SECTION 422 -- TEMPORARY TRAFFIC CONTROL DEVICES

422.01 -- Description

1. This work consists of furnishing, installing at the locations shown in the plans, operating, maintaining, and when work is complete, removing the temporary traffic control devices described in this Section.

2. General Requirements:

a. All traffic control devices shall be located according to and meet all requirements prescribed in the MUTCD. Failure of the Contractor to erect and maintain traffic protective devices shall be reason to temporarily suspend the work in accordance with Subsection 108.06.

b. All barricades and signs shall be constructed and erected in accordance with the plans. Type A, B, and C barricade lights shall be on the NDR Approved Products List.

c. The initial placement, replacement, and removal of the lane dividers and other traffic control devices shall be done with extreme care and consideration for the traveling public.

d. Traffic control devices shall not be removed without the Engineer's approval.

e. The barricades and other traffic control devices, except materials furnished by the Department, shall remain the property of the Contractor.

f. (1) The Contractor shall provide hard covers for signs left in place and currently not in use.

(2) The covers shall be the same size as the sign and completely cover the sign when installed.

(3) Bolting the cover to the sign by drilling holes through the sign will not be allowed.

(4) The cover shall be constructed so there will be at least a 3 mm space between the sign and the cover when installed.

(5) The cover will be fastened so that it will not come loose or damage the sign during normal or windy conditions.

(6) Spacer blocks are allowed in the border area of the sign.

g. The Contractor shall maintain a stock of spare lights, signs, devices, and repair parts at the project site for immediate emergency replacement or repairs.

h. The Contractor shall mow or trim vegetation to insure that the complete visibility of signs, barricades, and other warning devices is maintained at all times.

i. The Contractor shall, at the preconstruction conference, provide the Engineer with the names and telephone numbers of personnel who will be available on a 24-hour-per-day, 7-days-per-week basis. These people shall be responsible for repair, correction, replacement, and maintenance of the traffic control devices.

j. (1) The Contractor shall take all necessary precautions for the protection of the work and the safety of the public.

(2) (i) The Contractor shall be alert at all times to any and all deficiencies in the placement and maintenance of any traffic control devices and shall take immediate action to correct any deficiencies.

(ii) The Contractor shall inspect traffic control devices at least once every day the devices are in use, but shall provide more frequent inspections during or following periods of inclement weather or at other times when more frequent inspections are warranted.

(3) All lights shall be turned on from sunset to sunrise or when visibility is less than 400 m.

(4) Lenses shall be kept clean, and light intensity shall be such that the device is visible for at least 300 m in all conditions.

k. (1) The Contractor may be given notice, either written or verbal, of failure to install, replace, remove, or maintain a traffic control device.

(2) Upon notification by the Engineer, the Contractor shall respond to any site within 4 hours and take immediate steps to correct the deficiency.

(3) If corrective action is not taken by the Contractor within 4 hours of the initial notice, the Engineer shall make no payment for any traffic control devices for that day.

(4) If corrective action is not taken within 4 hours, a written notice of action to be taken shall be given to the Contractor or person designated for work zone traffic control.

(5) Failure to install, replace, remove, or maintain a device within 8 hours of the initial notice may result in no payment being made for any traffic protective devices on the project for that day and on subsequent days until the requested installation, replacement, removal, or maintenance is performed. The Engineer may also suspend all other work until the problem is corrected.

l. The Department may elect at any time to correct a traffic control deficiency and bill the Contractor for all costs necessary to correct the problem.

m. The Contractor shall immediately notify the Engineer of any hazard or changed roadway condition that is not identified in the plans.

n. When more than one Contractor is working on the project or when consecutive projects require protection and control of traffic, the Engineer shall determine and notify in writing the Contractor whose responsibility it shall be to provide the protection and control of traffic.

422.02 -- Material Requirements

1. Warning Signs:

The Department will furnish the sign messages on an appropriately sized panel at one of the permanent maintenance headquarters located throughout the State. These are as follows:

Maintenance Headquarters			
Ainsworth	Fremont	Lincoln	St. Paul
Alliance	Geneva	McCook	Scottsbluff
Bridgeport	Grand Island	Mullen	Sidney
Broken Bow	Hastings	Neligh	South Sioux City
Chadron	Holdrege	Norfolk	Tecumseh
Columbus	Imperial	North Platte	Valentine
Fairbury	Kearney	Omaha	Wayne
		O'Neill	York

2. The following items shall meet the requirements prescribed in the *Manual on Uniform Traffic Control Devices*:

a. Barricades (Type II & III)

b. Temporary Traffic Signals

c. Concrete Protection Barriers

d. Vertical Panels

e. Type B High Intensity Warning Lights

3. The following items must be on the NDR Approved Products List to be used on a Department project:

a. Temporary Pavement Marking Materials

b. Inertial Barrier Systems

c. Flashing Arrow Panels

d. Tubular Posts

e. Opposing Lane Dividers

f. Temporary Glare Screen

g. Changeable Message Signs

422.03 -- Construction Methods

1. a. The Contractor shall install, maintain, and remove all signs in accordance with the details of and at the locations shown in the plans.

b. The Contractor shall furnish all necessary posts, support standards, bolts, or other fasteners for signs.

c. For the purpose of protecting and controlling traffic through or around a construction project, permanent signs are defined as those signs which provide protection and control on a 24-hour-per-day basis. All other signs shall be considered as temporary signs, including signs designated in the plans as "Temporary Signs", which must remain in place for variable periods of time. Construction speed zone signing shall be considered temporary signing and shall only be installed during those periods when the speed zone is required.

d. Permanent signs, complete with posts, bolts, or other fasteners, shall be placed at the time construction work begins in compliance with the applicable conditions of the standard and/or special plan(s) and shall be used until permission is granted, in writing, by the Engineer that the work is complete and that they may be removed.

e. Posts used to erect permanent signs shall be installed and maintained plumb, and the sign faces shall be positioned and maintained so that they face approaching traffic.

f. Signs shall be disassembled and returned to the maintenance headquarters from which they were obtained, or to a location designated by the Engineer, during normal working hours.

g. (1) Signs returned to the Department shall be in reusable condition.

(2) Wood signs shall not be marred or damaged to the extent that they will be unsightly.

(3) Aluminum signs shall not be marred, damaged, bent, or contain holes other than necessary bolt holes.

(4) If signs are damaged while issued to the Contractor, then the Contractor will be charged the replacement cost.

h. Steel drums shall not be used as sign holders.

2. Barricades:

a. This work consists of providing, installing, maintaining, and when no longer required, removing barricades and reflectorized drums at the locations shown in the plans or designated by the Engineer.

b. The *Manual on Uniform Traffic Control Devices* defines 2 types of barricades authorized for use in Nebraska:

(1) Type II

(2) Type III

c. In applications other than on a freeway, expressway, or an interstate roadway, reflectorized drums may be used in lieu of Type II Barricades. Reflectorized drums shall be used in lieu of Type II Barricades in applications on a freeway, expressway, or an interstate roadway.

3. Flagging:

a. (1) It shall be the responsibility of the Contractor to furnish flagger(s) to direct traffic when construction activity occurs on or adjacent to a surface being used by the traveling public.

(2) Except when necessitated by an emergency situation or for situations not reasonably expected to last for more than 15 minutes, flagging shall not be performed by other than certified flaggers. Flaggers must always carry a valid Flagger Certification Card. Flagger Certification Cards shall be valid for a period of 2 years from date of issue.

b. (1) The flagger(s) shall be properly attired with vest and head gear. They shall be provided properly installed advance warning signs, and they shall be otherwise equipped in accordance with the requirements of the plans and specifications.

(2) Flaggers shall position themselves appropriately and according to accepted flagging procedures.

c. (1) The Contractor shall be responsible for the training and certification of the flaggers employed on the project. Certification shall be according to the standards established herein and the "Guidelines for Flagger Training and Certification of Flaggers" available from the Department. Certification cards issued according to these rules by other Contractors, provided they have not expired, shall be considered valid.

(2) Flaggers shall be familiar with the contents of the Department's "Flagger's Handbook" and shall carry a copy of such publication on their person while performing the flagger duties. This publication is available from the Engineer.

d. In order to be certified, the prospective flagger must:

(1) Be in good health with normal abilities or hearing and sight.

(2) Be able to read and speak English.

(3) View the 45-minute video "The Flagger."

(4) Correctly answer 80 percent of the questions on an examination that accompanies the video.

e. Upon satisfactory completion of the training and examination procedure, the prospective flagger shall be issued a Flagger Certification Card by the examining Contractor. The flagger's name, social security number, and test score shall be reported to the Construction Engineer on DR Form 90, "Flagger Certification Report".

f. The video, examination forms, Flagger Certification Cards, Flagger Certification Reports, and "Guidelines for Flagger Training and Certification of Flaggers" shall be furnished by the Department.

4. Temporary Traffic Signal:

a. Temporary traffic signal systems shall be furnished, installed, operated, and maintained by the Contractor at the locations shown in the plans.

b. "Temporary Traffic Signal" shall include signal heads for all approaches to the signal. A temporary traffic signal for a single lane roadway section or bridge shall include signal heads for both ends of the single lane section.

c. (1) The Contractor shall make arrangements with the local utility for power service for temporary signals in a timely manner.

(2) The Contractor is required to comply with the local utility's policy for temporary power service.

(3) The Contractor shall cooperate with the local utility in scheduling the installation.

(4) Any delay resulting from a Contractor's untimely request to the local utility for temporary power service shall not be justification for the suspension or adjustment of the working days or calendar days on a project.

d. When work is complete, the Contractor shall remove the traffic signal.

5. Concrete Protection Barriers:

a. (1) Concrete protection barriers shall be furnished by the Department and installed by the Contractor at the locations shown in the plans or designated by the Engineer for the pay item "Install Concrete Protection Barrier".

(2) The Contractor shall furnish and install concrete protection barriers at the locations shown in the plans or designated by the Engineer for the pay item "Concrete Protection Barrier".

b. The Contractor shall obtain and return the concrete barriers to the location(s) indicated in the plans. These units, which are 610 mm wide by 3 m long by 813 mm high and with a mass of approximately 2.2 Mg, shall be installed as shown in the plans.

c. The barrier unit ends shall be placed as close together as possible and in close alignment.

d. Adjacent ends of the barrier units shall be fastened together as directed by the Engineer.

e. The Contractor shall shim the barrier units as necessary to compensate for surfaces that are not level.

6. Temporary Pavement Marking:

a. The Contractor shall install reflectorized temporary pavement lines of the color, width, and line configuration shown in the plans or designated by the Engineer. When lines are no longer needed, the Contractor shall remove them.

b. (1) MUTCD Type 1 and Type 2 temporary pavement marking tape shall be placed to form a continuous line when used as a solid line, breaking only at intersections. For broken lines (dashed lines), 100 mm x 1.20 m strips of tape at 12 m intervals shall be used on rural high speed roadways. For urban projects, a broken line shall consist of 100 mm x 600 mm strips of tape at 6 m intervals.

(2) When temporary tape lines are no longer needed, the Contractor shall remove them.

c. (1) Raised pavement markers Type RPM shall have a maximum spacing of 1.5 m when used as a solid line. A broken line (dashed line) shall consist of 3 markers 1.5 m apart with a 9 m gap on rural high speed roadways. For urban projects, the broken line shall consist of 3 markers 600 mm apart with a 5.5 m gap. Raised pavement markers shall not be used for right edge lines unless shown in the plans.

(2) Temporary raised pavement markers shall be removed by the Contractor when they are no longer needed.

7. Temporary Rumble Strips:

a. The Contractor shall furnish, install, and maintain temporary rumble strips at the locations shown in the plans or directed by the Engineer.

b. The material shall be given adequate time to harden before the rumble strips are opened to traffic.

c. Upon completion of that particular phase of the work requiring rumble strips, the Contractor shall remove the rumble strips. The Contractor shall exercise the same care and consideration for traffic control during removal operations as that required for the initial installation or replacement.

8. Vertical Panels:

The Contractor shall furnish, install, and maintain vertical panels at the locations and spacing shown in the plans or designated by the Engineer. The vertical panels shall comply with the requirements shown in the MUTCD and any pertinent modifications shown in the plans.

9. Inertial Barrier System:

a. This work shall include the furnishing, installation, furnishing of replacement modules, and removal of sand filled type inertial barrier systems in accordance with the plans or as required by the Engineer.

b. (1) The Contractor shall furnish an FHWA approved inertial barrier system that is on the NDR Approved Products List.

(2) The system shall be installed in the field as required by the manufacturer.

(3) The sand or filler material for the inertial barrier system shall meet one of the material and graduation requirements of fine aggregate for concrete.

(4) A complete set of replacement modules shall be available near the project site in the event of damage to the installed system. Damaged modules shall be replaced within 24 hours.

(5) For inertial barriers which are required to remain in place during the winter, 5 to 15 percent (by volume) rock salt shall be mixed with the filler material.

(6) Upon completion of the work requiring the inertial barrier system, the Contractor shall remove the system and clean the site of any debris and filler material remaining from the system.

c. Inertial barrier modules shall be available in 90, 180, 315, 630, and 950 kg sizes and shall consist of the following components:

(1) An outer container molded in one or two pieces. The material shall be durable, weatherproof, and formulated to resist deterioration from ultraviolet rays. The outer container shall have a minimum width of 685 mm at the base, 915 mm at the top, and a minimum height of 915 mm. The standard color shall be yellow.

(2) A lid which locks securely to the top lip of the outer container. The material shall be durable, weatherproof, and formulated to resist deterioration from ultraviolet rays. The lid shall be capable of withstanding a 90 kg vertical load.

(3) A supporting insert which is varied to allow for different sizes of modules to support 90, 180, 315, and 630 kg sand masses. Care shall be taken to fill each module with the proper amount of sand as called for in the array design. The height and diameter of the inserts shall be such to ensure that the center of gravity of each module is at

the proper elevation to control the attitude of impacting vehicles. The insert container interface shall allow free drainage of excess water contained in the sand mass.

d. A MUTCD Type I object marker shall be placed on the first inertial barrier module facing approaching traffic. The Type I object marker shall consist of nine yellow prismatic reflectors, each with a minimum dimension of 75 mm, mounted symmetrically on a 450 mm black or yellow diamond panel; or a 450 mm yellow diamond panel of Type III reflective sheeting without buttons. The object marker shall be placed approximately 50 mm below the top of the first module.

10. Flashing Arrow Panel:

a. The Contractor shall furnish, install, and operate mounted flashing arrow panels for use in traffic control at the locations shown in the plans. The Contractor shall remove the panels when work is complete and the Engineer has approved their removal.

b. (1) The minimum panel size shall be 2.4 m by 1.2 m and shall contain 22 lamps. The lamps shall be arranged to form 3 connected diamonds with the short axis of the diamonds lying on the horizontal centerline of the sign. Each side of the diamonds will form an arrowhead of 5 lamps per head. Each arrowhead shall have a minimum angle of 100 degrees.

(2) The panel shall be constructed in a rigid manner such that the panel face does not flex in the vertical dimension.

(3) For use on multi-lane roadways where at least one traffic lane is maintained for each direction of travel, the arrow panel shall have the capability of the following mode selections:

(i) Left or right flashing arrow.

(ii) Left or right sequential chevrons.

(iii) Double flashing arrows.

(4) For use as a hazard identification marker on 2-lane highways with 1 lane closed, the flashing arrow panel shall be wired to alternately flash the 2 outside diamonds or flash the 4 outside corners.

(5) Minimum "on time" shall be 50 percent for the flashing arrow and flashing diamonds and equal intervals of 25 percent for each sequential phase.

c. (1) Lamps for generator powered arrow panels shall maintain visibility out to a horizontal angle of 20 degrees.

(2) Solar powered arrow panels shall maintain visibility out to a horizontal angle of 13 degrees.

(3) Vertical maintained visibility shall be greater than 3 degrees.

(4) The lamp intensity shall be adjusted to prevent an unnecessary blinding effect and to compensate for daytime and nighttime light conditions so that the arrow panel message is legible for a distance of 1.6 km. The intensity shall be controlled by an automatic dimmer capable of a 50 percent reduction in intensity when ambient light falls below 5 cd.

d. (1) The arrow panel shall be aimed to provide for recognition throughout the range from 500 m to 90 m upstream of the panel.

(2) For use on 2-lane highways as a hazard identification marker, the mounted arrow panel shall be located immediately in front of the hazard and behind a Type III barricade.

(3) The arrow panel shall be mounted at a minimum height of 2.1 m from the road surface to the bottom of the panel.

(4) The arrow panel shall be mounted such that it will remain stationary and rigid in high or gusty winds while the panel is in use.

e. (1) The arrow panel shall be maintained so as to operate continuously. The Contractor shall advise the Engineer of the person to contact in case of needed repairs or maintenance.

(2) The Contractor shall always have an extra unit on the project for use as a standby unit. In the event of equipment failure resulting in an arrow panel becoming inoperative, regardless of the time of day, the Contractor shall immediately substitute the standby unit for the inoperative arrow panel. The Contractor shall then either immediately repair or replace the defective unit.

11. Type B High Intensity Warning Lights:

a. Type B High Intensity Warning Lights shall be furnished, placed, operated, and maintained as shown in the plans.

b. When work is complete and their removal has been approved by the Engineer, the warning lights shall be removed by the Contractor.

12. Pilot Vehicle:

a. This work shall consist of providing a vehicle and driver to serve as a pilot vehicle to lead the traveling public and the Contractor's vehicles through the construction work area where 2-way traffic is restricted to only one lane.

b. (1) The pilot vehicle shall be properly equipped and licensed for operation on public roadways in accordance with the applicable State laws.

(2) The vehicle shall carry the Contractor's monogram or company insignia and shall be equipped with a rear facing, rigidly mounted sign having a fluorescent orange background with black lettering bearing the message:

"PILOT CAR---FOLLOW ME"

(3) The sign shall be a MUTCD sign No. G20-4, sized at 900 mm x 450 mm.

(4) The bottom of the sign shall be mounted a minimum of 300 mm above the vehicle's roof.

(5) The sign shall be securely covered or removed when not in use.

(6) The vehicle, while in use, shall be used exclusively to lead and assist traffic movement.

(7) During construction, a pilot vehicle shall be kept in continuous operation. Delays to traffic movement will not be allowed for refueling, driver relief, or any other foreseeable reason.

(8) The work shall be so coordinated that the pilot vehicle shall make a round trip in the minimum safe time.

c. Pilot vehicle drivers shall be properly licensed and shall be familiar with and always observe the "Rules of the Road" for proper, safe, and courteous driving. Drivers will be subject to prosecution for all violations.

13. Tubular Post:

a. The Contractor shall furnish, install, maintain, and remove reflectorized tubular posts at the locations shown in the plans or as directed by the Engineer.

b. (1) The height of a tubular post shall be 700 mm. The material from which the post is fabricated shall be rubber, plastic, or any other material which meets the physical test requirements and results in little or not damage to impacting vehicles. The minimum width of the post shall be 50 mm. The predominant color of the post shall be orange.

(2) Each complete tubular post and each replacement post must have a minimum of two 75 mm wide reflective white bands placed a maximum of 50 mm from the top with a maximum of 150 mm between the bands. The reflective white bands must be 3M flexible high intensity grade reflective sheeting or an approved equivalent.

(3) Tubular posts that are approved for use are shown in the NDR Approved Products List. Tubular posts which have not been previously approved by the Department will not be permitted on the project until approved by the Engineer.

c. (1) The tubular posts shall be spaced at the intervals shown in the plans or as directed by the Engineer and shall be attached to the existing surface by epoxy or other suitable adhesive. The adhesive shall be given adequate time to harden before the post can

be attached and the area opened to traffic. The initial placement and/or replacement of the tubular posts shall be performed with extreme care and consideration for the traveling public.

(2) Reflective sheeting which is no longer effective shall be replaced.

(3) Tubular posts which have become dislodged due to traffic or other action shall be properly repositioned and reattached within 24 hours. Tubular posts which cannot be cleaned or which are broken shall be replaced.

d. Upon completion of that particular phase of the work requiring tubular post delineation, the Contractor shall remove the posts as directed by the Engineer. The Contractor shall exercise care and consideration for traffic control during removal, initial installation, and replacement. The Contractor must explain this phase of traffic control to the Engineer before installation, replacement, and removal.

14. Opposing Lane Dividers:

a. (1) The Contractor shall furnish, install, and maintain reflectorized opposing lane dividers at the locations shown in the plans.

(2) When work is complete and the Engineer has approved their removal, the Contractor shall remove the reflectorized opposing lane dividers.

b. (1) The height of the opposing lane divider shall be 900 mm.

(2) The divider shall be fabricated from rubber or plastic.

(3) The predominant color of the divider shall be orange.

c. Each opposing lane divider and each replacement divider must have back-to-back, upright, orange, reflective panels approximately 300 mm wide by 450 mm high. The symbol on the divider shall be 2 opposing black arrows. The reflective panel must be AASHTO M 268 Type III reflective sheeting or approved equivalent.

d. (1) The opposing lane dividers shall be attached to the existing surface by an epoxy or other approved adhesive.

(2) The adhesive shall be given adequate time to harden before the divider can be attached and the road opened to traffic.

e. (1) Reflective panels which are no longer effective shall be replaced.

(2) Lane dividers which cannot be cleaned or which are broken shall be replaced.

15. Pavement Marking Removal:

The Contractor shall remove conflicting permanent (not “temporary”) pavement markings as shown in the plans or as required by the Engineer.

16. Temporary Glare Screen:

a. The Contractor shall furnish, install, maintain, and remove temporary glare screens (TGS) on Department-furnished concrete protection barriers at the locations shown in the plans.

b. The TGS's shall be installed as required by the manufacturer. The anchors shall be flush mounted. The TGSs shall consist of a white base rail (3 m length) and green blades (600 mm height) angled at 0.384 radians. Every 3 m, a 50 mm x 300 mm vertical, yellow, high intensity AASHTO M 268 Type III reflective sheet shall be placed at the midpoint on the right side of the vertical blade, one for each direction of travel.

c. Before installing the TGS, the Contractor shall furnish and install the internally threaded sleeve into the protection barrier. The top of the sleeve shall be flush with the top of the barrier.

d. Damaged sheeting, blades, base rails, and blades which no longer provide glare protection (such as bent blades or blades which move significantly in the wind) shall be immediately repaired or replaced by the Contractor at no additional cost to the Department.

e. Upon completion of the project, the Contractor shall remove the temporary glare screens (base rail and blades). The anchor sleeves in the concrete barriers shall be plugged with weatherproof plugs provided by the manufacturer. The plugs become the property of the State.

17. Changeable Message Signs:

The Contractor shall furnish, install, operate, and maintain changeable message signs as prescribed in the plans. When their removal is approved by the Engineer, the Contractor shall remove the changeable message signs.

18. Install Impact Attenuator:

a. (1) The Contractor shall pick up the impact attenuator from the location designated by the Engineer and assemble the attenuator in accordance with the details shown in the plans. The Contractor shall transport, maintain, and install the units at the location shown in the plans or designated by the Engineer.

(2) A second unit shall be stored with replacement cartridge sets in the Lincoln Maintenance Yard. It will be available in the event of damage to the installed system or if a second system is required while the original system is still in operation.

b. The Contractor shall perform all earthwork and provide the reinforced concrete pad (required for off-the-road installations) needed to place the unit. The Contractor shall immediately repair or replace any damaged units.

c. Upon completion of the pavement work on an initial construction phase, the Contractor will be required to relocate the attenuator to the position required for the traffic protection for pavement work on the subsequent phases.

d. Upon completion of the work, the Contractor shall dissemble the system and return it to the location designated by the Engineer.

422.04 -- Method of Measurement

1. a. Sign days of permanent and temporary signs installed in accordance with the plans, or as directed by the Engineer, will be measured and paid for by the each.

b. The quantity of sign days shall be the number of signs multiplied by the number of calendar days that the respective signs are in place.

c. A calendar day for signs shall be defined as the 24-hour period from midnight to midnight, or any portion of it, within which the sign is installed and maintained.

d. Each sign shall be paid for separately, even if more than one sign is installed on the same post or device.

2. a. Type III barricades shall be measured for payment by the number of calendar days each Type III barricade is in place and positioned as shown in the plans or as directed by the Engineer. The unit is barricade-day (BDay).

b. Type II Barricades and Reflectorized Drums shall be measured for payment by the number of calendar days each Type II Barricade or Reflectorized Drum is in place and positioned as shown in the plans or as directed by the Engineer. Payment shall be made at the established contract unit price for "Barricades, Type II". The unit is barricade-day (BDay).

c. Payment for "Barricades, Type II" and "Barricades Type III" will not be made for any devices which are not kept clean and properly positioned.

d. Payment for "Barricades, Type II" and "Barricades Type III" will not extend beyond the last working day or calendar day allowed by the contract, including any approved extension of contract time allowance, unless the Engineer determines they are necessary to control traffic during a period of time when calendar days or working days are not being charged.

e. Vertical panels are not measured.

3. a. When shown in the plans, the work of flagging will be measured for payment for each flagger on a daily basis.

b. Operation of one flagger for 4 hours or less will be considered as one-half day and operation for more than 4 hours will be considered as one full day.

c. This price shall be full compensation for furnishing properly trained, attired, and equipped flaggers, for installing, maintaining, and removing up to eight temporary advance warning signs per flagging situation as directed by the Engineer, and for all labor, tools, equipment, material, and incidentals necessary to complete the work.

4. a. "Temporary Traffic Signal" is measured by the each for every complete installation.

b. When a traffic signal is required at a bridge or other obstruction, all signals required to clear traffic through the obstruction are counted as a single unit.

5. Concrete protection barriers are measured by their length in meters based on the 3 m nominal length of the individual units. Only initial placement is measured.

6. Temporary Pavement Marking:

a. When the spacing between the raised pavement markers is 3 m or less, the length to be paid for shall be the distance between the first and last markers measured along the path represented by the markers.

b. When the spacing between raised pavement markers is greater than 3 m, the distance shall be considered a gap and shall not be measured for payment.

c. All other marking materials shall be measured by the actual length of line installed, excluding gaps.

d. The pay item "Temporary Pavement Marking, Type _____" includes the cost of the removal when the temporary marking is no longer needed.

7. a. Raised pavement markers are measured by the meter.

b. When the spacing between the raised pavement markers is 3 m or less, the length to be paid for shall be the distance between the first and last markers measured along the path represented by the markers.

c. When the spacing between raised pavement markers is greater than 3 m, the distance shall be considered a gap and shall not be measured for payment.

d. All other marking materials shall be measured by the actual length of line installed, excluding gaps.

8. Temporary rumble strips will be measured for payment by the each for the entire section of temporary rumble strips initially installed at a specific location. No direct payment will be made for rumble strips replaced.

9. a. The inertial barrier system shall be measured by the each.

b. The replacement modules for the inertial barrier system shall be measured for payment by the each for each module installed on the project.

10. a. Flashing arrow panels are measured by the each per each calendar day in use.

b. A double-faced flashing arrow panel will be counted as two units when a double-faced panel is prescribed in the plans.

11. Type B High Intensity Warning Lights shall be measured by the each per day for the number of calendar days each Type B light is in place and operating. The unit is light-day (LDay).

12. “Pavement Marking Removal” shall be measured by the meter along the centerline of the traveled roadway for each permanent (not “temporary”) line removed.

13. The pilot vehicle will be measured for payment on a daily basis when actually in use. Operation for 4 hours or less shall be considered as one-half day and operation for more than 4 hours shall be considered as a full day.

14. Tubular posts are measured by the each.

15. Opposing lane dividers are measured by the each.

16. Temporary Glare Screen is measured by the length in meters of base rail initially installed, complete with blades.

17. Changeable message signs are measured by the each per day for the number of calendar days each sign is in place and operating.

18. "Install Impact Attenuator" is measured by the each.

422.05 -- Basis of Payment

1.

Pay Item	Pay Unit
Sign Day	Each (ea)
Barricade, Type II	Barricade-Day (BDay)
Barricade, Type III	Barricade-Day (BDay)
Flagging	Day (d)
Temporary Traffic Signal	Each (ea)
Install Concrete Construction Barrier	Meter (m)
Concrete Protection Barrier	Meter (m)
Temporary Pavement Marking, Type ___	Meter (m)
Raised Pavement Marker	Meter (m)
Temporary Rumble Strip	Each (ea)
Inertial Barrier System	Each (ea)
Flashing Arrow Panel	Day (d)
Type B High Intensity Warning Light	Light-Day (LDay)
Pavement Marking Removal	Meter (m)
Furnishing & Operating Pilot Vehicle	Day (d)
Opposing Lane Divider	Each (ea)
Temporary Glare Screen	Meter (m)
Changeable Message Sign	Day (d)
Tubular Post	Each (ea)
Install Impact Attenuator	Each (ea)

2. a. If signs are not returned, the Contractor shall be charged the value of the missing items. These charges shall be deducted from monies due the Contractor upon final payment.

b. Payment will not be made for those calendar days when signs are not in use, such as for folded signs, temporarily covered signs, or signs temporarily positioned so that the message is not readable by the travelling public.

3. Vertical panels are subsidiary to the primary construction pay item.

4. Barricades, Type II are paid for as an "established" contract unit price item, which is shown in the bid proposal "Schedule of Items".

5. a. The Contractor shall be responsible for the utility costs to install or relocate the power service for temporary traffic signals.

b. The Contractor shall also pay for power to operate the temporary signals. However, costs for power to operate a temporary signal that replaces an existing operating signal shall be paid by the jurisdiction responsible for the power costs of the permanent signal.

c. Direct payment will not be made for power costs. Power costs shall be considered subsidiary to the temporary traffic signal.

6. Except for Type B High Intensity Warning Lights, all warning lights shall not be measured for payment but shall be considered subsidiary to the items for which direct payments are provided.

7. No direct payment will be made for opposing lane dividers repositioned, reattached, or replaced or for their removal.

8. The repositioning and/or reattachment, removal, and/or replacement of a tubular post is subsidiary to the pay item "Tubular Post."

9. Temporary pavement marking removal is subsidiary to the pay item "Temporary Pavement Marking, Type _____".

10. Payment is full compensation for all work prescribed in this Section.