

**Construction Specification for
Maintenance of Vehicular Traffic, Pedestrians and Cyclists in Work Zones**

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TS 1.00.01 SCOPE

This specification covers the requirements for the construction and maintenance of safe and accessible travel paths for all road users including pedestrians and cyclists when construction disrupts or encroaches on the right-of-way, including provision of the following:

- 1) Temporary traffic lanes.
- 2) Temporary access to private driveways and side streets.
- 3) Temporary pedestrian facilities such as sidewalks, walkways, ramps and boardwalks for the convenience of the public.
- 4) Temporary bicycle facilities including alternate routes and detours.
- 5) Site fence, crowd control barrier or other barrier as specified in the Contract Documents to separate work areas from those used by the public.
- 6) Traffic control persons, police officers, signs, barricades, delineators, lights and other traffic control devices in conformance with the Ontario Traffic Manual, Book 7 – Temporary Conditions, and *Occupational Health and Safety Act*.

TS 1.00.02 REFERENCES

This specification refers to the following standards, specifications or publications:

City of Toronto Standard Specifications

TS 1.30	Construction Specification for Steel Plates Used in Connection with Roadway Utility Excavations
TS 310	Construction Specification for Hot Mixed, Hot Laid Asphaltic Concrete Paving
TS 501	Amendment to OPSS.MUNI 501 – Construction Specification for Compacting
TS 1010	Amendment to OPSS.MUNI 1010 – Material Specification for Aggregates – Base, Subbase, Select Subgrade and Backfill Material
TS 1101	Amendment to OPSS.MUNI 1101 – Material Specification for Performance Graded Asphalt
TS 1151	Material Specification for Superpave, Stone Mastic and Warm Mix Asphalt

City of Toronto Standard Drawings

T-216.02-12	Crowd Control Barrier
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City of Toronto Publications

TADG 2021	Toronto Accessibility Design Guidelines (2021)
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Ontario Provincial Standard Specifications

OPSS.MUNI 740	Construction Specifications for Permanent Concrete Barriers
OPSS.MUNI 1352	Material Specification for Precast Concrete Barriers

Ontario Provincial Regulations

O. Reg. 191/11	The Integrated Accessibility Standards, Design of Public Space Standard
O. Reg. 231/91	Occupational Health and Safety Act, the Ontario Regulation 231/91 Construction Projects

Ontario Ministry of Transportation

Ontario Traffic Manual Book 7 Temporary Conditions

American Traffic Safety Services Association

Nighttime Lighting Guidelines for Work Zones – A guide for developing a lighting plan for night time work zones (Appendix F)

Illuminating Engineering Society

The Lighting Handbook

Infrastructure Health & Safety Association

Best Practices for Traffic Control During Nighttime Operations (Appendix G)

Society for Protective Coatings

Paint 20 Zinc-Rich Coating (Type II - Organic)

TS 1.00.03 DEFINITIONS

For the purpose of this specification, the following definitions apply:

AODA means The Accessibility for Ontarians with Disabilities Act (AODA) which seeks to ensure that all Ontarians have fair and equitable access to programs and services and to improve opportunities for persons with disabilities.

Bicycle Facility refers to designated spaces on and off the roadway that are specifically designed for the movement of cyclists.

Crushed Aggregate means pieces of aggregate having at least one well-defined face resulting from fracture. Particles with smooth faces and rounded edges, or with only small chips removed, are not considered crushed.

Cyclist refers to an individual travelling by a conventional bicycle or a power-assisted bicycle as defined under the Highway Traffic Act.

Multi-use Trail means that part of a highway, boulevard or city right-of-way that is designated by authorized signs for shared use by cyclists, pedestrians and in-line skaters.

Pedestrian means a person traveling on foot or using a wheeled mobility aid, whether they are walking, running or wheeling.

Sidewalk refers to the paved area, typically constructed parallel to and grade-separated from roadways, that is designated for pedestrian travel.

Superpave means an acronym for Superior Performing Asphalt Pavements. It is an alternative system to the Marshall method for specifying material components and asphalt mix design method using the Superpave gyratory compactor.

Transportation Services means City's Transportation Services division.

TS 1.00.04 DESIGN AND SUBMISSION REQUIREMENTS

TS 1.00.04.01 Hot Mix Asphalt

All submission and design requirements for hot mix asphalt shall be as specified in TS 1151, except that trial batches will not be required.

TS 1.00.04.02 Night Time Lighting Plan

Submit a night time lighting plan showing additional lighting equipment and spacing to provide lighting levels required for the determined work activities according to Nighttime Lighting Guidelines for Work Zones. Plans are to be pre-approved by the Contract Administrator and a copy stored in the field office.

TS 1.00.05 MATERIALS

TS 1.00.05.01 Superpave 9.5 Asphalt

All Superpave 9.5 asphalt shall meet the materials specifications of TS 1151 and construction specification of TS 310. The grade of asphalt shall be PG 58-28 according to TS 1101.

TS 1.00.05.02 Superpave 19.0 Asphalt

All Superpave 19.0 asphalt shall meet the materials specifications of TS 1151 and construction specifications of TS 310. The grade of asphalt shall be PG 58-28 according to TS 1101.

TS 1.00.05.03 Crushed Aggregate

All crushed aggregate shall be Granular A and shall be according to TS 1010.

TS 1.00.05.04 Site Fence

All site fences shall consist of steel 'T' posts, top wire and plastic or metal fencing.

Steel 'T' posts shall be 50 x 50 x 2400 mm metal stakes primed with one brush coat of black zinc rich paint according to SSPC Paint 20.

The fencing shall be constructed of heavy duty, high visibility, rigid orange plastic or metal and shall be a minimum of 1.2 m high.

If work on a project may endanger a person using a public way, a site fence at least 1.8 metres in height shall be constructed between the public way and the work zone.

TS 1.00.05.05 Crowd Control Barrier

Crowd control barriers shall be according to T-216.02-12, and the barriers should be similar in shape and size to those supplied by Mark-All Services Incorporated for their Type 'B' Crowd Control Barrier with smooth rounded corners (551 Piercey Road, Bolton, Ontario, L7E 5B5, 905-951-2700), or approved equivalent.

The crowd control barrier shall be painted in yellow and have a solid piece of reflective tape placed along the top rail. The reflective tape shall be a minimum 600 mm in length and shall be centred on the top rail.

TS 1.00.05.06 Temporary Barrier

All temporary barriers shall be of the type listed below:

- 1) Precast concrete barrier, with an I-Lock connection, meeting the requirements of OPSS.MUNI 1352.
- 2) Triton barrier as manufactured by Energy Absorption Systems Inc. (35 East Wacker Drive, Chicago, Illinois, 60601, 312-467-6750). The local supplier of Triton Barrier is Lecol Co. Ltd. (689 Warden Avenue, Units 15 & 16, Scarborough, Ontario, M1L 4R6, 416-694-4420) or approved equivalent.

TS 1.00.05.07 Steel Road Plates

Steel road plates shall be installed according to TS 1.30

TS 1.00.06 EQUIPMENT – Not Used

TS 1.00.07 CONSTRUCTION

TS 1.00.07.01 General

All road users including pedestrians, cyclists and drivers of motor vehicles need to be safely accommodated during construction.

The Contractor shall at all times carry on the work in a manner that will create the least interference and the safe movement of pedestrians, cyclists and vehicles and provide protection and accommodation for pedestrians and cyclists consistent with the faithful performance of the work.

The Contractor shall not close the road, bicycle facility or sidewalk, or provide any detour except with the written approval of the Contract Administrator in conjunction with the Work Zone Coordinator. The Contractor shall at its own expense provide for the safe passage and control of pedestrians, cyclists and motor vehicles by supplying, placing, maintaining, changing, and removing such barricades, signs, lights, and Traffic Control Persons as are required for the proper notification and protection of the public approaching or passing through any part of the Work Zone and all devices so used shall be according to the Ontario Traffic Manual, Book 7 – Temporary Conditions and all aspects of the Work shall be according to the *Occupational Health and Safety Act*.

Where, with the approval of the Contract Administrator, the road is closed and pedestrians, cyclists and vehicles are diverted entirely off the road to any other public roads, the Contractor shall, at its own expense, supply and erect barricades, lights and such other protection as may reasonably be required by the Contract Administrator at all points where pedestrians, cyclists and vehicles might enter on that portion of the road so closed to traffic. The Contractor, when required by the Contract Administrator, shall supply traffic control personnel, to protect the barricades and direct pedestrians, cyclists and vehicles at each end of the portion or portions of the roadway closed to the traffic.

If, at any time, the Contractor fails to provide for the safe passage and control of pedestrians, cyclists and vehicles on any existing road or detour as prescribed in this specification, and if the Contractor fails to correct within 24 hours such an unsatisfactory condition upon being so directed in writing, the Contract Administrator may immediately correct the unsatisfactory condition and take such other action as they deem necessary for the safe passage and control of pedestrians, cyclists and vehicles.

The City may deduct from any monies due or to become due to the Contractor, on any account, any cost or expense incurred by the City.

Failure to act on the part of the Contract Administrator under this subsection shall not relieve the Contractor from its responsibilities under this Contract.

The Contractor shall co-ordinate the removal and reinstallation of any existing parking meters, traffic control signs or signals, and other roadside furniture with the Toronto Parking Authority and Transportation Services.

The Contractor shall restore all parking meters, traffic control signs or signals, and other roadside furniture damaged by construction to the satisfaction of the Contract Administrator, Transportation Parking Authority and Transportation Services. All restoration is to be done at the expense of the Contractor.

Wherever steel road plates are used they shall be according to TS 1.30.

All concrete, asphalt and contaminated aggregate, used for temporary construction and in traffic maintenance, shall be excavated and disposed of off the site. All material deemed reusable, by the Contract Administrator, shall be graded into and compacted to form part of the roadway subbase or other temporary work. No additional payment will be made for the re-handling, reuse or disposal of this material.

All temporary construction staging and temporary traffic control for pedestrian and cycling facilities and traffic layouts within the work zone shall be carried out to the satisfaction of the Contract Administrator and Work Zone Coordinator. The temporary traffic control plan guiding the staging and control shall include accommodations for pedestrians and cyclists and shall conform to the requirements of Ontario Traffic Manual Book 7, Temporary Conditions Section 3.7, unless where the Toronto Accessibility Design Guidelines have a higher standard than Book 7, in which case the TADG specification shall be used. The Contract Administrator shall give written notification of any deficiencies, and the Contractor shall initiate repairs within 24-hours.

The City reserves the right to contract with others to complete any repairs that have not been initiated within 24-hours of written notification. All repair costs, including all overhead and office costs incurred in the remedial actions will be deducted from the final payment to the Contractor.

TS 1.00.07.02 Site Meetings

Regular site meetings will be held every week or every two weeks, or as required by the Contract Administrator, to discuss traffic control plans and progress of work. Attendance will be required by at least one representative from the Contractor.

The Contractor shall be responsible for the following:

- 1) Coordinating and organizing attendance of subcontractors responsible for any work to be discussed as part of the agenda.
- 2) Informing the Contract Administrator, in advance of the meeting, of all items to be added to the agenda.
- 3) Ensuring that the Contractor representatives in attendance have the required authority to commit the Contractor to actions agreed upon.
- 4) Any proposed changes to the approved Traffic Control Plan shall be brought to the Contract Administrator and Work Zone Coordinator for review and approval.

TS 1.00.07.03 Temporary Traffic Lanes

Where two-way traffic is required, at least two paved lanes of a minimum width of 3.0 m each including placing temporary pavement markings shall be kept open to traffic at all times during construction. Lane widths for curb lanes that are part of a Toronto Transit Commission (TTC) bus service route shall be a minimum width of 3.3 m.

Any portions of such lanes which, in the opinion of the Contract Administrator, are required outside the edge of the existing pavement shall consist of 75 mm of Superpave 19.0, Traffic Category B hot mix asphalt over a 225 mm thickness of Granular A, compacted to meet the requirements of TS 501.

Prior to the placing of the stone and asphalt layers, selected excavated material from either roadway or sewer excavations shall be used to fill ditches, depressions or other low areas and shall be compacted to 100% of maximum dry density.

All temporary or alternative pedestrian walkways, sidewalks, bus stops, pedestrian, bicycle and wheelchair accessibility ramps shall be maintained at all times.

Space for pedestrians and accommodations for cyclists shall be maintained and considered a higher priority than motor vehicle accommodations. Reducing the number of motor vehicle lanes, narrowing motor vehicle lanes and temporarily removing motor vehicle parking should be considered before the reduction in pedestrian and cycling facilities. In rarer situations, where space is too constrained to provide alternative routes for both pedestrians and cyclists, temporary traffic control shall prioritize continuous, accessible and separated routes for pedestrians, with accommodations and signage to enhance safety of cyclists in shared lanes with motorists.

TS 1.00.07.04 Bus Stops

At temporary bus stops, a flat and adequately drained platform consisting of Superpave 9.5, Traffic Category B asphalt to 75 mm compacted thickness shall be placed on top of a 100 mm compacted thickness of Granular A base for pedestrian use. In addition, a safe and accessible ramp and walkway must be maintained between the temporary bus stop and any adjacent sidewalk. Where a temporary bus stop cannot be accommodated, the contractor will be required to locate a safe and reasonable alternative that is fully accessible in consultation with the Toronto Transit Commission (TTC) and the Contract Administrator. There shall be no blocking of bus stops or temporarily relocated bus stops by construction vehicles or equipment.

TS 1.00.07.05 Local Streets and Laneways

The Contractor shall maintain two-way traffic on local streets leading to the work zone wherever possible. If necessary, and subject to the approval of the City, traffic on local streets may be reduced to one lane for a period of time determined by the Contract Administrator in consultation with the Work Zone Coordinator. If the local street is to be reduced to one lane, a qualified Traffic Control Person must be present on site during active construction from the time of lane reduction until the local street is open to two-way traffic.

The Contractor shall maintain two-way traffic on laneways leading to the work zone wherever possible. If the laneway is to be reduced to one lane, a qualified Traffic Control Person shall be present on site during active construction from the time of the lane restrictions until the laneway is open to two-way traffic.

TS 1.00.07.06 Private Driveways

The Contractor shall maintain access to driveways wherever possible. Driveways greater than 6 m in width shall have access maintained at all times. Construction shall be scheduled to allow temporary access to either half of the driveway. Such temporary access shall consist of a layer of well compacted Granular A placed to a minimum thickness of 150 mm and a minimum width of 3 m, or as specified in the Contract Documents.

TS 1.00.07.07 Temporary Pedestrian Facilities

The Contractor shall provide and maintain safe and convenient facilities for pedestrian traffic through the work zone. These facilities shall provide for a dry, hard and even surface at all times that is clear of debris. Such temporary pedestrian facilities shall have a minimum width of 2.1 m on major, minor and collector roads, or 1.8 m on local roads, and consist of a layer of well compacted Granular A placed to a minimum thickness of 100 mm, and a layer of well compacted smooth Superpave 9.5, Traffic Category B asphalt surface placed on top to a minimum compacted thickness of 75 mm. A minimum vertical clearance of 2.5 m shall be provided across the entire width of the pedestrian route.

TS 1.00.07.08 Pedestrian Safety and Accessibility

Pedestrians shall be provided with a safe, convenient, accessible and clearly delineated travel path according to OTM Book 7 Section 3.7.1 *Pedestrian Safety Considerations* and the Toronto Accessibility Design Guidelines (TADG). Wheelchair access shall be maintained at all times. This includes designating routes using positive protection as described in OTM Book 7 Section 4. It is not acceptable in any situation to designate pedestrian routes using mesh fencing, caution tape, cones or other materials that do not provide positive pedestrian protection. Travel paths through work zones should minimize detours and shall be according to *Section 3.7.1.2 Pedestrian Travel Path*.

Pedestrians shall be protected from all potential hazards associated with the work zone. These hazards and potential mitigations shall be according to OTM Book 7 Section 3.7.1.1 *Pedestrian Protection from the Work Zone* and Section 3.7.1.2 *Pedestrian Travel Path*.

OTM Book 7 Section 3.7.1 requires that the characteristics of the existing sidewalk(s) or footpaths(s) are replicated as closely as possible. Note that the TADG defines wider sidewalk width than OTM Book 7 and is the standard to be followed. A clear sidewalk width of minimum 2.1 m should be provided for all collector roads and major and minor arterial roads. On local roads, 2.1 m is the minimum, width can be reduced to 1.8 m on roads with low pedestrian volumes and low vehicles speeds and volumes. Additional pedestrian accommodations are required in certain cases, including well-travelled pedestrian routes, as noted in OTM Book 7. Sidewalks of less than 1.8 m but no less than 1.2 m may be permitted at the discretion of the Work Zone Coordinator on sidewalks with lower volumes of pedestrians where larger widths are infeasible.

According to TADG (Figure 4.1.2-B), where the head room clearance is less than 2.1 m over a portion of the pedestrian path, a rail or other barrier with a leading edge that is cane detectable must be provided around the object that is obstructing the head room clearance.

Where a pedestrian path of 1.2 m or greater cannot be maintained, the Contractor shall consider safe and clearly signed options directing pedestrians to use the sidewalk on the opposite side of the road. According to OTM Book 7 (April 2022), Section 3.7.1.2. *Pedestrian Travel Path*, directional signage must be located at the closest controlled crossing points from all directions of approach, with the goal to provide the shortest possible diversion from the original route; and access must be maintained to all businesses, services and residences. All temporary paths and/or detours must be fully accessible from end to end.

Any work taking place in or near an intersection shall ensure that at least one safe pedestrian crossing is provided in each direction, for example north-south; east-west. Contractor shall select one of the following choices.

Where there are no existing pedestrian facilities within the work zone, the contractor shall provide a temporary pedestrian facility if space is available within the road allowance. If this is not feasible then the Contractor shall provide a well signed detour route for pedestrians. If at any time during construction, access to the roadway is to be closed to pedestrians, the Contractor shall provide a well-signed detour route for pedestrians.

TS 1.00.07.08.01 *Curb Ramps*

If the temporary pedestrian path requires pedestrians to traverse a curb, contractors shall install a temporary curb ramp applying one of the following choices:

Asphalt Curb Ramp

- Ramp maximum slope of 1:10 where elevation is 75 mm or greater and 200 mm or less
- Maximum cross slope of 1:50
- Maximum slope on flared side no more than 1:10
- Minimum clear width of 1200 mm, exclusive of any flared sides
- Constructed of asphalt
- Flush with the curb.

Pre-fabricated Boardwalk Ramps

Prefabricated boardwalk ramps shall have the following features:

- Ramp slope of 1:12
- Guidance for canes, walkers and handrails shall be according to the Toronto Accessibility Design Guidelines (TADG).
- Slip-resistant surface lumber and/or metal surfaces
- Allow for water drainage
- Approach plates 1220 mm W x 457 mm L with slip-resistant surface
- Ramp rated for 360 kg.

TS 1.00.07.08.02 *Boardwalk Platform*

Boardwalk platform shall be used with the boardwalk ramp when the alternate pedestrian pathway is parallel to the curb or sidewalk. Boardwalk platform shall have the following features:

- Ramp slope of 1:12
- Guidance for canes, walkers and handrails shall be according to the Toronto Accessibility Design Guidelines (TADG).
- Slip-resistant surface lumber and metal surfaces
- Allow for water drainage
- Approach plates 1220 mm W x 457 mm L with slip-resistant surface
- Platform rated for 360 kg
- Platform is 1220 mm x 1525 mm and provide for an accessible path of travel

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- Screw jacks to support the platform and can accommodate curb heights from 50 mm to 350 mm.

TS 1.00.07.08.03 *Boardwalk Bridge*

Boardwalk bridge shall be used when there are temporary pathways over curbs in sidewalk work zones or obstructions such as an open trench that is perpendicular to the sidewalk and street. Boardwalk bridge shall have the following features:

- Ramp slope of 1:12
- Guidance for canes, walkers and handrails shall be according to the Toronto Accessibility Design Guidelines (TADG).
- Slip-resistant surface lumber and metal surfaces
- Allow for water drainage
- Approach plates 1220 mm W x 457 mm L with slip-resistant surface
- Ramp rated for 360 kg
- Platform is 1220 mm x 1525 mm and provide for an accessible path of travel
- Screw jacks to support the platform and can accommodate curb heights from 50 mm to 350 mm.

TS 1.00.07.08.04 *Detour Routes*

If a sidewalk must be closed, the Contractor shall provide a parallel diversion route to be approved by the Contract Administrator and the Work Zone Coordinator, which may require temporary parking removal, ramps or paths. If a parallel diversion route is not feasible the Contractor will provide a detour route which minimizes additional time and distance.

The Contractor shall provide sufficient signs to direct pedestrians around all sidewalk detours. The signage must be provided at the closest controlled intersection or safe/controlled crossing point so that pedestrians are not encouraged to cross mid-block or forced to back track.

The Contractor shall ensure that signage does not encroach on the clear width of the pedestrian path, which should be minimum 2.1 m unless the approved Traffic Control Plan specifies a narrower width.

At the end of each work shift, and to the extent possible throughout working hours, the existing pedestrian sidewalk or detour path must be left clear of mud or dirt, gravel, poles, temporary signs, hoses, barriers, construction materials, vehicles, equipment, and other protruding objects such as tree limbs or the bases of construction signage. Paths must have firm, stable and slip-resistant surfaces.

TS 1.00.07.09 Bicycle Facilities

Where a bicycle facility or bicycle path exists within the work zone, temporary facilities shall be provided. Such temporary bicycle facilities shall as closely as possible replicate the facility that is disrupted by the construction and consist of a layer of well compacted, Granular A placed to a minimum thickness of 100 mm, a layer of well compacted smooth Superpave 9.5, Traffic Category B asphalt surface placed on top to a minimum thickness of 75 mm, and a minimum width of 1.5 m for one-way traffic and a minimum width of 2.5 m for two-way traffic. A minimum vertical clearance of 2.5 m shall be provided.

Every effort shall be made to maintain the existing cycling facilities during construction if safe to do so. Closure of a bicycle lane shall be a last resort in the absence of other practicable routing or accommodation options needed to ensure cyclist safety. Where a temporary facility for cyclists is required within the work area, it can be addressed in the following ways, listed in order of preference:

- 1) Providing a cycle lane in the work zone by shifting and narrowing the adjacent traffic lanes.
- 2) Providing a cycle detour route with signage marking the full length of the detour.
- 3) Merging cyclists into an existing traffic lane.

Any temporary cycling facility or treatment for cyclists required during construction shall be included in the Traffic Control Plan and Contract Documents.

If the full roadway is closed to all vehicles, then a detour route for cyclists may be considered. A closure with a small footprint, where the end of closure is visible from either side, may be considered. Cyclist Dismount and Walk sign may be suitable when full closures of all lanes are localized to small footprints. Cyclists may dismount and walk bikes on sidewalk for short footprint closures.

When cyclists are directed to follow a diversion, detour, or dismount, signage shall be provided and placed to direct cyclists safely through the detour, diversion or work zone.

All information with regard to the use of bicycle facilities shall be supplied and maintained by the Contractor.

In all cases, using available road width to provide alternative pedestrian routing directly adjacent to a disrupted sidewalk should take priority over space for a dedicated bicycle facility.

TS 1.00.07.09.01 Cyclist Safety Considerations

The Contractor shall not use the bicycle facility to temporarily store any construction equipment or materials.

Cyclist safety considerations shall be applied in all cases, including on roads that do not have a bike lane, cycle track or other bicycle facility. Safety measures shall be according to OTM Book 7 Section 3.7.2 *Cyclist Safety Considerations*.

Where construction work or traffic management arrangements adjacent to construction zones or both encroach on existing bicycle lanes, cycle tracks or multi-use paths, every effort must be given to provide a modified or temporary cycling facility consistent with existing infrastructure in terms of width, surface and physical separation, according to OTM Book 7 Section 3.7.2.2 *Modified/Temporary Cycling Facility*.

Some conditions, such as loose gravel, sand and mud, uneven road surface and debris will pose hazards to cyclists. Minimization, identification and mitigation of those hazards shall be according to OTM Book 7 Section 3.7.2.1 *Cyclist Protection in the Work Zone*.

If the roadway surface is unsuitable or unsafe for cyclists, an alternate cycling detour or route shall be provided using cycling infrastructure or more suitable roadways. Dismount signage is not to be used unless the entire roadway is closed to all traffic.

TS 1.00.07.10 Site Fence

A site fence is a metal or plastic fence installed on a sidewalk or at any location within the work zone to prevent pedestrians from entering the work zone or a restricted work area. The Contractor shall not use mesh fencing, caution tape, cones, or other materials which do not provide positive pedestrian protection.

The Contractor shall supply and maintain a continuous site fence to separate the travelled portion of the road or pedestrian area from the active construction area as specified in the Traffic Control Plan and the Contract Documents.

Fence posts shall be spaced at a maximum of 3 m apart. Sleeves shall be placed in the concrete base on the first half of the pavement to be constructed, so that the posts are clear of the excavation for the second half. The site fence shall be removed following the completion of the road base and the sleeves shall be filled with concrete of the same type as used for the construction of the concrete road base. The construction area shall then be isolated from the public sections by the use of approved devices as specified in the Ontario Traffic Manual, Book 7 – Temporary Conditions.

The top wire shall be threaded through the top portion of the fence, every three or fewer holes and drawn taut by machine. The top wire shall not be tightened by hand. The top wire shall be securely fastened to each post using standard tie wire. Every 100 mm or at every corner or break in the fence, the top wire of the fence shall be fastened to the bottom of the next post at every 100 mm intervals, or at every break in the fence to provide stability.

TS 1.00.07.11 Crowd Control Barriers

A Crowd Control Barrier is a sturdy metal structure provided as standalone panels which can be interlocked to form a continuous chain.

Crowd control barriers shall be supplied and placed between the construction areas and the pedestrian traffic as specified in the Traffic Control Plan and Contract Documents.

The triangular base shall be facing the construction area to minimize any obstructions to the pedestrian traffic.

Adjacent sections shall be connected at all times and pulled taut to form a continuous unbroken chain. Sections at the ends of each chain shall be secured to a section of site fence or a solid structure, such as a pole or sign. Crowd control barriers shall prevent pedestrian traffic from gaining access to the construction area.

Construction areas shall be completely isolated from pedestrian traffic at all times.

The Contractor shall supply and maintain the crowd control barriers and all costs associated with the requirements for crowd control barrier throughout the duration of the Contract and shall be at no extra cost to the City.

For contracts with multiple staging, the Contractor may be required to relocate the barrier sections from one stage to the next. The Contractor may also be required to relocate sections of the crowd control barrier on a daily basis to facilitate construction access or to temporarily increase the work area. The cost of relocation of crowd control barrier between stages throughout the Contract is included as part of the item for Traffic Control unless a separate pay item is provided in the Contract Documents for the relocation of crowd control barrier.

TS 1.00.07.12 Temporary Barrier

Temporary Barrier is a roadside safety device used to restrict the flow of traffic and protect pedestrians from vehicle traffic and the hazards of construction sites and will be a Triton Barrier or Temporary Concrete Barrier.

Temporary barriers shall be placed between the construction areas and the vehicular traffic, as specified on the Traffic Control Plan and Contract Drawings. Where the supply and installation of Triton Barriers are specified in the Contract Documents, these Triton barriers require a “clear zone”, as specified by the manufacturer, between the construction area and the vehicular traffic.

Preparation of the base, if necessary, shall be according to OPSS.MUNI 740, except that the slope of the foundation for the Triton Barrier shall not exceed 5 per cent when measured perpendicular to the barrier.

Supplying, placing, relocation and removal of the temporary concrete barriers shall be according to OPSS.MUNI 740.

End treatments for temporary concrete barrier shall be as specified in the Contract Documents.

The supply, placing, relocation and removal of the Triton Barrier shall be according to the manufacturer’s Triton Barrier Application Manual.

TS 1.00.07.13 Traffic Control

TS 1.00.07.13.01 *Traffic Control Plan*

The Contractor shall at its own expense, develop Traffic Control Plans as stipulated in the Ontario Traffic Manual, Book 7 – Temporary Conditions. The Traffic Control Plan will include detours, staging sequences, accommodation and mobility for pedestrians and cyclists, vehicle access and egress from worksite, temporary barriers, and removal of old pavement markings for complex projects. For projects where the typical traffic control layouts in OTM Book 7 are not applicable, the Contractor shall be required to develop specific traffic control layouts for the various construction staging sequences including accommodation for pedestrians and cyclists. Otherwise OTM Book 7 layouts are to be used.

Regardless of complexity or duration of the project, the traffic control set up must provide accommodation and mobility for pedestrians, cyclists and motor vehicles.

On extended hour or night work contracts the Traffic Control Plan shall include any additional delineation, spacing, barriers, arrow boards as required by Ontario Traffic Manual Book 7.

The Contract Administrator and/or the Work Zone Coordinator, shall review the Traffic Control Plan. Any changes to the Traffic Control Plan shall be agreed upon by the Contract Administrator and/or the Work Zone Coordinator.

The Contractor shall use a Traffic Control Person to control and direct construction vehicles any time they are entering and leaving the construction access.

TS 1.00.07.13.02 *Traffic Protection Plan*

The Contractor shall at its own expense, develop Traffic Protection Plans for the protection of workers in the work zone, as required under the *Occupational Health and Safety Act and Regulations for Construction Projects* Ontario Regulation 213/91 and 145/00. The Traffic Protection Plan shall conform to the requirements of all pertinent acts and regulations. The Contractor shall submit the Traffic Protection Plan to the City for record before the construction begins. All traffic protection measures shall be carried out to the satisfaction of the Contract Administrator and in accordance with the Traffic Protection Plan submitted.

TS 1.00.07.13.03 *Paid Duty Officer for Traffic Control*

TS 1.00.07.13.03.01 *General*

All costs associated with the requirements for a police officer for traffic control throughout the Contract for any reason shall be borne by the Contractor.

In addition to complying with the Ontario Traffic Manual, Book 7 – Temporary Conditions, the Contractor is required to provide a police officer for traffic control on site in accordance with Table 1 – *Deployment of Traffic Control in Road Construction Activities*, as amended from time to time in TS 1.00.07.13.03.02.

The Toronto Police Service, as part of their responsibility as the employer, is required to provide the training for, the equipping of, and ensuring the use by members of personal protective equipment.

TS 1.00.07.13.03.02 Traffic Control Requirements

Where guidance through a work zone is necessary to control and direct the flow of vehicles, pedestrians and cyclists, methods to control and direct the flow are provided in the form of Traffic Control Persons (TCP) and Paid Duty Officers (PDO).

The following criteria outline the requirements for Traffic Control Persons and Paid Duty Officers:

Table 1: Deployment of traffic control in road construction activities

Conditions under which traffic control may be required	Normal regulatory posted speed 60 km/h or lower, one lane or reduced to one lane	Normal regulatory posted speed 70 km/h to 90 km/h, one lane or reduced to one lane	Any speed, more than one lane in each direction
to protect workers on public way	Traffic Control Persons (TCP) can be used	TCP can be used	Police presence is required
to protect construction vehicles crossing roadway	TCP can be used	TCP can direct construction traffic only, not public traffic	Police presence is required
to protect construction vehicles entering a roadway	TCP can be used	TCP can direct construction traffic only, not public traffic	Police presence is required
electrical contractor work on traffic control signals	Police presence is required if there is an absence of traffic control device display and/or if the vehicle/pedestrian indication(s) are to display conflicting movement. If not, follow Ontario Traffic Manual Book 7 – Section 4.4.5: Use of Paid Duty Police Officers. If the TCP conditions are not met, then police presence is required.		
construction, surface maintenance, utilities, Toronto Water	Follow Ontario Traffic Manual Book 7 Section 4.4.2 for Deployment of Traffic Control Persons (TCP). If the TCP conditions are not met, then police presence is required.		

Note 1: Table 1 is a modified version of OTM Book 7 Section 4.4.2 and 4.4.5 that takes into consideration City of Toronto Operational Guidelines.

Note 2: See Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990, Regulations 213/91 as amended by Regulations 631/94 and 145/00.

Note 3: If conditions under Ontario Traffic Manual Book 7 – Section 4.4.5 Use of Paid Duty Officers are satisfied, the TCP(s) must be positioned in a manner which will not conflict with the traffic control device operation. If this is not possible, police presence is required.

Note 4: For City of Toronto employees, contractors, and sub-contractors, traffic control work is performed in compliance with the provisions of: The City’s Traffic Control policy and its guidelines; the Regulations for Construction Projects (sections 67-69, 104-106, and 186-187); the Ontario Traffic Manual for Temporary Conditions (OTM Book 7 and Field Edition); and the Handbook for Construction Traffic Control Persons.

Note 5: In reviewing traffic control measures related to road construction activities, Transportation Services, Toronto Police Services and the applicant must ensure that the safety of all road users is preserved.

Note 6: Paid duty officers must be used to control traffic within 30 metres of an intersection with operating traffic signals.

The above guidelines do not preclude the need for a site meeting to discuss traffic safety related issues, hours of work and so forth with the Contract Administrator, Work Zone Coordinator and Toronto Police Service representative and other agencies.

TS 1.00.07.13.03.03 *Road Emergency Service*

In the event of road emergency services that have to be performed by City staff, City contractors or other utilities, and which the assistance from Toronto Police Service is required for vehicle traffic control, on-duty officers should be requested through the Toronto Police Service Communication Centre at 416-808-2222.

Road emergency service is deemed to be any unscheduled maintenance where:

- Public safety or health is threatened
- Immediate action is required
- The public is without essential service.

Examples of road emergencies include sewer or watermain breaks, electrical failure and leaking of gas from the distribution system.

At any road emergency work site, a representative of the affected work (utility) must respond to the site as soon as possible to assess the situation, determine the necessary repairs and establish time frames required to complete the repairs. Police officers will document any instance where a representative of the affected work fails to attend the location within 1.5 hours of the call being received by the Toronto Police Service and forward this information to the Unit Commander of Traffic Services.

Where a road emergency has occurred which, through its circumstances and conditions requires that the ensuing traffic control be provided by a police officer, this traffic control shall be provided by an on-duty officer until the emergency has passed.

If the emergency resolution will be lengthy and on-duty officers are required for other service duties, then staff of Transportation Services, Toronto Police Service and the associated contractor will collectively determine which subsequent traffic control can be provided by means other than an on-duty police officer.

All Other Emergencies:

In the event of any other type of emergency which presents an immediate danger to the health or safety of any person, including the failure of buildings or parts of buildings, due to events such as fires, explosions, circumstances resulting in the collapse of buildings or otherwise, and which results in the need for traffic control, the required traffic control shall be provided by on-duty police officers for the duration of the emergency.

Where the City division(s) having jurisdiction over and managing the emergency determine(s) that the emergency has passed in that the immediate danger to the health or safety of persons is removed and that restoration of the site can be initiated, said division(s) in conjunction with Toronto Police Service shall determine if continued traffic control is required, and if so, whether the continued traffic control should reasonably be provided by on-duty police officers or transferred to paid duty officers.

The Contractor shall provide and maintain safe and convenient facilities for pedestrians and cyclists where pedestrian and cycling facilities are impacted by emergency activities. The Contractor shall arrange for the appropriate form of traffic control for pedestrians and cyclists when the emergency has occurred and until the emergency has passed.

TS 1.00.07.13.03.04 *Scheduled Maintenance and Construction Work*

Traffic control for all scheduled or regular maintenance activities shall be determined by Work Zone Coordinator, in consultation with Toronto Police Services and the applicant and the nature of the traffic control will be specified in the appropriate road occupancy permit.

The Contractor is responsible for providing vehicle traffic control at a permitted road occupancy, as required in the conditions specified in the activity permit.

A Work Zone Coordinator, in consultation with the Toronto Police Construction Liaison Officer, will determine the nature of traffic control and if there is a need for police officers for all other activities on City roads.

Where the permitted road occupancy creates a disruption to the rules of the road, appropriate traffic control should be established to ensure that the safety of all road users is maintained for the extent of the road occupancy, based on the criteria in Table 1.

The Contractor shall at its own expense, provide, place in service, maintain and remove all of the traffic control devices and Traffic Control Persons as required by the Ontario Traffic Manual, Book 7 – Temporary Conditions, and according to the *Occupational Health and Safety Act* and *Regulations for Construction Projects* Ontario Regulation 145/00 and shall conform to the Traffic Control Plan. The Contractor shall ensure that sufficient traffic control devices and Traffic Control Persons are always readily available to meet all the traffic control requirements on site. No claims will be considered for Contractor's loss due to the unavailability of Traffic Control Persons and any traffic control devices.

The Contractor shall provide and maintain safe and convenient facilities for pedestrians and cyclists where pedestrian and cycling facilities are impacted by scheduled maintenance activities. The Contractor shall arrange for the appropriate form of traffic control for pedestrians and cyclists during the scheduled maintenance activities.

Traffic Control Persons should be considered to control locations with a single lane of one-way traffic flow. A Traffic Control Person can also control pedestrian movements off the travelled portion of the roadway. A Traffic Control Person can also control pedestrian movements at a signalized intersection if the signal indications are clearly visible and the Traffic Control Person is not required to stop traffic. If more than one lane or direction of traffic flow is to be controlled or stopped, then a police officer will be required according to the Ontario Traffic Manual, Book 7 – Temporary Conditions.

In addition, the Contractor shall, at its own expense, provide, place in service and maintain and remove special construction signs, where appropriate, to advise of rough surface, raised maintenance covers, timber decking, steel plates, narrow lanes and detours for motor vehicles, cyclists, and pedestrians on all approaches to and within the areas under construction.

A static barrier, for example, crowd control barrier may be acceptable to close crosswalks at a signalized intersection depending on the pedestrian and vehicle volumes. Yellow 'Caution Tape' or traffic barrels are not recognized as an acceptable barrier.

The maintenance of all signs, barricades and other traffic control devices is a 24 hours a day, 7 days a week obligation. The Contractor must provide a contact person that will be available at all times, throughout the duration of the project.

The Contract Administrator will issue a verbal or a written warning or both to the Contractor when the Contractor is found failing to protect the site according to Ontario Traffic Manual, Book 7 –Temporary Conditions. Upon receipt of the warning, the Contractor shall rectify all traffic control deficiencies to the satisfaction of the Contract Administrator within 24 hours.

All scheduled maintenance and construction requests will be staffed with appropriate traffic control requirements. All PDO's required under this specification shall be arranged through the Central Paid Duty Office. The Contractor is responsible for providing police officers, as required, on all City projects and capital projects.

The Paid Duty Officer shall ensure the Contractor produces a valid permit, issued by the City, for the required work and that the Contractor works within the parameters outlined in the permit prior to any work being commenced.

A Paid Duty Request Form can be obtained from any police station or the Toronto Police Central Paid Duty Office at 416-808-7880. The form and the current hourly rates of police officer for traffic control pay, which are provided in the terms of agreement at the back of the form, are updated once every January of the year. To download the Paid Duty Request Form, visit www.torontopolice.on.ca/paidduty/.

If Paid Duty Officers are determined to be the required traffic control, this shall be arranged through the Central Paid Duty Office by faxing your request to 416-808-5042 or by email to Newrequests@torontopolice.on.ca. If further assistance is required, the Central Paid Duty Office at 416-808-7880 should be contacted.

For utility cuts, a filled out Paid Duty Request Form shall be submitted along with a valid road cut permit issued by the City, to the Central Paid Duty Office by fax at 416-808-5042 or by email to Newrequests@torontopolice.on.ca. Calls for further assistance can be directed to the Central Paid Duty Office 416-808-7880. In certain circumstances, a request for Paid Duty Police Officer can be made in person at any Division.

TS 1.00.07.13.03.05 *Determining the Actual Need for Paid Duty Officer for Traffic Control*

The need for paid duty officers for construction and maintenance (utility cut permit related) work on City roads generally follows the criteria in TS 1.00.07.13.03.02, herein, and has to be determined on a case-by-case basis. The Transportation Services representative shall determine the actual need for police officer according to site conditions and in consultation with the Contract Administrator, the Contractor and the Toronto Police Traffic Services Construction Liaison Officer 416-808-1952.

The paid duty officer requirements for traffic control shall be confirmed at the at the pre-construction meeting and site meetings. Transportation Services representatives and the Toronto Police Traffic Service Construction Liaison Officer shall be invited to the pre-construction and site meetings. It is at their discretion to decide if they will attend the meeting.

City Contract Administrators and inspectors shall monitor the use of police officers for traffic control at the site and intervene whenever the presence of police officer for traffic control is deemed necessary or not warranted based on the conditions specified in this specification.

TS 1.00.07.13.03.06 *Transportation Services Representatives*

The Contractor is required to contact the respective work zone traffic coordinator in your work area to determine the need for a police officer for traffic control and on any other aspect of the road emergency that requires immediate action.

TS 1.00.07.13.03.07 *Disputing the Need for a Police Officer on Site*

Should a dispute arise between police officers on patrol with regards to the need for traffic control at a construction site, a Traffic Services Construction Liaison Officer and a representative of Transportation Services, shall consult to determine if additional traffic control measures are required at the site. No claims for delay, resulting from these matters, will be considered by the City.

TS 1.00.07.13.03.08 *Work Instructions to Police Officer*

In addition to the brief description of police officer for traffic control duties provided by a Contractor in a Paid Duty Request Form, the Contractor shall provide the police officer for traffic control with detailed written work instructions. The instructions shall be related to the specific site and handed to the police officer for traffic control at the time of his/her arrival to the site.

TS 1.00.07.13.03.09 *Change and Cancellation*

The Contractor shall notify the Central Paid Duty Office immediately about any change, cancellation, or a need for additional police officer for traffic control. Any changes or cancellations shall be made according to the Terms of Agreement.

Toronto Police Service requires a minimum cancellation time of 12 hours prior to the scheduled start time. Failure to give sufficient notification will result in Contractor paying a minimum payment of three hours per police officer, along with all associated fees and taxes.

A police officer's maximum working period is 12 hours in a 24 hour period. The Contractor shall make bookings of additional police officer for traffic control in a timely manner, when necessary.

TS 1.00.07.13.03.10 *Reimbursing Police Officer for Traffic Control*

The Contractor shall be responsible to pay the Toronto Police Service for services provided by the police officer for traffic control according to the Terms of Agreement, based upon the hourly wage rate in effect at the time.

The Contractor shall record police officer's names, badge numbers and hours of work and provide the Contract Administrators and City inspectors with a summary sheet outlining the events of police officer arrangement and copies of corresponding invoices.

TS 1.00.07.13.03.11 *Relocating Legally Parked Vehicles and Parking Enforcement*

The procedure to relocate legally parked vehicles due to construction activities shall be discussed at the pre-construction meeting. The Contractor shall follow the Toronto Police Service procedure entitled *Procedure for Construction Companies Relocating Legally Parked Vehicles* to relocate legally parked vehicles in the construction zone.

Legally parked vehicles may be relocated to accommodate construction using one of the six Toronto Police Service contract towing companies provided in the Toronto Police Service procedure. The Contractor shall assume the towing costs.

The relocation will only be carried out in the presence of either a parking enforcement officer or the police officer working with the Contractor that day. The police officer must be present to record the vehicle's information. The vehicles relocated from one legal parking location will be relocated to another legal location nearby.

Parking enforcement can be requested by calling either Parking Enforcement East in the east end of the city at 416-808-6600 or Parking Enforcement West in the west end of the city at 416-808-1600.

TS 1.00.07.13.04 *Mass Transit*

The Contractor shall coordinate all staging with any transit commission, for example TTC and GO, school or tour group that may have a bus stop or travel within the construction limits. Special attention shall be given to loading and unloading areas for disabled persons and school buses.

The Contractor shall provide access to all existing bus stops. The relocation and reinstatement of the bus stops shall be performed by the Contractor, under the direction of the transit authority or the City.

All costs associated with relocating and providing temporary bus stops shall be borne by the Contractor, except for any temporary ramps or accesses which will be paid for under the appropriate items.

There will be no additional payment for any delays caused by the Contractor having to stage his work around the transit authorities.

TS 1.00.07.14 Maintenance of Temporary Work

Until the final course of asphalt and the permanent pavement markings have been placed, the travelled portion of the road shall be considered as temporary traffic lanes.

Temporary traffic lanes shall be maintained so that there are no irregularities exceeding 40 mm. All crosswalks shall be ramped using temporary Superpave 9.5, Traffic Category B asphalt to provide smooth transitions between the base asphalt and the top surface of the crosswalk. Utility frames and covers, valve boxes and so on shall be ramped with hot mix asphalt or covered over with a steel plate or maintained flush with the surface of the asphalt. After final adjustment to finish grade, the appurtenances shall be ramped as described above. Prior to the placement of the final course of hot mix asphalt, the ramps must be removed without disturbing the base to allow the final course asphalt to be placed to its full depth.

The cost of any necessary patching of temporary traffic lanes or regarding of temporary access to driveways, laneways and side streets or regarding of temporary sidewalks or bicycle facilities shall be paid for at the Contract Price for stone and asphalt under the general heading "Maintenance of Traffic". If no such items exist, no separate payment will be made and all costs associated with this temporary work shall be factored into other related pay items.

Should the Contractor fail to correct any unsatisfactory condition upon notification from City staff to do so, the City may proceed to maintain the project and deduct the entire cost of such maintenance from monies due to the Contractor.

TS 1.00.07.15 Maintenance of Temporary Accesses

The Contractor shall provide safe, convenient and free of obstacles temporary vehicular, wheel chair and pedestrian access to driveways, sidewalks, storefronts, bicycle facilities, bus stops, bus shelters and other public amenities in and around the area of construction at all times during construction.

The Contractor shall at all times, keep all temporary traffic lanes, sidewalks, foot paths, pedestrian ramps, entrances and exits to buildings and facilities free from accumulation of dust, waste materials and rubbish due to its employees or the work.

The Contractor shall keep all temporary access ways free from accumulation of free standing pools of water or oily surface, snow or ice formations, and warn users of the temporary access ways to be aware of slippery conditions. The Contractor shall maintain a slip resistant surface on the temporary access at all times. The Contractor shall apply salt and sand to the access ways when there is an accumulation of snow or ice or both on the ground.

Cleaning up, to the satisfaction of the Contract Administrator shall be a mandatory condition to the final acceptance of the Work.

Should the Contractor fail to maintain or, in the opinion of the Contract Administrator, not expedient to maintain the temporary accesses to the satisfaction of the City, the City may, notwithstanding section GC 4.06, GC 4.07 and GC 4.08 of the City of Toronto General Conditions of Contract, take the appropriate action to remove the obstacles and deduct the total costs of such action from the monies due to the Contractor.

TS 1.00.07.16 Night Time Lighting

The minimum lighting level necessary for housekeeping, access and egress is 55 lux. For more complex areas, additional lighting may be required according to The Lighting Handbook, Night Time Lighting Guidelines for Work Zones and Best Practices for Traffic Control During Night Time Operations.

Spot or task lighting can be used to supplement general lighting requirements when necessary, but may not replace the general duty to provide lighting in all areas

The Contractor shall have a light meter on site and provide the test reading results to the Contract Administrator or inspector showing compliance with the lighting requirements.

TS 1.00.08 QUALITY ASSURANCE

City staff shall conduct inspections, as required, and the Contractor shall be notified of any deficiency in writing. Repairs shall be carried out according to TS 1.00.07, herein.

TS 1.00.09 MEASUREMENT FOR PAYMENT

**TS 1.00.09.01 Granular A for Maintenance of Traffic
Superpave 9.5 Asphalt for Maintenance of Traffic
Superpave 19.0 Asphalt for Maintenance of Traffic**

Measurement for the above item(s) shall be by mass in tonne (t).

TS 1.00.09.02 Site Fence

Measurement of site fence shall be by length in metres (m) of site fence required to be in place at any one time during the life of the Contract.

TS 1.00.09.03 Relocate Site Fence

Measurement of relocate site fence shall be by length in metres (m).

TS 1.00.09.04 Crowd Control Barrier

Measurement of crowd control barrier shall be by length in metres (m) for the maximum number of barrier sections required to be in place at any one time during the life of the Contract.

TS 1.00.09.05 Relocate Crowd Control Barrier

Measurement of relocate crowd control barrier shall be by length in metres (m).

**TS 1.00.09.06 Temporary Precast Concrete Barrier
Temporary Triton Barrier**

Measurement for the above item(s) shall be by length in metres (m) of the maximum length of barrier required to be in place at any one time during the life of the Contract.

**TS 1.00.09.07 Relocate Temporary Precast Concrete Barrier
Relocate Temporary Triton Barrier**

Measurement for the above item(s) shall be by length in metres (m).

TS 1.00.09.08 Traffic Control

Measurement for the above item shall be by lump sum. Contractors shall determine the lump sum amount and submit the amount in their bids.

TS 1.00.10 BASIS OF PAYMENT

TS 1.00.10.01 General

The following items may or may not appear in the Contract Documents. If these items do not appear, then the cost of temporary work required under this specification should be factored into other pay items by the Contractor.

No separate payment shall be made for the provision of temporary drainage works. Payment for this work shall be deemed to be included in the unit prices bid for the other items.

No additional payment will be made for any re-handling required incorporating any reusable material into the final or temporary works.

No additional payment will be made for the replacement of any item that has become damaged as a result of the Contractor's actions or by any other means.

**TS 1.00.10.02 Granular A for Maintenance of Traffic – Item
Superpave 9.5 for Maintenance of Traffic – Item
Superpave 19.0 for Maintenance of Traffic – Item**

Payment at the Contract Price for the above tender item(s) shall be full compensation for all labour, Equipment and Material to do the work. Payment shall include the supply, placing and compacting of granular materials and hot mix asphalt to construct road detours and temporary ramps, the removal, placing and compacting of all reusable materials and any excavation required for the construction of all detours.

The removal of all temporary asphalt and contaminated aggregate, by whatever means, shall be paid for under the item "General Excavation".

TS 1.00.10.03 Site Fence – Item

Payment at the Contract Price for the above tender item shall be full compensation for all labour, Equipment and Material to do the work. Payment shall include the supply, erection, maintenance, relocation and removal of all site fence and the preparations to the concrete road base, if required.

TS 1.00.10.04 Relocate Site Fence – Item

Payment at the Contract Price for the above tender item shall be full compensation for all labour, Equipment and Material to do the work. Payment shall include the relocation of all site fences.

TS 1.00.10.05 Crowd Control Barrier – Item

Payment at the Contract Price for the above tender item shall be full compensation for all labour, Equipment and Material to do the work. Payment shall include the supply, erection, maintenance, and removal of all crowd control barriers.

TS 1.00.10.06 Relocate Crowd Control Barrier – Item

Payment at the Contract Price for the above tender item shall be full compensation for all labour, Equipment and Material to do the work. Payment shall include the relocation of all crowd control barriers.

**TS 1.00.10.07 Temporary Precast Concrete Barrier – Item
Temporary Triton Barrier – Item**

Payment at the Contract Price for the above tender item(s) shall be full compensation for all labour, Equipment and Material to do the work. Payment shall include the supplying, placing, maintenance, relocation and removal of all temporary concrete barriers, including tapered end treatments. All other end treatments will be paid for under the appropriate item(s).

**TS 1.00.10.08 Relocate Temporary Precast Concrete Barrier – Item
Relocate Temporary Triton Barrier – Item**

Payment at the Contract Price for the above tender item(s) shall be full compensation for all labour, Equipment and Material to do the work. Payment shall include the relocation of all temporary concrete barriers, including tapered end treatments. All other end treatments will be paid for under the appropriate item(s).

TS 1.00.10.09 Traffic Control – Item

Payment at the Contract Price for the above tender item shall be full compensation for all labour, Equipment and Material to do the work. Payment shall include the production of Traffic Control Plan, Traffic Protection Plan, Night Time Lighting Plan all costs associated with the supply of police officers, traffic control persons, the supply, placing, maintenance, relocation and removal of all signs, barricades and other traffic control devices that are not covered in other pay items of the contract.

If the submission of Traffic Control Plan does not include pedestrian and cyclist safety considerations, the Traffic Control Plan will be rejected. The Traffic Control Plan shall be revised and resubmitted to the Contract Administrator and Work Zone Traffic Coordinator for review and approval before the start of the Work.

The Contractor shall provide support documents to the Contract Administrator on the use of Paid Duty Officers and the supply of various traffic control measures related to the contract, including, but not limited to, the invoices charged to the Contractor by the Toronto Police Service. The City will only pay the invoices and other traffic control related charges that are proved related to the contract. Invoices shall include the dates, locations and hours Paid Duty Officer's were utilized. Payment shall be evenly distributed over the duration of the contract.