600 INCIDENTALS

ITEM 614 - MAINTAINING TRAFFIC

- 614.01 Description
- 614.02 Traffic Facilities
- 614.03 Traffic Control General
- 614.031 Permit
- 614.032 Notification
- 614.04 Work Zone Marking Signs
- 614.05 Road Closed
- 614.06 Detour Signing
- 614.07 Traffic Maintained
- 614.08 Flaggers
- 614.09 Law Enforcement Officer
- 614.10 Work Zone Traffic Signals
- 614.11 Work Zone Pavement Markings
- 614.12 Pavement Marking Operations
- 614.13 Asphalt Concrete for Maintaining Traffic
- 614.14 Performance
- 614.15 Method of Measurement
- 614.16 Basis of Payment

614.01 Description. This work consists of maintaining and protecting vehicular and pedestrian traffic according to these provisions. For through traffic, the special provisions or plans will designate whether the highway will be closed with detours, roads and run-arounds provided or whether traffic will be maintained through all or portions of the project.

614.02 Traffic Facilities. Construct and maintain facilities for vehicular and pedestrian traffic of the highway, including all walks, roads, bridges, culverts, and traffic control devices. *The City will maintain surface of public highways used as a detour beyond the work limits of the contract.*

- (1) For local traffic, provide and safely maintain drives, roads, run-arounds, walks, structures, and other facilities. Provide safe vehicular and pedestrian ingress and egress for all property adjacent to any improvement. Provide approaches and crossings of intersecting highways and maintain them in a safe condition. Maintenance includes snow and ice removal as needed.
- (2) When the highway under construction is being used by through traffic, including periods of suspension of the Work, maintain it so that it is smooth, free from holes, ruts, ridges, bumps, and dust. For the portions of highway being used, provide the necessary outlets to allow free drainage. Maintain pipe trenches or other openings left in hard surface pavements

with material of comparable quality. *Contractor maintenance responsibilities including pothole patching begins for a section of highway when the Contractor begins the Work in that section, within the work limits, and ends with the acceptance of the Work under 109.09 or 109.10. The two directions of a divided highway are considered separate highway sections and the start of Work on one direction does not begin maintenance responsibilities on the other direction.*

(3) Remove from the Project as necessary, abrasives and salt residues left by Local Government snow and ice control operations.

614.03 Traffic Control - General. Conform to the requirements of the plan, standard construction drawings identified in the plans, and the Ohio Manual of Uniform Traffic Control Devices for Streets and Highways, hereinafter called the Ohio Manual, for the installation, maintenance, and operation of all traffic controls and traffic control devices. When the plans or standard drawings do not cover a specific traffic control situation, the Contractor shall submit a Maintenance of Traffic Plan to the City for approval.

All traffic controls and traffic control devices shall be in place and approved by the Engineer before construction begins. When construction is to be accomplished in phases, the required traffic control for each phase shall be in place and approved by the Engineer before construction of that phase begins.

Use portable changeable message signs pre-qualified according to current specifications.

Use drums, signs, sign supports, barricades, impact attenuators, and other traffic control devices that are certified to meet NCHRP 350 safe-crash standards. Do not use heavy non-yielding devices or supports that do not conform to the current standards of NCHRP 350 unless allowed by Contract Documents.

Use Type H reflective sheeting complying with ODOT CMS 730.192 for faces of orange construction signs, barricades, vertical panels, object markers, and Type G or Type H for stripes on glare screen panels and regulatory signing.

Provide drums with Type G reboundable reflective sheeting complying with the requirements of 730.191. Ensure that owner identification markings on construction drums are no more than 1 inch (25 mm) in character height and are located at least 2 inches (50 mm) below the reflectorized bands or on the top or bottom horizontal surfaces of the drum. Ballast the drums according to the manufacturer's recommendations or as directed by the Engineer.

Provide traffic cones, for daylight hours only, consisting of a highly visible orange predominant color. Ensure that the pavement markings for traffic maintenance conform to Item 614.11.

Provide warning signs in advance of channelizing devices such as barricades, drums, vertical panels, and cones. Keep retroreflective materials clean and in good condition.

If equipment, vehicles, and material are stored or parked on highway rights-ofway, locate them not less than 6 feet (2 m) behind existing guardrail or not less than 30 feet (9 m) beyond the traveled way unless otherwise permitted by the Engineer. At night if any such material or equipment is stored between the side ditches, or between lines 6 feet (2 m) behind any raised curbs, clearly delineate with lighted channelizing devices that are approved by the Engineer.

Provide signs, drums, barricades, lights, and other traffic control devices in new or equal condition. All reflective sheeting shall be free of damage, discoloration, and defacement. Direct comparison measurements with a new sample of comparable material may be used in the event of a conflict.

614.031 Permit. Apply for a permit at the City's Transportation Division a minimum of 5 working days prior to the closure of any portion of a street. A copy of the plans and a Maintenance of Traffic Plan, with phasing, must be presented at the time of application. The permit application will then be reviewed by the Transportation Division and issued by the City. An original permit, signed in red ink, must be kept on the job at all times.

Failure to comply with the provisions of this permit, including, but not limited to, working outside the permitted hours of work and/or the failure to properly install the required traffic control, is a violation of City Code 903 and will result in the revocation of this permit and a fine of up to \$1,000.00 and up to 6 months in jail. No work will be allowed in the City right-of-way without a valid permit.

A revoked permit may only be restored with the written permission of the Transportation Division, and the Division of Police.

614.032 Notification. Notify the Engineer, *the Construction Coordinator and Paving The Way*, in writing, of all traffic restrictions and upcoming maintenance of traffic changes on a weekly basis. When detours are planned this notification shall be at the preconstruction meeting or *10 working days in advance of construction*. When lane and ramp closures for 2 or more weeks are planned this notification shall be at least 2 weeks in advance of such closures. When lane and ramp closures are planned for less than 2 weeks this notification shall be at least 3 working days in advance of such closures.

Information shall include but not be limited to all construction activities that impact traffic at present and in the next 30 days. The report shall be of a format approved by the Project Engineer. The Contractor shall designate an individual who will be responsible to prepare this report at the preconstruction meeting.

Report any unforeseen impacts to traffic to the Project Engineer as soon as possible.

614.04 Work Zone Marking Signs. Furnish, install, maintain, and subsequently remove work zone marking signs and their supports within the work limits according to the following requirements:

- 1. Erect a NO EDGE LINES sign in advance of any section of roadway lacking Ohio Manual standard edgeline markings. Ensure these signs are in place before opening the roadway to traffic. Erect these signs on each entrance ramp, at intersections of through roads to warn entering or turning traffic of the conditions, and at least once every 1 mile (1.6 km) along the roadway. Remove these signs when they no longer apply.
- 2. Provide Type C steady burning lights for all channelizing devices used during hours of darkness. Provide Type A flashing lights for all advance warning signs and additional lights as directed by Engineer.
- 3. A flashing arrow panel shall be used in the closure of any through lane of traffic, except in a two-way, one-lane traffic pattern.
- 4. During hours of darkness, flagger stations shall be fully illuminated with portable lighting separate from the lighting for the work area and all devices shall meet nighttime requirements per the Ohio Manual and all OSHA standards.

614.05 Road Closed. When the highway is closed to traffic, provide, erect, maintain, and subsequently remove advanced warning signs and supports, Type III barricades with 2 ROAD CLOSED signs and a DO NOT ENTER sign on the barricades, and Type B yellow flashing lights at the total closure point. Dual mount portable Type III Barricades with ROAD CLOSED LOCAL TRAFFIC ONLY, NO OUTLET, and Detour signing at the intersection prior to the total closure point and as directed by engineer.

Throughout construction, furnish, erect, maintain, and subsequently remove all signs, lights, barricades and other traffic control devices required by the Ohio Manual, plans, or standard drawings for the maintenance of local traffic.

614.06 Detour Signing. Provide, maintain, and subsequently remove all required detour signing and supports according to the detour signing plan and/or as directed by Engineer.

614.07 *Traffic Maintained.* Where the highway under construction is being used by through traffic, including periods of suspension of the work, furnish and maintain pavement markings, street lights, construction signs, barricades, guardrail, sign supports, traffic signals, and such other traffic control devices. Also, provide law enforcement officers, watchmen, and flaggers as necessary to maintain safe traffic conditions within the work limits as directed by the Engineer.

The Engineer will approve the erection and removal of any regulatory signs not shown in the plans.

Keep existing signs and traffic control devices in use within the work limits during the construction period unless otherwise indicated on the plans. If existing signs and other traffic control devices must be relocated or modified as a consequence of the work, provide suitable supports and modify the devices with prior approval of the Engineer and the concurrence of the maintaining agency. Keep existing STOP or YIELD signs functioning at all times. The Contractor may adjust the position of these signs with the Engineer's approval. Relocate existing signs that must be adjusted laterally according to the Ohio Manual. Restore relocated or modified signs to the position and condition that existed before construction as directed by the Engineer. When signs are to be covered, provide an opaque covering that covers the entire message, symbol and all of the sign within the border. Do not use fastenings that damage the sign or reflective face; however, the Contractor may use rivets to attach rigid overlay panels. Do not apply adhesive tapes directly to the face of the sign.

When an existing signal operation must be interrupted for a period, provide a traffic control method approved by the Engineer.

Existing Parking Meters. If an existing parking meter is taken out of service, there is a daily charge, equal to the hourly rate on the meter times the number of hours the meter is enforced. In addition, if a meter head must be removed, a charge is due for removal of each meter. These charges shall be collected in advance with the issuance of a sidewalk/street excavation/occupancy permit. This permit can be obtained through the City, at which time the indicated fees will be collected.

Notify the City a minimum of 48 hours prior to the beginning of work; Saturday and Sunday do not count in the notification time whenever a meter needs to be removed. The City will remove the meter and will pre-mark the meters for re-installation. The meter posts will be provided to the Contractor for re-installation. The posts must be plumb to 1/4 inch (6.4 mm). The Contractor shall notify the Parking Meter Supervisor at least 48 hours prior to the beginning of the re-installation; Saturday and Sunday do not count in the notification time.

Whenever it is necessary to divert the flow of traffic from its normal channel into another channel, clearly mark the channel for such diverted traffic with advance signs, cones, drums, barricades, vertical panels, pavement markings, and/or flashing arrow panels (when closing a through lane of traffic). Also use this method of marking where working adjacent to the part of the highway in use by the public.

Obtain the approval of the Engineer before closing a traffic lane or establishing a two-way, one-lane traffic operation. See Flaggers 614.08

614.08 *Flaggers.* Whenever two-way, one-lane traffic is established, *use Law Enforcement Officers heretoafter called L.E.O.'s, as flaggers, unless the Engineer authorizes otherwise,* and erect signs, cones, barricades, and other traffic control devices according to the Ohio Manual. Maintain positive and quick means of communication between the flaggers at the opposite ends of the restricted area.

Equip flaggers according to the standards for flagging traffic contained in *Part* 7 of the Ohio Manual. When a flagging operation, other than an intersection or a spot location best controlled by a single flagger (L.E.O.), ensure that each flagger uses a STOP/SLOW paddle conforming to the Ohio Manual. Mount the paddle on top of a 6 1/2 foot (2 m) handle. Ensure that each face of the paddle is made of Type G reflective sheeting meeting the requirements of 730.19. While flagging, do not allow flaggers to perform other work activities. The Contractor may, instead of flaggers, or supplementing them, furnish, install, and operate a traffic signal or signals, for the purpose of regulating traffic according to a written agreement approved by the Engineer.

614.09 Law Enforcement Officer. When specified in the plans and as Flaggers per 614.08, provide for the services of a law enforcement officer and patrol car equipped with flashing lights.

614.10 *Work Zone Traffic Signals.* When specified in the plans, furnish, erect, maintain, and subsequently remove signal equipment conforming to 632 and 732, and signal controller equipment of a proper type and capacity to provide the required operation. Subject to the Engineer's approval, the Contractor may use new equipment that is to be installed later on the project, or may install used equipment in good condition provided such used equipment meets current City specifications. The performance test in 632.27 and the working drawing requirements of 632.03 are waived. Recondition used equipment as necessary to ensure proper operation. Operate work zone traffic signals conforming to the requirements of the Ohio Manual and subject to the approval of the Engineer.

Procure and pay for electric power for work zone traffic signals. Do not alter the operation of an approved work zone traffic signal without the Engineer's approval. Correct any malfunctions or failures without delay. Cover or remove work zone traffic signals not in use.

614.11 Work Zone Pavement Markings. Furnish, install, maintain, and, when necessary, remove work zone retroreflective pavement markings on existing, reconstructed, resurfaced or roads within the work limits, according to the following requirements.

(A) Acceptability and Expected Duration. The Engineer will evaluate the markings according to the three performance parameters contained in ODOT Supplement 1047. Repair or replace the markings when the numerical rating is six or lower for durability, and four or lower for visual effectiveness and night visibility. *If the markings were in place for 180 calendar days or less*, repair or replace unsatisfactory markings immediately and at no additional cost to the City. *The City will compensate under the applicable contract pay item for work zone pavement marking for the ordered replacement of worn markings after 180 calendar days under traffic.*

- (B) Work Zone Marking Specifications. Unless otherwise indicated in the plans, the Contractor may use either 642 paint or 740.06 Type I or Type II preformed material for Work Zone pavement markings. Provide painted markings according to 642 except that:
 - (1) The deduction for deficient material specified in 641.11 does not apply;
 - (2) The Contractor may use either conventional or fast dry paint where the markings are not likely to be tracked;
 - (3) When applied to new asphalt concrete pavement surfaces placed by the Contractor, use the specified application rate from the following table:

	Gallons per Mile of Line Width of Line (inches)		
Type of Pavement Marking	4	8	12
Solid Line	24	48	72
10 foot Dashed Line	6		
4 foot Dashed Line	2.4		
Dotted Line	8		

Arrows, Symbols, and Words

1.5 gallons per 100 square feet

	Liters per Kilometer of Line Width of Line (mm)		
Type of Pavement Marking	100	200	300
Solid Line	57	113	170
3.0 m Dashed Line	14		
1.2 m Dashed Line	5.7		
Dotted Line	19		

Arrows, Symbols, and Words

0.6 liters per square meter

(4) When applied to planed asphalt concrete pavement surfaces, use the specified application rate from the following table:

	Gallons per Mile of Line Width of Line (inches)		
Type of Pavement Marking	4	8	12
Solid Line	29	58	87
10 foot Dashed Line	7.2		
4 foot Dashed Line	2.9		
Dotted Line	9.6		

Arrows, Symbols, and Words

1.8 gallons per 100 square feet

	Liters per Kilometer of Line Width of Line (mm)		
Type of Pavement Marking	100	200	300
Solid Line	68	136	204
3.0 m Dashed Line	17		
1.2 m Dashed Line	7		
Dotted Line	23		

Arrows, Symbols, and Words 0.72 liters per square meter

Ensure that Type I and Type II preformed material conform to 740.06, except do not place any preformed material containing metal on any surface unless it will be removed later. Remove work zone pavement markings of 740.06 preformed material before placement of 642 or 644 surface course markings at that location. Ensure that preformed material conforms to 645, except as modified in this item.

- (C) **Work Sequence.** Ensure that work zone markings are complete and in place on all pavement, including ramps, before exposing the pavement to traffic. When work zone markings conflict with the traffic pattern, remove them according to 641.10.
- (D) **Tolerances.** Place lines for final surfaces according to the tolerances of 641.07. On surfaces other than final, the Department will allow tolerances twice that in 641.07. Perform layout and premarking according to 641.06.

(E) Marking Dimensions.

- (1) **Class I Markings (Full Pattern).** Apply Class I work zone markings to the standard dimensions as defined in 641 with the following exceptions: make transverse and crosswalk lines 8 inches (200 mm) wide, and make stop lines 12 inches (300 mm) wide.
- (2) **Class II Markings (Abbreviated).** Class I work zone markings are defined as follows:

- (a) *Centerlines.* Class II centerlines consist of double, yellow 4 inch (100 mm) wide by a minimum of 4 feet (1.2 m) long dashes spaced at a maximum of 40 feet (12.0 m) intervals.
- (b) *Lane Lines.* Class II lane lines consist of white 4 inch (100 mm) wide by a minimum of 4 feet (1.2 m) long dashes spaced at a maximum of 40 feet (12.0 m) intervals.
- (c) **Gore Markings.** Class II gore markings are continuous, white 4 inch (100 mm) wide lines placed at the theoretical gore of an exit ramp or diverging roadways.
- (F) **Conflicting Markings.** Before placing work zone markings, remove or cover all conflicting existing markings visible to the traveling public.
 - (1) **Removal and Covering of Markings.**
 - (a) **Removal Methods.** Remove the markings by using small handheld grinders or scarifiers, sandblasting, or other methods approved by the Engineer. Exercise care during marking removal not to scar, discolor or otherwise damage the pavement surface.
 - (b) *Covering Conflicting Markings.* Do not cover, remove, or obliterate existing markings by overlaying them with black paint or asphalt, etc.; however, with the Engineer's approval, use removable, non-reflective, preformed tape that minimizes contrast with the pavement where markings need to be covered temporarily.
 - (2) **Raised Pavement Markings.** Remove the prismatic retroreflector within any raised pavement marker that is in conflict with the work zone pavement markings. When the work zone pavement markings are removed and the raised pavement marker is no longer in conflict, thoroughly clean the recessed reflector attachment area of the casting and install a new prismatic retro-reflector of the same kind and color. The cost for this work is incidental to the various pay items.

(G) Allowable Duration of Work Zone Markings.

(1) No Passing Zones. When existing permanent no-passing-zone markings are removed or obliterated as the result of a construction operation (pavement grinding, asphalt concrete pavement overlays, etc.) and the section of pavement continues to be used by the traveling public, place final centerline markings as specified by the plan or as directed by the Engineer, within 3 calendar days. The Contractor may use equivalent 614 Class I centerline markings or channelizing devices, as approved by the Engineer, instead of final markings.

- (a) Subsequent Work in No Passing Zones. If, after the original markings are removed or obliterated, the Contractor returns to the subject no passing zone and places a plan-specified pavement course within the 3 calendar day limit, or performs work in preparation for a subsequent pavement course, the Contractor shall have temporarily satisfied the conditions of the previous paragraph. In this event, the 3 calendar day limit will begin again.
- (b) Liquidated Damages. For each calendar day beyond 3 days that this work remains incomplete, the City will assess liquidated damages in the amount of \$1000 per calendar day/per street. The City will treat the time for the completion of no-passing-zone markings as an interim completion date.
- (2) **Passing Zones.** Conform to the 21 day limit described below for sections of pavement where passing is permitted in both directions.
- (3) Allowable Duration of Class II Lane Lines and Gore Markings and Absence of Edge Lines. Any time existing permanent lane lines, gore markings, or edge lines have been removed or obliterated as the result of a construction operation (pavement grinding, asphalt pavement overlays, pavement widening, etc.) and the section of pavement continues to be used by the traveling public, place final pavement markings as specified by the plan within 21 calendar days. The Contractor may use equivalent 614 Class I markings instead of final markings.
 - (a) **Subsequent Work.** If, after the original markings are removed or obliterated, the Contractor returns to the subject section of pavement and places a plan-specified pavement course within the 21 calendar day limit, or performs specified work that requires a lane closure (except routine maintenance required by 614.02), the Contractor shall have temporarily satisfied the conditions of the previous paragraph. In this event, the 21 calendar day limit will begin again.
 - (b) *Liquidated Damages.* For each calendar day beyond 21 days that this work remains incomplete, the City will assess liquidated damages in the amount of \$1000 per calendar

day. The City will treat time for the completion of these markings as an interim completion date.

- (1) **Continuous Project.** If a section of pavement is in a continuous part of the project, then a new 21 day limit for renewed work on a section applies to all sections in that part.
- (2) **Project in Sections.** If the project is in parts and the traveling public could not discern the parts as one continuous project, then a new 21 day limit in one part will not apply to the other parts.
- (3) **Freeways and Divided Highways.** Treat the two directional sides of a freeway as separate parts. Work on one side of a freeway does not create a new 21 day limit for the other side.

614.12 *Pavement Marking Operations.* Perform moving marking operations with a truck equipped with necessary flashers, signs, crash attenuator, flashing arrow panel, and protect the operations with a similarly equipped vehicle or vehicles separated a sufficient distance to provide adequate advance warning. Use the extreme left or right lane for the marking operation when possible. Where three or more lanes exist in one direction, perform the marking operation so that traffic passes on one side only.

Protect stationary marking operations in intersections, school zones, gores and other areas with traffic control devices such as advance warning signs, flashing arrow panels, and cones.

For stationary operations such as loading material and cleaning equipment, make every effort to have all equipment completely off the traveled way. When equipment cannot be removed from the traveled way, operate all traffic control devices on the vehicles and station flaggers and vehicles to protect the worksite and the traveling public while maintaining two-way traffic.

614.13 Asphalt Concrete for Maintaining Traffic. The Contractor may use an asphalt concrete surface course the Engineer approves. Place surface course materials as and where the Engineer directs for maintenance of the existing pavement, shoulders, or structures.

Where materials are placed in small quantities or under adverse conditions, the Engineer may waive specification requirements for placing and finishing if, in the judgment of the Engineer, it is determined that the Contractor can obtain satisfactory results in providing a smooth and durable pavement surface.

614.14 Performance. If, in the opinion of the Engineer, the Contractor is not providing proper maintenance of traffic facilities and proper provisions for traffic control,

the City may take the necessary steps to have them placed in proper condition, including hiring a third company and the City *will deduct the cost of such services from any money that may be due or become due the Contractor*.

614.15 Method of Measurement. The City will measure Work Zone Marking Signs as the number of sign installations, including the sign, necessary supports, *and all attachment hardware*. The City will include all other work zone signs, including detours, under Maintaining Traffic unless separately itemized.

The City will measure Work Zone Pavement Markings complete in place, by class and material, in the units designated.

The City will measure line quantities as the length of the completed stripe, including gaps, intersections, and other sections of pavement not normally marked.

614.16 Basis of Payment. Unless separately itemized, the lump sum price bid for Maintaining Traffic shall include the cost of removal or covering of conflicting pavement markings and layout, application and removal of pavement markings when required, maintaining the existing highway in a safe condition for public use, removing abrasive and salt residue remaining from snow and ice control performed by local governments, providing flaggers; and their equipment; and furnishing, maintaining in an acceptable condition, and subsequently removing the following work zone traffic control items as required by the plans and specifications:

- 1. Signs, supports, flags, and warning lights
- 2. Drums, cones, gates, barricades, and vertical panels
- *3. Flashing arrow panels*
- 4. Work zone traffic signals
- 5. Lighting for work zone signals, L.E.O.'s and flaggers

The lump sum price bid for Detour Signing includes the cost of the Contractor furnishing, installing, maintaining, and removing the detour signing shown in the plans or as directed by the Engineer and their necessary supports.

The City will pay for the following items under the associated Item numbers: 502 Bridges, 615 Temporary Roads and Pavements, 622 Concrete Barrier. The City will pay for Aggregate and Calcium Chloride authorized by the Engineer and used for Maintaining Traffic under Items 410 and 616.

The City will make payment at the contract price for:

Item	Unit	Description
614	Lump Sum	Maintaining Traffic
614	Lump Sum	Detour Signing
614	Each	Replacement Drum
614	Each, Mile, Linear Foot	Work Zone Pavement Markings
	(Kilometer, Meter)	
614	Each	Work Zone Raised Pavement Marker
614	Each, Sign Month	Portable Changeable Message Sign
614	Each	Work Zone Speed Limit Sign
614	Each	Work Zone Marking Sign
614	Hour	Law Enforcement Officer with
		Patrol Car
614	Each	Barrier Reflector
614	Each	Work Zone Crossover Lighting
		System
614	Each	Work Zone Impact Attenuator
614	Mile (Kilometer)	Work Zone Lane Line,
		Class,*
614	Mile (Kilometer)	Work Zone Center Line,
		Class,*
614	Linear Foot (Meter)	Work Zone Channelizing Line,
		Class I,*
614	Mile (Kilometer)	Work Zone Edgeline,
		Class I,*
614	Linear Foot (Meter)	Work Zone Gore Marking,
		Class II,*
614	Linear Foot (Meter)	Work Zone Stop Line,
		Class I,*
614	Linear Foot (Meter)	Work Zone Crosswalk Line,
		Class I,*
614	Linear Foot (Meter)	Work Zone Dotted Line,
		Class I,*
614	Cubic Yard (Cubic Meter)	Asphalt Concrete for
	· · · · · · · · · · · · · · · · · · ·	Maintaining Traffic

* Type material (642 paint; 740.06 Type I or Type II; or left blank to permit any of the three.)