

SECTION 900 TRAFFIC ACCOMMODATION AND CONTROL

SECTION 901—MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION

901.1 DESCRIPTION—This work is the furnishing, installing, maintaining, and relocating of traffic control devices. This work may include flagging and pilot car operation for guidance of traffic through the temporary traffic control zone and dust control. All work shall be done as specified in these Specifications, the Publication 212, Publication 213, and the MUTCD, the Special Provisions, [Standard Drawings](#), the approved Traffic Control Plans (TCP), and as directed.

901.2 MATERIAL—Furnish material and traffic control devices necessary for maintenance and protection of traffic, and conforming to the TCP, Publication 212, Publication 213, and the MUTCD, and as follows:

- Temporary Concrete Barrier—[Section 627.2](#)
- Temporary Impact Attenuating Devices—[Section 696.2](#)
- Reset Temporary Concrete Barrier—[Section 628.2](#)
- Reset Temporary Impact Attenuating Devices—[Section 697.2](#)
- Painting Traffic Lines and Markings—[Section 962.2](#)
- Bituminous Tack Coat—[Section 460.2](#)
- Bituminous Wearing Course ID-2—[Section 420.2](#)
- Bituminous Wearing Course FJ-1—[Section 422.2](#)
- Flat Sheet Signs (for Post Mounted Signs, Types B, C, and F: and Distance Marker(s)) - [Section 1103.04](#)

When traffic line paint and glass beads or pavement marking tape are provided according to the requirements of Section 901.3(k), furnish certification, as specified in [Section 106.03\(b\)3](#), that these materials meet specifications.

All temporary traffic control devices must be listed in [Bulletin 15](#) as NCHRP-350 compliant. Temporary Type III barricades must comply with [Standard Drawing](#) TC-8716 or be listed in [Bulletin 15](#) as NCHRP-350 compliant.

901.3 CONSTRUCTION—

(a) General. Comply with Publication 212, Publication 213, and the MUTCD.

Install and maintain traffic control devices as indicated on the TCP, or an approved alternate plan submitted at the preconstruction conference. The Representative may revise the TCP in writing during construction. If unforeseen conditions arise or if revisions are made to the TCP by the Representative, install and maintain additional warning lights and traffic control signs on necessary mounting devices according to Publication 212, Publication 213, and the MUTCD, and at locations designated in writing by the Representative. Use Department approved channelizing devices only. Reflectorize channelizing devices according to Publication 212, Publication 213, and the MUTCD. Provide safety for general public and work crew, and protection of work. Schedule construction operations to allow movement of traffic through various phases of construction with minimum interference. If traffic interruptions become too frequent, cease operations in the area concerned, as directed. Take remedial action to correct situation before continuing operations. Remove or cover existing traffic control devices that conflict with the TCP. When conflict no longer exists, erect or uncover them.

Install and maintain reduced regulatory speed limit signs in work areas, as indicated on the TCP, approved alternate plan, or as directed

Temporarily remove or cover reduced regulatory speed limit signs when workers are not present, except as otherwise indicated on the TCP, approved alternate plan, or as directed.

Install temporary bituminous rumble strips according to locations, patterns, and configurations indicated.

Maintain rumble strips in place for the period indicated or as directed, and remove them immediately thereafter. Restore the surface after removal and obtain acceptance.

Open any substantially completed section of roadway for the use and convenience of traffic, as directed, and as specified in [Section 107.15](#). When work is completed, immediately remove temporary traffic control devices.

Construct and erect all devices in a workmanlike manner. Maintain, clean, and properly operate the devices during the entire time they are in use. Remove all devices when no longer required. Where operations are performed in stages, only the necessary devices that apply to the present stage of construction shall remain in operation.

Cover or remove from service signs that do not apply to the existing conditions. Cover with rubber roofing material (EPDM) having a thickness of 1.1 mm (0.045 inch) or any other approved material, to cover the entire sign. Stabilize and fasten this material to the sign with either plastic or wood to prevent any movement. Do not apply tape to face of sign. Do not deface or damage the sign face using this procedure.

Do not allow weeds, brush, trees, construction equipment, materials, and the like to obscure any traffic control device.

(b) Maintenance of Roadway and/or Structures. Treat existing earth roads or improved roads that have been graded, with calcium chloride or by other approved dust control palliatives, as specified in the proposal or as directed.

The Department reserves the right to enter upon a project and, at its own expense, maintain the existing roadway and/or structures. This maintenance will be during the life of the project, but will not include those items that are the contractor's responsibility as specified in [Section 105.13](#) for the contract items of work and [Section 901.3\(e\)](#) for the accommodation of local traffic. The Department does not assume responsibility in any way for maintenance of traffic as a consequence of performing this roadway and/or structure maintenance.

If the Department does not exercise its right to enter upon a project, then the Contractor is to perform routine maintenance of the existing roadway and/or structures that are open to traffic at no additional cost to the Department.

(c) Snow Removal and Anti-Skid Material. The Department reserves the right to enter upon a project and, at its own expense, remove snow and/or place anti-skid material, considered necessary for traffic protection. The Department does not assume responsibility in any way for maintenance of traffic as a consequence of removing snow or placing anti-skid material.

Remove the anti-skid material when necessary.

(d) Detours. For indicated detours, furnish, erect, maintain, and remove the detour signs, unless otherwise directed. Also, temporarily cover, revise, or remove existing permanent guide signs, in the vicinity of the construction site and along the detour route, if the messages on the guide signs conflict with the detour signs. Erect, maintain, and remove the detour signs and the modification of directional signs, as indicated, and as necessary for construction conditions. Restore original signs to their original state upon removal of the detour.

(e) Local Traffic Maintenance and Safety. Proceed with the work to ensure safety and the least inconvenience to local traffic. Maintain local traffic ingress and egress by use of existing or new roadways.

Provide and maintain local access to and from the nearest intersecting public road or street, unless otherwise directed. As directed, provide temporary approaches for local vehicular and pedestrian access to and from commuter service, residential, business, industrial, and other public and private facilities.

Also, provide and maintain adequate bridging over base and surface courses, trenches, or other construction, when directed.

(f) Equipment and Material Storage. According to Publication 212, Publication 213, and the MUTCD.

(g) Tubular Markers. When indicated, furnish and install tubular markers according to Publication 212, Publication 213, and the MUTCD.

When directed, replace the complete tubular marker or the tubular marker post only, as the case may be.

Remove all tubular markers when no longer necessary for traffic control or as directed.

(h) Existing Department Signs. Remove existing warning, regulatory, guide, and directional signs as required to accommodate construction operations. Do not remove Stop or Yield signs unless an alternate type of traffic control is provided, such as flaggers, temporary traffic signals, etc. Continue the alternate traffic control until the Stop or Yield signs are replaced. Stake or mark sign locations or locate signs on construction drawings before removing any signs. Reinstall existing warning signs at appropriate locations within 4 hours of their removal. With the exception of Stop or Yield signs as herein noted, reinstall existing regulatory, guide and directional signs at appropriate locations within 24 hours of their removal.

Remove existing State Route and Segment markers that are likely to be damaged or disturbed as a result of construction operations. Provide survey ties for all such markers, before the removal, to facilitate replacement.

Replace all State Route and Segment markers that were removed, at their exact longitudinal locations, upon completion of the work.

(i) Barricades. When indicated, furnish and install barricades according to Publication 212, Publication 213, and the MUTCD.

(j) Dropoffs. The following conditions and treatments apply only to dropoffs created by construction, maintenance, or permit/utility operations.

Drainage ditches are not to be considered as dropoffs.

If channelizing devices are used for a dropoff condition, a minimum of two devices are required.

Space all channelizing devices at a maximum distance in meters (feet), equal to 0.55 (2) times the posted speed limit in miles per hour, or closer as directed.

If a dropoff is greater than 150 mm (6 inches) and the distance from the dropoff to the edge of the travel lane is such that channelizing devices must be placed below grade, position the devices on a stable platform so that the bottoms are at grade.

Temporary concrete median barrier may be used at the discretion of the Representative.

Pavement courses or compacted earthen embankments tapered at 1:3 (3:1) or flatter are not considered dropoffs.

1. Dropoffs Between Travel Lanes. If a dropoff less than or equal to 50 mm (2 inches) exists between travel lanes, channelizing devices are not necessary. If a dropoff greater than 50 mm (2 inches) exists between travel lanes, provide the following:

- On multilane highways, close one or more lanes to prevent vehicles from crossing over the dropoff.
- On two-way, two-lane roadways, install “Do Not Pass” signs (R4-1) in each direction, at intervals not exceeding 800 m (1/2 mile) throughout the dropoff condition and install two-direction no passing zone, standard pavement markings according to Publication 212, Publication 213, and the MUTCD.

Use uneven pavement signs at intervals not exceeding 800 m (1/2 mile) throughout the dropoff condition, if traffic is allowed to cross the dropoff.

Dropoffs from the Edge of the Travel Lane.

Distance from Edge of Travel Lane	Dropoff Height			
	≤ 50 mm (2 inches)	> 50 mm (2 inches) to ≤ 100 mm (4 inches)	> 100 mm (4 inches) to ≤ 600 mm (2 feet)	> 600 mm (2 feet)
≤ 1.2 m (4 feet)	No channelizing devices required.	Install a 1:1 or flatter bituminous wedge. ^{(1), (2), (3)}	<ul style="list-style-type: none"> • Place suitable material to grade and compact to non-movement. OR • Install a 1:3 (3:1) slope with suitable material and compact to non-movement. ^{(1), (2), (3)} OR • Install temporary barrier. 	<ul style="list-style-type: none"> • Install temporary barrier. OR • Place suitable material to grade and compact to non-movement. OR • Install a 1:3 (3:1) slope with suitable material and compact to non-movement. ^{(1), (2), (3)}
> 1.2 m (4 feet) to ≤ 3.7 m (12 feet)	No channelizing devices required.	Install a 1:1 or flatter bituminous wedge. ^{(2), (3)}	<ul style="list-style-type: none"> • Place suitable material to grade and compact to non-movement. OR • Install a 1:3 (3:1) slope with suitable material and compact to non-movement. ^{(2), (3)} 	<ul style="list-style-type: none"> • Install temporary barrier. OR • Place suitable material to grade and compact to non-movement. OR • Install a 1:3 (3:1) slope with suitable material and compact to non-movement. ^{(2), (3)}
> 3.7 m (12 feet) to ≤ 4.5 m (15 feet)	No channelizing devices required.	Use channelizing devices throughout dropoff condition. ⁽³⁾	Use channelizing devices throughout dropoff condition. ⁽³⁾	Use channelizing devices throughout dropoff condition. ⁽³⁾

Footnotes:

- (1) Install low shoulder signs at intervals not to exceed 800 m (1/2 mile) throughout the dropoff condition.
- (2) Use channelizing devices throughout the dropoff condition.
- (3) No channelizing devices are needed if the dropoff is:
 - outside right-of-way; OR
 - behind guiderail, barrier, or curb; OR
 - greater than 4.6 meters (15 feet) from edge of roadway.

(k) Work Area Pavement Markings. Unless otherwise indicated in the TCP, furnish all material and install reflectorized pavement markings in work areas for all base course, flexible pavement, and rigid pavement construction operations as follows:

- **All Operations Except Seal Coat/Surface Treatment (Oil & Chip), Skin Patching, Slurry Seal, Heat Scarification, and Microsurfacing Operations.** Before terminating work each day, replace all lane lines and centerlines covered or destroyed during the day's operations with applicable standard pavement marking pattern, shown in Publication 212, Publication 213, and MUTCD.
- **Seal Coat/Surface Treatment (Oil & Chip) and Skin Patching Operations.** If lane lines or centerlines are covered or destroyed during the day's operations, install "No Pavement Markings" signs (W21-16) throughout the affected area, at the beginning and at intervals not exceeding 800 m (1/2 mile), before terminating work each day. In not less than 7 days or more than 14 days after completion of the operation, remove signs and replace all lane lines and centerlines covered or destroyed during the operation with the applicable standard pavement marking pattern shown in Publication 212, Publication 213, and the MUTCD.
- **Slurry Seal, Heat Scarification, and Microsurfacing Operations.** If lane lines or centerlines are covered or destroyed during the day's operations, install "No Pavement Markings" signs (W21-16) throughout the affected area, at the beginning and at intervals not exceeding 800 m (1/2 mile), before terminating work each day. In not less than 3 days or more than 7 days after completion of the operation, remove signs and replace all lane lines and centerlines covered or destroyed during the operation with applicable standard pavement marking pattern shown in Publication 212, Publication 213, and the MUTCD.

For seal coat/surface treatment, skin patching, slurry seal, heat scarification, and microsurfacing operations,, the Representative may waive the curing period specified in the above bulleted item for the bituminous paving material due to traffic conditions or special circumstances. In these cases, install the applicable standard pavement marking pattern before terminating work each day and eliminate the requirement for installation of "No Pavement Markings" signs.

Apply work area pavement markings as specified in [Section 962](#). Pavement markings to consist of 100 mm (4-inch) wide lines; except, lane lines for all multilane roadways are to be 150 mm (6 inches) wide. As an alternate to paint and glass beads, provide standard pavement markings consisting of temporary pavement marking tape or use nonplowable raised pavement markers, when directed, except for final markings. Use traffic line paint and glass beads for pavement markings meeting requirements in Publication 212, Publication 213, and the MUTCD, or temporary pavement marking tape from a manufacturer listed in [Bulletin 15](#).

Place standard pavement markings in the same location as covered or destroyed pavement markings, unless otherwise indicated in the TCP or directed.

Remove any pavement markings improperly placed and install in the correct location at no additional cost to the Department.

If the roadway is to be closed to traffic until completion of the project, and standard pavement markings will be in place when the roadway is opened to traffic, then work area pavement markings, as specified above, are not required.

(m) Lateral Lane Restrictions. Provide, at the preconstruction conference, a written notification of construction activities that will create a physical lateral restriction to roadway width due to temporary concrete barriers, barricades, drums, etc. Include a written schedule indicating the proposed times and widths of restrictions for the various phases of construction.

All restrictions are subject to Department approval.

Notify the Representative, in writing, at least 14 days before implementing or changing any lateral lane restriction, which provides less than 4.9 m (16 feet) of pavement and shoulder in each direction for oversize vehicles. Notify the Representative, in writing, at least 7 days before removing the restriction.

(n) Temporary Highway Lighting. Provide temporary highway lighting as indicated on the TCP. Comply with local government, electric utility, and state codes or requirements; the electrical regulations of the Department of Labor and Industry; and applicable construction requirements of the NEC, NESC, and NBFU. Cooperate with electric utility company or agency furnishing power to the system and meet necessary service requirements.

Do not locate lighting fixtures to produce distracting or blinding glare for the driver.

Perform the Highway Illumination Test (Conv.) and record test data on Department Test Form [CS-4225D](#). Correct any defects. Perform the test in the presence of an authorized representative of the Department.

Provide guide rail, crash cushions, or other devices, as indicated or directed, to protect vehicles from hitting poles or other temporary highway lighting appurtenances.

(p) Surveillance and Review of Traffic Control. Designate personnel to be responsible for and to be on-call continuously over traffic control operations. This designee shall always be available to respond to calls involving damage to temporary traffic control devices from causes such as vandalism, traffic accident, or weather. Provide to the Representative during the preconstruction conference the name and phone number of the designee providing the surveillance.

The Representative and the Contractor's designee shall conduct periodic reviews of the traffic control devices throughout the duration of the project to ensure continuous compliance with the approved TCP. Conduct reviews during the day and night, adverse weather conditions, and active and inactive construction operations, as directed .

(q) Temporary Concrete Barrier. Blunt ends of temporary concrete barrier or glare screen will not be allowed. Protect blunt ends by burying them in a cut slope or using an appropriate end treatment according to the pertinent parts of the following: Design Manual, Part Two, [Section 696](#), and the [Standard Drawings](#).

Provide, install, and maintain top-mounted and side-mounted delineators on temporary concrete barriers, glare screen and bridge barrier as indicated on the TCP.

Clean or replace all delineators once per month or as directed. Clean in an approved method.

(r) Removal of Conflicting Traffic Lines and Markings. Remove conflicting pavement markings during any phase of construction and relocate as indicated. Remove as specified in [Section 963.3](#). Do not remove traffic lines and markings without a paint truck present on the project site if repainting is required.

(s) Lifting of Construction Materials. Stop traffic during the placement or removal of any construction materials that are above open lanes of traffic, such as, but not limited to, lifting equipment, bridge components, signs, and overhead sign structure components as directed.

(t) Non-Compliance of Maintenance and Protection of Traffic. Work zone liquidated damages will be assessed in the event of non-compliance with Maintenance and Protection of Traffic requirements. These work zone liquidated damages will be assessed when the Contractor neglects or refuses to correct a situation or condition of non-compliance to the TCP, Publication 212, Publication 213, and the MUTCD, or other contract traffic control requirements after being notified by the Representative in writing.

The amount of work zone liquidated damages assessed per 24 hour period will be one of the following, whichever is greatest:

1. The amount bid for Maintenance and Protection of Traffic divided by the number of calendar days between the Notice to Proceed date and the date of completion as specified in the contract documents.
2. The amount bid for the specific line item that is in non-compliance divided by the number of calendar days of use for that particular item.
3. \$1,000.00

For long-term Maintenance and Protection of Traffic operations with duration of 24 hours or greater, the assessment will begin 24 hours after notification of necessary corrective action and continue daily for subsequent periods of time that such action has not been taken.

For short-term Maintenance and Protection of Traffic operations with duration less than 24 hours, 10% of the above-described amount will be assessed per hour as work zone liquidated damages. The assessment will begin 8 hours after notification of necessary corrective action and continue hourly for subsequent periods of time that such action has not been completed.

For long-term operations of 24 hours or greater, if no action is taken to correct a deficiency after 1 week following assessment of work zone liquidated damages, then the amount of daily work zone liquidated damages will be increased by \$1,000.00 each week until action is taken to correct the deficiency. For short-term operations of less than 24 hours, if no action is taken to correct a deficiency after 8 hours, then the amount of hourly work zone liquidated damages will be increased by \$100.00 each hour until action is taken to correct the deficiency.

Any extension of time will not be included in the number of calendar days. If the Contractor remains in violation of the Maintenance and Protection of Traffic requirements, the District Executive will direct Department forces to correct the deficiencies and charge the Contractor for labor, equipment, and material costs incurred by the Department or suspend work in accordance with [Section 105.01\(b\)](#) until the deficiencies are corrected.

(u) Temporary Nonplowable Raised Pavement Markers. Nonplowable markers are to be attachable to the roadway surface by use of a pressure sensitive adhesive as recommended by the manufacturer; they may be attached by epoxy when the marker does not have to be removed at a later date.

901.4 MEASUREMENT AND PAYMENT—

(a) Maintenance and Protection of Traffic During Construction. Lump Sum

The Department will measure and pay for this item in a proportionate manner based on current estimates.

With the exception of the separate pay items specified in [Section 901.4\(b\)](#), if an item or device is required for maintenance and protection of traffic, the cost of the item or device is incidental to Item 2901-0001 (Item 0901-0001).

(b) Separate Pay Items. The Department will separately measure and pay for the following items or devices, when indicated or required for maintenance and protection of traffic during construction:

- Arrow Panel—Each
- Tubular Markers—Each
- Changeable Message Sign—Each
- Temporary Traffic Signals—Each
- Floodlights—Each
- Temporary Concrete Barrier—[Section 627.4](#)
- Reset Temporary Concrete Barrier—[Section 628.4](#)
- Painting Traffic Lines and Markings—[Section 962](#)
- Pavement Marking Removal—[Section 963.4](#)
- Temporary Nonplowable Raised Pavement Markers—Each
- Temporary Bituminous Rumble Strips—Square Meter (Square Yard)
- Temporary Impact Attenuating Devices—[Section 696.4](#)
- Reset Temporary Impact Attenuating Devices—[Section 697.4](#)
- Standard Pavement Markings, Paint & Beads—Meter (Linear Foot)
- Standard Pavement Markings, Tape—Meter (Linear Foot)
- Additional Warning Lights—Day
For the type indicated.
Payment will be based on an accumulation of 24 hours when in place for one unit.

- Additional Traffic Control Signs—Square Meter (Square Foot)
Payment will be based on the minimum size sign for the necessary application as defined in Publication 212, Publication 213, and the MUTCD unless otherwise directed.
- Temporary Highway Lighting—Lump Sum or Each
As indicated.