Reminder: The standard notes in this file contain various colors of text. The light orange colored text indicates text that may or may not need to be modified. **The yellow highlighted text indicates informational text which needs to be deleted before plans are distributed for review.** Columns in tables that are not used should be deleted. If possible, do not split notes between sheets. If notes are split between sheets, provide the title on the next sheet and add “(CONTINUED)” to the end of the title. **After plan notes are ready for review, change all text (except web links) to a black colored font.**

# SECTION C ESTIMATE OF QUANTITIES

DOT Plan Preparers will create the following estimate of quantities utilizing the Contract Estimating System (CES).

|  |  |  |  |
| --- | --- | --- | --- |
| **BID ITEM****NUMBER** | **ITEM** | **QUANTITY** | **UNIT** |
| 634E0010 | Flagging |  | Hour |
| 634E0020 | Pilot Car |  | Hour |
| 634E0110 | Traffic Control Signs |  | SqFt |
| 634E0120 | Traffic Control, Miscellaneous |  | LS |
| 634E0135 | Traffic Control Supervisor |  | LS |
| 634E0275 | Type 3 Barricade |  | Each |
| 634E0420 | Type C Advance Warning Arrow Board |  | Each |
| 634E0630 | Temporary Pavement Marking |  | Mile |
| 634E0640 | Temporary Pavement Marking |  | Ft |
| 634E0700 | Traffic Control Movable Concrete Barrier |  | Each |
| 634E1215 | Remove and Reset Traffic Control Movable Concrete Barrier |  | Each |

# SEQUENCE OF OPERATIONS

If a sequence of operations is not given in the plans, use the first paragraph below.

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the sequence of operations will only be allowed when the proposed changes meet with the Department’s intent for traffic control and sequencing of the work.

If a sequence of operations is shown in the plans, use the second paragraph below.

Contractor requests to deviate from the sequence of operations will be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department’s intent for traffic control and sequencing of the work. An alternate sequence will be submitted for review a minimum of one week prior to potential implementation.

# COORDINATION BETWEEN CONTRACTORS

The Section C plan preparer is responsible for determining if the project, including all temporary traffic control, will affect the work on any other State projects. If the project will affect another State project, include the following note with the appropriate information. If multiple projects are affected, repeat the first paragraph below for each project.

A separate contract for Project project number – PCN pcn# will be (or has been) awarded to another Contractor (provide their information if known) for work description on highway number adjacent to this project (PCN pcn# for this set of plans). The work description for PCN pcn# will begin at MRM XXX.XX +X.XXX and end at MRM XXX.XX +X.XXX.

Use the following paragraph for each identified project if the Contractor for this set of plans will be responsible for making sure they don’t interfere with the other Contractor and include any pertinent details:

The Contractor will schedule work so as not to interfere with or hinder the progress of the work performed by the other Contractor on PCN pcn#. Conflicting traffic control devices may need to be temporarily adjusted or removed as directed by the Engineer and at no additional cost to the contract.

# GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

All temporary speed limit signs will have a minimum mounting height of 5 feet in rural locations, even when mounted on portable supports.

Portable sign supports will not be located on sidewalks, bicycle facilities, or other areas designated for pedestrian or bicycle traffic.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the traveled way.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor’s equipment will be repaired at no expense to the Department.

The following paragraph should be included on asphalt surface treatment, paving, and other projects as needed.

The Contractor will furnish, install, maintain, and remove TRUCK CROSSING (W8-6) signs daily. The TRUCK CROSSING signs will be displayed always when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined during construction. Payment for additional signs will be based on the contract unit price per square foot for “Traffic Control Signs”.

GROOVED PAVEMENT (W8-15) signs with MOTORCYCLE (W8-15P) plaques are required in advance of areas that have been cold milled and are not resurfaced the same day. The GROOVED PAVEMENT sign assemblies will be installed a minimum of 1000 feet in advance of cold milled sections and remain in place until the sections have been resurfaced.

The Contractor will notify businesses/homeowners a minimum of two weeks prior to construction to inform them of upcoming construction and again a minimum of 48 hours prior to any blocked access to make appropriate arrangements.

A mobile work operation will be allowed provided the rumble strip or rumble stripe grooving, flush sealing, and pavement marking can be completed satisfactorily by a continuously moving work operation. A mobile work operation will require approval by the Engineer.

If inappropriate or conflicting pavement markings exist, the markings will be removed and replaced with applicable temporary pavement markings when the work duration is more than 3 days. When the work duration is less than 3 days, the channelizing devices in the area where the pavement markings conflict will be placed at one-half of the normal channelizing device spacing. Pavement marking removals will be incidental to the contract unit price per foot for “Remove Pavement Marking, 4” or equivalent”. Temporary pavement marking will be paid for at the contract unit price per mile/foot for “Temporary Pavement Marking”. The additional channelizing devices will be incidental to the contract lump sum price for “Traffic Control, Miscellaneous”.

Use the following for Interstate or multilane highway lane closure projects:

A Type 3 Barricade will be installed at the end of a lane closure taper as detailed in these plans. Additional Type 3 Barricades will be installed facing traffic within the closed lane at a spacing of ¼ mile.

Lane closures will be limited to 5 miles in length. The distance between the closest points of any two-lane closures will be at least 3 miles, excluding tapers. This paragraph should be used for all four-lane divided highways with posted speed limits 45 MPH and higher that do not include the LANE CLOSURES standard note. For Interstates, do not use this paragraph; instead, use the LANE CLOSURES standard note found below.

Construction vehicles will exit or enter the construction work zone at locations identified by the Engineer. At no time will construction vehicles utilize the maintenance crossovers or the Interstate median to exit or enter Interstate traffic.

On Interstate projects with more than one construction site, slow moving equipment that operates at a speed less than 40 MPH may mobilize between sites if the equipment travels on the shoulder. The slow-moving equipment will also display a flashing amber light and a slow-moving sign. If the shoulder strength is inadequate or the distance between sites excessive, you may find it desirable to specify that slow-moving equipment may not operate on open lanes of interstate or the shoulder.

# TRAFFIC CONTROL, MISCELLANEOUS

This note is only for use on fence and similar off-road type projects where a sign tab and Traffic Control Signs bid item are not used.

All costs for traffic control, including signs, will be incidental to the contract lump sum price for “Traffic Control, Miscellaneous”.

# LANE CLOSURES

This note is to be used on all interstate projects with lane closures. This note may be used for lane closures on expressways, at the discretion of the Area Engineer.

**All projects with interstate lane closures (one lane closed on a set of directional lanes) must include a lane rental, working day, or other contract time provision. Work with the DOT Specifications Engineer to determine the appropriate provision for each project.**

This note does not apply to two-way traffic operations. Two-way traffic operations greater than 12 miles in length must be approved by the Region Engineer.

Interstate lane closures shorter than 5 miles will be used if 5 miles is greater than the length of work that can be accomplished in one day’s production. More than one lane closure may be permitted; however, there will be a minimum of a three-mile section between lane closures, excluding the tapers.

Use the following paragraph for projects where work is occurring only at the structures. What is shown is an example of the requirements that can be used. Area staff will need to determine the appropriate limitations on lane closures for structure work. Limitations may also be established through the contract time provision used for the project. The length of lane closures for structure work on interstate should be limited to one structure or 1 mile. Structures should be done separately unless they are within 2 miles of another structure.

Interstate lane closures will be removed when work will not be occurring for a period of 3 or more calendar days. Activities that do not involve workers being present, such as curing time for concrete, constitute work. Lane closures will not be set up on a Friday if no work will be occurring on Saturday or Sunday. In these cases, the lane closure will be installed on Monday.

# TRAFFIC CONTROL SIGNS

Use this note for projects with multiple routes with the same work type such as chip sealing, or for projects with multiple sites like bridge deck epoxy chip seals. This note should not be used for urban reconstruction or similar projects where there may be multiple routes in one area with work on them (Example: two intersecting state highways in a community), but would not require mobilization to a separate location within the DOT Area.

Traffic control signs have been included in a table for each route OR site. Payment will only be for those signs used on each route OR site.

# BUMP MARKERS

This note should only be used for projects where long term bumps will be in place that would benefit from having the ground mounted markers installed and not just BUMP signs on portable supports.

Type 1 Object Markers need to be back-to-back for two-way traffic operations.

Orange bump markers will be placed adjacent to the bump location. The bump marker details are shown in the following drawing. The steel delineator post will be a 1.12 lb/ft flanged channel steel post for ground mounted installation. If the duration is less than 3 days, the Type 1 Object Marker can be installed on temporary supports.

BUMP (W8-1) signs with appropriate ADVISORY SPEED (W13-1P) plaques will be placed 500 feet in advance of the bump or as approved by the Engineer for adequate sight distance.

All costs for bump markers, bump signs, and advisory speed plaques will be incidental to the contract unit price per square foot for “Traffic Control Signs”.

****

# OVERWIDTH RESTRICTION AND DETOUR SIGNING

Important Reminder: All vehicle restrictions (width, height, length, weight) need to be entered on IRIS and submitted to Tom Newell in the Operations Support Office, who then sends these on to Motor Carriers so the appropriate permitting authorities have them.

This note should read in one of four ways, depending on what is planned for the project: 1) OVERWIDTH AND DETOUR SIGNING, 2) OVERWIDTH DETOUR SIGNING, 3) OVERWIDTH RESTRICTION SIGNING, or 4) DETOUR SIGNING.

The Contractor will furnish and install the overwidth restriction and detour signs as shown in these plans. Prior to installing the signs, the Contractor will mark the sign locations and review them with the Engineer. Overwidth restriction and detour signs will be installed on fixed location, ground mounted, breakaway supports. It will be the responsibility of the Contractor to maintain and reinstall these signs during the project as required by the construction progress. Upon completion of the project, the Contractor will remove the overwidth restriction and detour signs.

All costs for furnishing the signs, posts, and mounting hardware, and for installing, maintaining, covering, and removing the overwidth restriction and detour signs will be incidental to the contract unit price per square foot for “Detour and Restriction Signing”.

# FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours. Also included in the Estimate of Quantities are WAIT FOLLOW PILOT CAR signs for use on low volume intersecting roads as determined by the Engineer. WAIT FOLLOW PILOT CAR signs will not block the view of the stop sign.



It is required that the flaggers and pilot car operators be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for “Flagging”.

# WORK ZONE SPEED REDUCTION

Use on plans that include temporary SPEED LIMIT (R2-1) signs for a work zone speed reduction. This is typically done when standard plate 634.63 is used, but could also be used for urban reconstruction projects with a speed reduction shown on temporary traffic control layout sheets.

The Department is required to obtain a speed reduction resolution prior to the installation of any SPEED LIMIT (R2-1) signs shown on standard plate 634.63 or as shown in the plans. To provide adequate time for the resolution to be enacted, the Contractor will inform the Engineer a minimum of 3 weeks prior to the scheduled installation of any work zone speed reduction signs on the project. The information provided by the Contractor will include the anticipated date of sign installation, the newly reduced speed limit, the location of the work zone, and the anticipated completion date of work requiring the speed reduction.

# TEMPORARY PAVEMENT MARKING

Use the following two paragraphs on project routes without centerline rumble stripes and with an ADT < 2500:

The total length of no passing zone on this project is estimated to be #.# miles.

It is estimated that ## DO NOT PASS (R4-1) and ## PASS WITH CARE (R4-2) signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

The following is an option that can be used on mill and overlay projects with an ADT over 2500.

Temporary Pavement Marking Paint will be used on milled and leveling surfaces for centerlines, lane lines, skips, and as directed by the Engineer. The Temporary Pavement Marking Paint will be placed at the location of the existing pavement markings except that centerline will be double yellow the entire project length and will be offset 6-inches from centerline of the roadway. It will be the Contractor’s responsibility to determine which direction to offset so that the markings do not get covered up when the first half of the roadway is paved. Any markings that get covered by the paving operation will be reestablished as directed by the Engineer at the Contractor’s expense. The Contractor will be responsible for marking out those exact locations.

Temporary Flexible Vertical Markers (Tabs) will be used on the top lift of asphalt surfacing for centerline delineation, lane lines, skips, and as directed by the Engineer. Tabs will be offset 6-inches from the location shown for permanent pavement markings. Centerline will be double yellow lines with tabs spaced at 5’ the entire project length.

Use the following 3 paragraphs on all project routes with centerline rumble stripes regardless of ADT:

Temporary flexible vertical markers (tabs) will be installed on one side of the centerline rumble for the temporary pavement marking. No passing zones will be marked in accordance with Specifications. DO NOT PASS (R4-1) and PASS WITH CARE (R4-2) signs will also be used in addition to the temporary flexible vertical markers (tabs) placed per Specifications to mark no passing zones.

The total length of no passing zone on this project is estimated to be #.# miles.

It is estimated that ## DO NOT PASS and ## PASS WITH CARE signs will be required.

Use one of the following paragraphs to specify the use of tabs on the project:

Temporary flexible vertical markers (tabs) will be required on the top lift of asphalt concrete surfacing.

or

Temporary flexible vertical markers (tabs) will be used to mark dashed centerline, No Passing Zones, and applicable lane lines. Paint will not be allowed for temporary pavement marking on the asphalt concrete wear course or after application of the flush seal.

or

Temporary flexible vertical markers (tabs) may be used as detailed in the specifications.

The following are general notes for tabs:

Temporary pavement marking paint will not be allowed on the final lift of asphalt surfacing. Temporary pavement marking paint will not be allowed on the chip seal, fog seal, or flush seal. Temporary flexible vertical markers (tabs) must be used on the final lift of asphalt surfacing. The Contractor may use tabs with covers, uncovering them for the chip seal, fog seal, or flush seal. As an alternative, the Contractor may install new tabs for the fog seal or flush seal.

Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed of. The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs after each installation as detailed below at no additional cost to the State.

The following paragraphs specify the number of passes of temporary pavement markings that will be measured and paid per mile. If temporary pavement markings are measured per foot, show a table or other method for determining the quantity of each type of temporary marking estimated in the plans.

If centerline rumble stripes are installed, another pass of temporary pavement markings should be added to the plans, to account for placement of tabs required after the centerline grinding operation removes the existing temporary pavement markings.

[For asphalt concrete resurfacing projects] Quantities of Temporary Pavement Markings consist of:

One pass on top of the milled surface

One pass on the first list of asphalt concrete [delete if only one lift of asphalt concrete]

One pass on top of thefinal lift of asphalt concrete

One pass prior to the flush seal, length as determined by the Engineer

One pass after the flush seal

[For asphalt surface treatment projects] Quantities of Temporary Pavement Markings consist of:

One pass prior to the chip seal

One pass after the chip seal

One pass after the fog seal

The following paragraphs are required for asphalt concrete resurfacing projects:

If the Engineer determines that an additional pass prior to the flush seal is not required, this application of the temporary pavement marking will be eliminated. If the flush seal is eliminated for the project, the application of the temporary pavement marking on top of the flush seal as well as the additional pass prior to the flush seal will be eliminated.

No adjustment in the contract unit price for “Temporary Pavement Marking” will be made because of a variation in quantities.

The following are general notes for temporary pavement markings:

In the absence of a signed lane closure or pilot car operation, FLAGGER (W20-7) symbol signs and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of the temporary flexible vertical markers (tabs). The traffic control device used will be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1) sign, a WORKER (W21-1) symbol sign or a BE PREPARED TO STOP (W3-4) sign will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work must be approved by the Engineer.

Prior to nightfall, tabs will be required to mark centerline on segments of roadway where existing centerline markings have been removed and new markings have not been installed.

# TEMPORARY PAVEMENT MARKING TAPE, TYPE I

Use the following paragraph for temporary pavement markings per standard plate 634.25:

Temporary pavement marking for stop lines will consist of 4” Temporary Pavement Marking Tape Type I. Placement of each 24” white stop line will be accomplished by placing six pieces of 4” x 12’ tape adjacent to one another. Each workspace requires two stop lines which is an equivalent of approximately 144’ of 4” tape (\_\_ workspaces at 144’ = \_,\_\_\_’). Temporary Pavement Marking Tape Type I will be required for centerline markings shown on standard plate 634.25. OR Temporary pavement marking on centerline will consist of temporary flexible vertical markers (tabs) or temporary raised pavement markers and will be used as depicted on standard plate 634.25 when the stop condition must remain in place during nighttime hours, 9:00 pm to 6:00 am (Estimate \_\_ workspaces remaining during nighttime hours x 2,200’ per workspace = \_\_,\_00’). Temporary tape will be removed upon completion of the project.

# TEMPORARY RAISED PAVEMENT MARKERS

Temporary raised pavement markers will be used for marking edge lines, lane lines, and centerlines. Temporary raised pavement markers will be used on all new permanent surfacing sections of roadway and on existing surfacing where temporary marking locations are different than existing marking locations, unless noted or as directed by the Engineer.

Temporary raised pavement markers will be attached to the roadway surface with a flexible non-permanent bituminous adhesive capable of being removed from the roadway surface or with an adhesive approved by the Engineer.

All costs to furnish, install, replace if necessary, and remove the markers will be incidental to the contract unit price per foot or mile for “Temporary Raised Pavement Markers”.

# PERMANENT PAVEMENT MARKING

Use this note for non-section type plans.

The Contractor will be required to repaint all existing pavement markings including centerline, edge line, lane lines, word messages (X), turn arrows (X), stop bars (X), railroad crossings (X), and pedestrian crossings (X). This list is approximate. The Contractor will be required to document and be able to relocate for replacement of the existing word messages, turn arrows, stop bars, railroad crossings, pedestrian crossings, etc. before the markings are obliterated. Additional quantities are included in the estimate of quantities to paint the additional pavement marking. The cost to duplicate the existing marking locations will be incidental to the contract unit prices for the various contract items.

# TRAFFIC CONTROL FOR ASPHALT SURFACE TREATMENT

The Contractor will furnish, install, and maintain LOOSE GRAVEL (W8-7) signs with 40 MPH (W13-1P) advisory speed plaques upon start of surface treatment operations at each end of the segment and on either side of intersecting asphalt roads and major intersections as determined by the Engineer. In addition, LOOSE GRAVEL signs with 40 MPH advisory speed plaques will be installed at no more than 4 mile intervals throughout each segment. The 40 MPH advisory speed plaque should not be installed with LOOSE GRAVEL signs in areas where the posted speed limit is less than 40 MPH. LOOSE GRAVEL signs and 40 MPH advisory speed plaques will be covered or removed from view when they are not applicable.

ROAD WORK NEXT XX MILES (G20-1), LOOSE GRAVEL (W8-7), and END ROAD WORK (G20-2) signs are the only signs that need to be mounted on fixed location breakaway sign supports, as shown on the plan layout. ROAD WORK AHEAD (W20-1), FLAGGER (W20-7), ONE LANE ROAD AHEAD (W20-4), and TRUCK CROSSING (W8-6) signs may be mounted on portable supports. Signs mounted on portable supports will be moved as necessary to keep current with the work activities.

Until the end of each day’s chip seal operations, at the discretion of the Contractor, additional flaggers and FLAGGER (W20-7) symbol signs will be provided to alert the traveling public entering completed portions of the project to the potential of airborne chips.

The flaggers will provide each motorist with a printed notice on the Contractor’s letterhead similar to the one shown below. Cost of the notice will be incidental to other contract items.

“CONTRACTOR’S LETTERHEAD”

THIS HIGHWAY IS BEING RESURFACED WITH A ROCK CHIP SEAL COAT.

THIS TYPE OF CONSTRUCTION HAS THE POTENTIAL OF CAUSING VEHICLE DAMAGE SUCH AS CHIPPED WINDSHIELDS AND BROKEN HEADLIGHTS DUE TO ROCKS BEING THROWN BY HIGH SPEED ONCOMING OR PASSING TRAFFIC.

YOU MAY WISH TO CONSIDER TAKING AN ALTERNATE ROUTE. IF YOU PROCEED, KEEP TO THE RIGHT AND DRIVE 40 MPH OR LESS. ANOTHER FLAGGER AND A PILOT CAR WILL BE ESCORTING YOU AROUND THE OIL SEAL COAT APPLICATION AREA.

THANK YOU.

# TRAFFIC CONTROL FOR ASPHALT CONCRETE RESURFACING

The Contractor will need to install LOOSE GRAVEL (W8-7) signs with advisory speed plaques (W13-1P) in areas where loose sand is present during the flush seal operation. LOOSE GRAVEL signs have been included in these plans for this.

# TRAFFIC CONTROL FOR PCCP REPAIR

Each mainline concrete repair location, from which the in-place concrete has been removed, will be marked with a minimum of two reflectorized drums. In areas containing numerous concrete repair locations, two reflectorized drums should be installed at a spacing of 660 feet alternating with the Type 3 Barricades.

The above is for high ADT. Where the workspace length will be limited and the Type 3 Barricades will be a hindrance to the traffic line of sight, delete the last sentence in orange colored text above.

Construction workspaces on divided roadways will be limited to 5 miles in length. Construction workspaces on undivided roadways will be limited to 300 feet (use for normal ADT) 1000 feet (use for high ADT, in conjunction with the full time Flagger notes that follow) in length. The distance between the closest points of any two construction workspaces, including channeling devices, will not be less than 3 miles. Drivers in two-way traffic workspaces must be able to see approaching traffic through and beyond the work zone. Flagger controlled workspaces will be limited to 2 miles in length.

Construction workspaces in urban areas will be limited to 3 blocks in length. The minimum distance between workspaces will be 3 blocks.

When work is in progress within an intersection, Flaggers will be required to direct traffic.

Use the following paragraph for projects with high ADT:

The Contractor will use Flaggers during peak traffic hours and at times specified by the Engineer to supplement the stop condition and signing shown on standard plate 634.25. Peak traffic hours are assumed to be 6:30 am to 8:30 am, 11:30 am to 1:00 pm and 4:30 pm to 6:00 pm. It is possible that Flagging will be required during all daytime hours. Advance warning Flagger signs will be required when Flaggers are present and removed when no Flaggers are present.

Holes adjacent to centerline in the lane open to traffic created during removal and replacement of PCC pavement repair areas will be filled with gravel cushion material and cold-mix asphalt concrete prior to opening the lane to traffic. Gravel cushion material and cold-mix asphalt concrete can be obtained from the Department of Transportation Maintenance shops located in Yankton or will be furnished by the Contractor.

Holes in the gravel and asphalt concrete shoulders created during removal and replacement of PCC pavement repair areas will be filled with gravel cushion material and hot-mix asphalt concrete (to match the shoulder surfacing) prior to opening the lane to traffic. Gravel cushion material can be obtained from the Department of Transportation Maintenance shops located in Yankton. Hot-mix asphalt concrete will be furnished by the Contractor or Gravel cushion material and hot-mix asphalt concrete will be furnished and installed by the Contractor at no additional cost to the State.

All costs for furnishing, hauling, and placing gravel cushion material and asphalt concrete will be incidental to the contract unit price per square yard for “Nonreinforced PCC Pavement Repair”, “Fast Track Concrete for PCC Pavement Repair” and/or “Continuously Reinforced PCC Pavement Repair”.

Routing traffic onto the mainline shoulders during any phase of the construction will not be allowed.

Damage to the shoulders, median, or ditch due to the Contractor's operations will be repaired by the Contractor to the satisfaction of the Engineer at no expense to the State. This includes the apparent routing of traffic onto the shoulders around the work zones.

Extra care will be taken to protect the in place asphalt concrete shoulders on \_\_ \_\_\_\_(\_\_)\_\_\_ between Yankton and Vermillion. In all workspaces in these areas, flexible delineators will be required on the shoulders and will also be placed in locations to adequately keep traffic completely off the shoulders. Continuous maintenance will be required to keep them in place.

Type B warning lights will be placed on top of FLAGGER (W20-7) symbol signs.

The following paragraphs are additional notes for urban PCCP repair:

Joints in approaches to signalized intersections containing vehicle detector loops will not be sawed, sealed, or otherwise disturbed.

The Contractor will be required to contact the Engineer two weeks in advance so that the Region Traffic Engineer can arrange for signal timings to be adjusted to accommodate traffic when a lane is closed near a signalized intersection.

Reflectorized drums or Type 2 Barricades will be used to maintain a minimum of two-way traffic at intersecting roads or streets. The Contractor will mark and maintain alternating one-way access to businesses and residences along the project with cones, drums, or Type 1 Barricades. The Contractor will advise affected businesses before a restriction to the business is installed, as well as the anticipated duration of the restriction.

The Contractor will maintain pedestrian access at crosswalk locations. Additional traffic control devices will be used as necessary to accommodate the pedestrian traffic if work activities block an existing crosswalk.

# SHORT TERM TEMPORARY TRAFFIC CONTROL SIGNAL

The Contractor will install a short term temporary traffic control signal at the following intersection:

Highway Number and Street Name

Flashing yellow arrow vehicle signal heads will be used for all protected/permitted left turn phases.

Five section vehicle signal heads will be used for all protected/permitted left turn phases.

Check with Region Traffic Engineer to determine the appropriate left turn phase operation and choose the applicable sentence above.

Temporary luminaires will be provided on each signal support pole. Luminaires will be 250-Watt HPS, Type 3 distribution or approved LED equivalent, and will be controlled automatically by timer or photoelectric cell. Check with Region Traffic Engineer to see if lighting is needed.

Pedestrian signal heads and pedestrian push buttons will be provided on all approaches. Check with Region Traffic Engineer to see if pedestrian facilities are needed.

Vehicle detection will be provided on all approaches. Check with Region Traffic Engineer to see if detection is needed and for which approaches.

All vehicle signal heads will have backplates with retroreflective border. The vehicle signal head backplates will have a factory applied 3-inch wide yellow retroreflective border. Sheeting for the border will be Type IX or Type XI in conformance with ASTM D4956.

Signal backplates will be polycarbonate, aluminum, or aluminum-composite. Minimum material thicknesses are:

Polycarbonate, 0.10-inch

Aluminum, 0.06-inch

Aluminum-Composite, 0.08-inch

Signal backplates will extend not less than 5 inches from the edge of the signal head at the top, bottom, and sides. The bottom of the backplate on vehicle signal faces, mounted directly above pedestrian signal indications, will be sized to permit the separate adjustment of the vehicle and pedestrian signal indication and may be less than 4 inches.

All traffic signal equipment and materials will meet the requirements of Sections 635 and 985 of the Specifications.

Initial signal timings for the short term temporary traffic control signal will be as provided in the plans.

All costs involved with constructing the short term temporary traffic control signal as specified above and in the plans, will be included in the contract unit price per site for “Short Term Temporary Traffic Control Signal”.

# PORTABLE TEMPORARY TRAFFIC CONTROL SIGNAL

This note should be used when portable temporary traffic control signals are being used at intersections.

The Contractor will install portable temporary traffic control signals at the following intersection:

Highway Number and Street Name

Flashing yellow arrow vehicle signal heads will be used for all protected/permitted left turn phases.

Five section vehicle signal heads will be used for all protected/permitted left turn phases.

Check with Region Traffic Engineer to determine the appropriate left turn phase operation and choose the applicable sentence above.

Pedestrian signal heads and pedestrian push buttons will be provided on all approaches. Check with Region Traffic Engineer to see if pedestrian facilities are needed.

Vehicle detection will be provided on all approaches. Check with Region Traffic Engineer to see if detection is needed and for which approaches.

All vehicle signal heads will have backplates with retroreflective border. The vehicle signal head backplates will have a factory applied 3-inch wide yellow retroreflective border. Sheeting for the border will be Type IX or Type XI in conformance with ASTM D4956.

Signal backplates will be polycarbonate, aluminum, or aluminum-composite. Minimum material thicknesses are:

Polycarbonate, 0.10-inch

Aluminum, 0.06-inch

Aluminum-Composite, 0.08-inch

All traffic signal equipment and materials will meet the requirements of Sections 635 and 985 of the Specifications except the controller requirements.

Signal backplates will extend not less than 5 inches from the edge of the signal head at the top, bottom, and sides. The bottom of the backplate on vehicle signal faces, mounted directly above pedestrian signal indications, will be sized to permit the separate adjustment of the vehicle and pedestrian signal indication and may be less than 4 inches.

Initial signal timings for the portable temporary traffic control signal will be as provided in the plans.

All costs involved with constructing the portable temporary traffic control signal as specified above and on the plans, will be included in the contract unit price per unit for “Portable Temporary Traffic Control Signal”.

# PORTABLE TEMPORARY TRAFFIC CONTROL SIGNAL

This note should be used when portable temporary traffic control signals are being used for one-lane, two-way operations.

The Contractor will furnish, install, operate, and maintain a portable temporary traffic control signal during construction phases as determined by the Engineer. There will be one controller and one slave unit per location.

The portable temporary traffic control signal will be set up to dwell in red. Detection will be video, microwave, or radar. The green time may be adjusted as needed. The initial timings for the construction sites are given below:

Check with Region Traffic Engineer to determine if dwelling in green in one direction is appropriate.

Location

Red = 30 sec. Yellow = 7 sec.

Min. Green = Max. Green = Extension =

The timings above are based on 700 feet between opposing stop lines.

Check with Region Traffic Engineer to determine the appropriate temporary signal timings.

Projects in the Rapid City Region should use the following paragraph in place of the second paragraph above and all text with orange font that follows. The Rapid City Region Traffic Engineer will provide timings prior to activation of the signals.

The portable temporary traffic control signal will be set up to dwell in red. Detection will be video, microwave, or radar. The green time may be adjusted as needed. The Engineer will contact the Region Traffic Engineer one week prior to activation to obtain the appropriate signal timings.

All vehicle signal heads will have backplates with retroreflective border. The vehicle signal head backplates will have a factory applied 3-inch wide yellow retroreflective border. Sheeting for the border will be Type IX or Type XI in conformance with ASTM D4956.

Signal backplates will be polycarbonate, aluminum, or aluminum-composite. Minimum material thicknesses are:

Polycarbonate, 0.10-inch

Aluminum, 0.06-inch

Aluminum-Composite, 0.08-inch

Signal backplates will extend not less than 5 inches from the edge of the signal head at the top, bottom, and sides.

All traffic signal equipment and materials will meet the requirements of Sections 635 and 985 of the Specifications except the controller requirements.

All costs involved with constructing the portable temporary traffic control signal as specified above and on the plans, will be included in the contract unit price per unit for “Portable Temporary Traffic Control Signal”.

# CONTRACTOR FURNISHED SPEED MONITORING RADAR TRAILER

The Contractor will provide 2 radar speed feedback trailers to monitor traffic speeds on designated routes at locations specified in the field by the Engineer.

The radar speed feedback sign assembly will include a speed limit sign mounted in conjunction with the radar speed feedback display. The speed display will not flash vehicle speeds exceeding the speed limit or any other messages.

All costs associated with furnishing, maintaining, transporting, relocating if necessary, and removing the radar speed feedback trailers from locations specified by the Engineer will be incidental to the contract unit price per each for “Contractor Furnished Speed Monitoring Radar Trailer”.

# CONTRACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGN

DMS should not be used to display the same messages day in and day out. Should long-term use be anticipated, static signs should be considered. Any questions regarding long term use should be referred to the Region Traffic Engineer.

One week prior to starting work affecting the traveling public, portable changeable message signs (PCMS) will be installed at locations detailed in the plans to notify drivers of the upcoming construction. The Contractor will program the portable changeable message signs with the following message:

ROAD WORK

STARTS (Date)

When work begins that will affect traffic patterns, the Contractor will re-program the PCMS with the messages as detailed in the plans.

# INCIDENTS

An incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic such as a crash, hazardous materials spill, or other event.

The Contractor will set up a meeting prior to start of work to plan and coordinate responses to an incident. The Contractor will invite the Department of Transportation, the South Dakota Highway Patrol, the Minnehaha County Sheriff and local emergency response entities to the meeting.

The Contractor will assist to maintain traffic as required by these plan notes and as agreed to at that meeting.

Emergency vehicle access through the project will be considered and discussed at the meeting.

The Contractor may be required to modify messages on portable changeable message signs or relocate portable changeable message signs, and to provide flaggers to direct or detour traffic. The Contractor should be prepared to relocate advance warning signs if determined to be necessary for a major traffic incident lasting more than two hours. Fixed location ground mounted signs may be covered and additional portable signs provided.

No additional payment will be made for the modification of portable changeable message sign messages or the relocation of portable changeable message signs. Cost for the relocation of an advance warning sign due to an incident will be 50% of the designated sign rate. Flaggers will be paid for at the contract unit price per hour for “Flagging”.

# PRESS RELEASE ANNOUNCEMENTS

The SDDOT will prepare a press release to be released 5 days prior to any phase change or any other major change that affects traffic flow. The SDDOT will be responsible to keep law enforcement, emergency services, and the traveling public notified of changes in project access. The Contractor will provide the Engineer with pertinent information 7 days prior to any phase change or any other major change that affects traffic flow.

# TUBULAR MARKERS

Tubular markers are typically incidental to the contract lump sum price for “Traffic Control, Miscellaneous”. There are a few instances on Interstate or for urban reconstruction projects where we may want to use the bid item for Tubular Markers.

The color of the tubular markers on centerline will be predominately orange. The color of the tubular markers installed on the shoulders will be predominately white. The white tubular markers will be installed 2.0 feet from the existing edge line at intervals of approximately 480 feet.

All tubular markers will be a minimum of 28 inches in height. The base of the tubular marker should be attached to the roadway surface with a flexible non-permanent bituminous adhesive capable of being removed from the roadway surface after use. The pin used to connect the marker to the base will be of a type that will not puncture a vehicle tire if it should become dislodged from the base.

All costs for furnishing, installing, maintaining, and removing the tubular markers will be incidental to the contract unit price per each for “Tubular Marker”.

# LIGHTING FOR NIGHTTIME WORK

Flagger stations, working construction equipment and active workspaces will be lighted between sunset and sunrise. Non-glare light sources will be provided.

Light levels are as defined in Section 2.9.2 of NCHRP 476.

Light in conformance with Level I will be provided at the active workspaces.

Light in conformance with Level II will be provided at the locations of working construction equipment.

Light in conformance with Level III is to be provided where labor intensive work is being completed such as during hand work, pavement sawing, project inspection, materials testing, and flagging.

Acceptable light sources will be Contractor furnished stand-alone lights or vehicle/equipment mounted lights. Stand-alone units will be marked with a minimum of two reflectorized drums on an approaching traffic side.

Cost for this lighting will be included in the contract lump sum price for “Traffic Control, Miscellaneous”.

# TRUCK/TRAILER MOUNTED ATTENUATOR

The Truck/Trailer Mounted Attenuator (TMA) bid item should only be included in the plans when a TMA is going to be specified or required in a stationary (lane closure) operation. The Truck/Trailer Mounted Attenuator bid item should **not** be used for TMAs in mobile operations. The standard plates for mobile operations already indicate that all signs, arrow boards, and equipment used in the mobile operation is incidental to the contract lump sum price for Traffic Control, Miscellaneous.

The Contractor will furnish truck or trailer mounted attenuator(s) to be used for the duration of the project. Truck or trailer mounted attenuators (TMAs) will meet the crashworthy requirements of NCHRP 350 or MASH Test Level 3. TMAs will be used and maintained in accordance with the manufacturers’ recommendations.

The TMAs should be utilized on the project where workers and/or equipment are working next to the centerline of the roadway with live traffic in the adjacent lane, or as directed by the Engineer. The TMAs will be removed from the roadway at the end of each working day. The TMAs will remain the property of the Contractor at the end of the project.

The TMAs will be paid for at the contract unit price per each for Truck/Trailer Mounted Attenuator. Payment will be full compensation for furnishing, maintaining, relocating and removing as many times as required by the Engineer and the Contractor’s operations.

In the event a TMA is hit while in service, the manufacturer will assess the TMA and make a recommendation as to whether it can be repaired or needs to be replaced. The Department will reimburse the Contractor for repairs as documented by invoices or pay for another TMA to be deployed to the project as needed.

# HIGHWAY WORKERS GIVE ‘EM A BRAKE SIGNS

This sign is only included on projects at the direction of the Region Engineer, Area Engineer, or Region Traffic Engineer.

One fixed location ground mounted HIGHWAY WORKERS GIVE ‘EM A BRAKE sign will be installed 2000 feet in advance of the ROAD WORK NEXT XX MILES signs for northbound and southbound directions of travel. The signs will be mounted to the right of the roadway, a minimum of 16 feet from the edge of the shoulder to the inside edge of the sign.

The Contractor will furnish a sign design detail for the HIGHWAY WORKERS GIVE ‘EM A BRAKE sign for Engineer review and approval.

# TEMPORARY PEDESTRIAN ACCESS ROUTE

A Temporary Pedestrian Access Route (TPAR) will be provided when crosswalks, sidewalks, or other pedestrian facilities are blocked, closed, or relocated. A TPAR may consist of a combination of existing and/or temporary pedestrian facilities. The TPAR will be kept free of any obstructions and hazards, such as holes, debris, mud, snow, construction equipment, traffic control signing, stored materials, etc.

The Contractor will notify the Engineer at least 72 hours prior to start of any construction operation that will necessitate a change in pedestrian access. Pedestrian traffic signal displays controlling a crosswalk that is closed will be covered or removed.

# TEMPORARY PEDESTRIAN SIDEWALK

Temporary pedestrian sidewalk will be a smooth, continuous, non-slip, hard surface. There should be no curbs or abrupt changes in grade or terrain that could cause tripping or be a barrier to wheelchair use.

Temporary pedestrian sidewalk will have a minimum width of 48 inches, with 60 inches recommended. The Contractor will try to provide boulevard sidewalk, whenever possible, for temporary pedestrian sidewalk that is 48 inches wide. Temporary pedestrian sidewalk less than 60 inches wide will provide for a 60-inch x 60-inch passing space at intervals not to exceed 200 feet. Temporary pedestrian sidewalk will have a maximum cross slope of 2%. The maximum grade will be 5% where the temporary pedestrian sidewalk does not follow the grade of the road.

Use the following bid item on smaller projects where quantities will not be broken out for the Temporary Pedestrian Access Route (TPAR). This can also be used on larger projects for smaller miscellaneous items. Add language to the notes specifying what will be paid for under the TPAR lump sum item.

All costs associated with installing and maintaining a temporary pedestrian access route, including temporary pedestrian sidewalk, will be incidental to the contract lump sum price for “Temporary Pedestrian Access Route”.

For typical projects, use the following bid item.

All costs associated with installing and maintaining temporary pedestrian sidewalk, including all materials, gravel, labor, and incidental work, will be included in the contract unit price per square foot for “Temporary Sidewalk”.

# TEMPORARY CURB RAMP

Temporary curb ramps should be firm, stable, and have a non-slip surface. They will not warp or buckle, and should be made of materials strong enough to support a weight of 800 pounds. Temporary curb ramps will be yellow or color contrasting and contain marked edges, so they are noticeable by pedestrians who have visual impairments. Lateral joints or gaps between surfaces will be a maximum of 0.5 inches in width. Temporary curb ramps will include detectable warning panels.

Temporary curb ramps will be the same width as the temporary pedestrian access route, with a recommended width of 60 inches and a minimum width of 48 inches. Temporary curb ramps will have a maximum slope of 8.3% and have free draining surfaces with a maximum cross slope of 2%. Handrails on temporary curb ramps are not required unless the curb ramp has a rise exceeding 6 inches and a length exceeding 72 inches.

All costs will be incidental to the contract unit price per each for “Temporary Curb Ramp”.

# LONGITUDINAL PEDESTRIAN BARRICADE

Longitudinal pedestrian barricades should not be used to provide positive protection for pedestrians.

To prevent any tripping hazard to pedestrians, ballast will be located behind or internal to the device.

When longitudinal pedestrian barricades are combined in a series, the maximum gap between devices that do not interlock will be one inch. Joints between devices that do interlock will be closed and flush to prevent canes or small wheels from being trapped and to facilitate safe hand trailing. When used as a sidewalk closure mechanism, longitudinal pedestrian barricade must run the entire width of the sidewalk. Longitudinal pedestrian barricade should provide a color contrasting pattern. Black should not be used to color any base on a device. The devices should comply with the general color and stripe pattern requirements of Section 6F.68 of the MUTCD.

Longitudinal pedestrian barricade will have continuous bottom and top surfaces. The top surface will be smooth to allow safe hand trailing. Both upper and lower surfaces will share a common vertical plane.

All costs will be incidental to the contract unit price per foot for “Longitudinal Pedestrian Barricade”.

# LONGITUDINAL PEDESTRIAN BARRIER

When used to separate pedestrians from vehicular traffic for TPARs in the roadway, longitudinal pedestrian barrier must meet or exceed the crashworthy requirements of NCHRP 350 or MASH Test Level 1 [for posted speeds less than 35 mph] 2 or 3 [for posted speeds of 35 mph or greater]. The bottom and top surfaces of the traffic side of devices will have retroreflective sheeting or delineation for improved nighttime visibility.

When longitudinal pedestrian barriers are combined in a series, the maximum gap between devices that do not interlock will be one inch. Joints between devices that do interlock should be closed and flush to prevent canes or small wheels from being trapped and to facilitate safe hand trailing. Channelizing devices should provide a color contrasting pattern. Black should not be used to color any base on a device. The devices should comply with the general color and stripe pattern requirements of Chapter 6F of the MUTCD.

Longitudinal pedestrian barriers will have continuous bottom and top surfaces. The top surface will be smooth to allow safe hand trailing.

All costs will be incidental to the contract unit price per foot for “Longitudinal Pedestrian Barrier”.

The following are details that should be included when the various pedestrian traffic control bid items are included in the plans.

# PEDESTRIAN CHANNELIZING DEVICE DETAILS



1. Barricade rail supports may not extend into the pedestrian walkway more than 4 inches from the face of the barricade.
2. The top edge of the bottom portion will be a minimum of 8 inches above the walkway.
3. Devices will not block water drainage from the walkway. A gap height or opening from the walkway surface up to a maximum of 2 inches in height is allowed for drainage purposes.
4. The top edge of the longitudinal pedestrian barricade is to be used as a guiderail to provide visual and tactile guidance to pedestrians along a designated route. The top surface should have a minimum width of 0.5 inches to allow the hand to feel the surface. The surface should be smooth and free of any sharp or abrasive elements to allow safe hand trailing.
5. Longitudinal pedestrian barrier used to provide positive protection from traffic to pedestrians should be crashworthy.

# TEMPORARY CURB RAMP DETAILS



1. Curb ramps will be 48-inch minimum width with a firm, stable, and non-slip surface.
2. Protective edging with a 2-inch minimum height will be installed when the curb ramp or landing platform has a vertical drop of 6 inches or greater or has a side apron slope steeper than 33:1 (33%). Protective edging should be considered when curb ramps or landing platforms have a vertical drop of 3 inches or more.
3. Detectable edging with 6 inches minimum height and contrasting color will be installed on all curb ramp landings where the walkway changes direction (turns).
4. Curb ramps and landings should have a 50:1 (2%) maximum cross slope.
5. A minimum clear space of 48 inch x 48 inch minimum will be provided above and below the curb ramp, with a 60 inch x 60 inch clear space preferred.
6. The curb ramp walkway edge will be marked with a contrasting color 2 to 4 inch wide marking. The marking is optional where color contrasting edging is used.
7. Water flow in the gutter system will have minimal restriction.
8. Lateral joints or gaps between surfaces will be less than 0.5 inches in width.
9. Changes between surface heights should not exceed 0.5 inches. Lateral edges between 0.25 inches and 0.5 inches in height, should be vertical up to 0.25 inches in height and beveled at 2:1 between 0.25 inches and 0.5 inches in height.

# TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS

If the barriers need to be moved and reset on a project for a different traffic control phase, the moving of the barrier will be paid for each time it is needed to be removed and reset by utilizing the bid item Remove and Reset Traffic Control Movable Concrete Barrier. Small shifts in the placement of the barrier (not requiring loading of the barriers for movement) would not constitute the use of this bid item. For example, barrier used to close one lane of a two-lane bridge would not be paid for when shifting the barrier and tapers to close the other lane. Taking the barrier to the next structure on the project would.

Verify that a movable concrete barrier layout is provided in the plans as noted in standard plates 634.24 and 634.65.

Concrete barriers will be provided by the State and are available for pickup from the SDDOT Sturgis Maintenance Yard located at 1100 Otter Rd in Sturgis. The barriers will be hauled back to the SDDOT Sturgis Maintenance Yard when they are no longer needed on the project.

Barriers to be adjusted or moved will be disconnected from adjacent barriers to minimize damage to connecting pins. Pins damaged by the Contractor will be replaced at no cost to the Department.

Concrete barrier sections will be placed as depicted in the plans to comply with clear zone requirements and as required by the Engineer. The barriers will be pinned and bolted together as directed by the Engineer.

All costs associated with picking the barriers up from the SDDOT Maintenance Yard, transporting, setting, connecting, and hauling them back to the SDDOT Maintenance Yard will be incidental to the contract unit price per each for Traffic Control Movable Concrete Barrier.

After the initial placement, the concrete barriers may need to be adjusted. Adjustment of the barriers, where they do not need to be loaded on a truck for transport, will be incidental to the contract unit price per each for Traffic Control Movable Concrete Barrier. All costs associated with removing, loading, unloading, and resetting of the barriers at a new site, will be incidental to the contract unit price per each for Remove and Reset Traffic Control Movable Concrete Barrier. No additional payment will be made for barriers that are not immediately reset at a new location on the project and stored on-site until they are either reset on the project or returned to the SDDOT as indicated in these plans.

# TEMPORARY CONCRETE BARRIER END PROTECTION

Where movable concrete barrier is switched from closing one lane to closing an adjacent lane, we do not pay to move the barrier itself, but we do pay to move the crash cushion under the bid item Remove and Reset Traffic Control Concrete Barrier End Protection.

Crash attenuators meeting the requirements of NCHRP 350 or MASH TL-3 will be furnished and installed by the Contractor. Attachment of the attenuators to the concrete barriers will be by approved methods.

All costs associated with furnishing, transporting, initial setup, connecting, maintaining, and removing the crash attenuators will be incidental to the contract unit price per each for Temporary Concrete Barrier End Protection.

All costs associated with moving and resetting crash attenuators to accommodate traffic flows after initial set-up will be paid for at the contract unit price per each for Remove & Reset Temporary Concrete Barrier End Protection. All costs associated with removing from initial placement and resetting at a new location will be incidental to the contract unit price per each. No additional payment will be made for crash attenuators that are not immediately reset at a new location on the project and stored on-site until they are either reset or removed from the project as determined by the Engineer. No additional payment will be made for minor adjustments.

The Contractor will have replacement hardware available so that in the event the crash attenuator is hit and made unusable, the crash attenuator can be made functional within 24 hours. The cost of replacement will be incidental to the contract unit price per each for Temporary Concrete Barrier Module Set or Repair Kit. No payment will be made for the Temporary Concrete Barrier Module Set or Repair Kit if no repairs are necessary. Upon completion of the project, crash attenuators will remain the property of the Contractor.

# BARRIER MOUNTED LINEAR DELINEATION SYSTEM PANELS

A linear delineation system (LDS) panel will be attached to each barrier section. The color will be the same as the nearest pavement marking, white along outside edgelines or yellow for the left side on one way traffic sections. The LDS will be 34 inches long and 6 inches in height and be constructed of aluminum formed into a shape to provide retroreflective properties across a wide range of angles. It will be sheeted with sheeting meeting the requirements of ASTM D4956 Type XI. The panels will be evenly spaced, with the top of the panel 4 inches below the top of the barrier. Installation will be as per the manufacturer’s recommendations. This will allow for easy removal for replacement of damaged panels or to replace with an alternate color. The Contractor will furnish and install one panel along each side of the barrier if any panels are missing from the barriers. Replacement of damaged linear delineation system panels will be furnished and replaced by the Contractor. All costs associated with furnishing, installing, and replacing, if needed, will be incidental to the contract unit price per each for Linear Delineation System Panel, Barrier Mounted.

All LDS panels will remain attached to the barrier sections and will become the property of the State of South Dakota upon completion of the project.

The Contractor will verify the number of LDS panels that will need to be installed or replaced on the Traffic Control Movable Concrete Barriers. The contract amount of LDS panels is an estimate and the full contract amount may not be needed.

Maintaining the linear delineation system, including moving LDS panels from one side of the barrier to the other side of the barrier to match the applicable color of the nearest pavement marking will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.