

SUPPLEMENTAL SPECIFICATIONS
INDIANA DEPARTMENT OF TRANSPORTATION
1999 STANDARD SPECIFICATIONS

REVISION TO 1999 STANDARD SPECIFICATIONS
SECTION 801, DELETE LINES 1, THROUGH 781.

SECTION 801, AFTER LINE 1, INSERT AS FOLLOWS.

**SECTION 801 -- TRAFFIC CONTROLS FOR CONSTRUCTION AND
MAINTENANCE OPERATIONS**

801.01 Description. This work shall consist of furnishing, placing, and maintaining signs, barricades, temporary pavement markings, and other traffic control devices at construction and maintenance operations in accordance with 105.03.

MATERIALS

10 **801.02 Materials.** Materials shall be in accordance with the following:

	Compacted Aggregate, Class D, size No. 73.....	904.02
	Construction Warning Lights	913.12
	Delineator Posts.....	910.15
	Delineators.....	913.08
	Field Paint	909.04
	Flashing Arrow Sign.....	913.13
	Flexible Delineator Posts.....	913.07
	Pavement Marking Materials.....	913.14
20	Steel Posts	910.14
	Temporary Highway Illumination Materials	807
	Temporary Panel Signs.....	913.10(b)
	Traffic Signal Materials and Equipment.....	913.15
	Traffic Signs	802
	Tubular Marker	913.07.1
	Wood Sign Posts.....	911.02(e)
	Worksite Speed Limit Sign Assembly	913.13.1

30 The background of construction signs shall be reflective sheeting in accordance with 913.10(d)3, 913.10(d)5, or 913.10(d)6. The sheeting type used for construction signs shall be the same for the entire project.

Steel sign posts need not be galvanized.

All temporary traffic control devices which will become the property of the Department shall be a new product at the time of final acceptance.

CONSTRUCTION REQUIREMENTS

40 **801.03 General Requirements.** The applicable requirements of the MUTCD shall apply to the installation and materials for traffic control devices subject to the requirements of 107.08 and 107.12. Effective January 1, 2001, a "Worksite Traffic Supervisor" certified by the American Traffic Safety Service Association, ATSSA, or approved equal certifying organization, shall be responsible for temporary traffic control devices. The worksite traffic supervisor shall be responsible for the field layout, placement, operation, maintenance, and removal of temporary traffic control devices. A copy of the certification shall be provided to the Engineer prior to the start of construction of temporary traffic control devices or if the worksite traffic supervisor changes.

50 Regulatory control devices shall be erected only as directed.

Advisory speeds to be posted will be determined by the Department.

The names and telephone numbers of the superintendent and one other responsible employee shall be furnished. Such employees shall be on call or available at night, on weekends, or during other non-working periods to repair or replace all traffic control devices which may become damaged or inoperative.

60 When traffic lanes are restricted and when specified as a pay item, a patroller shall inspect and maintain traffic control devices. The patroller shall patrol the construction zone and shall immediately correct, maintain, and repair traffic control devices or notify the Contractor designated persons for immediate repair to such traffic control devices. A full time patroller shall be on duty during periods when work is not in progress.

Temporary traffic control devices shall be maintained continuously, except as described herein, to ensure visibility and to protect the public. All reflective sheeting backgrounds and lights shall be kept clean of foreign matter.

70 Except for construction warning lights and temporary signals, the ATSSA brochure titled *Quality Standards For Work Zone Traffic Control Devices* will be used as a guide to determine if temporary traffic control devices are Acceptable, Marginal, or Unacceptable as defined in the brochure. Upon initial setup and phase changes of temporary traffic control devices, all individual devices shall be of the Acceptable classification. A device not completely covered or removed when the message does not apply or when directed, will be considered unacceptable.

80 A temporary traffic control device will be deemed to be in non-compliance when considered Unacceptable. A type of temporary traffic control device will be deemed to be in non-compliance when 25 percent or more of the individual devices are considered Marginal. Damages may be assessed in accordance with 105.14 for non-compliance.

Non-compliance of construction warning lights will be in accordance with 801.12.

All barricades, signs, or flashing arrow signs shall be moved from one location and re-erected at another location as shown on the plans or as directed.

Where two-way traffic is to be maintained on a one-way pavement, and where the existing shoulders on such roadway are earth, compacted aggregate size No. 73 shoulders shall be placed in accordance with 305.10(c) and as shown on the plans. Such compacted aggregate shoulders shall remain in place unless subsequent construction activities on the contract requires its removal.

Temporary drainage structures, temporary concrete median barrier units, and other temporary devices required and used for traffic maintenance shall remain the property of the Contractor.

CONSTRUCTION REQUIREMENTS

801.04 Construction Signs. Construction signs shall include the typical sign standards or posts which support the sign, all necessary hardware, and specified construction warning lights.

A route or lane closure notice sign shall consist of a construction sign type A, in accordance with 801.04(a), which indicates route or lane closure. The sign shall be mounted for a maximum of 14 calendar days and a minimum of seven calendar days before the closure date shown on the sign. The sign shall be removed when the route or lane is closed.

Trailers in accordance with 910.14(f) may be used as supports for portable construction signs. The trailer shall be located to hold the sign in a proper position. The position of the tongue shall be so as to cause no hazard to traffic. Wheel chocks other than sandbags shall not be used. The tongue may be pinned to reduce wind-induced rolling if designed to pull up or break from vehicle impact. During nonworking hours, trailers with signs that do not apply to existing conditions shall be stored in accordance with 107.08(c).

Sign posts and their foundations shall be located and constructed to hold signs in a proper position; to resist swaying, turning, or displacement; and minimize the hazard to motorists. No rigidly fixed sign supports will be permitted in exposed areas where it would be practicable to utilize a breakaway or yielding type design. Signs shall be completely covered or removed when the message does not apply.

If the work on a project, or a portion thereof, is not active, and the roadway is open to unrestricted traffic, construction signs may be removed until work resumes. Removal of such signs shall not relieve the Contractor of responsibilities or liabilities described elsewhere herein.

(a) Type A. A type A sign shall consist of a construction sign as detailed in the MUTCD or on the standard drawings which is 0.84 m² (9 sq ft) or more in area.

(b) Type B. A type B sign shall consist of a construction sign as detailed in the MUTCD or on the standard drawings which is less than 0.84 m² (9 sq ft) in area.

140 **(c) Type C.** A type C sign shall consist of a construction sign which is not detailed in the MUTCD or on the standard drawings and which is 0.84 m² (9 sq ft) or more but less than 3 m² (33 sq ft) in area.

(d) Type D. A type D sign shall consist of a construction sign which is not detailed in the MUTCD or on the standard drawings and which is less than 0.84 m² (9 sq ft) in area.

150 **(e) Temporary Panel Sign.** A temporary panel sign shall consist of a sign fabricated and constructed in accordance with 913.10(b) and which is greater than 3 m² (33 sq ft). Temporary panel signs shall be mounted on treated wood posts as shown on the plans and approved by the Department.

801.05 Detour Route Marker Assembly. Detour route marker assemblies shall be on a single post for a single route or may be on multiple posts for multiple routes. When two routes are being detoured across a common roadway, each route shall be shown by a separate detour route marker assembly. A detour route marker assembly-multiple route shall be used for three or more routes across a common roadway.

160 **801.06 Road Closure Sign Assembly.** Road closure sign assemblies shall be used at each road closure location where type III-A barricades or type III-B barricades are used. Road closure sign assemblies shall not be used within lane closures where adjacent lanes remain open to traffic, unless otherwise directed. Road closure sign assemblies may be required at other locations as directed.

Permanent road closure sign assemblies shall be left in place after the contract is completed and shall become the property of the Department. They shall be installed just prior to final acceptance of the contract. Supports shall be painted with white field paint for wood.

170 **801.07 Barricades.** Barricades shall include rails, posts, and all incidentals necessary to complete this part of the work.

High intensity reflective sheeting shall be placed on specified rails of all barricades. The colors for temporary barricades shall be orange and white, and for permanent barricades red and white.

All type III barricades shall be skid mounted within pavement, shoulder, or sidewalk areas, and on ground mounted posts in all other areas. Type III barricades shall be used on all slopes which are 3:1 or flatter for roadway closures.

180 **(a) Type III-A Barricade.** The type III-A barricade shall have rails which are reflectorized on one side and shall be used for roadway closures and lane closures where traffic can approach from only one side.

(b) Type III-B Barricade. Type III-B barricades shall have rails which are reflectorized on both sides and shall be used for roadway closures and lane closures where traffic can approach the barricade from both sides.

190 **(c) Permanent Type III Barricade.** Permanent type III barricades shall be 3.6 m (12 ft) sections and shall be left in place after the contract is completed, and shall become the property of the Department. Permanent type III barricades shall be installed just prior to final acceptance of the contract. All non-reflectorized wood and non-galvanized steel shall be painted with white field paint. Such barricades shall otherwise be in accordance with 801.07(a).

801.08 Cones and Tubular Markers. Cones shall be made of a material to withstand impact without damage to striking vehicles. They shall have a substantial base to restrict overturning. Cones and tubular markers shall be as shown on the plans.

200 Cones shall be used only during temporary activities where portability is advantageous and they remain in place and do not create a hazard to traffic. The use of cones in lieu of drums will be permitted during daylight hours unless otherwise directed.

 Tubular markers shall be used for separating two-lane two-way traffic as shown on the plans or as directed.

 Cones and tubular markers shall be secured in place either by weighting or adhesives. The use of metal bases will not be permitted.

210 **801.09 Drums.** Drums shall be molded orange polyethylene.

 The shape of the drum shall appear basically cylindrical to the motorist from any direction in any given application. The top outside diameter shall not exceed the bottom outside diameter. Drums shall be multisided, elliptical or have a flattened side to inhibit rolling.

 The top section of the drum shall have at least one construction warning light mounting bracket. The minimum drum height is exclusive of lifting handles or construction warning light mounting brackets.

220 The drums shall stand on end, be stable against overturning, and shall be internally or externally ballasted to resist wind speeds of up to 80 km/h (50 mph) and gusts created by traffic. The mass (weight) of the ballast shall be 20-25 kg (45-55 lb). The top of the drum shall be free from openings. Internally ballasted and externally collar ballasted drums shall not be mixed in each continuous set-up.

Internal ballast shall be sandbags, a molded plastic base filled with sand and closed with a locking cover, or a solid rubber base. The internal ballast shall be placed in the lower $\frac{1}{4}$ of the drum. The ballast device shall be self-draining.

230 The external ballast shall be two rubber tire base collars. The tire base collars shall have a circumferential contact with the road surface. The maximum diameter of the tire base collar shall not exceed 900 mm (36 in.). The height of two tire base collars at the outside edge shall not exceed 125 mm (5 in.). The rubber ballasting collars shall be clean cut, proper in size, black in color, and not curved up at the edges. The interior and exterior circumference of the collar shall not be slit or cut. Drums which are external collar ballasted shall not be used in situations where the width of the collar interferes with proper placement of the drum. The Department's Guidelines for External Ballast will be used for determining acceptability of rubber tire base collars.

240 Upon impact by a vehicle traveling at a speed of 90 km/h (55 mph), the drum and ballast device shall be of a type that permits the body of the drum to separate from the base, thus allowing vehicles to easily pass over the base.

Flexible encapsulated lens reflective sheeting shall be used to achieve reflectorization. Construction warning lights shall be used in accordance with 801.12 and as shown on the plans and shall be securely fastened to the mounting brackets. Signs shall not be mounted on drums.

250 Permanent drums shall be left in place after the contract is complete, and shall become the property of the Department. They shall be installed just prior to final acceptance of the contract.

801.10 Temporary Pavement Marking. Temporary pavement markings shall be in accordance with 808.04 and 808.05. However, the dashed line pattern used on center line and lane lines may be 1.2 m (4 ft) line segments on 12 m (40 ft) centers. Gore areas shall be marked by outline only and may be 125 mm (5 in.) wide lines. All temporary markings shall be maintained and replaced until they are no longer applicable.

260 Where temporary pavement markings are to be placed on a pavement which has existing markings, the existing markings which conflict with the temporary markings shall be removed in accordance with 808.09.

When working under traffic, the temporary pavement markings shall be placed before opening the lane to traffic. This shall include, but not be limited to, the marking patterns of gore areas, outside edge line of deceleration and acceleration lanes, narrow bridge markings, lane reduction transitions, lane lines, centerlines, and transverse markings as appropriate.

270 If a pavement course is to be in place for a period greater than 14 calendar days, all temporary pavement markings shall be placed in accordance with 808.04 and stop lines shall be placed in accordance with 808.05. No-passing zones on all undivided two-way roadways shall be identified with signs and centerline markings.

If the temporary pavement markings are to be in service from December 1 through the following March 31, such markings shall be placed in the standard pavement marking pattern and applied prior to the suspension of the work, or within seven work days after the Contractor is directed to place the markings.

280 The prismatic reflectors shall be removed from snowplowable raised pavement markers which conflict with the temporary traffic marking pattern. Snowplowable raised pavement marker castings damaged by the removal of the reflector shall be replaced in accordance with 808.10. New prismatic reflectors shall be mounted on existing castings in accordance with 808.10 when the final traffic pattern is established.

Removal of temporary pavement markings shall be in accordance with 808.09.

(a) Temporary Pavement Marking Methods. Pavement markings shall be installed in accordance with 808.06.

290

1. Paint. Painted lines on new HMA courses shall require a second application of paint as soon as practical after the first application is dry.

2. Temporary Pavement Marking Tape. Temporary pavement marking tape shall be applied in accordance with the manufacturer's recommendations. Temporary marking tape shall be new type I or type II material.

All temporary pavement marking tape shall be removed prior to placement of an HMA overlay or final pavement markings.

300

a. Type I. Type I tape is a removable material. It may be used for longitudinal and transverse markings. It shall be used for longitudinal and transverse markings on the final surface.

Type I tape shall be removed without the use of solvents, grinding, abrasive blasting, or other methods which may damage the pavement. All visible adhesive residue shall be removed without use of solvents or grinding.

310 **b. Type II.** Type II tape is a non-removable material. It may be used on PCCP to be removed or overlaid with an HMA course greater than 60 kg/m² (110 lb/sq yd). If it is placed on HMA pavement, the tape shall be removed prior to the recycling of the HMA material.

If it is necessary to remove type II tape, it shall be removed without the use of solvents. All damage to the pavement shall be repaired.

320 **3. Temporary Raised Pavement Marker.** The temporary raised pavement marker shall be grade 1 or grade 2. When used, it shall be a supplement to other temporary pavement markings. The color of the reflector shall be in accordance with the other temporary pavement marking. The color of the shell of the grade 1 marker shall be in accordance with the color of the other temporary pavement marking.

Temporary raised pavement markers shall be removed before the next layer of pavement is placed and before the final pavement markings are applied. All damage to the pavement shall be repaired.

330 **4. Temporary Buzz Strips.** Temporary buzz strips shall be a set of transverse markings. Durable marking material shall be used in accordance with 808.06(b). Temporary buzz strips shall be removed in accordance with 808.09 when no longer required or as directed.

(b) Quality Assurance Unit. A quality assurance unit for longitudinal line shall be 150 m (500 ft) on marked pavement in any combination or pattern, or portion thereof. A quality assurance unit for transverse marking shall be each. If a marking fails to be in accordance with the marginal standard as defined in the ATSSA Quality Standards for Work Zone Traffic Control Devices, the quality assurance assessment will be assessed in accordance with 801.03.

340 **801.11 Temporary Illumination.** The temporary highway illumination shall be in accordance with applicable requirements of 807 except as modified herein.

 The electric energy necessary to power the luminaires on a continuous basis is the responsibility of the Contractor.

 At completion of the contract work, the temporary illumination shall be removed and shall remain the property of the Contractor. After removal of the temporary illumination equipment, all holes and trenches shall be backfilled with B borrow.

350 **801.12 Construction Warning Lights.** Construction warning lights shall be portable, lens directed, enclosed lights that emit an amber color. All warning lights shall be mounted a minimum of 900 mm (36 in.) above the traveled way to the bottom of the lens, unless otherwise directed. Lights not working shall be repaired or replaced immediately. For each day that more than 5% of the required warning lights are not operating, a sum equal to \$4.00 per non-working light will be deducted from the monies due the Contractor.

360 **(a) Type A.** Type A lights shall be low intensity flashing warning lights which are mounted on drums, vertical panels, or on specified construction warning signs. These lights shall be visible on a clear night from a minimum distance of 900 m (3,000 ft) when there is no external illumination directly on or in the immediate vicinity of the light. They shall operate from dusk to dawn or when conditions exist which tend to obscure vision. Traffic control devices used for maintaining traffic will not require Type A warning lights during unobscured daylight hours.

(b) Type B. Type B lights shall be high intensity, flashing, warning lights, which are mounted on all road closure sign assemblies or as shown on the plans. These lights shall be visible on a sunny day from a minimum distance of 300 m (1,000 ft) when viewed without the sun directly on or behind the light.

370

(c) Type C. Type C lights shall be steady burning warning lights which shall be used with channelization devices. These lights shall be visible on a clear night from a minimum distance of 900 m (3,000 ft) when there is no external illumination directly on or in the immediate vicinity of the light. They shall operate from dusk to dawn or when conditions exist which tend to obscure vision.

(d) Vehicle Warning Lights. Vehicle warning lights shall be amber and shall be a strobe light or a flashing, oscillating, or rotating directed beam light. They shall be visible to all approaching traffic for a distance of 300 m (1,000 ft).

380

801.13 Electronic Devices.

(a) Flashing Arrow Sign. Where specified, a flashing arrow sign shall be furnished, installed, and maintained. It shall be operated continuously, when necessary, to divert traffic.

The flashing arrow sign may be of the solar power assisted type only in stationary operations when the horizontal or vertical curvature in the road is such that motorists do not drive into and out of the beam width of the lighted arrow while within sight of the sign.

390

(b) Changeable Message Signs. This shall consist of furnishing, installing, and maintaining a trailer-mounted, portable sign upon which varying electronically generated messages will be displayed to traffic.

A malfunctioning sign shall be repaired or replaced within 24 h.

(c) Temporary Worksite Speed Limit Sign Assembly. This shall consist of furnishing and placing portable speed limit signs as shown on the plans or as directed in areas of work activity. The worksite speed limit flashing lights shall be activated when the worksite speed limit is in effect. This shall be only where and while work is actually in progress, and workers are present.

400

The worksite speed limit shall not be used for the entire length of a roadway under construction unless there is actual work activity for the entire length of such roadway. It shall not be activated at the beginning of the day, for the entire day, if actual work is not being done all day in the work area.

The worksite speed zone signage shall be placed and maintained by the Contractor. The worksite speed limit will be 45 mph, or 10 mph below the posted speed limit for the roadway under construction, whichever is lower.

410

A worksite "Reduced Speed Ahead" sign shall be placed in advance of the first sign assembly when the reduction in speed limit is greater than 15 mph.

(d) Temporary Traffic Signals. This work shall consist of furnishing, installing, and maintaining temporary traffic signals in accordance with 805 except as modified herein.

420 *Except as shown on the plans, all materials not furnished by the Department shall remain the property of the Contractor after work is completed and the equipment is removed.*

The traffic signal equipment shall be as specified, but may be either new or used. Used equipment shall be in satisfactory working condition and will be approved prior to use.

430 *Two signal heads shall be displayed for each approach. Signals shall be displayed overhead on a span, catenary, and tether utilizing an aircraft cable, unless otherwise directed.*

Electric energy necessary to power the temporary signal is the responsibility of the Contractor. Prior to the start of construction, the schedule of activities shall be coordinated with the power company.

440 *The Contractor shall obtain permits from local officials, companies, or individuals for the use of poles, right-of-way, or other property incidental to the installation of temporary signals. Although entering into the contract implies permission and authority to install conduit under pavement, sidewalks, and alleys, all damage to underground utilities or interruption of such service shall be the responsibility of the Contractor.*

The location, spacing, and timing of signals will be determined by the Engineer.

An IMSA certified level II technician shall be available 24 h a day to respond within 2 h for the maintenance of the traffic signal equipment.

450 *Signal cable may be extended across bridges through conduit which shall be attached to the underside of the coping. Type and spacing of clamps shall be approved prior to installation.*

Conduit shall be steel or plastic. Flexible conduit will be an acceptable alternate for use as ground rod entry, magnetometer, or microloop installations.

The controller shall be solid state digital. When detection is required, the controller shall be traffic actuated solid state, digital.

460 *Vehicle detection, if required, shall be installed as shown on the plans or as otherwise directed and shall be operational prior to signal activation.*

801.14 Temporary Traffic Control Zone. *A temporary traffic control zone is a work zone with frequently changing operation, a maximum duration of seven calendar days; mobile operation; or a temporary traffic stoppage.*

(a) Temporary Traffic Control Signs. *Temporary traffic control signs (TTCS) are construction signs in a temporary traffic control zone.*

470 Trailer mounted TTCS shall be positioned such that the tongue and the method of pinning shall minimize the hazard to motorists. Wheel chocks other than sandbags shall not be used. During non-working hours, trailers with signs that do not apply to existing conditions shall be stored in accordance with 107.08.

TTCS shall not be mounted on barricades or other non-approved supports. When the vertical mounting height for TTCS is between 300 mm and 450 mm (12 in. and 18 in.) to the bottom of the sign, tripod supports may be used. When permitted for use, the signs on tripod supports shall be installed so that the angle from vertical does not exceed 30 degrees.

480 **(b) Maintenance of Traffic for Mobile Operations.** Signs, flagging, flashing arrow signs, and other required traffic control devices shall be furnished in accordance with the details shown on the plans or as directed. The Engineer reserves the right to stop work at any time to relieve traffic congestion.

(c) Traffic Control for Temporary Traffic Stoppage. Traffic shall not be permitted to pass directly beneath personnel or equipment working on an overhead structure. Traffic stoppage during an overhead operation shall not exceed 20 min at one time. There shall be enough time between consecutive stoppages to permit traffic to return to normal flow.

490 Three working days prior to commencing work which necessitates temporary stoppage of traffic, written notice shall be given to the Department and the Indiana State Police that highway traffic shall be stopped temporarily at a specific location, time, and date to accomplish specified work. Traffic shall be safely controlled during the stoppage. The following minimum requirements shall be met.

1. On Multi-Lane Divided Highways. Advance warning signs shall be located as specified or as otherwise directed. For each direction of road closure two flaggers shall be located at the site of the work and a minimum of two additional flaggers shall be used to warn approaching traffic.

500 **2. On Non-Divided Highways.** Advance warning signs shall be located as specified or as otherwise directed. For each direction of road closure, one flagger shall be located at the site of the work and a minimum of one additional flagger shall be used to warn approaching traffic.

801.15 Method of Measurement. Construction signs, detour route marker assemblies, detour route marker assemblies-multiple routes, temporary worksite speed limit sign assemblies, road closure sign assemblies, temporary changeable message signs, and temporary raised pavement markers will be measured by the number of units
510 installed, maintained, and removed.

Temporary panel signs will be measured by the square meter (square foot). Temporary panel sign supports, when required, will be measured by the meter (linear foot), complete and in place.

Type III-A and type III-B barricades will be measured by the number of units determined by dividing the total length of barricade installed, maintained, and removed by 3.6 m (12 ft) sections. Permanent type III barricades will be measured by the number of 3.6 m (12 ft) sections installed.

520

Flashing arrow signs will be measured by the number of calendar days each unit is operated.

Patroller will be measured by the number of calendar days during the phase or phases of traffic control, as shown on the plans or as otherwise directed, that require the patroller's presence. Each portion of a day will be measured as a whole day.

530

Temporary pavement markings will be measured by the meter (linear foot) of material actually placed. Temporary buzz strips will be measured by the meter (linear foot) for each strip, without regard to the number of passes required to attain the specified height.

If, due to a Department initiated change or an approved expedited construction schedule, it is necessary to remove temporary nonremovable pavement markings, such removal will be measured in accordance with 808.11. The removal of existing pavement markings which are in conflict with temporary markings, will be measured in accordance with 808.11.

540

The removal and replacement of reflectors on existing snowplowable raised pavement markers will be measured in accordance with 808.11.

Compacted aggregate size No. 73 used for shoulder material will be measured as widening with compacted aggregate in accordance with 305.11. Excavation of the existing earth shoulder will not be measured for payment.

Cones and tubular markers will not be measured for payment. Permanent tubular markers will be measured per each.

550

Temporary illumination, temporary traffic signals, and maintaining traffic will not be measured for payment.

801.16 Basis of Payment. The accepted quantities of construction signs, detour route marker assemblies, detour route marker assemblies-multiple routes, temporary worksite speed limit sign assemblies, road closure sign assemblies, and temporary raised pavement markers will be paid for at the contract unit price per each. Payment for temporary worksite speed limit assemblies and temporary changeable message signs will be made for the maximum number of such assemblies in place during the contract time. Type III-A, type III-B, and permanent type III barricades will be paid for at the contract unit price per each 3.6 m (12 ft) section.

560

If more than one construction sign is mounted on a common support with the messages facing opposite directions, the largest sign will be paid for at the contract unit price of the sign, and each additional sign will be paid for at one half the unit price of the sign if it had been erected independently.

Temporary panel signs will be paid for at the contract unit price per square meter (square foot) as shown on the plans. Temporary panel sign supports will be paid for at the contract unit price per meter (linear foot), complete and in place.

570 *Flashing arrow signs and patrollers will be paid for at the contract unit price per day per each.*

Temporary pavement markings and temporary buzz strips, will be paid for at the contract unit price per meter (linear foot) of material, complete in place, except as set out below.

| *Permanent tubular markers will be paid for at the contract unit price per each.*

580 *The removal of temporary nonremovable pavement markings caused by a Department initiated change or an approved expedited construction schedule, and the removal of existing pavement markings which are in conflict with temporary markings will be paid for in accordance with 808.12.*

| *Compacted aggregate used for shoulder material will be paid for as widening with compacted aggregate size No. 73 in accordance with 305.12.*

The removal and replacement of reflectors on existing snowplowable raised pavement markers will be paid for in accordance with 808.12.

590 *Temporary illumination will be paid for at the contract lump sum price.*

All traffic control devices and construction materials which are specified as separate pay items and used for maintenance of traffic will be paid for as set out in the Schedule of Pay Items.

The furnishing, placing, moving, removal, and maintenance of all other traffic control devices will be paid for at the contract lump sum price for maintaining traffic.

600 *The accepted temporary traffic signal, complete in place and later removed as specified, will be paid for at the contract lump sum price.*

Payment will be made under:

	Pay Item	Metric Pay Unit Symbol (English Pay Unit Symbol)
	Metric Pay Item	Metric Pay Unit Symbol
	(English Pay Item)	English Pay Unit Symbol)
	Barricade, _____	EACH
	type	
610	Barricade, III, Permanent.....	EACH
	Construction Sign, _____	EACH
	type	
	Detour Route Marker Assembly	EACH
	Detour Route Marker Assembly, Multiple Routes.....	EACH
	Drum, Permanent.....	EACH
	Flashing Arrow Sign.....	DAY
	Maintaining Traffic.....	LS
	Patroller	DAY
	Road Closure Sign Assembly.....	EACH
620	Road Closure Sign Assembly, Permanent	EACH
	Temporary Buzz Strips.....	m (LFT)
	Temporary Changeable Message Sign.....	EACH
	Temporary Illumination	LS
	Temporary Panel Signs.....	m2 (SFT)
	Temporary Panel Sign Supports.....	m (LFT)
	Temporary Pavement Marking, _____ mm.....	m
	width	
	(Temporary Pavement Marking, _____ in.	LFT)
	width	
630	Temporary Pavement Marking, Removable, _____ mm.....	m
	width	
	(Temporary Pavement Marking, Removable, _____ in.	LFT)
	width	
	Temporary Pavement Message Marking, _____	EACH
	description	
	Temporary Pavement Message Marking, Removable, _____	EACH
	description	
	Temporary Raised Pavement Marker, _____	EACH
	grade	
640	Temporary Traffic Signal	LS
	Temporary Traffic Signal with Detectors.....	LS
	Temporary Transverse Pavement Marking, _____ mm	m
	width	
	(Temporary Transverse Pavement Marking, _____ in.	LFT)
	width	
	Temporary Transverse Pavement Marking, Removable, _____ mm.....	m
	width	
	(Temporary Transverse Pavement Marking, Removable, _____ in.	LFT)
	width	

650	Temporary Worksite Speed Limit Sign Assembly.....	EACH
	Tubular Marker, Permanent.....	EACH

The cost of furnishing, installing, maintaining, and subsequent removal shall be included in the cost of temporary raised pavement marker.

The cost of cleaning existing pavement and removal of buzz strips shall be included in the cost of buzz strips. Damage to the pavement caused by removal of buzz strips and temporary pavement markings shall be repaired as directed with no additional payment.

660

No payment will be made for temporary pavement markings which are in the standard pavement marking pattern, and which are to be in service from December 1 through the following March 31 due to the Contractor's failure to complete the work as scheduled. However, payment will be made for these markings should the failure to complete the work as scheduled be due to conditions beyond the Contractor's control.

The cost of the second application of temporary painted lines on new HMA courses shall be included in the costs of temporary pavement markings.

670

The cost of furnishing, installing, maintaining, and subsequent removal of the detour marker, route marker, or street or road name sign, cardinal directional marker, directional arrow marker, posts which support the assembly, and all necessary hardware shall be included in the cost of detour route marker assembly or detour route marker assembly, multiple routes.

The cost of installing, maintaining, and subsequent removal of signs, type B construction warning lights, assembly supports, and all necessary hardware shall be included in the cost of road closure sign assembly.

680

The cost of furnishing all materials, erection, maintenance, removal, and necessary incidentals shall be included in the costs of barricades.

Each construction sign, barricade, temporary worksite speed limit sign assembly, temporary changeable message sign, or flashing arrow sign will be paid for only once regardless of how many times each is moved, replaced, or how many times each is altered to change the sign message. Payment will not be made for signs or barricades used for the convenience of the Contractor.

690

If a temporary worksite speed limit sign assembly is not flashing when required beginning 2 h after notification, or if such assembly is flashing when no work has been taking place for 2 h or longer, \$200.00 will be deducted from payment for such work for each 4 h period after the Contractor is informed that such assembly is not functioning properly.

If the Contractor elects to use more than two simultaneous operations during the installation of snowplowable pavement markers or reflectors, the costs of required traffic protection devices for additional operations shall be included in the cost of maintaining traffic.

700 *The cost of necessary flaggers; protection of traffic at structure foundations; and furnishing, erecting, placing, maintaining, relocating, and removing lights, cones, flexible channelizers, tubular markers, drums, delineators, temporary pavement markings, or other devices as directed shall be included in the cost of maintaining traffic.*

Replacement of snowplowable raised pavement marker castings damaged due to removing reflectors will not be paid for.

710 *The cost of furnishing and placing cones or tubular markers in accordance with 801.08 and drums in accordance with 801.10, the watcher in accordance with 107.12, repair or replacement of damaged or inoperative traffic control devices, and traffic maintenance in accordance with 108.03 shall be included in the cost of maintaining traffic.*

If the compacted aggregate size No 73 required for shoulders is removed, the cost of such removal shall be included in the cost of the compacted aggregate.

Electric energy necessary to power luminaires and temporary traffic signals will not be paid for.

SECTION 803, BEGIN LINE 56, DELETE AND INSERT AS FOLLOWS:

(a) Under Traffic. During the erection of overhead sign structures, traffic shall be safely controlled in accordance with ~~801.15~~ 801.14(c). The minimum requirement for a

SECTION 805, BEGIN LINE 258, DELETE AND INSERT AS FOLLOWS:

Loop wire shall be in accordance with ~~913.15(f)4e(2)~~ 913.15(f)5g(2). Loop detector sealant shall be in accordance with ~~913.15(f)4e(3)~~ 913.15(f)5g(3).

SECTION 806, LINE 1, DELETE AND INSERT AS FOLLOWS:

SECTION 806 -- TEMPORARY TRAFFIC SIGNALS BLANK

SECTION 806, DELETE LINES 2 THROUGH 144.

SECTION 808, BEGIN LINE 13, DELETE AND INSERT AS FOLLOWS:

Cones ~~801.07~~ 801.08

SECTION 808, BEGIN LINE 244, DELETE AND INSERT AS FOLLOWS:

control devices, safety devices and proper procedures. Traffic control devices shall be placed in accordance with ~~107.11~~ 107.12. Flaggers shall be provided for traffic control as directed.

SECTION 808, BEGIN LINE 256, DELETE AND INSERT AS FOLLOWS:

(b) Vehicle Warning Lights. All amber flashing warning lights and amber strobe lights mounted on vehicles used in the marking operation shall be in accordance with ~~801.06~~ *801.12(d)*. All vehicles used in the marking operation shall have a minimum of one