

**KANSAS DEPARTMENT OF TRANSPORTATION
 SPECIAL PROVISION TO THE
 STANDARD SPECIFICATIONS, EDITION 2007**

Delete SECTION 805 and replace with the following:

SECTION 805

WORK ZONE TRAFFIC CONTROL AND SAFETY

805.1 DESCRIPTION

Provide, erect, maintain and remove traffic control devices as shown in the Contract Documents.

BID ITEMS

UNITS

Work Zone Signs (0 to 9.25 Sq. Ft.)	Each Per Day
Work Zone Signs (9.26 to 16.25 Sq. Ft.)	Each Per Day
Work Zone Signs (16.26 Sq. Ft. and over)	Each Per Day
Work Zone Sign (Special) (**)	Each
Work Zone Barricades (Type III – 4 to 12 Lin. Ft.)	Each Per Day
Arrow Display	Each Per Day
Portable Changeable Message Sign	Each Per Day
Channelizer (Fixed)	Each Per Day
Channelizer (Portable)	Each Per Day
Work Zone Warning Light (Type "A" Low Intensity)	Each Per Day
Work Zone Warning Light (Red Type "B" High Intensity)	Each Per Day
Pavement Marking (Temporary)	
4" Broken (8 ft.) (* Tape or Paint)	Sta./Line
4" Broken (8 ft.) (Flexible Raised Pavement Marker)	Sta./Line
4" Solid (* Tape or Paint)	Sta./Line
4" Broken (3 ft.) (* Tape or Paint)	Sta./Line
4" Broken (3 ft.) (Flexible Raised Pavement Marker)	Sta./Line
4" Dotted Extension (* Tape or Paint)	Sta./Line
Broken (Line Masking Tape)	Sta./Line
Solid (Line Masking Tape)	Sta./Line
Symbol (Paint or * Tape)	Each
Flagger (Set Price)	Hour
Traffic Signal Installation (Temporary)	Lump Sum
Temporary Raised Pavement Marker (*)	Each
Traffic Control	Lump Sum
Traffic Control (Initial Set Up)	Lump Sum
*Type (Type I or II)	
**Size	

805.2 MATERIALS

Provide materials as shown in the Contract Documents that comply with the following requirements.

Reflective Sheeting	DIVISION 2200
Work Zone Warning Lights	DIVISION 1700
Nonmetallic Drums & Conical Delineators	DIVISION 1700
Temporary Pavement Marking	DIVISION 2200
Automated Flagger Assistance Devices.....	DIVISION 1700
Temporary Raised Pavement Markings and Pavement Marking (Temporary) (Flexible Raised Pavement Marker).....	DIVISION 2200 (07-22004, latest revision)

a. General. The size, shape, color and placement of all traffic control devices and appurtenances shall comply with the details shown in the Contract Documents and the most recent edition of the Manual on Uniform Traffic Control Devices (MUTCD) adopted by the Secretary. The size and layout of the sign message shall comply with the Contract Documents and the latest edition of "Standard Highway Signs and Markings."

b. Warning Flashing or Sequencing Arrow Panels. When specified, provide, install and maintain a flashing or sequencing arrow panel capable of being legible for a minimum distance of ½ mile. Provide flashing or sequencing arrow panels that comply with the Contract Documents and Part VI of the MUTCD. Flashing or sequencing arrow panels shall have a control for lamp intensity, using an automatic solar cell switch, backed by a manual switch and capable of dimming 50% from the rated lamp voltage for nighttime operation. The panel shall provide a flashing rate of lamps between 25 and 40 flashes per minute. The minimum lamp "on time" shall be 50% for the flashing arrow and 25% for the sequential chevron. Arrow panel lamps or lenses shall be recessed, or alternately equip with a minimum 180° upper hood. The color of light emitted shall be yellow.

c. Portable Changeable Message Sign (PCMS). When specified, provide, install and maintain the PCMS. Operate continuously, when necessary. Provide a PCMS that complies with the Contract Documents and Part VI of the MUTCD, with the following additions and exceptions in regard to the components:

- A message sign panel with the approximate size of each character of 18 inches high and 12 inches wide.
- A message sign panel with yellow or orange characters displayed on a black background.

d. Material for Wedges. Provide material suitable for the purpose intended, such as asphalt millings, temporary concrete, or earthen material. The Engineer will accept the material for wedges after satisfactory visual inspection of the material in place.

805.3 CONSTRUCTION REQUIREMENTS

a. General. The safe and satisfactory movement of traffic through the project is a high priority and is the responsibility of the Contractor.

Use reasonable and appropriate devices and methods to safeguard the persons and property of the traveling public on roads on which construction work is in progress. Failure of the Engineer to notify the Contractor to maintain such devices or use such methods does not relieve the Contractor of responsibility.

All workers shall wear high visibility garments (ANSI Class II day/Class III night) while working within the right-of-way limits on KDOT projects.

Obtain the Engineer's approval before erecting traffic control devices, changing traffic control devices, or removing traffic control devices, except if an emergency situation requires immediate action.

Erect signs and traffic control devices as shown in the Contract Documents or Traffic Control Plan, unless directed otherwise by the Engineer. At all times during the progress or temporary suspension of the work, provide, erect, remove, relocate, clean, replace and maintain suitable signs, barricades, fences or other necessary traffic control devices and pavement marking shown in the Contract Documents.

If traffic control issues come to the attention of the Engineer, the Engineer will notify the Contractor of any required repairs or replacements which shall be addressed within 24 hours. When the Engineer determines an immediate repair or replacement is required and the Contractor is unable to make the repair or replacement, it will be performed by KDOT, and the associated cost deducted from the contract. This in no way relieves the Contractor of responsibility to inspect and maintain traffic control.

Perform all work during daylight hours, unless otherwise approved.

When directed by the Engineer, move any traffic control device from one location to another and re-erect it. The Engineer may require additional traffic control devices or flaggers at any time, or at any place.

Construct supports used for mounting signs or devices for temporary conditions to comply with MASH Report 2009 as supplemented by FHWA memorandum "Identifying acceptable highway safety features," dated July 25, 1997.

When the Contract Documents provide that traffic be carried through construction, routing of traffic on a detour is prohibited without written approval from the Engineer.

The Engineer will establish all work zone speed limits.

For pilot car operations, maintain one-way traffic and restrict speeds to a maximum of 40 miles per hour in the work zone and restrict the speed of the operation in the vicinity of workers to 20 miles per hour until the last car in the pilot queue exits the vicinity of the workers.

All other work zone speed limits will be maintained as determined by the Engineer.

In order to minimize inconvenience for the traveling public and to increase the effectiveness of signs and traffic control devices, move the devices ahead as the work allows. When no work is in progress, remove from the road or completely cover with an opaque, breathable material, all devices which are required only when work is actually being performed.

The Contractor may develop an alternate Traffic Control Plan. Such plan requires the approval from the KDOT District Office or the KDOT Bureau of Transportation Safety and Technology before installation. Such approval may take up to 10 business days.

On roads closed to through traffic, provide access (including the use of temporary surfacing, **SECTION 840**) for residents living along the road to enter or exit their property.

Where practical, park and store all vehicles, equipment, tools and materials off the right-of-way or a minimum of 30 feet from the traveled way unless protected by positive separation barrier.

Do not use the legend "Travel at Your Own Risk" on any sign.

Designate an employee at the project level, available 24 hours a day to repair, replace, remove, relocate, clean and maintain any traffic control device required as directed by the Engineer. Advise the Engineer of the name, local address and local telephone number of the person given this responsibility.

Inspect traffic control devices a minimum of daily during the day, and when needed, at night. With the Engineer, determine the frequency of inspections based upon the need of each project.

Immediately upon discovering or receiving notification of unacceptable traffic control devices, either repair or remove and replace the unacceptable traffic control devices. Record unacceptable traffic control devices and when the condition has been corrected.

b. Work Zone Signs (Special). Work Zone Signs (Special) are signs whose legends are specific to the project for which they are fabricated. These signs will be designated in the Contract Documents.

c. Channelizing Devices. Install the individual types of devices used for the channelization of traffic through the work area, as shown in the Contract Documents.

When the Contract Documents specify channelizer (fixed), only fixed channelizers may be used. When the plans specify channelizer (portable), the Contractor has the option to use either fixed or portable devices, as approved by the Engineer.

(1) Channelizer (Fixed). Fixed devices are devices that are physically adhered to the road surface with a glue or mounting hardware, or are embedded into the ground. See the Contract Documents for the size of tubular markers, required color and pavement marking.

(2) Channelizer (Portable). Portable devices are devices that are self-standing and are held in place with deformable ballast material that is either integral with the device or is applied on or around the base of the device. See Contract Documents for required sizes, color(s), and temporary pavement marking. Keep the devices clean and bright for maximum target value.

(a) Non-metallic Drums & Conical Delineators. Use fully reflectorized non-metallic drums and conical delineators for channelizing traffic and lane closures.

(b) Traffic Cones. Only use traffic cones during temporary daytime activities where there is adequate surveillance to see that they remain in place.

d. Warning Flashing or Sequencing Arrow Panels. Where specified, provide, install and maintain an advance warning flashing or sequencing arrow panel. Mount on a portable chassis and operate continuously when required to divert traffic. Adjust the lamp intensity for the advance warning flashing or sequential arrow panel to prevent a blinding effect and to compensate for daytime and nighttime light conditions.

e. Portable Changeable Message Sign (PCMS). Where specified, provide, install and maintain a PCMS and operate continuously, as required.

f. Warning Lights. Use the required type warning lights as shown in the Contract Documents. Provide Type A warning lights on traffic control devices lighted from sunset to sunrise. Provide Red Type B (high intensity) lights lighted 24 hours per day.

g. One-way traffic/Flaggers. Provide two-way traffic on a normal roadway whenever practicable, avoiding one-way traffic where reasonable.

When one-way traffic is required, provide courteous, competent flaggers, able to communicate effectively

with the traveling public, to direct traffic in a one-way traffic operation. Use flaggers that know and observe all regulations prescribed for flaggers. The latest edition of the KDOT Flagger Handbook will apply. Copies may be obtained from the Engineer or from the Bureau of Transportation Safety and Technology. Equip flaggers with hand signaling signs mounted on suitable staffs, (minimum 60 inches, as measured from the bottom of the sign). Flaggers shall wear high visibility orange headgear and an ANSI Class II vest while on duty.

The Contractor may use uniformed enforcement officers as flaggers in lieu of flaggers. When used as a flagger by the Contractor, law enforcement officers shall wear their official uniform with badge.

When nighttime work is required, flaggers shall wear ANSI Class E reflectorized pants in addition to high visibility orange headgear and an ANSI Class II vest and flagger stations shall be illuminated with temporary lighting. Additional lighting should be provided for equipment crossings and other areas where existing lighting is not adequate for the work to be performed safely. In no case shall the lighting create a disabling glare for approaching road users, flaggers, or workers. The adequacy of the floodlight placement and elimination of potential glare should be determined by driving through and observing the floodlighted area from each direction on all approaching roadways after the initial floodlight setup, at night, and periodically.

When one-way traffic is approved, temporary traffic signals may be used in lieu of flaggers to control traffic, when each approach is visible to the other and when approved by the Engineer. In this situation, signals may be left unattended. Continued use will be based upon satisfactory performance of the system to effectively move traffic through the area, as determined by the Engineer.

Automated Flagger Assistance Devices (AFADs) or Temporary Signals may be allowed to control traffic when approved by the Engineer. The AFAD or Temporary Signal must be operated by a flagger trained in the operation of the AFAD or Temporary Signal. Do not leave any AFAD or Temporary Signal unattended at any time when they are in operation in the work zone, except as defined above.

AFADS or Temporary Signals may be used at night when:

- The AFAD or Temporary Signal station is illuminated as described above for flaggers and
- The flagger controlling the AFAD or Temporary Signal is wearing Class E reflectorized pants in addition to high visibility orange headgear and an ANSI Class II vest

A single flagger may simultaneously operate multiple AFADs or Temporary Signals when:

- The flagger has an unobstructed view of the AFADs or Temporary Signals;
- The flagger has an unobstructed view of approaching traffic in each directions; and
- The flagger is able to accurately read the AFAD or Temporary Signal indicators.

h. Pilot Cars. Use a pilot car to assist and lead traffic during one way operations which are over a distance greater than can be seen between flaggers, and when no traffic should be on the work. Maintain pilot car operations continuously, causing no delay to traffic for reasons such as refueling and breaks. The maximum time for pilot car round trip is 15 minutes. Coordinate the work accordingly. Do not use the pilot car for other purposes.

Pilot cars shall be approved vehicles, should carry the Contractor's company insignia, and be equipped with signs reading "Pilot Car-Follow Me" mounted a minimum of 1 foot above the top of the vehicle and clearly visible from both directions.

i. Traffic Signal Installation (Temporary). When designated, install traffic signal installation (temporary) as shown in the Contract Documents.

j. Temporary Pavement Marking. When traffic is carried through construction, provide and maintain temporary pavement marking as shown in the Contract Documents. If temporary pavement markings are to be placed on a surface which has existing lines or markings, remove the incorrect lines or markings according to **SECTION 808**. Use temporary pavement marking types as indicated in **TABLE 805-1**.

TABLE 805-1: TEMPORARY PAVEMENT MARKING***	
Type	Use
Type I**	Final surface (new pavement or any surface that will remain when the project is complete).
Type II*	Any surface that is to be removed or covered by future construction.

*When Type II is specified, the Contractor has the option to use either Type I or Type II tape or paint.

**When Type I is specified and in areas where permanent pavement marking will be placed in the same layout/location as the temporary markings, the Contractor has the

option to use either Type I tape or Paint. Do not use Paint in areas where markings will not follow the same layout/location.

*****Do not use paint on Ultrathin Bonded Asphalt surfaces.**

Apply the pavement marking tape according to the manufacturer's recommendations. If solid lane markings are required, cut them at approximately 100 foot intervals after they are applied to the pavement. Make the cut through the entire width and thickness of the tape.

When shown in the Contract Documents, apply line masking tape to the surface to temporarily cover the existing pavement markings in widths or sizes sufficient to extend approximately 1 inch beyond the edges of the existing pavement markings.

When painting is approved, comply with **SECTION 807** (07-08026 latest revision).

The following are general guidelines for temporary pavement marking configurations:

- Solid stripes and broken (8 ft.) stripes are intended for use on expressways and freeways and on long term (greater than 45 days) traffic configurations different than the original or final pavement markings.
- Broken (3 ft.) stripes are intended for use on intermediate lifts of asphalt surfacing projects where movement of traffic through the project is required, and on final surfaces that are opened to traffic prior to placing the permanent pavement markings.
- Replace broken (3 ft.) stripes placed on the final surface with permanent pavement markings within 2 weeks.
- Use the severe curve pattern on curves with less than a 1000 foot radius.
- Dotted extension lines may be used to provide extra guidance through intersections or interchanges.

Use **TABLE 805-2** to determine broken stripe dimensions.

Type	Approximate Length (ft.)	Gap (ft.)	Repeating Cycle (ft.)
Broken (8 ft.)	8	24	32
Broken (3 ft.)	3	29	32
Severe curvature	2	14	16
Dotted Extension Lines	2	4	6

Place temporary pavement marking as close as practical to the intended alignment and parallel to the intended line. On HMA surfacing projects when traffic is being carried through the project, place temporary marking after each lift of HMA has been placed and before traffic is allowed on the new lift. Place temporary marking on intermediate HMA lifts within approximately 12 inches of the intended alignment. Place temporary markings on the final surface within approximately 6 inches of the intended alignment.

Place either temporary or permanent pavement markings on the same day the existing markings are removed, and before opening to traffic, at the following locations: mainline skip lines, 8-inch gore lines, ramp dotted lines, and yellow ramp edge lines. The Contractor may place fixed tubular markers or conical delineators for the 8-inch gore lines in lieu of temporary pavement marking with Engineer's approval. The tubular markers should be white or orange, retroreflective, fixed to the pavement, and placed at 5 foot intervals on the gore edge line. They are subsidiary to the temporary pavement marking. The Contractor may place Flexible Raised Pavement Markers in lieu of the temporary mainline skip lines per KDOT standard drawings, with the Engineer's approval.

On contracts where the Contractor is installing permanent pavement marking, maintain temporary pavement marking until permanent pavement markings are installed.

On contracts where KDOT is installing permanent pavement marking, except chip seals, maintain temporary pavement marking for 14 days after work is complete. For chip seal projects, maintain temporary pavement markings until the end of the observation period for the chip seal.

When temporary pavement markings are deemed deficient by the Engineer (no longer reflective, damaged, displaced, etc.) the Engineer will notify the Contractor in writing of any areas requiring replacements. Replace temporary pavement marking within 24 hours of notification. Failure to replace the temporary pavement markings will result in a deduct of \$500/day.

k. Flexible Raised Pavement Markers. When shown in the Contract Documents, use flexible raised

pavement markers. When used on asphalt seals, place the flexible raised pavement markers on the roadway prior to the sealing operations, removing the clear plastic cover after sealing operations. When used on all other surface treatments, place the flexible raised pavement markers on the new surface treatment. The adhesive used shall allow the markers to be easily removed without damage to the roadway surface.

Epoxy used as an adhesive must have the Engineer's approval. In all cases, install markers in a group of 3 according to **TABLE 805-3**.

Condition	Approximate Length (ft.)	Gap (ft.)	Repeating Cycle (ft.)
Normal	3	29	32
Severe curvature*	2	14	16

* Use the severe curve pattern on curves with less than a 1000 foot radius.

l. Temporary Raised Pavement Markers. Install temporary raised pavement markers at locations shown in the Contract Documents. Follow the manufacturer's recommendations for installation and removal.

m. Uneven Lanes. When the height differential between adjacent driving lanes is greater than 1 inch, use the W8-11 Uneven Lanes sign as part of the Traffic Control Plan. Place the signs at the beginning of the project and at each intersecting crossroad, at approximately half mile intervals. Remove or cover the signs when not applicable. When the height differential between adjacent driving lanes is greater than 2 inches, use **TABLE 805-4**.

n. Height Differential Treatment. When construction situations result in a height differential adjacent to a driving lane other than as described in **subsection 805.3m.** above, adhere to **TABLE 805-4**.

Condition	Action
The height differential adjacent to any driving lane is between 2 and 4 inches	Construct a 1:1 or flatter slope wedge (either temporary or permanent, as required) against the pavement edge, using asphalt millings, earthen material or other materials approved by the Engineer; or Use Shoulder Drop-off Signs (W8-17 and W7-3aP) and/or Uneven Lane Signs (W8-11) as part of the Traffic Control Plan. Place the signs at the beginning of the project and at each intersecting crossroad, or at approximately half mile intervals. Remove or cover the signs when not applicable.
The height differential adjacent to the driving lane is greater than 4 inches	Construct a 3:1 or flatter slope wedge (either temporary or permanent, as required) against the pavement edge, using asphalt millings, earthen material or other materials approved by the Engineer. The Engineer may approve the use of channelizing devices instead of a wedge at the pavement edge. On high speed roadways (roadways with posted speed limits greater than 45 MPH), space the channelizing devices so that the distance (in feet) between devices is approximately 2 times the posted speed limit. On low speed roadways and urban streets (roadways with posted speed limits less than or equal to 45 MPH), space the channelizing devices so that the distance (in feet) between devices is approximately equal to the speed limit. Do not leave height differentials greater than 4 inches overnight without a wedge or channelizing device. To the extent reasonable, provide an obstruction free recovery area between channelizing devices and height differential.

o. Weather and Increased Traffic Volume Conditions. During periods of inclement weather, or during periods of unusually heavy traffic, from any cause, the Engineer may require construction operations to cease in order to adequately handle the traffic. The Engineer reserves the right to require the suspension or delay of certain operations, or the speeding up of specific operations to obtain a sequence of operations that will aid the

movement of traffic.

805.4 MEASUREMENT AND PAYMENT

a. General. No adjustments in the contract unit price will be made regardless of the amount of underruns or overruns.

b. Traffic Control (Lump Sum). When traffic control is shown in the Contract Documents as a lump sum it will be measured as such. The Engineer will not measure the W8-11 Uneven Lanes signs or W8-17 and W7-3aP Shoulder Drop-Off signs for separate payment.

The Engineer will make payments as shown in **TABLE 805-5**.

TABLE 805-5: TRAFFIC CONTROL (LUMP SUM) PARTIAL PAYMENTS		
Percent of Original Contract Amount Completed	Pay Lesser of the Two	
	% of Traffic Control	% of Original Contract Amount
10	50	5
80	100	10
100	100	NA

The Percent of Original Contract Amount Completed = the amount earned by the Contractor* divided by the total dollar value of the original contract (all bid items).

*Do not include monies earned for "Mobilization", "Traffic Control (Lump Sum)", "Contractor Construction Staking" and "Stored Materials".

c. Individual Devices and Pavement Marking.

(1) General. When bid items are shown in the Contract Documents for individual traffic control devices, the Engineer will measure each item by the designated unit, when the device is required, in place, and in an acceptable condition and position.

Measurement for payment of traffic control devices will begin on the day they are installed for traffic control and direction. When traffic control devices are not needed, they shall be removed or covered and will not be measured.

During non-working periods such as Sundays and holidays, the list of devices in place and in satisfactory condition will be measured for payment on the day following, to determine the measurement for pay.

During suspended periods, measurement of the devices used will be based on periodic checks conducted by the Engineer. These periodic checks do not relieve the Contractor of responsibility for traffic control.

Units used for only a portion of a day will be paid for as one full day's use, regardless of the length of time they are used during that day and number of times the unit is moved and re-erected.

Payment will not be made for any traffic control devices that remain in an unacceptable condition for 24 hours after the Contractor has been notified.

The following items are subsidiary to other items when specified by the Traffic Control Plan, shown in the Contract Documents or approved alternate Traffic Control Plan: Delineators, traffic cones, pilot cars, flaggers, temporary traffic signals used in lieu of flaggers, temporary traffic signals used in addition to flaggers, or AFADs used in addition to flaggers.

(2) Work Zone Signs (Size). The Engineer will measure each Work Zone Sign (Size) per each calendar day the device is required, in place and in an acceptable condition and position.

(3) Work Zone Sign (Special) (Size). The Engineer will measure each Work Zone Sign (Special), when the sign is first installed in place for traffic control and direction. No additional measurement will be made for relocating, repairing or maintaining the special signs. On the first estimate following the initial installation of a Work Zone Sign (Special) (Size), the price bid per sign will be paid for each sign installed.

(4) Barricades. The Engineer will measure each Work Zone Barricade (Type III) per each calendar day the device is required, in place and in an acceptable condition and position. Quantities shown in the Contract Documents are for estimating purposes only. Quantities for Type III barricades are estimated using 8 foot barricades.

(5) Arrow Display and Portable Changeable Message Sign. The Engineer will measure each Arrow Display and Portable Changeable Message Sign per each calendar day the device is required, in place and in an acceptable condition and position.

(6) Channelizer (Fixed or Portable). The Engineer will measure each Channelizer (Fixed or Portable) per

each calendar day the device is required, in place and in an acceptable condition and position.

(7) Work Zone Warning Lights (Type "A" or Red Type "B"). The Engineer will measure each Work Zone Warning Light (Type "A" or Red Type "B") per each calendar day the device is required, in place and in an acceptable condition and position.

(8) Pavement Marking (Temporary).

(a) The Engineer will measure Pavement Marking (Temporary) used on HMA or other asphalt type surfaces per line of pavement marking per lift, per Station line. When double yellow centerline marking is required, the Engineer will measure both lines for payment. The Pavement Marking (Temporary) used for widening and decelerating lanes, accelerating lanes and ramp areas will not be paid for directly, but will be considered subsidiary. When required, word and/or symbols will be subsidiary to other bid items.

(b) The Engineer will measure Pavement Marking (Temporary), on other types of surfacing construction per station per line. When required, word and/or symbols will be subsidiary to other bid items.

(c) If the Contractor elects to use Type I temporary pavement marking tape in place of Type II tape, the Type I tape will be measured and paid for as Type II temporary pavement marking tape. Required removal of temporary tape is subsidiary to other items in the contract.

Regardless of the type of tape replaced with paint, removal of the paint is subsidiary to the unit price for the paint.

When necessary, removal of permanent pavement markings will be measured and paid for according to **SECTION 808**. Removal of temporary pavement markings is subsidiary to the temporary pavement marking item.

(9) Flaggers (Set Price). When flaggers are specified in the Contract Documents or approved Traffic Control Plan, they will not be paid for separately, but will be considered as subsidiary to the other bid items. If the Contractor is allowed to use temporary traffic signals in lieu of flaggers, temporary traffic signals will not be paid for separately, but will be considered subsidiary to the other items of the contract. If the Contractor is allowed to use AFADs in addition to flaggers, AFADs will not be paid for separately, but will be considered subsidiary to the other items of the contract.

If the Engineer determines that additional flaggers are required, each additional flagger will be measured for each hour they are required.

(10) Traffic Signal Installation (Temporary). The Engineer will measure temporary traffic signals by the lump sum, when shown as a bid item in the Contract Documents and part of the Traffic Control Plan. The Engineer will make payments as follows:

- Pay 75% of the contract unit price after the traffic signals are initially installed and are operational.
- Pay 100% after the traffic signals are no longer needed for the movement of traffic and have been removed and/or stockpiled, as specified.

The Engineer will not measure temporary traffic signal installations when the Contractor elected to use Traffic Signals rather than flaggers, or in addition to flaggers.

(11) Temporary Raised Pavement Markers. The Engineer will measure each temporary raised pavement marker. No additional measurement will be made for cleaning or replacement of markers.

(12) Traffic Control (Initial Set Up). If the amount bid for this item is less than 25% of the sum of the amounts bid for all traffic control items, 100% of the amount bid for this item will be paid on the first estimate following the beginning of any traffic control set up done on the project.

If the amount bid for this item is 25% or greater than the sum of the amounts bid for all traffic control items, the amount equal to 25% of the sum of the amounts bid for all traffic control item will be paid on the first estimate following any traffic control set up done on the project. Upon completion of all work on the project, 100% of the amount bid for this item will be paid.

(13) Uneven Lane Signs. When individual Traffic Control bid items are shown in the Contract Documents, the Engineer will measure the Uneven Lanes (W8-11) signs each per day. See **subsection 805.4b**. when traffic control is bid Lump Sum.

(14) Wedges. Wedges at the pavement edge, or the channelizing devices used in lieu of a wedge, will not be measured for payment by the Engineer.

If the contract has individual traffic control bid items, the Engineer will measure the shoulder drop-off signs (W8-17 and W7-3aP) each per day. See **subsection 805.4b**. when traffic control is bid Lump Sum.

(15) Liquidated Damages. Once the Contractor is being assessed liquidated damages according to **subsection 108.8**, no traffic control devices will be measured for payment. On Calendar Completion Date projects with interim completion dates, no traffic control devices will be measured other than those required between the interim completion date and the next beginning work period. This does not relieve the Contractor from the

responsibility for providing all necessary traffic control on the project until it has been completed and accepted. Such traffic control will be at the Contractor's expense.

d. Payment. Payment for all individual traffic control devices, "Pavement Markings (Temporary)", "Flaggers", "Traffic Signal Installation (Temporary)", "Temporary Raised Pavement Marker (*)", "Traffic Control" and "Traffic Control (Initial Set Up)" at the contract unit prices is full compensation for the specified work.

Deducts for deficient temporary pavement markings will be paid for as "Contract Deduct" which will be an added item to the contract.

Add a new SECTION in DIVISION 1700:

AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADs)

1.0 DESCRIPTION

This specification covers automated flagger assistance devices (AFADs) for use in traffic control zones. These devices are designed to be remotely operated either by a single flagger at one end of the TTC zone, or at a central location or by separate flaggers near each device's location.

There are two types of AFADs:

- An AFAD that uses a remotely controlled STOP/SLOW sign on either a trailer or a movable cart system to alternately control flow of traffic.
- An AFAD that uses remotely controlled red and yellow lenses and a gate arm to alternately control flow of traffic.

2.0 REQUIREMENTS

Refer to TE710.

3.0 TEST METHODS

Test AFADs as specified by NCHRP Report 350.

4.0 PREQUALIFICATION

a. Initial Prequalification. Provide the following to the Traffic Control Engineer:

- Product Data Sheets
- Manufacturer's Literature
- NCHRP Report 350 crashworthy certification

Supply these items to:

Eisenhower State Office Building
Attn: Traffic Control Engineer
700 SW Harrison, 6th floor
Topeka, KS 66603-3745

The Bureau of Materials and Research will maintain a list of prequalified AFADs.

b. Requalification. Annual requalification is required. Send in the information stated in **4.0a.** and document any changes/improvements in the AFAD prior to March 30th of each year. If no information is received, the AFAD will be removed from the prequalified list.

5.0 BASIS OF ACCEPTANCE

- a. Prequalification as set forth under **4.0.**
- b. Receipt and approval of a Type C certification as specified in **DIVISION 2600.**
- c. Satisfactory performance in the field.