

SECTION 90

TRAFFIC CONTROL

90.1 DESCRIPTION

A. General

This work consists of furnishing, installing and maintaining required traffic control devices.

B. Related Work

Section 91 Traffic Control Devices
Section 92 Traffic Signals and Roadway Lighting
Section 93 Pavement Marking and Permanent Signage

90.2 MATERIALS

High Intensity Reflective Sheeting Type III or higher will be required for use on all signs and other traffic control devices utilized for nighttime operations. Engineering Grade Medium-Intensity reflective sheeting will be allowed for daytime use only.

Metallic Barrels or Drums will not be allowed as traffic control devices.

Traffic control devices shall conform to the requirements of the Manual on Uniform Traffic Control Devices (MUTCD).

90.3 CONSTRUCTION REQUIREMENTS

A. General

The Contractor shall furnish, install, and maintain required pavement marking material, barricades, lighting devices, flags, channeling devices, signals, signs and delineators; provide a sufficient number of watchmen and flaggers, and take the necessary precautions for protection of the workers, work area, and the safety of the traveling public.

Standard for flaggers and flagging practices shall be as set forth in Part VI of the MUTCD. The Contractor shall provide each flagger with a copy of the "Traffic Flagging Handbook" booklet. These booklets are available from the South Dakota Department of Transportation (SDDOT).

All existing traffic control devices shall remain the property of the City. All signs/posts shall be removed by the Contractor, unless otherwise directed on the plan sheets or by the Engineer. All signs/posts removed shall be delivered to the City of Rapid City, Traffic Operations yard at 709 Steele Avenue. A receipt is to be provided by the Contractor to the project inspector for all signs delivered to the Traffic Operations yard. Any sign/post damaged by the Contractor due to removal or transport shall be replaced at the sole expense of the Contractor.

The Contractor shall change the location of traffic control devices to keep them current with construction requirements.

The Contractor designate a person in his employ who shall be responsible for the inspection, repair, reinstallation, removal, relocation, or other work needed to maintain necessary traffic controls. The Contractor shall provide for inspection of all traffic controls at least once every calendar day throughout the project time. The Contractor shall keep records of this work, including, at a minimum, inspector name, date and time of inspection, and notation of all items inspected or repaired.

Shadow vehicles shall be used for brooming operations unless otherwise directed. They shall be a four-wheel motor vehicle with a flashing amber light arrow board and shall have a "ROAD MACHINERY AHEAD" sign mounted in a prominent position, visible to approaching traffic. The broom shall be equipped with a flashing amber light.

Barricades, delineators, vertical panels, cones, drums, tubular markers, and temporary road markers used to separate opposing traffic shall be bi-directional.

Traffic control devices shall be promptly removed, covered, or turned to face away from the traffic when the need for such devices no longer exists. Portable signs, which are turned to face away from the roadway, shall be moved off the shoulder area as a safety precaution. Signs shall not be visible from another travel direction.

Warning lights, when required, shall be a minimum eight inches in diameter and operate during hours when the hazard or need for regulation exists.

Warning lights may be operated singly or in groups containing more than one unit. When more than one unit is used, they shall be horizontally aligned and flashed simultaneously or vertically aligned and flashed alternately.

When used in conjunction with signs, the light shall not be located within the face of the sign nor more than 12 inches above the top of the sign. When used with barriers and channelizing devices, the beacon shall be at least three feet and not more than six feet above the pavement.

B. Temporary Pavement Marking

Temporary Pavement Marking Tape Type 1 will generally be limited to temporary striping and temporary marking on pavement that will be removed or covered with an additional lift or for other uses that do not require removal of the tape. It may also be used and subsequently removed on tangent sections along normal lane line locations.

Temporary Pavement marking Tape Type 2 will be required for all striping, involving pavement that is the final driving surface.

Temporary road markers, when used, shall be either yellow or white, as specified on the plans.

Temporary or permanent centerline marking and, on multi-lane sections, temporary or permanent lane lines, shall be placed prior to opening to traffic newly paved or roto-milled surfaces, asphalt surface treatments, seal, prime, and tack coats. Marking of edge lines are not required.

Temporary marking shall be accomplished with Temporary Pavement Marking Tape of the type specified or with Temporary Road Markers.

Temporary markings shall be of the color specified on the plans or as directed by the Engineer.

Temporary Pavement Marking Tape shall be applied in accordance with the manufacturer's recommendations. Tape used for centerline marking shall be applied in four inch width, 12 inches long at intervals not to exceed 40 feet. Solid stripes specified on the plans shall consist of tape applied in four inch widths for the length shown. Solid stripes are required for all longitudinal lines for 150 feet in advance of any traffic signal.

Temporary Road Markers shall be applied in accordance with the manufacturer's recommendations. The markers shall be applied at intervals not to exceed 40 feet when used for a centerline marking. Markers used for a required solid strip shall be applied at intervals not to exceed eight feet. Temporary Road Markers shall not be placed more than 24 hours prior to covering the in-place markings on the surface, unless otherwise allowed by the Engineer. The protective covers shall not be removed until after all oil, within two feet of them, has been applied and rolling has been completed.

Temporary markings shall be maintained in good condition until the permanent striping is in place. Temporary markings, which the Engineer determines to be no longer applicable shall be completely removed and obliterated at no expense to the City.

The City will furnish "NO PAVEMENT MARKING" signs and mileage plates for installation by the Contractor at locations shown on the traffic control plan sheets.

These signs shall be installed when striping has been obliterated. These signs, when required, shall be used in conjunction with temporary markings. Required posts, hardware, and incidentals necessary for the installation of the signs shall be furnished by the Contractor and will become the property of the City upon completion of the project. These signs will be removed, by the City after permanent pavement markings are in place.

C. Removal of Pavement Markings

Traffic stripes and pavement markings not matching current traffic flows, or as designated by the Engineer, shall be completely removed and obliterated.

Pavement markings shall be removed to the fullest extent possible from the pavement by any method that does not damage the surface or texture of the pavement. Sand or other material deposited on the pavement because of removing markings shall be removed as work progresses. Accumulations of sand or other material, which might interfere with drainage or might constitute a hazard to traffic, will not be permitted. Pavement markings shall be removed before any change is made in the traffic pattern. Covering the markings is not acceptable removal.

Where blast cleaning is used for the removal of pavement markings or for removal of objectionable material, and such removal operation is being performed within 10 feet of a lane occupied by the traveling public, the residue, including dust, shall be removed immediately after contact between the sand and the surface being treated. Removal shall be by a vacuum attachment operating concurrently with the blast cleaning operation or by other methods approved by the Engineer.

Damage to the pavement or surfacing caused by pavement marking removal shall be repaired at the Contractor's expense by methods acceptable to the Engineer.

All construction traffic controls remaining on the site following project acceptance shall become the property of the City.

90.4 METHOD OF MEASUREMENT

Field measurement for the item "Traffic Control" will not be required.

90.5 BASIS OF PAYMENT

When an item for Traffic Control is included in the proposal, payment will be made at the lump sum contract price and shall be considered as full compensation for costs incidental thereto. Payment will be full compensation for installation, maintenance, relocation, and removal of the traffic control devices. Based on the lump sum contract price for Traffic Control, partial payments will be considered based on the following schedule:

Necessary signs furnished to site	50% of bid amount
20% of original contract amount earned	60% of bid amount
40% of original contract amount earned	70% of bid amount
60% of original contract amount earned	80% of bid amount
80% of original contract amount earned	90% of bid amount
90% of original contract amount earned	100% of bid amount

The cost of shadow vehicles, Type I and Type II barricades, cones, tubular markers, vertical panels, drums, lighting devices, flags, delineators, watchman, installation of "NO PAVEMENT MARKING" signs, and other items noted on the plans shall be included in the lump sum price bid for Traffic Control.

At locations shown on the plans to be paid for on a linear foot basis, payment for temporary markings will be made at the contract unit price per linear foot. At all other locations, the cost of temporary markings shall be included in the lump sum bid for Traffic Control. If a Traffic Control bid item is not provided, payment for these items will be absorbed in the other contract items.

The number of flagging hours will be paid for in accordance with the bid item "Flagging" as agreed to by the Engineer.

END OF SECTION