



5. Preferred Route: Alternative Route #1

Based on the net effects comparative evaluation, Alternative Route #1 was identified as the Recommended Route and presented to the public and agencies for comment at PIC #3. From the results of the public consultation undertaken, Alternative Route #1 was confirmed as the Preferred Route.

This section describes in greater detail the proposed route, the potential effects of the route and their proposed mitigation.

5.1 Description of the Preferred Route

The preferred route consists of an extension of the existing streetcar tracks westerly from the Exhibition Place streetcar loop to Dufferin Street. At that point, it would continue west as part of the Dufferin to Roncesvalles segment,¹ and north across the Gardiner Expressway and CN/GO rail corridor to connect to the existing Dufferin Street track just north of the Gardiner Expressway and CN/GO rail corridor. **Figure 12** illustrates the Preferred Route.

Design Criteria as provided by the TTC, City of Toronto, GO Transit and CN Rail were incorporated into all of the design alternatives and are reflected in the drawings for the Preferred Route. The design accommodates the current fleet of CLRV and ALRV streetcars (the current single and articulated streetcars found on all of the streetcar tracks operated by the TTC) and allows for future vehicles that are expected to replace the current fleet between 2011 and 2018.

The Preferred Route can be technically described as follows:

Existing Exhibition Place Streetcar Loop Area: A new westbound track will be constructed through the existing streetcar loop at Exhibition Place with a new platform, directly north of the existing eastbound tracks. A new loop connection will be constructed at the east end to allow eastbound streetcars to turn around. A conceptual plan has been developed that illustrates the fare-paid areas of the streetcar platforms and GO Transit platform/tunnel area. This design will require detailed input from GO Transit and TTC Service Planning personnel to ensure that areas are large enough to accommodate pedestrians and riders during all crowd scenarios, including events like the CNE, IRL car race, etc. A well delineated pedestrian crossing will be provided across Manitoba Drive on the east side of Nova Scotia Avenue.

¹ A separate Class EA study (Waterfront West Streetcars – Dufferin Street to Roncesvalles Avenue) is currently underway to identify a new dedicated streetcar route that would extend from Dufferin Street west to Roncesvalles Avenue, where it would tie into the existing Queensway dedicated track.



Section from Nova Scotia Avenue to Dufferin Street: The track will be placed as close to the Gardiner Expressway corridor as possible with minimal impact to Manitoba Drive. A cross-section (see **Figure 13**) drawn about 125 m west of Nova Scotia Avenue shows that existing Manitoba Drive is generally maintained with over 11.0 m of pavement and 4.0 to 5.0 m of sidewalk/boulevard along the north edge of the Food Building. The dedicated ROW for streetcar track is 7.32 m wide. Westerly to Dufferin Street, the horizontal alignment is shown to meander somewhat to the south. The purpose of this is to locate the alignment outside of the area required for a possible future Front Street Extension (eastbound Gardiner off-ramp). During the detailed design phase, the alignment can be revisited based on further discussions with the City of Toronto and TTC over the need to protect area for a possible future Front Street alignment and the risks imposed by a possible future need to relocate TTC infrastructure in the event that the Front Street Extension is ever constructed. Further, the alignment will impact a number of kiosks or small dwellings that serve the Children's Village area during the CNE.

Dufferin Street: At Dufferin Street, the streetcar tracks would intersect north of the Dufferin Gates (between the Gates and Gardiner Expressway). A signalized intersection would be provided to allow conflicting movements between vehicles, streetcars and pedestrians. The existing bridge over the Gardiner Expressway would require a widening in the southeast corner to facilitate the streetcar turn and provide adequate area for pedestrians to cross the bridge on the east side. The new intersection would provide an opportunity to enhance pedestrian movement between the bridge and Exhibition Place, and create some unique and enhanced urban design features to complement the Dufferin Gates area.

North of the Dufferin Street bridges, the streetcar track would connect with existing streetcar tracks on Dufferin Street and through the existing streetcar/bus loop on the west side of Dufferin Street, north of the CN bridge.

In addition, at Dufferin Street, the streetcar tracks would continue west as part of the Dufferin to Roncesvalles segment, for which the preferred alignment will be defined by the separate Municipal Class EA evaluation currently being undertaken for the Dufferin to Roncesvalle segment.²

Dufferin Street Bridges: There are currently two bridges on Dufferin Street over the Gardiner Expressway and CN corridors. The south bridge is a twin-span rigid frame bridge which, spans the Gardiner Expressway and, although it is wide enough to accommodate two lanes, it currently has a single lane of traffic in each direction. The boulevards are generous and contain large planters and wide sidewalks. The north bridge over the CN corridor is a slab on girder bridge, which through its unique design, provides vertical and horizontal clearance for the trains below between each bridge beam. The bridge has a single lane of vehicle traffic in each direction. The northbound and southbound movements are separated by a large girder, which runs in the north-south direction and acts as a centre median. Similar girders are situated to the west and east, separating the sidewalks and boulevards from vehicle traffic.

² A separate Class EA study (Waterfront West Streetcars – Dufferin Street to Roncesvalles Avenue) is currently underway to identify a new dedicated streetcar route that would extend from Dufferin Street west to Roncesvalles Avenue, where it would tie into the existing Queensway dedicated track.



Throughout the project, discussions and meetings took place with the Structures Division of the City of Toronto, in order to determine the status of the bridges and City's plans for rehabilitation and/or replacement. Staff of the City's Structures Division were also apprised of the streetcar project and requirements to have streetcar on Dufferin Street in relation to Route Alternatives 1 and 3A & 3B.

At the time of preparing this report, the City of Toronto could not provide confirmation of their plans for the two bridges, although City Structures staff advised in earlier meetings that both bridges required considerable rehabilitation in the immediate timeframe. City staff further advised that they were waiting for a response from GO Transit and CN Rail as to what their requirements for the bridges would be, in relation to the City's rehabilitation/replacement plans.

What is known at this time is that the two bridges require rehabilitation and/or replacement independent of this project going forward. Secondly, in order to provide for a dedicated transit right-of-way, the CN bridge would require a minor widening in order to accommodate the following:

- One vehicle lane in each direction;
- Dedicated transitway in centre of road;
- Sidewalks on both sides;
- Bicycle lanes on both sides.

The bridge over the Gardiner Expressway has sufficient width to accommodate the above, with the minimum width requirements for lanes and sidewalks. However, it requires a significant widening in the southeast corner to accommodate the streetcar track turns from Exhibition Place to Dufferin Street, and eliminate conflicts between streetcars and pedestrians on the east side of the bridge.

On the CN bridge, the three north-south girders that separate the north-south vehicle lanes and the vehicle lanes from pedestrians restrict the ability to provide the above lanes and sidewalks, with the minimum required design standards. **Figure 13** shows a cross-section through the Dufferin bridge across the Gardiner Expressway. The north-south girders on the CN bridge are also illustrated with dashed lines.

5.2 Potential Effects, Mitigating Measures and Monitoring Requirements Associated with the Preferred Route

There are a number of potential adverse environmental effects associated with constructing the Preferred Route based on the existing project area conditions and the input received from external agencies and the public. These potential adverse effects are typical for this type of project and responsive to the recommended mitigation measures developed during the course of the study. Therefore, the net effects after the application of mitigation are expected to be insignificant. The following sections provide an overview of the potential net environmental effects and the recommended mitigation measures for the Preferred Route.



5.2.1 Technical

5.2.1.1 *Potential Reconstruction of Dufferin Bridge*

The greatest potential technical effect of the project is on the Dufferin bridges, which need to be modified and/or reconstructed to accommodate the new streetcar ROW. This work may involve an improved design that would also involve enhanced auto and bicycle access along with improved pedestrian walkways for greater pedestrian safety. As stated earlier, the City of Toronto is currently considering the overall requirements for these bridges. The overall requirements will consider GO Transit and CN's requirements for track expansion and clearances, the number of vehicle lanes the City requires and the City's requirements for bicycle lanes and pedestrian sidewalks. It is expected that these details will be known by the time this project proceeds to detail design.

5.2.1.2 *Occurrence of Short-term Construction Related Traffic Effects*

Construction of the preferred route ROW may impact operations on Manitoba Drive and Dufferin Street. Traffic volumes on Manitoba Drive are very low and the road is very wide, so the impact to vehicle traffic is expected to be minimal and can be addressed through lane width reductions during construction (provided through a traffic management plan). Dufferin Street will experience interruption during construction but the greater construction-related impacts of replacing or rehabilitating the bridges will take into account the impacts of the trackwork.

5.2.1.3 *Occurrence of Long-term Traffic Effects*

The alignment of the preferred route will not reduce the overall width requirements of Manitoba Drive in the area behind the Food Building at Exhibition Place. A pavement width of over 11.0 m will remain, which is more than adequate to accommodate normal vehicle traffic and special event traffic. It will be sufficient to accommodate the requirements of the Toronto Grand Prix (Indy Racing League). The sidewalk/boulevard area behind the Food Building will not be affected by the project.

5.2.2 Natural Environment

The potential effects on the natural environment include effects on terrestrial vegetation, and contaminated soil excavation.

5.2.2.1 *Minor Loss of Terrestrial Vegetation*

The preferred route has the potential to remove approximately 8 healthy trees with a diameter >30 cm at breast height, and 15 trees that are either healthy with a diameter <30 cm or declining/diseased with diameter >30 cm. These trees are individual streetscape trees, most of which are non-native ornamental species. The removal of these trees amounts to approximately 0.10 ha of canopy cover. Therefore, there will be a temporary short-term reduction in the positive benefits provided by the larger (>30 cm), individual urban trees that will be removed.



It is recommended that mitigation measures to minimize the potential adverse effects associated with construction of the preferred route include:

- Install silt fencing and/or a tree protection barrier prior to construction where there exists the potential for damage to existing vegetation by machinery (e.g., grubbing and grading activities) beyond the vegetation that must be removed.
- Removed trees should be replaced with urban-tolerant native tree species (approximately 39 specimens) at a 3:1 replacement ratio for healthy trees >30 cm in diameter; and 1:1 ratio for healthy trees <30 cm in diameter and declining/diseased trees >30 cm in diameter. The planting of approximately 39 trees should occur within a local city park(s) or naturalized area in the area to replace trees that will be removed (opportunities will be sought to consolidate plantings in a single area in order to provide the greatest benefit and/or by augmenting existing woodland/forest within the watershed). It is recommended that replacement trees are planted within a restored mixed tree/shrub community. However, planting them within Marilyn Bell Park, or another local park is a reasonable option.

No wildlife-related impacts or impacts to significant natural environment features are expected.

5.2.2.2 Potential for Contaminated Soil Excavation

There is a potential for excavating contaminated soil from possible fill materials along the proposed route. All contaminated soil must be taken to an appropriately approved waste disposal site and transported by an appropriately licensed waste disposal carrier. The Contractor will be required to manage all contaminated soils generated by construction activities in accordance with all provincial and federal regulations/approval requirements.

5.2.2.3 Surface Water and Groundwater

There is a potential for the release of concrete wash-water into storm sewers and eventually into natural water bodies such as Lake Ontario. The concrete wash-water is frequently highly alkaline with a very high content of suspended solids. Cured cement is also alkaline and can impair water quality when fine concrete debris from demolition activities enters the water.

To mitigate these effects, straw barriers, sediment fencing and geotextiles can be used to prevent the transport of excavated soils and construction debris; chutes from concrete delivery trucks will be washed on permeable grounds away from subsurface drains of storm drains; all concrete wash water will be collected and disposed in a location away from water bodies, storm drains and subsurface drains; and a spill control and response plan will minimize the impacts of any accidental spills.



5.2.3 Land Use Environment

The removal of one utility/washroom building in the area of the Dufferin Gate, and the removal of buildings used for the children's area of the CNE may have to be replaced in another suitable location pending discussions with Exhibition Place and the CNE. Such discussions will occur during the detail design phase of the project.

5.2.4 Socio-Economic

5.2.4.1 Removal of Private Property

No private property is required to implement this route. The property required is part of Exhibition Place and therefore owned by the City of Toronto.

5.2.4.2 Occurrence of Short-term Construction Related Nuisance Effects

Construction of the preferred design may result in short-term construction related nuisance effects on adjacent businesses and users within the Exhibition Place. These temporary effects are primarily related to the noise and dust generated by the operation and movement of construction equipment and trucks.

The following summarizes these potential effects and the recommended mitigation measures:

Short-term Construction Effect	Recommended Mitigating Measures
<ul style="list-style-type: none"> ▪ Increase in noise related to construction equipment operation. 	<ul style="list-style-type: none"> ▪ Comply with City of Toronto noise control by-law. Should exemptions to the noise by-law be required, the appropriate application must be made to City Council. ▪ Maintain equipment in proper operating condition to prevent unnecessary noise, including but not limited to non-defective muffler systems, properly secured components, and the lubrication of moving parts. ▪ Restrict idling of equipment to the minimum necessary to perform the specified work (no excessive idling).
<ul style="list-style-type: none"> ▪ Increase in dust and fumes related to excavation, construction equipment operation, movement of trucks and equipment on unpaved surfaces, etc. 	<ul style="list-style-type: none"> ▪ Dust to be controlled through the use of standard techniques within the construction industry in compliance with MOE's standards for the emission of noxious gases and particulate matter. ▪ Undertake dust/debris control measures (i.e., apply water or calcium chloride to unpaved areas to control dust emissions). ▪ Exhaust fumes to be controlled by maintaining fossil fuel burning equipment in proper operating condition and restricting idling to the minimum necessary to perform the specified work (no excessive idling).



5.2.4.3 Occurrence of Short-term Construction Related Access Effects

Access to parking and storage areas under the Gardiner Expressway servicing Exhibition Place may be affected by the construction of the preferred route. The traffic management plan will also address this, and a temporary alternate access to areas under the Gardiner Expressway will be provided during construction, or alternate parking/storage areas provided elsewhere.

The sidewalk on the north side of Manitoba Drive will be affected during the construction of the preferred route. The traffic management plan will include a detour route for the sidewalk affected to ensure that pedestrian movement is accommodated.

5.2.4.4 Occurrence of Long-term Access Effects

Access to parking and storage areas under the Gardiner Expressway may be limited with the alignment of the Route; new locations for access will be reviewed or at-grade signals may be installed to control crossings at streetcar tracks.

The pedestrian walkway located on the north side of Manitoba Drive in the vicinity of the Food Building will need to be relocated, as there is insufficient right-of-way to accommodate it between the streetcar and Manitoba Drive. The sidewalk will be relocated to the north side of the Food Building.

5.2.5 Cultural

5.2.5.1 Loss of Potential Archaeological Resources.

The Stage 1 Archaeological Resource Assessment concluded that there are no known archaeological sites or archaeological potential along the route. However, as required by the Ministry of Culture (MCL) regulations under the Ontario Heritage Act, should deeply buried archaeological remains be encountered during construction, the Contractor will be responsible for immediately ceasing activities in the affected area and contacting the office of the Regulatory and Operations Group, MCL in Toronto (416-314-7147).

Furthermore, in the event that human remains are encountered during construction, both MCL and the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer and Commercial Relations should be notified immediately.



5.2.5.2 Potential Effects to Built Heritage Resources and Cultural Landscape Units

The preferred route has potential to disrupt two built heritage features: the Dufferin Street Bridge and the Gardiner Expressway. However neither of these features are listed as Toronto Heritage Properties or Ontario Heritage Properties.

The preferred route also has the potential to disrupt one cultural Landscape Unit, the Exhibition Place grounds. However, while a number of buildings and features located within the Exhibition Place cultural landscape are listed in the City of Toronto's Heritage Property Database, none of these buildings or features will be directly affected by the route.

If, during detail design, it be determined that the streetcar route in any above ground disturbances (either during the period of construction or post construction) to these buildings or features, further cultural heritage work will be completed in order to assess the nature of the impact on any identified built heritage features and cultural landscapes.