking hours, all objects, materials and equipment that constitute an aboveground hazard must be stored/placed outside the travel way and clear zone or be shielded by a barrier or crash cushion.

For aboveground hazards within a work zone the clear zone required should be based on the regulatory speed posted during construction.

LAST REVISION 07/01/15	REVISION	DESCRIPTION:		FY 2017-18 DESIGN STANDARDS	GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES	INDEX NO. 600	SHEET NO. 2 of 12
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DROP-OFF CONDITION NOTES

- These conditions and treatments can be applied only in work areas that fall within a project **ADDED: period**
- When drop-offs occur within the clear zone due to construction or maintenance activities, protection devices are required (See Table 1). 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).
- 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.
- Distance X is to be the maximum practical under project conditions.
- For Clear Zone widths, see Index No. 600, Sheet 3.
- For Setback Distance, refer to the Standard Index drawing of the selected barrier for the required deflection space.
- Distance from the travel lane to the barrier or warning device should be maximum practical for project conditions.
- For Conditions 1 and 3 provided in Table 1, any drop-off condition that is created and restored within the same work period will not be subject to the use of barriers; however, warning devices will be required.
- When permanent curb heights are $\geq 6"$, no warning device will be required. For curb heights $< 6"$, see Table 1.
- Where a barrier is specified, any of the types below may be used in accordance with the applicable Index:

Index No.	Description
400	Guardrail
412	Low Profile Barrier
414	Type K Temporary Concrete Barrier System
415	Temporary Concrete Barrier

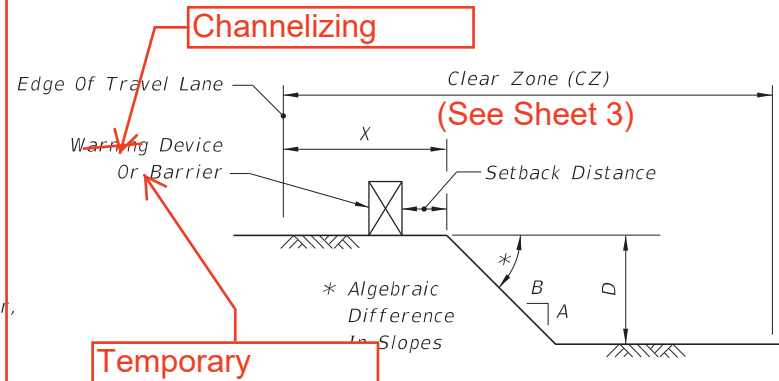
 For other types of temporary barriers see the APL.
- Drop-off condition and protection requirements apply to all speeds.

ADDED: In Superelevated sections...

Table 1
Drop-off Protection Requirements

Condition	X (ft)	D (in.)	Device Required
1	0-12	> 3	Barrier (See Note 8)
2	> 12 -CZ	> 3 to ≤ 5	Warning Device
3	0-CZ	> 5	Barrier (See Note 8)
4	Removal of Bridge or Retaining Wall Barrier		Barrier
5	Removal of portions of Bridge Deck		Barrier

ADDED: Should not exceed...



Channelizing

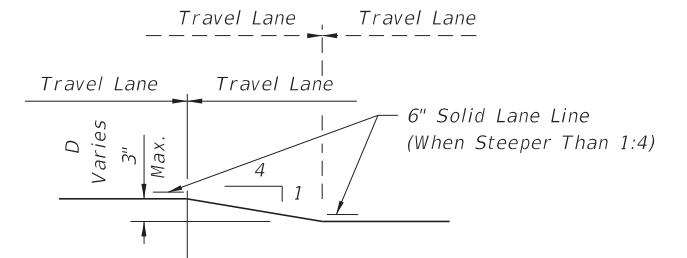
Temporary

DROP-OFF CONDITION DETAIL

Change "warning" to "channelizing"

TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING NOTES

- This treatment applies to resurfacing or milling operations between adjacent travel lanes.
- Whenever there is a difference in elevation between adjacent travel lanes, the W8-11 sign with "UNEVEN LANES" is required at intervals of $\frac{1}{2}$ mile maximum.
- If D is $1\frac{1}{2}"$ or less, no treatment is required.
- Treatment allowed only when D is 3" or less.
- If the slope is steeper than 1:4 (not to be steeper than 1:1), the R4-1 and MOT-1-06 signs shall be used as a supplement to the W8-11; this condition should never exceed 3 miles in length.



TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING DETAIL

~~PEDESTRIAN AND/OR BICYCLIST WAY~~ DROP-OFF CONDITION NOTES

- A pedestrian ~~and/or bicyclist~~ way drop-off is defined as:
 - a drop in elevation greater than 10" that is closer than 2' from the edge of the pedestrian ~~or bicyclist~~ way
 - a slope steeper than 1:2 that begins closer than 2' from the edge of the pedestrian ~~or bicyclist~~ way when the total drop-off is greater than 60"
- Protect any drop-off adjacent to a pedestrian ~~or bicyclist~~ way with ~~warning devices, temporary barrier wall, or approved handrail.~~

pedestrian longitudinal channelizing devices

EEC 1/10/17

DROP-OFFS IN WORK ZONES

WARNING DEVICE NOTES

- The following are defined as acceptable warning devices:
 - Vertical panel
 - Type I Or Type II barricades
 - Drum
 - Cone (where allowed)
 - Tubular marker (where allowed)
- Use the warning device spacing shown in Table 2.

Table 2
Warning Device Spacing

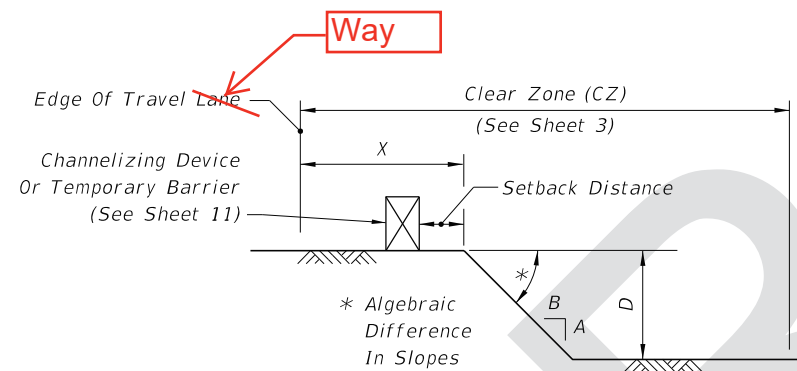
Speed (mph)	Max. Distance Between Devices (ft)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

11/01/17

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DROP-OFF CONDITION NOTES

1. These conditions and treatments can be applied only in work areas that fall within a properly signed work zone.
2. When drop-offs occur within the clear zone due to construction or maintenance activities, protection devices are required (See Table 1). 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. In superelevated sections, the algebraic difference in slopes should not exceed 0.25 (See Drop-off Condition Detail).
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 temporary 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.
4. For Setback Distance, refer to the Index or Approved Products List (APL) drawing of the selected barrier.
5. For Conditions 1 and 3 provided in Table 1, any drop-off condition that is created and restored within the same work period will not be subject to the use of temporary barriers; however, channelizing devices will be required.
6. When permanent curb heights are $\geq 6"$, no channelizing device will be required. For curb heights $< 6"$, see Table 1.

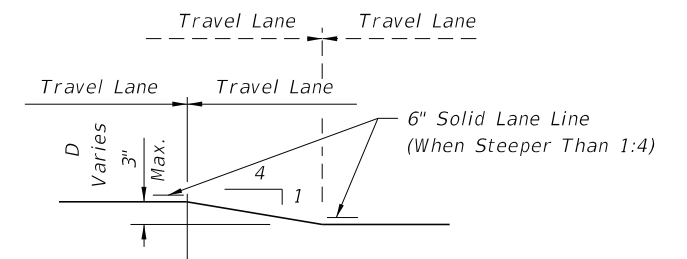


DROP-OFF CONDITION DETAIL

Condition	X (ft)	D (in.)	Device Required
1	0-12	> 3	Temporary Barrier
2	> 12-CZ	> 3 to ≤ 5	Channelizing Device
3	0-CZ	> 5	Temporary Barrier
4	Removal of Bridge or Retaining Wall Barrier		Temporary Barrier
5	Removal of portions of Bridge Deck		Temporary Barrier

TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING NOTES

1. This treatment applies to resurfacing or milling operations between adjacent travel lanes.
2. Whenever there is a difference in elevation between adjacent travel lanes, the W8-11 sign with "UNEVEN LANES" is required at intervals of 1/2 mile maximum.
3. If D is 1 1/2" or less, no treatment is required.
4. Treatment allowed only when D is 3" or less.
5. If the slope is steeper than 1:4 (not to be steeper than 1:1), the R4-1 and MOT-1-06 signs shall be used as a supplement to the W8-11; this condition should never exceed 3 miles in length.



TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING DETAIL

PEDESTRIAN WAY DROP-OFF CONDITION NOTES

1. A pedestrian way drop-off is defined as:
 - a. a drop in elevation greater than 10" that is closer than 2' from the edge of the pedestrian way
 - b. a slope steeper than 1:2 that begins closer than 2' from the edge of the pedestrian way when the total drop-off is greater than 60"
2. Protect any drop-off adjacent to a pedestrian way with pedestrian longitudinal channelizing devices, temporary barrier wall, or approved handrail.

DROP-OFFS IN WORK ZONES

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DEFINITIONS

Regulatory Speed (In Work Zones)

The maximum permitted travel speed posted for the work zone is indicated by the regulatory speed limit signs. The work zone speed must be shown or noted in the plans. This speed should be used as the minimum design speed to determine runoff lengths, departure rates, flare rates, lengths of need, clear zone widths, taper lengths, crash cushion requirements, marker spacings, superelevation and other similar features.

Advisory Speed

The maximum recommended travel speed through a curve or a hazardous area.

Travel Way

The portion of the roadway for the movement of vehicles. For traffic control through work zones, travel way may include the temporary use of shoulders and any other permanent or temporary surface intended for use as a lane for the movement of vehicular traffic.

- a. **Travel Lane:** The designated widths of roadway pavement marked to carry through traffic and to separate it from opposing traffic or traffic occupying other traffic lanes.
- b. **Auxiliary Lane:** The designated widths of roadway pavement marked to separate speed change, turning, passing and climbing maneuvers from through traffic.

Detour, Lane Shift, and Diversion

A detour is the redirection of traffic onto another roadway to bypass the temporary traffic control zone. A lane shift is the redirection of traffic onto a different section of the permanent pavement. A diversion is the redirection of traffic onto a temporary roadway, usually adjacent to the permanent roadway and within the limits of the right of way.

Aboveground Hazard

An aboveground hazard is any object, material or equipment other than traffic control devices that encroaches upon the travel way or that is located within the clear zone which does not meet the Department's safety criteria, i.e., anything that is greater than 4" in height and is firm and unyielding or doesn't meet breakaway requirements.

TEMPORARY TRAFFIC CONTROL DEVICES

All temporary traffic control devices shall be ON the Department's Approved Products List (APL). Ensure the appropriate APL number is permanently marked on the device in a readily visible location.

All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, temporary traffic control devices that are no longer appropriate shall be removed or covered.

Arrow Boards, Portable Changeable Message Signs, Radar Speed Display Trailer, Portable Regulatory Signs, and any other trailer mounted device shall be delineated with a channelizing device placed at each corner when in use and shall be moved outside the travel way and clear zone or be shielded by a barrier or crash cushion when not in use.

PEDESTRIAN AND BICYCLIST

When an existing pedestrian way or bicycle way is located within a traffic control work zone, accommodation must be maintained and provision for the disabled must be provided.

Only approved pedestrian longitudinal channelizing devices may be used to delineate a temporary traffic control zone pedestrian walkway.

Advanced notification of sidewalk closures and marked detours shall be provided by appropriate signs.

OVERHEAD WORK

Work is only allowed over a traffic lane when one of the following options is used:

OPTION 1 (OVERHEAD WORK USING A MODIFIED LANE CLOSURE)

Overhead work using a modified lane closure is allowed if all of the following conditions are met:

- a. Work operation is located in a signalized intersection and limited to signals, signs, lighting and utilities.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- e. Aerial lift equipment is placed directly below the work area to close the lane.
- f. Traffic control devices are placed in advance of the vehicle/equipment closing the lane using a minimum 100 foot taper.
- g. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.

OPTION 2 (OVERHEAD WORK ABOVE AN OPEN TRAFFIC LANE)

Overhead work above a open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within an area bounded by 2 feet outside the edge of travel way and 18 feet high.
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
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- g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

OPTION 3 (OVERHEAD WORK ADJACENT TO AN OPEN TRAFFIC LANE)

Overhead work adjacent to an open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 1 day or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within 2 foot from the edge of travel way up to 18' height. Above 18' in height, no encroachment by any part of the work activities and equipment over the open traffic lane (except as allowed in Option 2 for work operations of 60 minutes or less).
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
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OPTION 4 (OVERHEAD WORK MAINTAINING TRAFFIC WITH NO ENCROACHMENT BELOW THE OVERHEAD WORK AREA)

Traffic shall be detoured, shifted, diverted or paced as to not encroach in the area directly below the overhead work operations in accordance with the appropriate index drawing or detailed in the plans. This option applies to, but not limited to, the following construction activities:

- a. Beam, girder, segment, and bent/pier cap placement.
- b. Form and falsework placement and removal.
- c. Concrete placement.
- d. Railing construction located at edge of deck.
- e. Structure demolition.

OPTION 5 (CONDUCTOR/CABLE PULLING ABOVE AN OPEN TRAFFIC LANE)

Overhead cable and/or de-energized conductor installations initial pull to proper tension shall be done in accordance with the appropriate Index or temporary traffic control plan.

Continuous pulling operations of secured cable and/or conductors are allowed over open lane(s) of traffic with no encroachment by any part of the work activities, materials or equipment within the minimal vertical clearance above the travel way. The utility shall take precautions to ensure that pull ropes and conductors/cables at no time fall below the minimum vertical clearance.

On Limited Access facilities, a site specific temporary traffic control plan is required. The temporary traffic control plan shall include:

- a. The temporary traffic control set up for the initial pulling of the pull rope across the roadway.
- b. During pulling operations, advance warning consisting of no less than a Changeable Message Sign upstream of the work area with alternating messages, "Overhead Work Ahead" and "Be Prepared to Stop" followed by a traffic control officer and police vehicle with blue lights flashing during the pulling operation.

RAILROADS

Railroad crossings affected by a construction project should be evaluated for traffic controls to reduce queuing on the tracks. The evaluation should include as a minimum: traffic volumes, distance from the tracks to the intersections, lane closure or taper locations, signal timing, etc.

SIGHT DISTANCE


Tapers: Transition tapers should be obvious to drivers. If restricted sight distance is a problem (e.g., a sharp vertical or horizontal curve), the taper should begin well in advance of the view obstruction. The beginning of tapers should not be hidden behind curves.

Intersections: Traffic control devices at intersections must provide sight distances for the road user to perceive potential conflicts and to traverse the intersection safely. Construction equipment and materials shall not restrict intersection sight distance.

ABOVEGROUND HAZARD

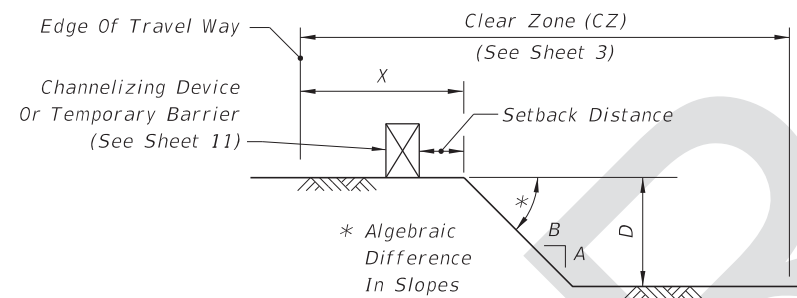
Aboveground hazards (see definitions) are to be considered work areas during working hours and treated with appropriate work zone traffic control procedures. During nonworking hours, all objects, materials and equipment that constitute an aboveground hazard must be stored/placed outside the travel way and clear zone or be shielded by a barrier or crash cushion.

For aboveground hazards within a work zone the clear zone required should be based on the regulatory speed posted during construction.

LAST REVISION 11/01/17	REVISION	DESCRIPTION:		FY 2018-19 STANDARD PLANS	GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES	INDEX 102-600	SHEET 2 of 12
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DROP-OFF CONDITION NOTES

1. These conditions and treatments can be applied only in work areas that fall within a properly signed work zone.
2. When drop-offs occur within the clear zone due to construction or maintenance activities, protection devices are required (See Table 1). 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. In superelevated sections, the algebraic difference in slopes should not exceed 0.25 (See Drop-off Condition Detail).
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 temporary 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.
4. For Setback Distance, refer to the Index or Approved Products List (APL) drawing of the selected barrier.
5. For Conditions 1 and 3 provided in Table 1, any drop-off condition that is created and restored within the same work period will not be subject to the use of temporary barriers; however, channelizing devices will be required.
6. When permanent curb heights are $\geq 6"$, no channelizing device will be required. For curb heights $< 6"$, see Table 1.

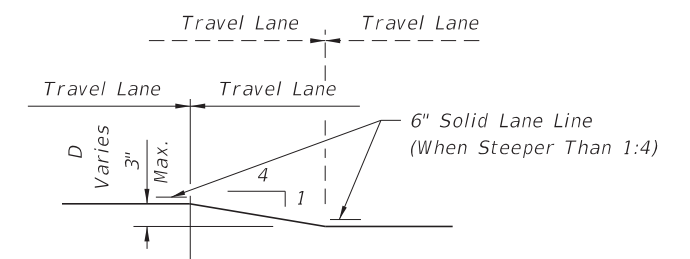


DROP-OFF CONDITION DETAIL

Condition	X (ft)	D (in.)	Device Required
1	0-12	> 3	Temporary Barrier
2	> 12-CZ	> 3 to ≤ 5	Channelizing Device
3	0-CZ	> 5	Temporary Barrier
4	Removal of Bridge or Retaining Wall Barrier		Temporary Barrier
5	Removal of portions of Bridge Deck		Temporary Barrier

TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING NOTES

1. This treatment applies to resurfacing or milling operations between adjacent travel lanes.
2. Whenever there is a difference in elevation between adjacent travel lanes, the W8-11 sign with "UNEVEN LANES" is required at intervals of $\frac{1}{2}$ mile maximum.
3. If D is $1\frac{1}{2}"$ or less, no treatment is required.
4. Treatment allowed only when D is 3" or less.
5. If the slope is steeper than 1:4 (not to be steeper than 1:1), the R4-1 and MOT-1-06 signs shall be used as a supplement to the W8-11; this condition should never exceed 3 miles in length.



TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING DETAIL

PEDESTRIAN WAY DROP-OFF CONDITION NOTES

1. A pedestrian way drop-off is defined as:
 - a. a drop in elevation greater than 10" that is closer than 2' from the edge of the pedestrian way
 - b. a slope steeper than 1:2 that begins closer than 2' from the edge of the pedestrian way when the total drop-off is greater than 60"
2. Protect any drop-off adjacent to a pedestrian way with pedestrian longitudinal channelizing devices, temporary barrier wall, or approved handrail.

DROP-OFFS IN WORK ZONES

9/14/2017 11:30:38 AM