

Construction Mitigation Guidelines

DRAFT SUMMARY OF PROPOSED GUIDELINES

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Vehicular Traffic Control

Vehicular traffic control in a dense urban environment can often pose unique challenges and hazards. Narrowed travelled lanes, restricted sight lines, and heavy construction vehicles further complicate potential hazards of construction sites.

All construction projects that require street closures, lane closures, sidewalk closures, or any other types of physical encroachment into the public ROW are subject to review and approval by the Engineer. Each project must submit a Traffic Control Plan which should consider and outline the following:

- i. Haul Routes:
- ii. Delivery Requirements:
- iii. Pedestrian Protection:

Parking

Congestion from construction activities can often lead to lost parking stalls and illegal parking. Businesses in the impacted area may rely on the street stalls for patron use, and construction workers on the site may need to rely on the stalls for daily use.

Parking is an important consideration in the preparation of a CMP.

- i. Indicate on the proposed CMP the number and location of parking stalls that will be removed, as well as the duration the stalls will be unavailable.
- ii. Pay applicable fees at the rate established by Council from time to time for all parking meters that will be unavailable during construction.
- iii. Appropriately delineate any relocated temporary parking.

The Engineer may stipulate that any parking stalls that have been displaced by temporary construction activities be temporarily relocated and the location shall be included in the approved CMP. If clear justification and assessment can be provided in the CMP, the Engineer may consider relaxation of parking restrictions on nearby streets on a case-by-case basis to fulfill displaced parking.

Pedestrian Management

Pedestrian management must be a foremost consideration in the preparation of a CMP. Pedestrian traffic is an integral part of a vibrant dense urban environment and is vital to the urban economy and lifestyle. Clear and safe pedestrian passage must be accommodated in all dense urban construction project CMP's.

All construction projects that require sidewalk closures, any type of physical encroachment into the public ROW, or works on private property within 2m of a public space or passageway, must submit, as part of the CMP, a detailed Pedestrian Management Plan (PMP) for review and approval by the Engineer. The Responsible Contractor or Owner must:

The PMP shall indicate, at minimum:

- i. All impacted sidewalk areas;
- ii. Location of impacted bus stops and proposed bus stop relocation areas, complete with pedestrian routes to/from the relocated stop;
- iii. Proposed pedestrian routes and detours;
- iv. Nearest controlled/marked crosswalks;
- v. Location of proposed sidewalk closure signage;
- vi. Proposed delineation for temporary sidewalks, complete with temporary sidewalk, ramp, and barricade construction details;
- vii. Contact information for the TWS;
- viii. Proposed location of appropriate wayfinding signage, as required.

Visually Impaired Pedestrians

Warning signage alone is insufficient to protect all pedestrians. Visually impaired pedestrians rely on other physical indicators for navigation and to identify hazards.

The submitted PMP must include measures which can help to improve the safety and convenience of visually impaired pedestrians, such as:

- i. Improved definition of safe places to walk, wait, and cross, by way of edge lines, contrasting colours, and contrasting textures.
- ii. Installation of devices that give pedestrians right of way and control traffic or help them navigate safely, e.g. temporary crossing markings, traffic signals, and audio and/or textured tactile elements.
- iii. Reducing the potential complexity of situations, e.g. through the addition of a central refuge for multilane streets so that pedestrians only cross one direction of traffic, accounting for pedestrian crossing time.
- iv. Visual cues to highlight to pedestrians the most direct route across the road – sometimes these cues are road marking of the crossing itself or in other cases the alignment of the footpath, hand rails, or the tactile ground surface indicators are positioned in such a way as to ‘launch’ the pedestrian in the right direction.
- v. Provision of a clear path of travel which is free from obstacles and surface irregularities.
- vi. Measures to reduce vehicle speeds and to increase driver awareness of pedestrians.

Pedestrian Accessibility

Public pedestrian routes should be designed and maintained to ensure comfort and safety of all persons, regardless of age or ability. Generally, such routes must be:

- i. Easily identifiable,
- ii. Clearly separated from vehicular routes,
- iii. Free of obstacles at all times of the year, including snow and debris.

The submitted PMP must ensure:

- i. Walkways for pedestrians and persons using mobility aids are constructed of firm, stable, and non-slip materials, and are accessible grades.
- ii. Wherever possible, roadway crossings should be at controlled crosswalks and should be located such that the sidewalk and the crosswalk are perpendicular to one another.
- iii. All pedestrian routes should be free of obstacles, such as light standards, traffic signal supports, posts, overhanging signs, branches, or catch basins as well as temporary objects such as equipment, boxes and garbage containers, etc.
- iv. Curb ramps should be provided wherever there is a level difference between the sidewalk, or pedestrian pathway, and the intended travelled surface.

Site Protection and Hoarding

Construction site protection is required to meet minimum applicable building code standards. The National Building Code of Canada (NBCC) requires that construction activities within 2m of a public way be protected with a strongly constructed fence or barricade.

The submitted CMP must include details for the proposed hoarding or protection arrangement, such that:

- i. Public ways are physically separated from all active construction sites with an adequate safety barrier. For sites where the building footprint or excavation lies within 2m of the public ROW, this barrier must be constructed of solid (opaque) hoarding material, minimum 2.4m high
- ii. Covered ways must provide minimum clear width of 1.5m;
- iii. Covered ways must be illuminated;
- iv. All hoarding must be designed to sustain loads that it is likely to be subjected to such as wind and snow loads, as well as falling debris.
- v. Allow for sufficient clear width to accommodate snow removal equipment with space for snow storage.
- vi. Be constructed so as to not impede vehicular traffic sight lines.
- vii. Consider having viewing cut-outs in solid fencing, complete with protection, to allow for public viewing. Viewing ports should be located in safe areas where public congestion will not pose a safety hazard.

Site Protection Aesthetics

Opaque construction hoarding and solid construction site protection is not typically designed to be aesthetically pleasing. The definition of 'attractive' is subjective and not easily defined for a

broad audience. However, construction site protection mechanisms often create a 'blank canvas' that provides an opportunity for beautification.

The submitted CMP is encouraged to include details of how to make the site protection systems more aesthetically pleasing. Certain elements that would be considered to beautify a hoarding or fencing system include:

- a) Project renderings
- b) Sales/Marketing information
- c) Community murals
- d) Local community advertising

Projects that incorporate one or more of the above techniques to help improve the aesthetics of their site protection measures and mask the site to improve the public experience and mitigate negative impacts from the construction activities will be eligible for 50% reduction in encroachment fees for the areas implementing the beautification.

Project Information and Contacts

Signage is an integral part of site controls and notification. It provides vital information about the project, contact information, as well as safety and navigational information. Signage located at the construction site can act as a way to inform and guide the public and provide key contact information

Appropriate signage can help to mitigate public concern by providing the following minimum information:

- a) Project description,
- b) Project timelines,
- c) Developer contact information,
- d) Project manager contact information.

The sign is to be legible and include a clearly identifiable company name, phone number and e-mail address for those responsible for the construction site.

Project information signage should be placed on site after a permit has been issued or a minimum of 10 days before construction begins to ensure the public has adequate time to adjust their travel patterns and usage of the street(s).

Pedestrian Detour Way-Finding

Pedestrian detour wayfinding signs should be used to efficiently and seamlessly direct pedestrians and cyclists as they navigate the detour route. A typical sign for a temporary pedestrian detour should include:

- a) Information on the duration that the walkway will be in place,

- b) Restrictions (beginning and/or end dates),
- c) Project contact number for questions or complaints, d) Way-finding guidance of temporary routes,
- d) Pedestrian way-finding information may also include specific directions to certain facilities or business that may be impacted by the detour routes.

Lifting, Hoisting, and Crane Operations Above the Public Realm

Lifting operations, such as tower cranes, mobile cranes, telehandlers, forklifts, and small lifts, are a crucial and important piece of equipment for many construction sites throughout the Municipality. However, their presence brings about a level of risk that must be considered. Although lifting heavy loads over highways, railways, or public space should generally be avoided, there are times when such a lift is necessary. The submitted CMP must include the following provisions for proposed crane operations or lifting of heavy loads over the public realm:

- a) Tower cranes must be sited so that there is at least 3m clearance between the end of the boom and the nearest obstacle or building and as much as possible, tower cranes should be sited to avoid loads being handled over occupied areas;
- b) Measures for ensuring that people are not placed at risk from the operation of the crane;
- c) No loads should be moved or suspended over people;
- d) At no time should a load be left suspended over the public realm;
- e) Routines for requiring continuous and thorough checks for area specific hazards;
- f) If a heavy load must be transferred over a busy public space or right of way, the area should be closed to access during the move; and
- g) When loads have to be handled in the vicinity of persons, extreme care should be exercised and adequate clearances allowed.

Site Safety and Security

Safety, for workers and the general public, is the foremost concern. The primary objective of this and many other regulations is to ensure a safe environment both on site and in impacted vicinity.

The CMP must identify on-site safety protocols and consider at minimum, but not limited to, the following information:

- a) Access gates must be clearly marked as per the traffic management plan;
- b) Adequate signage must be placed outside the hoarding, which warns of all hazards that may exist;
- c) Gates must be locked and the perimeter fencing or hoarding secured to provide security against public access during off work hours and monitored in high traffic areas during operation;

- d) Hoarding must be marked clearly “No Trespassing – Construction Personnel Only”, and personal protective equipment requirements clearly marked (e.g., “Hard Hats and Safety Footwear Must Be Worn Beyond This Point”);
- e) The Responsible Contractor or Owner must conduct regular inspections, as required, of hoarding for general condition and have a scheduled inspection procedure in place;
- f) Emergency contact information, as required by the jurisdiction having authority, must be prominently posted.

Material Handling, Loading/Unloading, Delivery, and Vehicle Staging

How materials are delivered to site, loaded and unloaded, or handled and stored on site can have an impact on the safety of the overall site and affected areas. To safe guard construction workers and the public from falling materials, equipment, tools and debris from a construction project, the CMP must consider such factors and the Responsible Contractor or Owner must:

- a) Conduct a pre-project hazard assessment;
- b) Identify appropriate material storage/lay-down areas;
- c) Identify dedicated material delivery routes and loading/unloading locations;
- d) Identify vehicle staging (e.g. concrete delivery) areas and queueing strategy;
- e) All materials must be secured and protected against environmental factors, such as rain causing contaminated runoff, or wind blowing around loose objects, etc.

Delivery times and peak hours of operations for surrounding businesses must be determined and taken into consideration when developing the CMP.

Environmental Controls

Although construction sites in a dense urban setting may not expose or disturb a large area at one time (relative to suburban land development or construction), the sites are often more compact with less space available for environmental control measures, such as sediment retention ponds, or snow storage. With limited available space, urban sites often create challenges for environmental containment.

Street and ROW Cleaning

The public ROW is intended for the use and enjoyment for all. Passageway cleanliness has a major impact on accessibility and safety. The public travelled way, including pedestrian travelled ways are to be kept free of dirt, debris, snow, and ice, etc. at all times during construction. Site access locations and staging areas are to be monitored on a continual basis and cleaned with street sweepers, brooms, or by any means necessary to ensure the public ROW is clean and safe. The Responsible Contractor or Owner must immediately act upon an order from the Engineer when directed to clean the public ROW.

Snow removal and snow storage are important considerations when managing constrained sites. The Responsible Contractor or Owner must maintain all encroachment areas. All temporary sidewalks must be plowed/cleared and maintained free of snow and ice at all times.

Stormwater Management and Runoff Pollution

Construction must adhere to the approved storm drainage plan and the Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR) Erosion and Sedimentation Control Manual. The main objective of the storm water management plan shall be to identify Best Management Practices, which will minimize erosion and sediment transport. The stormwater management plan (or sediment and erosion control plan, or environmental protection plan) must clearly indicate drainage patterns and must consider:

- a) Surface drainage patterns;
- b) Catchbasin locations;
- c) Material storage locations and protection measures;
- d) Construction phasing;
- e) Site entrance/exit locations;
- f) Runoff quantity and quality control measures; both during construction and upon project completion.

Noise and Dust Pollution

Construction sites must adhere to the HRM Noise By-Law. The CMP must outline hours of operation that are consistent with the Noise By-Law, including holiday and weekend restrictions. Portable loud equipment, such as generators, compressors, mixers, etc., must be located away from adjacent properties and the Engineer may require noise barriers to be erected/installed in sensitive areas, such as near schools or hospitals.

When construction activity is located within a strictly business setting, or in the center of an industrial park, or similar locations where people are generally not present after normal operating hours, it may be viable and reasonable to consider 'night work' or 'after hours' construction activity. However this argument may be less substantive in a residential setting where after hours construction activity can result in a loss of enjoyment of adjacent residents. The Noise By-Law does allow for a Grant of Exemption by Council. If an exemption is to be sought, the submitted CMP must outline the following minimum considerations:

- a) Proposed hours of operations;
- b) Details of the equipment and activities to be performed during the exemption;
- c) Details of any noise buffering or mitigation measures that will be implemented during the proposed exemption;
- d) An assessment of the surrounding community (e.g. strictly business district; industrial park; or residential setting), including any potential sensitive areas, such as schools or hospitals.

Noise By-Law exemption requests will be processed according to the procedure outlined in Section 6 of the Noise By-Law, N-200.

The CMP must also consider dust control measures. The plan shall include details regarding construction phasing and sequencing, on-site measures to reduce dust from escaping the site, as well as cleaning and mitigation measures in the immediately impacted areas. The Responsible Contractor or Owner must have immediate access to a watering truck, or equivalent, to proactively control dust during dry conditions. The Engineer may direct the Responsible Contractor or Owner to water the site or to use water for cleaning in the ROW as necessary.

Dust control measures must be considered for more than just the ground floor. Dust from higher elevations or upper storeys can escape and deposit onto the street level or adjacent rooftops and patios, etc, and therefore must be considered in the CMP. The measures to prevent dust from escaping from the site must also be implemented as building construction progresses. The CMP must indicate proposed dust and debris mitigation techniques for upper floors and at all elevations, as well as the ground level where dust/debris may escape.

Submission Requirements

In addition to all building code and building by-law submission requirements, all building permit applications must be accompanied by:

- a) Detailed building drawings, including engineering and architectural plans;
- b) Applicable Fees;
- c) Detailed Construction Management Plan (CMP);
- d) Encroachment application, complete with fees and site plan

These items will all be reviewed in conjunction with applicable by-laws and may need to be revised as necessary. Detailed CMP's and encroachment applications must be submitted at least 10 business days in advance of anticipated construction.

With the exception of emergency situations, no work may commence on any HRM street without first obtaining a permit as required by the provisions of the HRM Street By-Law (S-300). Construction must not start before the permit is issued.

Construction Management Plan

The considerations discussed in this manual are intended to form the basis of a detailed Construction Management Plan (CMP). The scale and complexity of the site specific CMP will be directly proportional to the scale and complexity of the project, the site, and the surrounding conditions. As a minimum, a CMP must include:

- a) Project description;
- b) Project contact information (Owner and/or Responsible Contractor);
- c) Construction schedule;

- d) Hours of operation;
- e) Site plan;
- f) Traffic Control Plan(s) (TCP);
- g) Haul routes and staging areas;
- h) Pedestrian Management Plan(s) (PMP);
- i) Site protection and hoarding details;
- j) Hoarding aesthetics details, if applicable;
- k) Signage details;
- l) Safety protocols;
- m) Overhead crane lifting operation details and locations;
- n) Stormwater management plan;
- o) Description of noise, dust, and emissions controls.

Pre-Construction Meeting

For any work to which these guidelines apply, it may be necessary to have a pre-construction meeting to discuss the scope of work, review the CMP, and establish an effective communication plan. Stakeholders invited to attend may include (but is not limited to) the owner/developer, contractor(s), inspector(s), Transit, Utilities, Traffic Services, and Development Services.

In addition to representatives of the developer, contractor, and municipal agencies, the CMP must also assess the needs of surrounding businesses and institutions, including such considerations as local deliveries, special events, or other specific criteria that may impact their operations. If deemed appropriate during the review of the CMP the Engineer may require a representative from the local business district, surrounding community group, and/or institution to be invited to the pre-construction meeting, if applicable.

The need for a pre-construction meeting, the timing and complexity of the meeting will be dependent on the scale and complexity of the project, the site, and the surrounding community. Generally, a pre-construction meeting should be held a minimum of 10 days prior to the start of any construction activity.

Notification Requirements

While the fundamental objective of the CMP is to minimize disturbance to the surrounding community, the nature of construction activity may require certain periodic street closures, or utility shutdowns. Since all construction work within the HRM Right-of-Way is subject to the notification requirements specified in the HRM TCM Supplement, the CMP must assess the impacts of these street closures and shutdowns on the surrounding community. The Responsible Contractor or Owner is responsible to distribute notification to all affected property owners regarding the planned disruption. Notices must be hand delivered to all property owners or businesses within the closed area and must contain the following:

- a) The name of the person or company responsible for the closure, including a contact person and telephone number
- b) The intended date and time the closure or disruption will commence
- c) The expected duration of the closure or disruption
- d) The location of the closure or disruption and affected area

Notices of closures or planned disruptions to utility services must be delivered at least 24 hours in advance in the case of closures or utility disruptions with an expected duration of 2 days or less, or 5 business days in advance of street closures or utility disruptions with an expected duration of more than two days. The contractor must provide confirmation to HRM that the notices were delivered, including a list of all the civic addresses included in the distribution. An example of closure notices and an example confirmation letter is provided in Appendix A. In addition to the notification process above, HRM shall issue a Public Service Announcement in advance of the closure of any street on the list found in Schedule A of the HRM TCM Supplement.

Understanding the complex logistics of the construction industry, unforeseen conditions or weather can often cause delays or may necessitate unexpected closures or disruptions. In such situations, subject to the discretion of the Engineer, the closure or disruption may be postponed or extended with additional notification redistributed to the affected area.

Inspection and Monitoring

Successful implementation of a detailed CMP depends on regular inspection, maintenance, and adjustment of approved control measures and the expected plan. Continual monitoring of hoarding systems, walkways, barriers, signage, etc., is a key element to ensure control measures are performing effectively. The Responsible Contractor or Owner must inspect the implementation of the CMP on a daily basis at minimum and keep a detailed inspection/maintenance log. The Engineer may direct maintenance or adjustment of certain elements as required, and may request to view the inspection log.

Any Owner or Responsible Contractor found to be in violation of these guidelines or failing to implement the approved CMP may be guilty of an offence and subject to the penalties of the respective by-laws.