

# EX18.7 Appendix D



REVIEW OF

# EXPO 2025 ENABLING PROJECTS FINAL REPORT

OCTOBER 24, 2016



October 24, 2016

RVA 163359

City of Toronto  
24th Floor, East Tower  
100 Queen Street West  
Toronto, Ontario M5H 2N2

**Attention: Bill De Angelis, P. Eng.**  
Director, Design and Construction  
Engineering and Construction Services

Dear Mr. De Angelis,

Re: Review of Expo Enabling Projects

We enclose our review of the project and schedule information for the various Enabling Works required for Expo 2025. We have concluded that it will be a significant challenge to accomplish the required projects within the allotted timeframe.

The proposed Expo site is subject to flooding, in need of remediation, has minimal municipal servicing and limited transportation infrastructure, hence, the challenge will be to address these matters while facing the hard deadline imposed by Expo 2025. The schedule is constrained at the front end by the ability to commence design quickly and at the back end by the need to deliver critical aspects of the infrastructure early on to facilitate Expo pavilion construction and associated work.

The Draft Port Lands Flood Protection and Enabling Infrastructure (Due-Diligence) Report (MVVA et al) includes a schedule and a review of schedule risks. This information presents a concern for the delivery of these projects that are required for Expo. Other major projects under review (Metrolinx rail projects, Gardiner/Lake Shore Blvd....) have less detailed schedule information.

There are unknowns associated with the area south of the Shipping Channel and east of the Don Roadway that may present risks. The Draft Port Lands and South of Eastern Transportation and Servicing Master Plan Class EA (Dillon et al) encompasses these areas, however, there is no schedule provided as only limited development was contemplated in the next 20 years. As the planning horizon for the majority this area is 20 to 50 years, Expo would necessitate advancing projects that were contemplated to occur well into the future. As these areas have not been subject to detailed investigation, an additional year should be factored into the schedule up front, extending the design schedule to two years.

Many time-consuming issues, (property acquisition, financing, ...) will need to be resolved during this design period. Cooperation of approval agencies will be of paramount importance.

We have considered that the development blocks for pavilion construction will need to be available two years in advance of the opening of Expo. We have generally considered the design phase for most works to be in 2017, which is aggressive. For Expo site areas outside the core Port Lands Flood Protection work area, an additional year for design should be anticipated to help address technical and non-technical matters. The enabling projects located north of the Keating Channel (outside of the Expo site) will have the benefit of an additional two-year schedule duration, as these projects do not directly conflict with pavilion construction.

We have made suggestions to help address some of the schedule challenges including a contracting approach that incorporates a form of Construction Management for the core Port Lands Flood Protection works area and General Contracting where projects can be separated in space and/or time. This approach is intended to maximize the contracting resources available for completion of projects. The report also identifies impediments and suggest mitigation.

Due to the inherent challenges in the Port Lands, making the site suitable for hosting Expo will require many enabling projects that all require time to complete, leaving a short window for construction of pavilions and related works. The schedule this would impose on pavilion construction may be unreasonable and this should be considered by the proponents of Expo.

We remain available to assist the City in this process.

Yours very truly,

**R.V. ANDERSON ASSOCIATES LIMITED**



Peter Langan, P. Eng.  
Vice President

PL:zhm

Encls. Report

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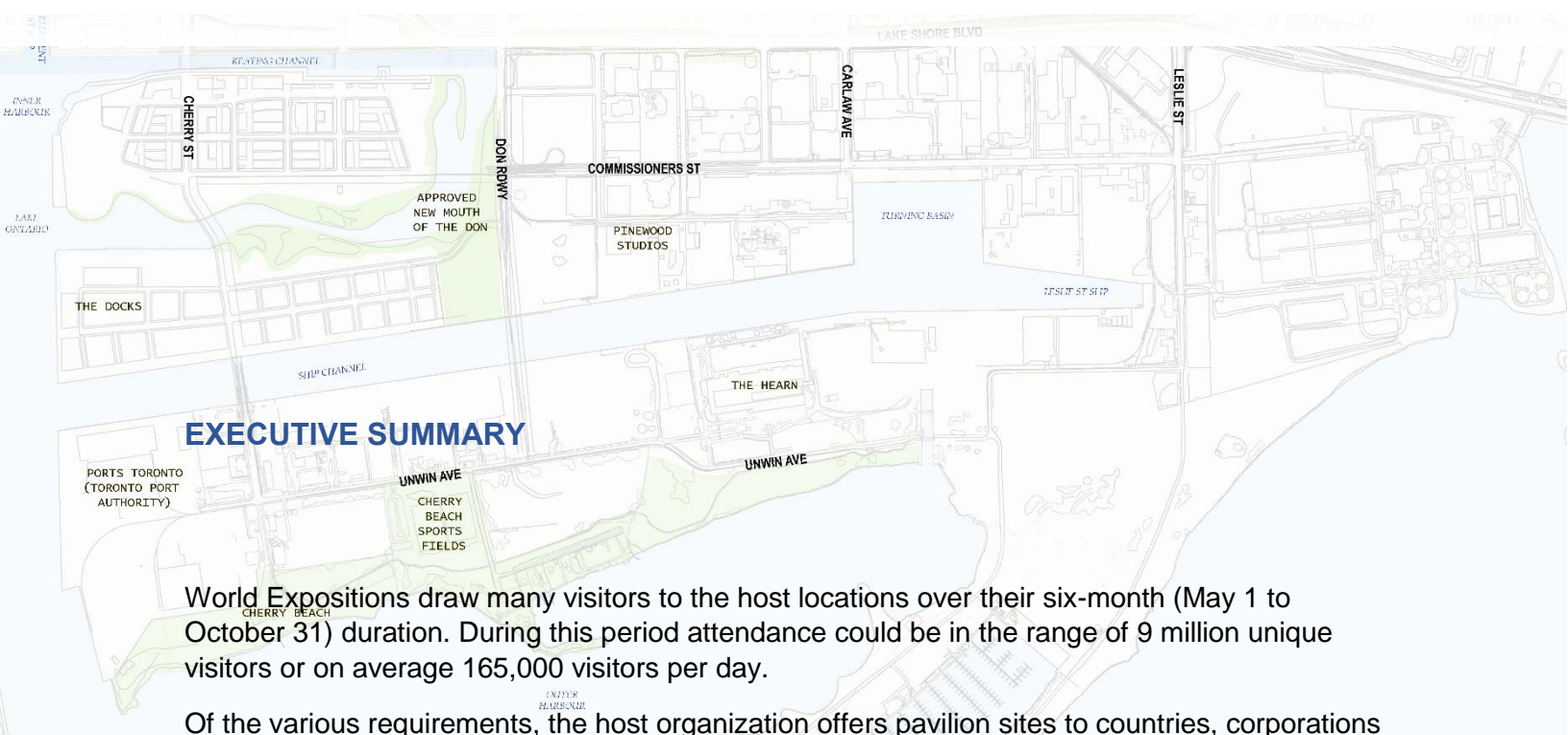
## Review of Expo Enabling Projects

### TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>1. INTRODUCTION .....</b>	<b>1</b>
<b>2. Expo Requirements .....</b>	<b>2</b>
<b>3. Description of the Enabling Works .....</b>	<b>4</b>
3.1 Port Lands Flood Protection and Enabling Infrastructure Project .....	4
3.2 Port Lands and South of Eastern Transportation and Servicing Master Plan .....	7
3.3 Gardiner Expressway and Lake Shore Boulevard Reconfiguration Project .....	9
3.4 Metrolinx Projects .....	12
3.5 Unilever Precinct Development Project.....	17
3.6 Don River and Central Waterfront (Coxwell Bypass Tunnel) Project.....	19
<b>4. Impediments and Mitigation .....</b>	<b>22</b>
4.1 Port Lands Flood Protection and Enabling Infrastructure Project .....	24
4.2 Port Lands and South of Eastern Transportation and Servicing Master Plan .....	26
4.3 Gardiner Expressway and Lake Shore Boulevard Reconfiguration Project .....	27
4.4 Metrolinx Projects .....	28
4.5 Unilever Precinct Development Project.....	29
4.6 Don River and Central Waterfront (Coxwell Bypass Tunnel) Project.....	30
<b>5. Conclusions .....</b>	<b>30</b>

## Table of Figures

- Figure 1 – Draft Expo Master Plan
- Figure 2 – Land Ownership
- Figure 3 – Expo Lands
- Figure 4 – Port Lands Enabling Projects
- Figure 5 – Port Land Schedule
- Figure 6 – Road ROW's
- Figure 7 - Transit Network
- Figure 8 – Sanitary Servicing Solution
- Figure 9 – Gardiner Expressway
- Figure 10 – Anticipated Schedule
- Figure 11 – Expo (Welcome Centre and Parking) adjacent to Gardiner/Lake Shore
- Figure 12 – Increasing Track Capacity
- Figure 13 – Schedule for 4th Track
- Figure 14 – Don Yard Expansion
- Figure 15 – New GO Station at Unilever Site
- Figure 16 – Electrification – Paralleling Station
- Figure 17 – First Gulf - Unilever Master Plan
- Figure 18 – Expo Parking lot at Unilever site
- Figure 19 - Coxwell Bypass Tunnel Plan
- Figure 20 – Don River and Central Waterfront Project Staging
- Figure 21 – Shafts, north of Lake Shore Blvd, east of the Don River
- Figure 22 – Consolidated Plan of Expo Enabling Projects
- Figure 23 – Consolidated Schedule of Expo Enabling Projects
- Figure 24 – Scope Redistribution



## EXECUTIVE SUMMARY

World Expositions draw many visitors to the host locations over their six-month (May 1 to October 31) duration. During this period attendance could be in the range of 9 million unique visitors or on average 165,000 visitors per day.

Of the various requirements, the host organization offers pavilion sites to countries, corporations and NGOs. Given that building construction is an important element of Expo, a two-year window has been considered for pavilion construction, following the completion of site servicing activities related to roads, water and sewer infrastructure.

In order for the City of Toronto (COT) to assess preparedness to host Expo 2025, this study was commissioned to review the information available from the proponents on the various enabling projects and associated schedules. Following consolidation of the information, the individual projects were reviewed to help identify impediments to completing the enabling projects prior to Expo. To address the impediments, mitigating measures are suggested for the City to be considered at this early stage, in an attempt to help expedite project completion timelines.

Notwithstanding the above, a lack of firm project schedules and agency approvals make it unlikely that enabling works can be completed within a timeline that would allow Expo 2025 proceed on the subject lands.



For the Expo 2025 site to be available for pavilions, a number of enabling projects were identified that require completion prior to 2023. The enabling projects reviewed and the main proponents are identified as follows:

- Port Lands Flood Protection and Enabling Infrastructure Project (Waterfront Toronto)
- Port Lands and South of Eastern Transportation and Servicing Master Plan (COT)
- Gardiner Expressway and Lake Shore Boulevard Reconfiguration Project (COT)
- Don River and Central Waterfront (Coxwell Bypass Tunnel) Project (COT)
- Railway Projects (Metrolinx)
- Unilever Precinct Development Project (First Gulf)

Following a review of each project's status a determination was made as to its ability to be completed prior to the commencement of Expo-related construction activities.

**Port Lands Flood Protection and Enabling Infrastructure** – The current schedule indicates that the work will extend to the end of 2023. Commencement of design and construction can not be delayed and adjustments to the contracting approach are recommended to increase the opportunity of achieving site preparation for pavilion construction by May 2023.

**Port Lands and South of Eastern Transportation and Servicing Master Plan** - The Transportation and Servicing Master Plan Class Environmental Assessment was commissioned to inform the orderly development over the next 50 years, in particular from 2026 to 2042. While the ultimate buildout would meet Expo needs, much of the program would need to be advanced and compressed into an approximate five year window. Without a major rework of the entire project, timelines to meet Expo requirements cannot be met.

**Gardiner Expressway/Lake Shore Boulevard Reconfiguration** - The original construction schedule was indicated to be 4 years, per the Class EA documentation. However, the City is reviewing an alternative approach that consider the rehabilitation of the entire Gardiner Expressway as one large project. The construction timeframe would be approximately six years. Under this alternative approach, it is unlikely that all work could be completed prior to Expo.

**Metrolinx Projects** - Metrolinx has 4 major undertakings along the Lakeshore East Rail Corridor that require cooperation and coordination with several City agencies and departments. Based upon information provided by Metrolinx, the current project definition and schedule uncertainty make it unlikely that all the work can be completed prior to Expo.

**Unilever Development** - Lack of project development, approvals and schedule uncertainty at this time, will delay completion of works on the Unilever site to beyond 2025.

**Coxwell Bypass Tunnel Project** - This project has no impact on potential Expo development.

### **Other Factors Potentially Impacting Timelines**

Issues that have not been addressed in the current document review include:

- Additional preparatory works required for lands outside the current project area that are required for the Expo footprint.
- Park construction extends beyond 2023.
- Different site grading assumptions are required for Expo – that are not contemplated in the current plans.
- Municipal servicing assumptions today do not meet Expo requirements.
- Schedule uncertainty is a major concern – Metrolinx, Gardiner, Waterfront Toronto projects are all in concept design phases.
- Unknown soil conditions in a brownfield site may impact remediation activities and timelines.
- Agency cooperation / coordination is key to expediting works. Current status of discussions is unknown.
- Municipal servicing requirements were not addressed in any of the projects reviewed.



## 1. INTRODUCTION

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There is consideration being given to hosting Expo 2025 in the Port Lands area of the City of Toronto. The proposed site is subject to flooding, in need of remediation, has limited municipal servicing and limited transportation infrastructure. Considering the number and significance of the enabling projects that would be required to be implemented to host Expo, the City of Toronto has initiated a review of these projects.

The scope of the review includes an inventory of the enabling projects, to identify their major components and to consolidate any schedule information available from the proponents. At this early stage, these projects are considered as independent projects, however, there is an acknowledgement by the proponents that there is a need for early coordination, rather than coordinating later in the design process. Following consolidation of the information available on these projects, the individual projects were reviewed to help identify impediments to completing the enabling projects prior to Expo. For impediments identified, mitigating measures are suggested for the City to be considered at this early stage, to help achieve the enabling projects within the timeframe needed to host Expo.

The enabling projects and their main proponents are as follows:

- Port Lands Flood Protection and Enabling Infrastructure Project (Waterfront Toronto)
- Port Lands and South of Eastern Transportation and Servicing Master Plan (COT)
- Gardiner Expressway and Lake Shore Boulevard Reconfiguration Project (COT)
- Don River and Central Waterfront (Coxwell Bypass Tunnel) Project (COT)
- Railway Projects (Metrolinx)
- Unilever Precinct Development Project (First Gulf)

This report does not review any building (pavilion) development work, other than assuming the building sites should be made available to the building constructors two years in advance of the opening of Expo, or in May 2023.

## 2. EXPO REQUIREMENTS

World Expositions draw many visitors to the host locations over their six-month (May 1 to October 31) duration. During this period attendance could be in the range of 9M unique visitors or on average 165,000 visitors per day.

Host site have ranged in sizes from 200ha (500 acres) to over 400 ha (1000 acres). The Port Lands site has approximately 226 ha. (560 acres) in a consolidated format, in an area very close to the central core of Toronto.

The host organization offers pavilion sites to countries, corporations and NGO. Pavilions may take many forms including those built by the various participating organizations/countries and those made available to rent. Facilities are made available to developing nations in a manner that respects their financial circumstances. Buildings can take the form of permanent structures or temporary facilities.

Given that building construction is an important element of Expo, there must be sufficient time set aside in the schedule to allow timely access to the site to facilitate construction. The duration of this building activity has been set at two years for the purposes of reviewing schedule impacts.

A draft concept plan of the Expo site is shown in Figure 1. Figure 2 and 3 indicate land ownership and the mix of land available for Expo.

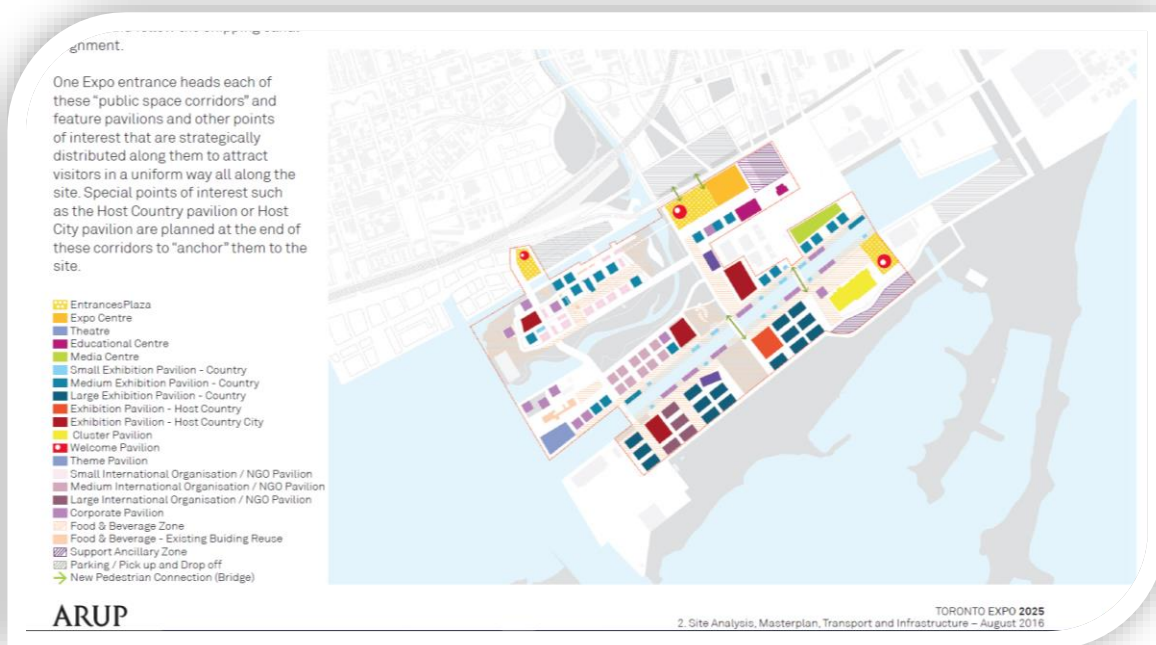


Figure 1 – Draft Expo Master Plan (1)

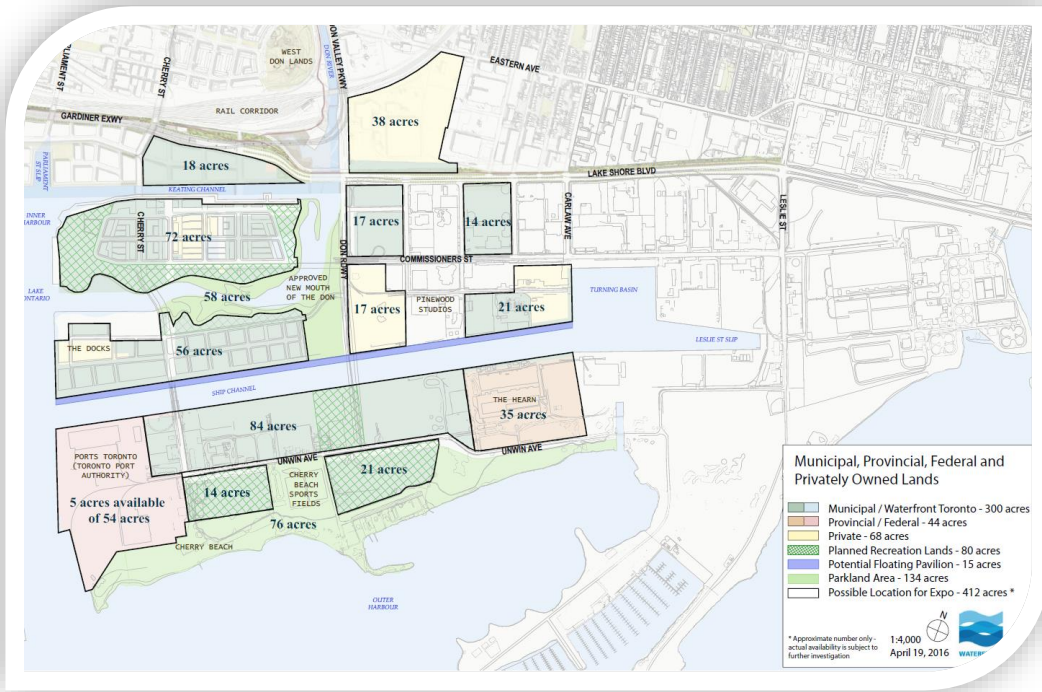


Figure 2 – Land Ownership (2)

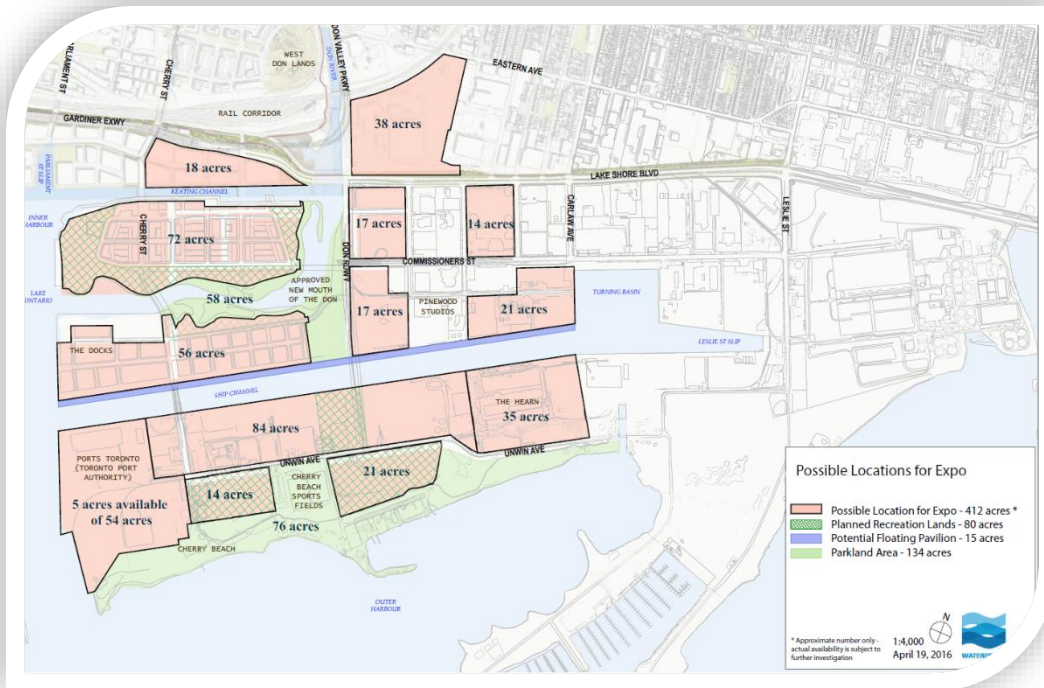


Figure 3 – Expo Lands (2)

### 3. DESCRIPTION OF THE ENABLING WORKS

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The enabling works for Expo that are under review include:

- Port Lands Flood Protection and Enabling Infrastructure Project (Waterfront Toronto)
- Port Lands and South of Eastern Transportation and Servicing Master Plan (COT)
- Gardiner Expressway and Lake Shore Boulevard Reconfiguration Project (COT)
- Don River and Central Waterfront (Coxwell Bypass Tunnel) Project (COT)
- Railway Projects (Metrolinx)
- Unilever Precinct Development Project (First Gulf)

The following sections describe these projects, including major components and schedule information available at this early stage.

#### 3.1 Port Lands Flood Protection and Enabling Infrastructure Project

In order for development to proceed in the Port Lands, the area must first be removed from flood susceptibility. Similar to the West Don Lands, flood protection will be constructed to protect the area and thereby remove it from flood susceptibility. Given the scale of the project, it is the major project influencing the development of the Port Lands.

A confidential document entitled “Draft Port Lands Flood Protection and Enabling Infrastructure Due Diligence Report” (MVVA et al, June 27, 2016), herein referred to as the Port Lands Flood Protection Report, was prepared for Waterfront Toronto. This final draft report was reviewed and found to address most work required to facilitate development in the Port Lands. The Report includes over 20 major elements, of which any one could be considered a sizable stand alone project. The major elements of work outlined in the Port Lands Flood Protection Report are:

- Flood Protection
- Mouth of the Don Naturalization
- Site remediation
- Earthworks
- Several bridges
- Municipal Servicing of the lands (sewer, water, roads and utilities)
- Parks

Other works outside of the core Port Lands area are also required. Figure 4 provides an overview of these projects and Figure 5 indicates the schedule developed for these project.

It is important to note that the area of the “Expo site” is larger than the area of the Port Lands Flood Protection Report, therefore it is expected to require additional time and funding to complete the work in this larger area.

The Port Lands Flood Protection project, with a proposed completion date of Q4 2023, is already beyond the time line preferred for pavilion builder access to the Expo sites. Albeit, the work in 2023 is primarily parks related, which may not conflict with work on the building sites.

The concern with this schedule is primarily due to the overall increase in scope of the work for Expo, compared to that contemplated in the Port Lands Flood Protection Report.

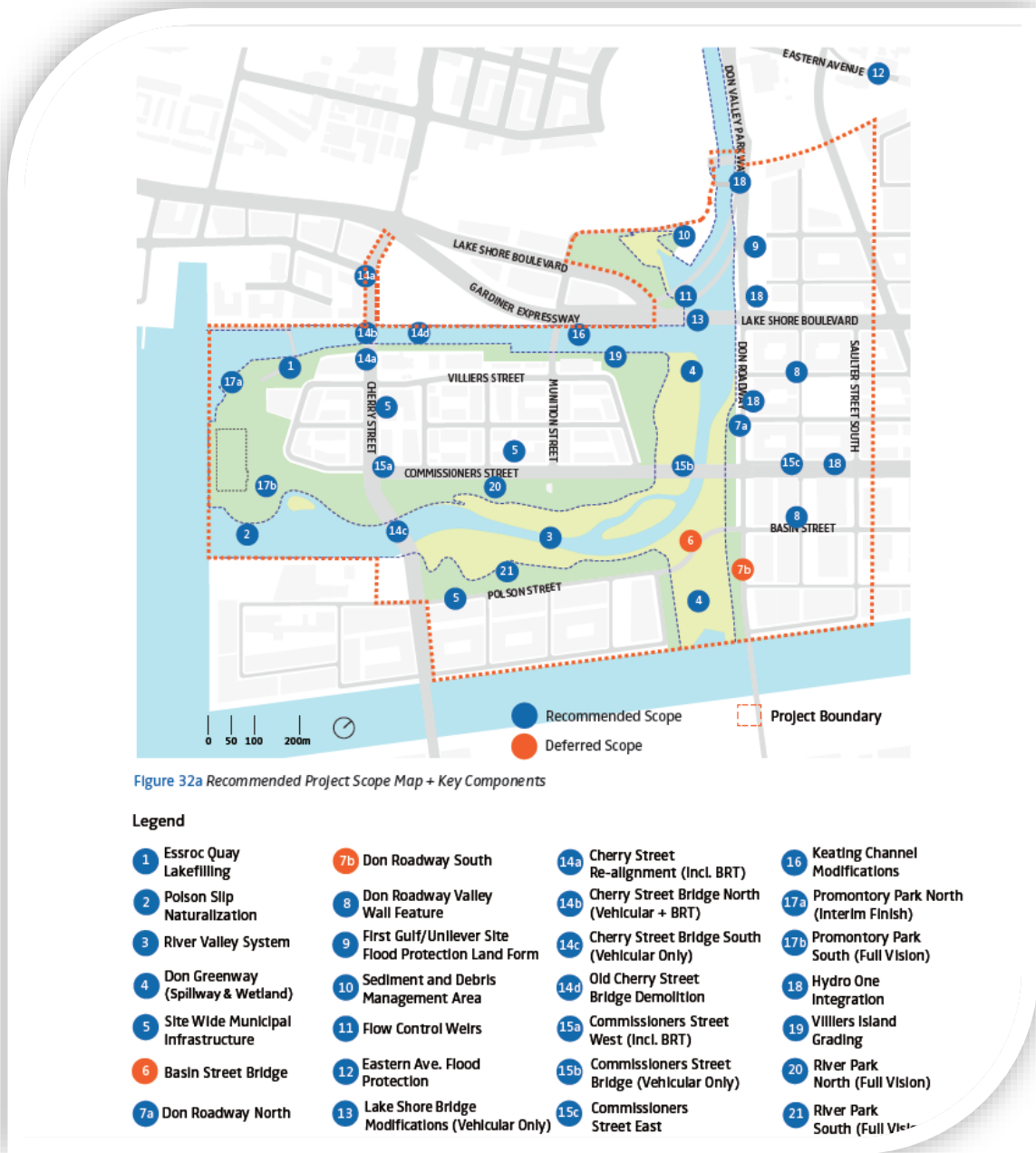


Figure 4 – Port Lands Flood Protection Enabling Projects (3)

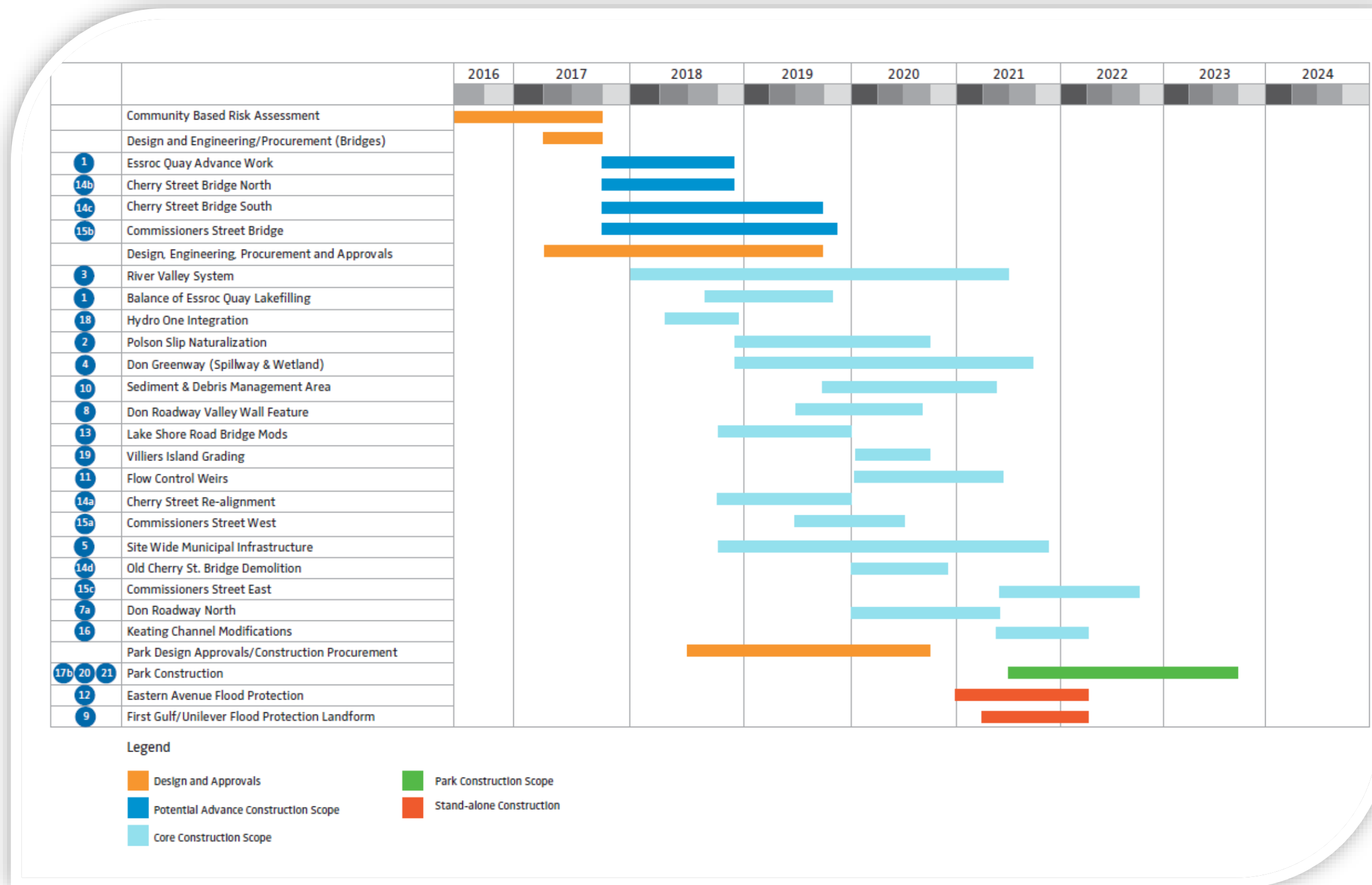


Figure 5 – Port Lands Enabling Work Schedule (3)

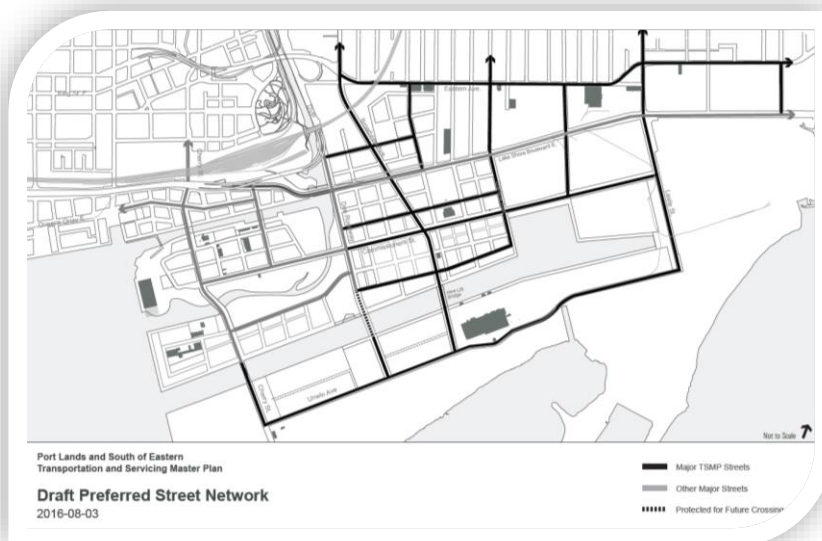
### 3.2 Port Lands and South of Eastern Transportation and Servicing Master Plan

The Draft Port Lands and South of Eastern Transportation and Servicing Master Plan Environmental Assessment (2016, Dillon et al) was commissioned by the City of Toronto to inform the orderly development of this area over the next 50 years. Projects identified in this area include:

- Upgrades to municipal sanitary sewer including connection to the MTI.
- Upgrades to municipal water system.
- Stormwater Conveyance and Management
- Servicing lands on the south side of the Ship Channel (currently not serviced)
- Broadview Avenue Extension south of Eastern Avenue to Unwin
- Road Network improvements including widened ROW's
- Light Rail Transit on Commissioners St, Cherry Street and Broadview Avenue
- Broadview Avenue Lift Bridge over Ship Channel
- Protecting for a future bridge over the Ship Channel at Don Roadway
- Protecting for extension of Cherry Street LRT south of Commissioner Street

The entire area is generally under serviced in all aspects with poor conditions throughout. The area south of the Ship Channel has no municipal services. Expo triggers the need for new services (water, sanitary, storm) and roads (Unwin Ave and local roads). Development east of the Don Roadway combined with development south of the Ship Channel will most likely trigger the need for the ultimate sanitary servicing solution for the Port Lands. This sanitary solution includes a new 825mm sewers on Commissioners Street and Carlaw with a connection to the Mid Toronto Interceptor.

Within the initial 20 to 25-year time frame, development is contemplated in the Villiers Island, the Film Studio District and the Unilever Precinct. No detailed schedule information is available for these projects at this early stage, although the majority of the infrastructure is to be built by 2042. Figure 6, 7 and 8 indicate Preferred Street Network, Transit Network and the Municipal Servicing for this area.



**Figure 6 – Preferred Street Network (4)**

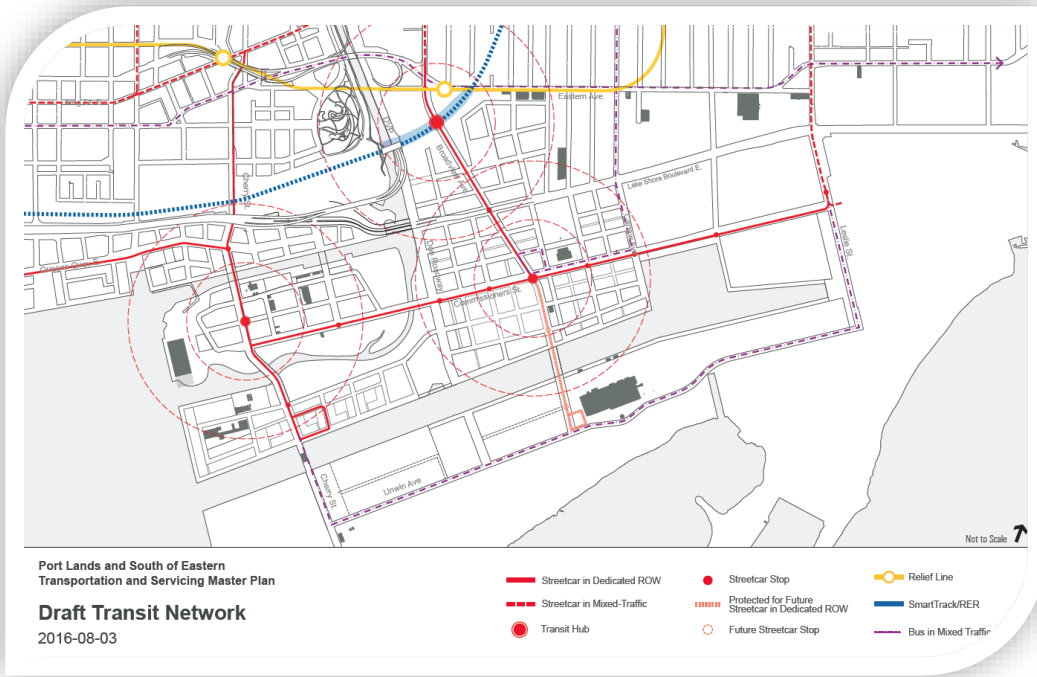


Figure 7 - Transit Network (4)

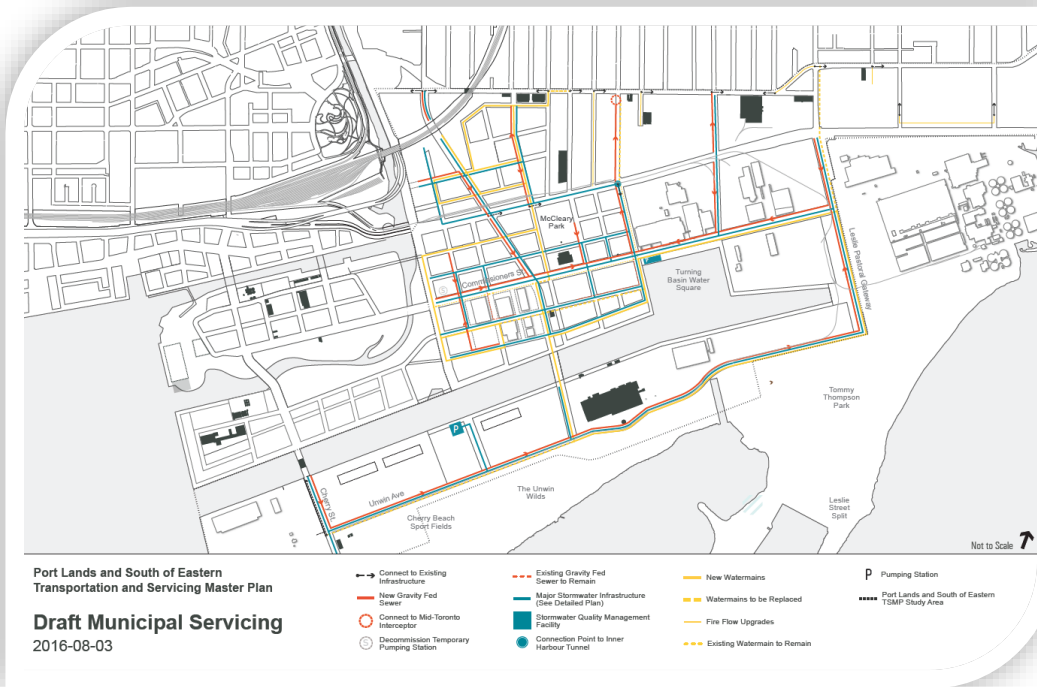


Figure 8 – Sanitary Servicing Solution (4)



### 3.3 Gardiner Expressway and Lake Shore Boulevard Reconfiguration Project

The purpose of the Gardiner EA was to determine the future of the elevated Gardiner Expressway and Lake Shore Boulevard East from approximately Lower Jarvis Street to east of the Don Valley Parkway (DVP) At Logan Avenue.

Problems	Opportunities
<ul style="list-style-type: none"> <li>• <b>Deteriorated Structure:</b> The Gardiner Expressway is an elevated roadway, comprising of simple spans supported on steel or concrete bents. Structural rehabilitation was mainly restricted to local patching including deck and bridge barriers. Chloride from road salts has permeated into the concrete components and caused deterioration of the structure and loss of structural capacities.</li> <li>• <b>Disconnected Waterfront:</b> The Gardiner Expressway and Lake Shore Blvd in combination with the rail line viaduct create a barrier between the city and waterfront/Lake. The Gardiner Expressway with its ramps and its elevated structure restricts views and creates a gap in the urban fabric between the city and the waterfront.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Revitalize the Waterfront:</b> Reconfiguring the Gardiner Expressway presents opportunities to re-shape the character of the urban environment to create new connections between existing city neighborhoods and new waterfront districts and to make long-term quality infrastructure investments.</li> <li>• <b>Create a Sustainable Waterfront:</b> Such projects are an opportunity to apply sustainable practices at the social, economic and natural environment levels.</li> <li>• <b>Balance Modes of Transports:</b> Reconfiguration of transportation infrastructure to allow for a balancing of transportation modes from an automotive focus to one that has high reliance on pedestrian, cycling and transit modes.</li> </ul>

After reviewing several alternatives, the Hybrid Alternative in Figure 9 was selected. This alternative preserves the expressway linkage and functionality between the Gardiner Expressway and the DVP. The main elements of the Hybrid alternative include:

- Remove the existing DVP-Gardiner connection and rebuild it to run through the Keating Channel Precinct further north and closer to the rail corridor and construct a new “tighter” (130m radius) ramp connection to the DVP with a lowered speed limit
- Retain the existing Gardiner Structure West of Cherry Street and retain the existing Gardiner-DVP on/off ramps
- Removal of the Logan Avenue on/off ramps
- Rebuilding Lake Shore Blvd. east of the Don River as a new six-lane landscaped boulevard including a new intersection for the Broadview Avenue extension.
- Reconfiguration of the Metrolinx Don River/DVP Rail Bridge three easterly spans to accommodate the revised DVP-Gardiner ramp locations

- Construction of one new westbound Gardiner on-ramp and one new eastbound Gardiner off-ramp (each 2 lanes) at Cherry Street
- Construction of new approach roads to the new Gardiner on/off ramps
- Extension of Queens Quay east of Cherry Street as a one lane eastbound roadway
- Building of new Lake Shore Boulevard/Queens Quay intersection
- Realignment of Lake Shore Boulevard as per the Keating Channel precinct plan
- Extend multi-use pathway along north side of Lake Shore Blvd. and improvements to some of the existing Lake Shore Blvd. intersections west of Cherry Street

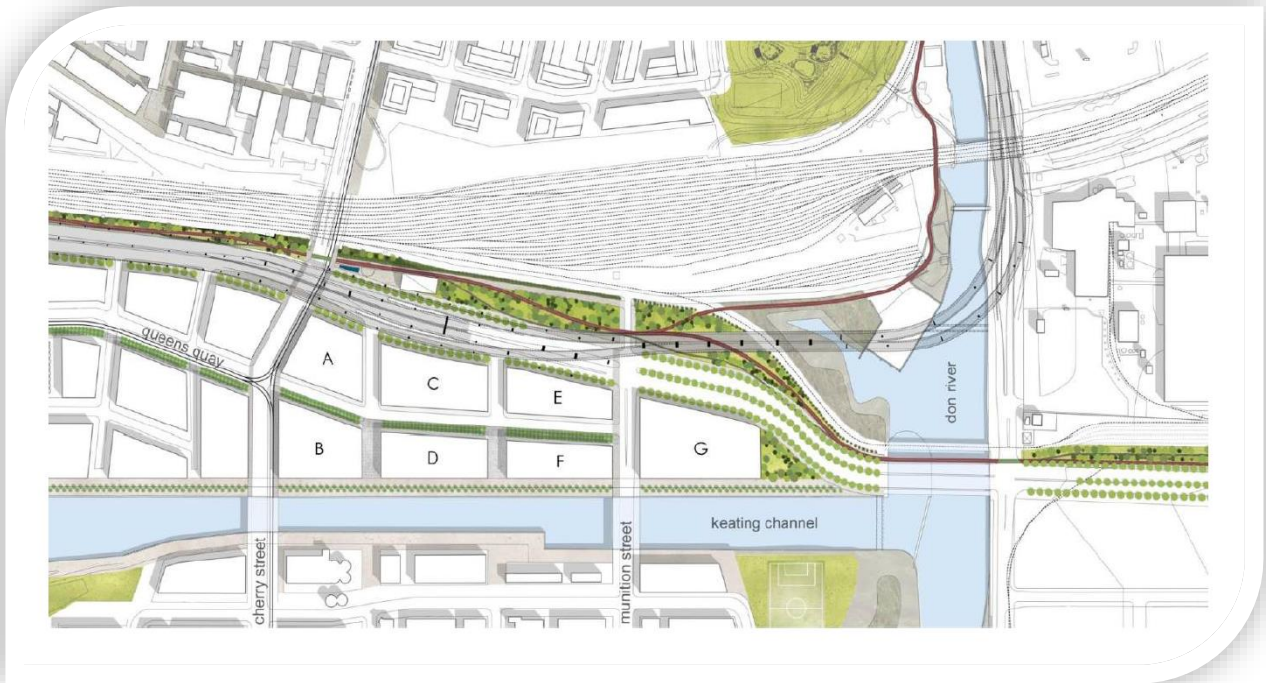
A construction staging plan is articulated in the EA however there is no schedule included (i.e. start or end date). The staging outlined is as follows:

- Pre-Staging-Demolition, Detours and Road widening: 1 year
- Westbound Demolition and Construction: 1 year
- Eastbound Demolition and Construction: 1 year
- Final Demolition and Construction: 1 year

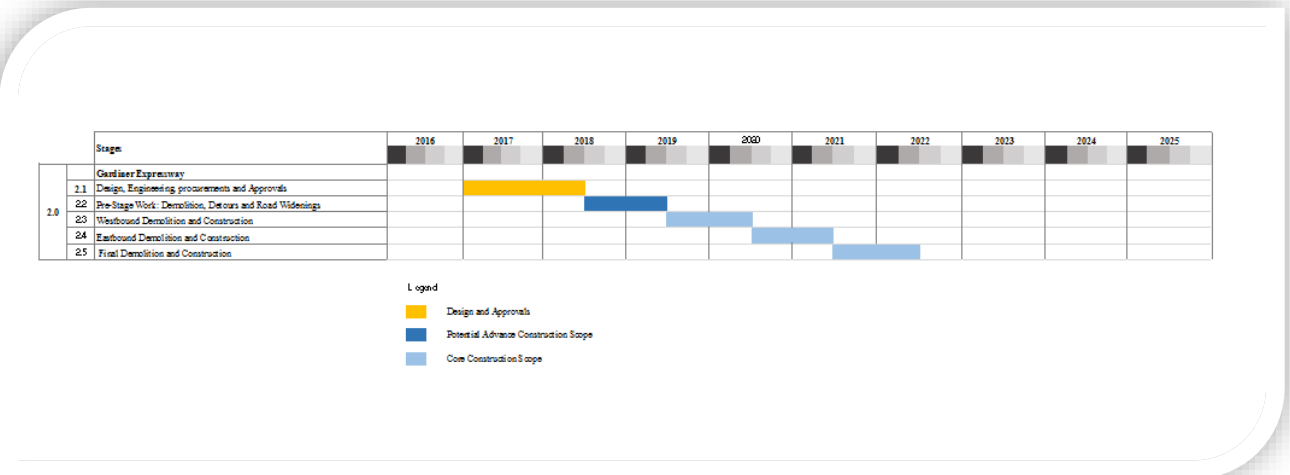
Considering this staging and allowing for a design and approval phase of 18 months, a simple high level schedule is included in Figure 10 to demonstrate that this project could conceivably be completed on time for Expo 2025. However, the City of Toronto is considering this project in the larger context of the entire Gardiner Expressway rehabilitation, which could significantly impact the schedule. Currently contemplated is an award in 2020 and a six-year contract duration, for a late 2026 completion date. Therefore, a work around solution would be needed. The City is also considering alternative delivery models such as P3.

It should be noted that the work on the three easterly spans of the Rail bridge at the DVP is solely to accommodate the aligned Gardiner/DVP ramps and this aspect of the project is in a highly constrained area, adjacent to the Unilever site where a new GO Station is proposed. Metrolinx has advised in their March 10, 2016 presentation, that the space on the bridge is adequate for rail expansion needs, however this appear to have not considered the GO Station project, that was recently announced for the Unilever site.

The GO Station at the Unilever site is expected to trigger the need for a widening of the rail bridge to accommodate track separation for the platform(s). This may not have been considered in March 10/16 Metrolinx presentation as the new GO Station site had not have been confirmed at that time. It should be anticipated that this bridge will require both reconfiguration (for the DVP ramps) and widening for the GO Station.



**Figure 9 – Proposed Gardiner East Hybrid Solution (5)**



**Figure 10 – Anticipated Schedule (schedule derived from EA and was not available from proponent)**

According to the Draft Expo Concept plan, the North Keating Precinct (480 Lake Shore Boulevard) is proposed to be a Welcome Centre and parking area, hence the schedule for the Gardiner/Lake Shore Blvd. Project would need to consider this constraint by Expo, see Figure 11.

Work on the Metrolinx Don Yard expansion would also have to be coordinated closely with the Gardiner Project.



**Figure 11 – Expo (Welcome Centre and Parking) adjacent to Gardiner/Lake Shore (1)**

### 3.4 Metrolinx Projects

Metrolinx has 4 major undertakings along the Lakeshore East Rail Corridor as follows:

- Increase track capacity in the rail corridor (4<sup>th</sup> Track),
- Expansion of the Don Yard,
- New GO Station at the Unilever site, and
- Electrification of the rail corridor and yards.

These projects were identified in a March 10, 2016 presentation by Metrolinx, to City of Toronto and Waterfront Toronto staff, however schedule information was only available for the 4<sup>th</sup> track project. The individual projects are described below:

#### 3.4.1 Increase Track Capacity

Increased track capacity, shown in Figure 12, is needed to facilitate Regional Express Rail (RER) and to increase reliability. This project alone did not trigger the need to expand the Don River/ DVP Bridge as the deck has sufficient space for the additional track, however the new GO Station at the Unilever Site is expected to trigger the bridge widening.

Throughout the study area, this work is confined to the rail corridor with the exception of the Unilever site where a retaining wall and land acquisition is necessary. A preliminary schedule was available as indicated in Figure 13.

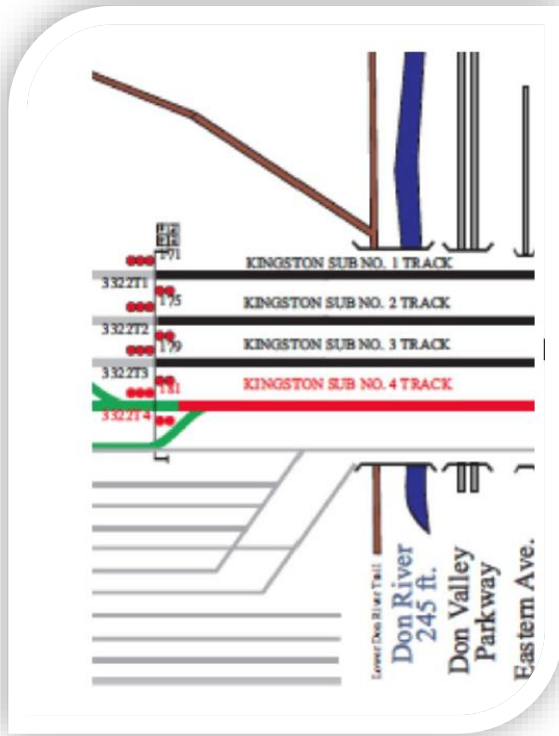


Figure 12 – Increasing Track Capacity (6)

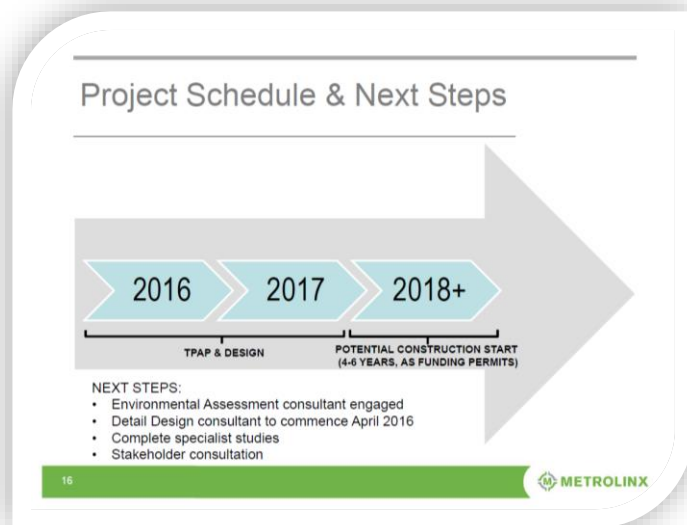


Figure 13 – Schedule for 4th Track (6)

### 3.4.2 Don Yard Expansion

The Don Yard Expansion is adjacent to the Gardiner/Lake Shore project. At this point we have not been able to confirm the timing of this project. Should it be undertaken within the same time frame as the Gardiner/Lake Shore work, we anticipate this can be managed by separating the contractors in space. Contractor separation in space should be manageable, however access to the site will need to be coordinated with the Gardiner/Lake Shore project.

As the yard is not directly adjacent to Lake Shore Boulevard, it is expected that grade differentials may be made up in the area between the two projects, which is understood to be park land. The Don Yard Expansion, see Figure 14, would also require the relocation of major utilities through this area, which would take considerable lead time to accomplish.

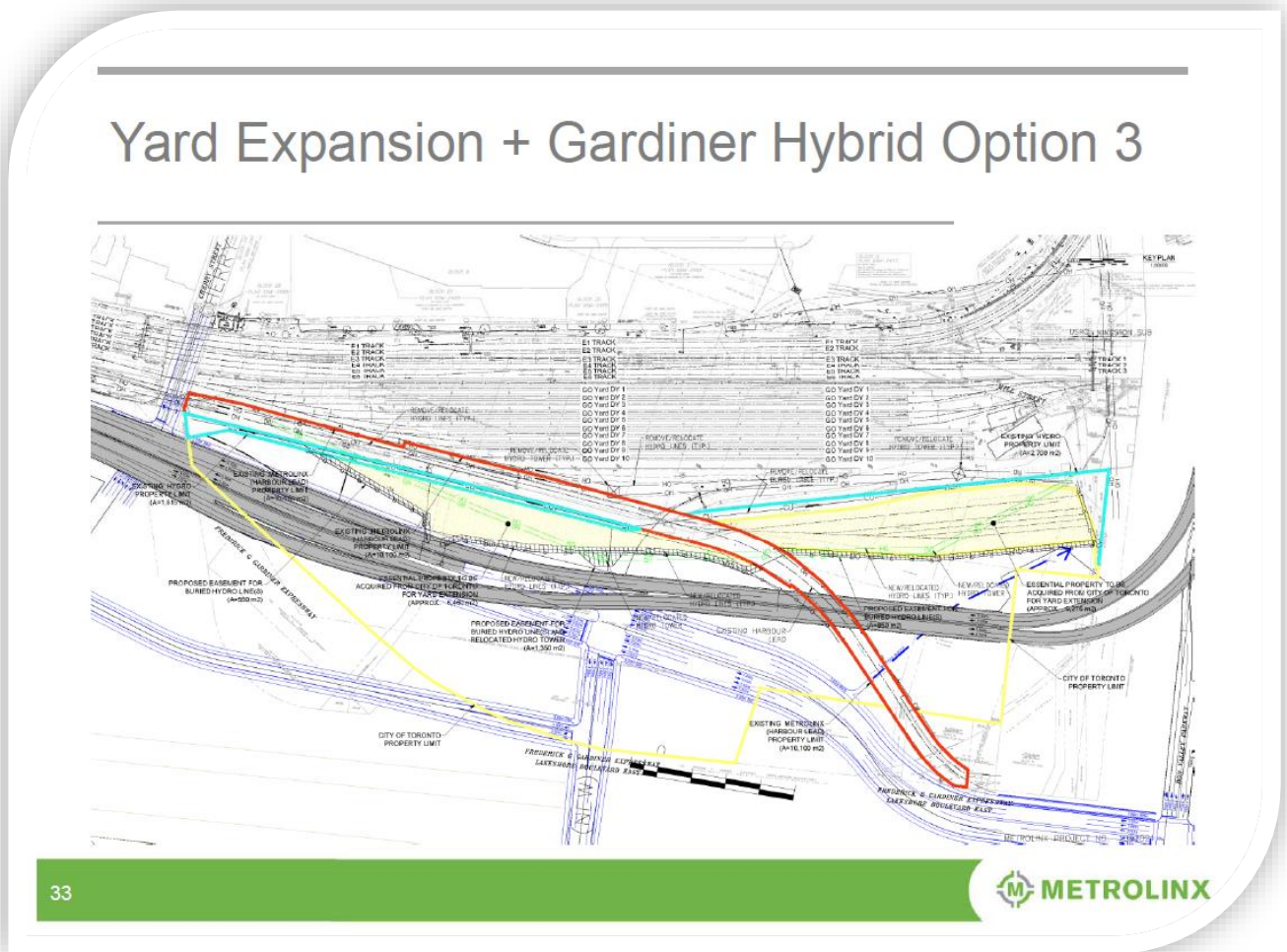


Figure 14 – Don Yard Expansion (6)

### 3.4.3 Unilever GO Station

Figure 15 from the March 10, 2016 presentation indicates two potential sites for a new GO Station. On June 22, 2016 the new GO Station was announced to be located at the Unilever site.

With the selection of the Unilever site, the status of the DVP rail carrying bridge should be revisited as the Station project is expected to trigger a need for widening this bridge to increase deck space to accommodate the new platforms. If widening of the bridge is required, this would become a candidate for advanced works, as is the Broadview Avenue Underpass to the east.

We anticipate the GO Station would be constructed in conjunction with the 4<sup>th</sup> Track Project timeline, but this is to be confirmed.



Figure 15 – New GO Station at Unilever Site (6)

### 3.4.4 Electrification – Paralleling Station

The Paralleling Station, which provides power to the overhead catenary is sited on the north side of the Lakeshore East Rail Corridor, east of the DVP, as shown in Figure 16. The timing is unknown, however this project is not seen as an encumbrance on other works in the area, as it is on the north side of the tracks to separate it from the other projects in space. Access would likely be from the BMW site. The location should be reviewed given the announcement of the Unilever site as being selected for the new GO Station.

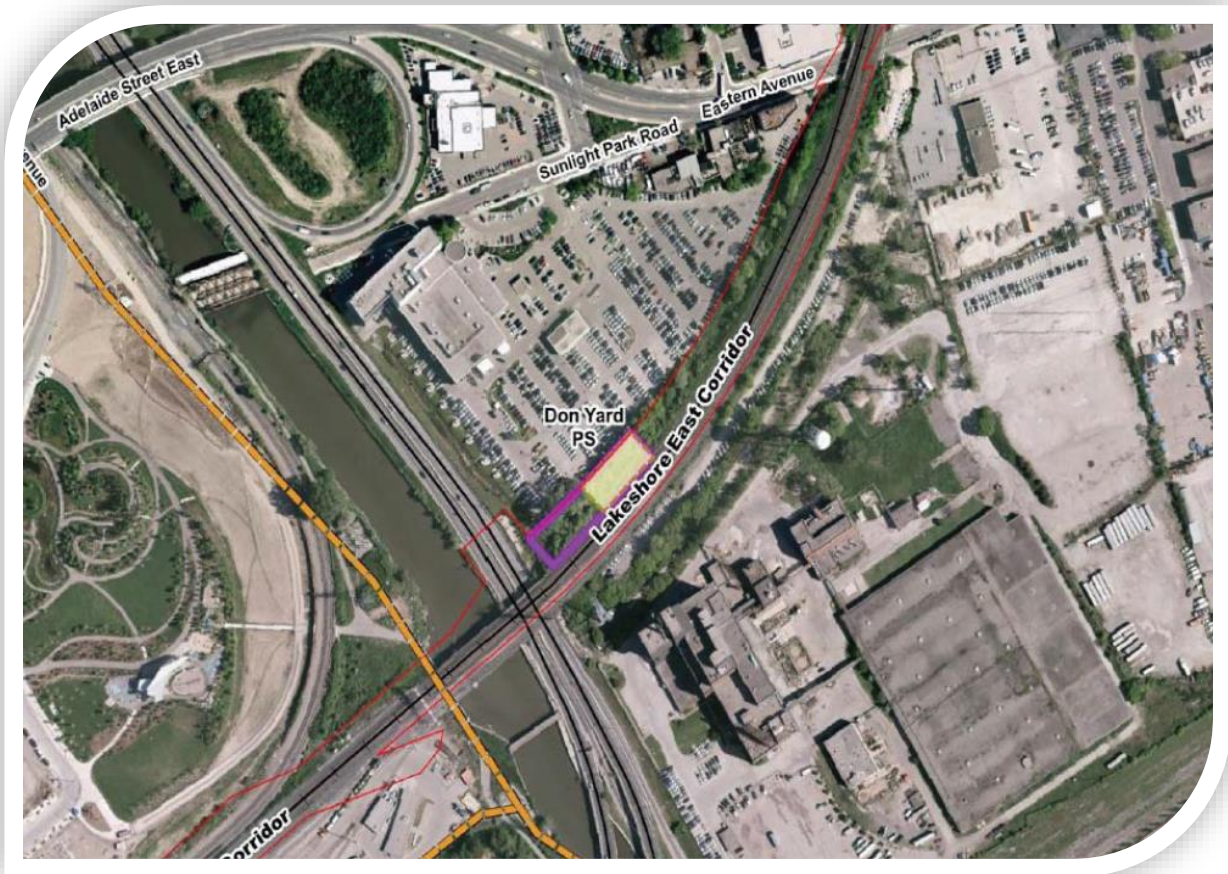


Figure 16 – Electrification – Paralleling Station (6)



### 3.5 Unilever Precinct Development Project

The first Phase of the Unilever Development by First Gulf proposes 1M sq. ft. of commercial and 2M sq. ft. of office space in the northwest quadrant of the site.

To facilitate this development, the following infrastructure shown in Figure 17 would be needed:

- Flood Protection landform of approximately 2.5m high at the railway embankment, tapering to nothing at Lake Shore Boulevard.
- Flood protection work south of the Keating Channel is needed prior to the flood protection works being constructed at the Unilever site.
- A new East-West road located at the mid-point of the site with connection to Don Roadway.
- Extension of Broadview from Eastern Avenue southerly, crossing beneath the rail corridor, intersecting the new east-west road and then connecting to Lake Shore Boulevard.
- New Metrolinx GO Station on the Lakeshore Rail Corridor and associated transport connections at that node.

First Gulf intends to complete of the first phase of development by 2025.

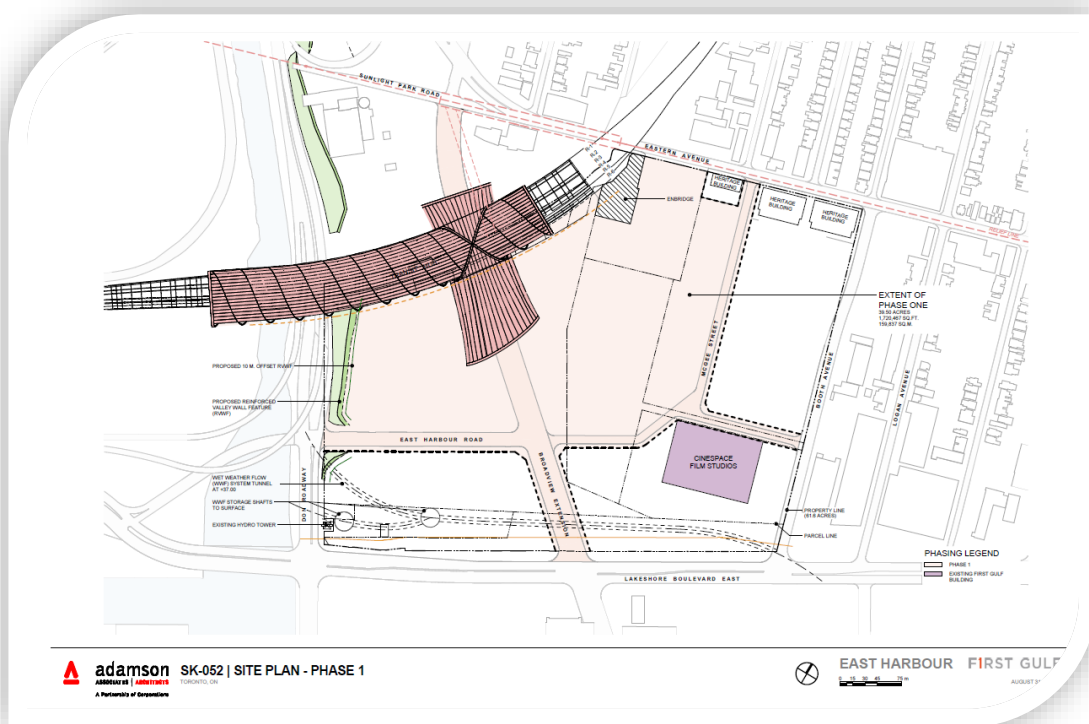
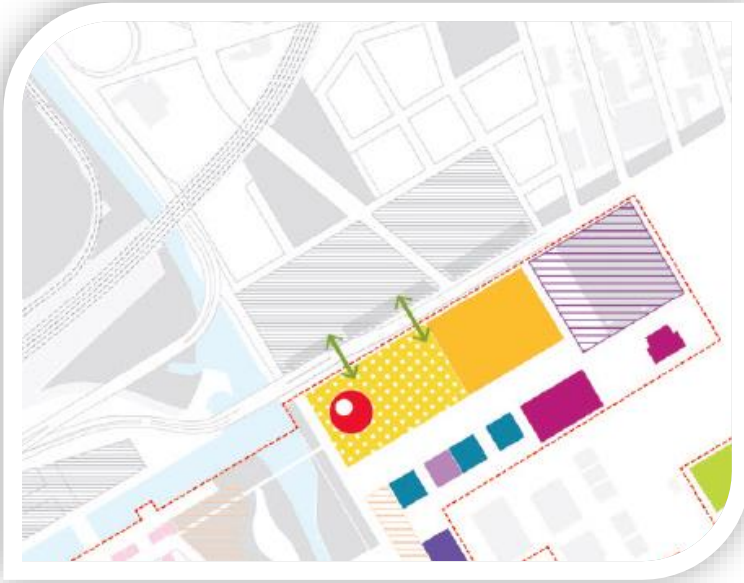


Figure 17 – First Gulf - Unilever Master Plan (7)

The Draft Expo Concept plan identifies a proposed parking area on the south side of the Unilever site. Given the first phase of the Unilever development will be at the north end of the site and is proposed to be completed in 2025, implementing this parking area is not expected conflict with other works. It is anticipated this parking area would be constructed just prior to Expo, well after the internal roads are completed.



**Figure 18 – Expo Parking lot at Unilever site (1)**

The Don River and Central Waterfront (Coxwell Bypass Tunnel) Project (Section 3.6) identifies a shaft site adjacent to the Unilever site, however, this is not within the first phase of the Unilever development, hence, coordination would be needed but a conflict is not anticipated.

The major constraint on the Unilever site will be along the rail corridor where the following projects are proposed:

- New GO Station,
- Broadview Avenue extension under the rail corridor into the Unilever site, and
- Reconstruction of the 3 easterly spans of the Rail Bridge to allow for the realignment of the DVP/Gardiner ramps over the Don River and the likely widening of the bridge deck to accommodate the GO Station.

Consideration should be given to constructing the bridges first as separate projects, or perhaps by the same contractor. The GO Station could follow or be done in conjunction with the bridges. If the bridges were undertaken as early works, the contractor's could be separated in space (while working at the same time). When the bridge projects are complete, another contractor could undertake the station project, or these projects could be bundled.

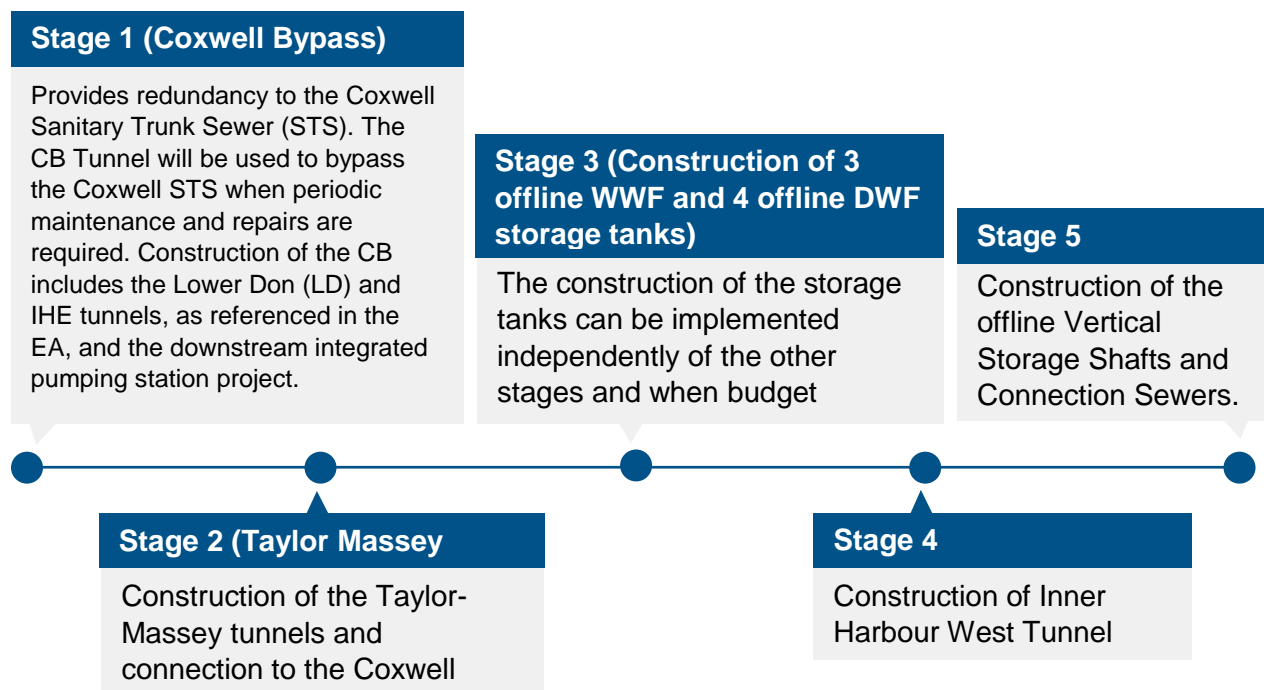
The Unilever site works would be undertaken by a different contractor (from the station), which will require separation in time and/or space.

### 3.6 Don River and Central Waterfront (Coxwell Bypass Tunnel) Project

The International Joint Commission designated Toronto’s Waterfront as an area of concern in the Great Lakes Basin due to impaired water quality in the Don River and Inner Harbor. The Wet Weather Flow Master Plan (WWFMP) concluded that discharges from combined and storm sewers are major contributors of pollutions in the Don River and Inner Harbor.

The Don River and Central Waterfront Municipal Class EA Environmental Study Report (August 2012, MMM Group) included an evaluation of storage and conveyance options for the Don Sanitary Trunk Sewer and the Waterfront Interceptor Sewer Systems. The preferred solution recommended sanitary sewer Dry Weather Flow (DWF) improvements, including provision of a bypass tunnel for the Coxwell Sanitary Trunk Sewer (CB Tunnel) and four offline underground storage tanks. Two other interconnected tunnels were also recommended: the Taylor-Massey Creek Tunnel and the Inner Harbor West Tunnel and three remote underground storage tanks for CSOs.

Due to the magnitude of the servicing solution and funding constraints, the City will implement the preferred solution through a program completed in 5 stages.



A plan showing the general arrangement of the project is shown in Figure 16. Stage 1 Construction is proposed to commence in Q1 2018 and be completed by the end of 2023 as indicated in Figure 20.

As this project is largely tunneling, the impacts occur at the surface at the shaft sites and wet weather flow connections. Within the study area there are two proposed shafts, LDS 3A and 3B in the Keating Rail Yard, south of the Unilever site on the north side of Lake Shore Boulevard, as shown in Figure 21. One of these shafts will be constructed in Stage 1, (2018 to 2023) while the other is in Stage 4, well into the future.

This project will need to be coordinated with the Unilever site. The shaft is located adjacent to an area that the Expo Master Plan is considering to use as a parking area (at the south end of the Unilever site).

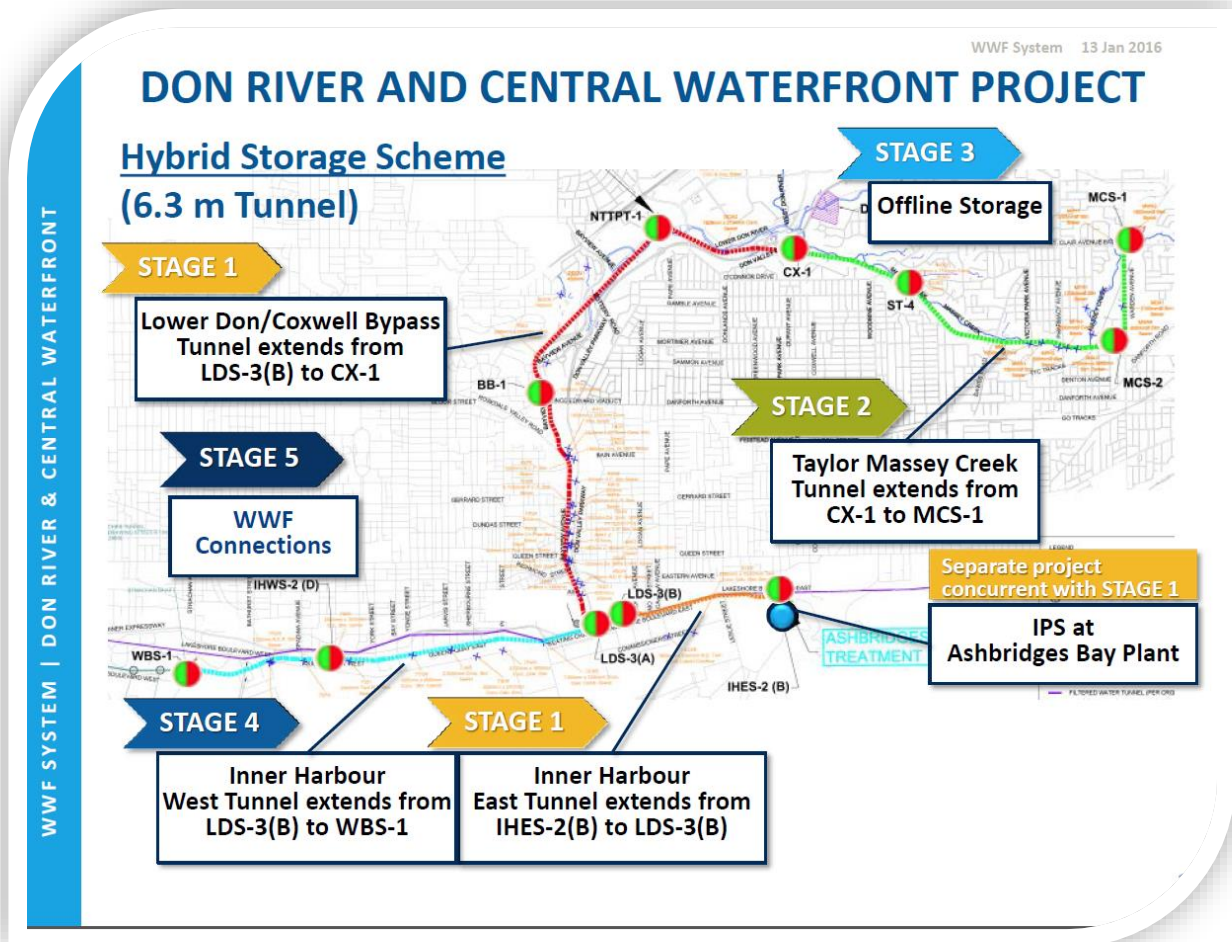


Figure 19 - Coxwell Bypass Tunnel Plan (8)

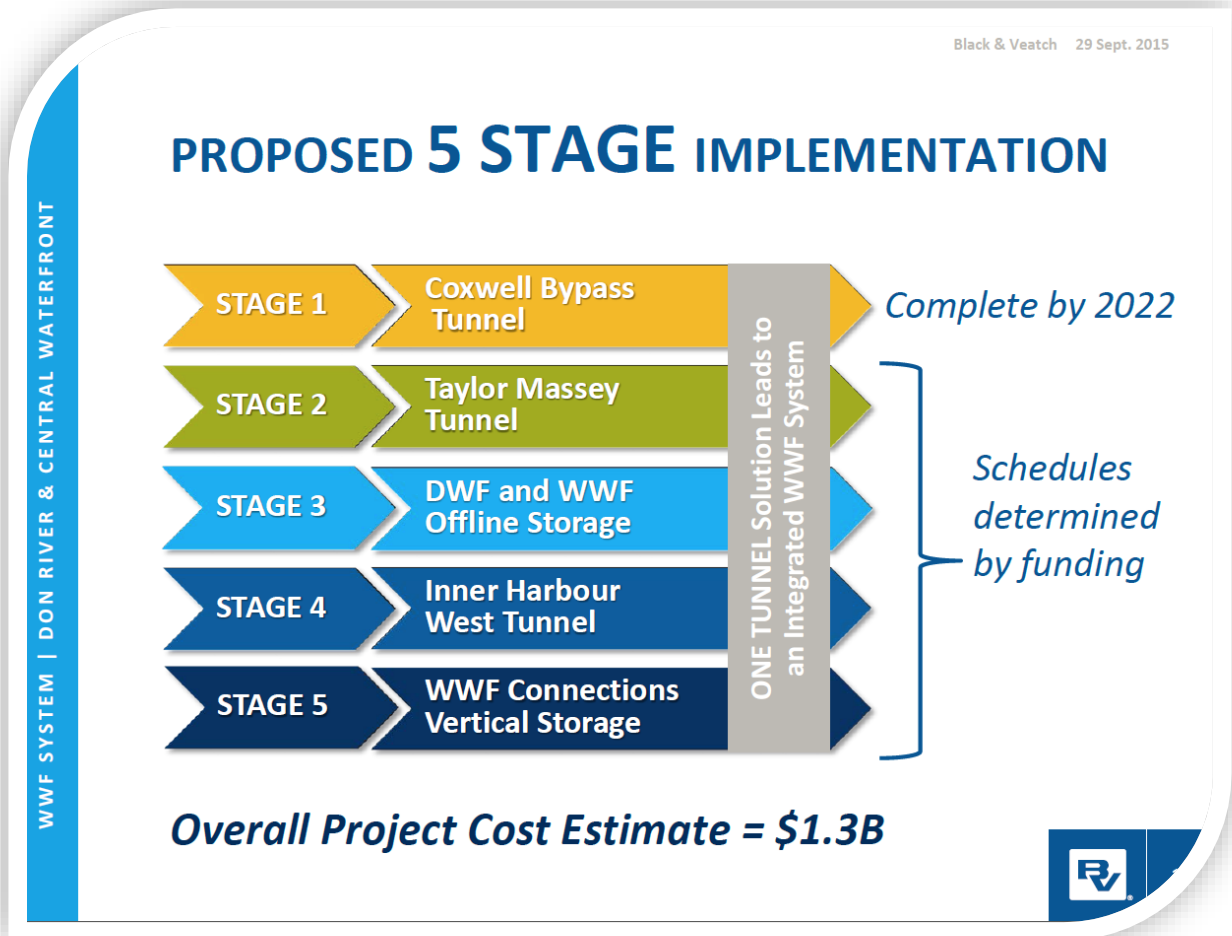


Figure 20 – Don River and Central Waterfront Project Staging (8)

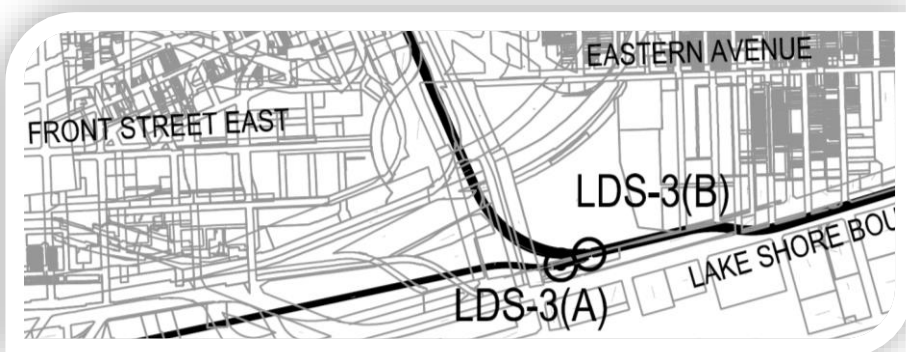


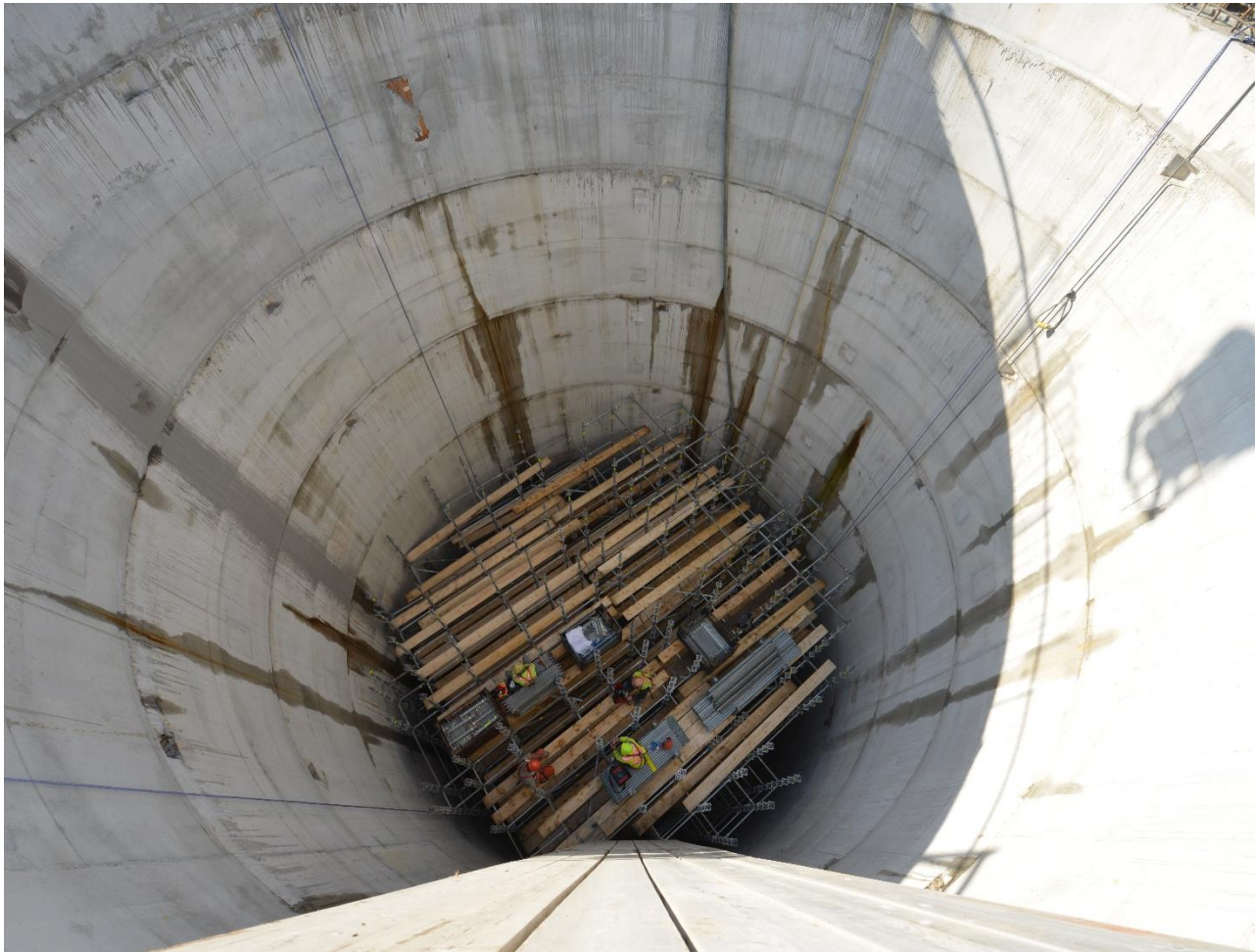
Figure 21 – Shafts, north of Lake Shore Blvd, east of the Don River

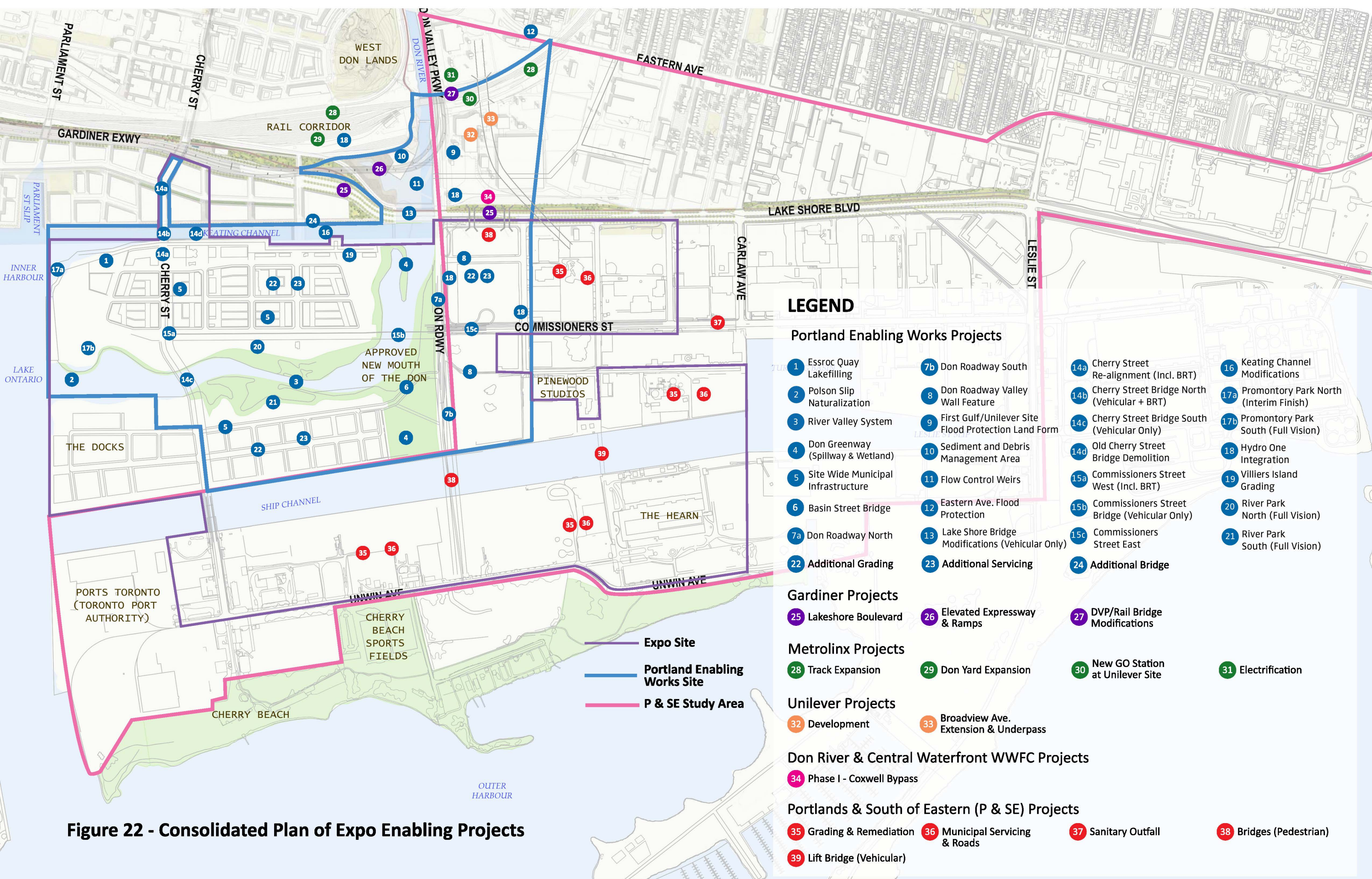
## 4. IMPEDIMENTS AND MITIGATION

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To review impediments (to success) and mitigation (to help ensure success), the work has been consolidated onto one plan in Figure 22 and onto one rolled up schedule, Figure 23. The schedule to construct the enabling works for Expo is not detailed but is intended to demonstrate the number of major construction projects occurring in close proximity and within a relatively short time frame.

This review also provides an initial effort to consolidate the projects that will be occurring adjacent to each other. If these projects were to occur separately, there would still be the need to manage the volume of work to help ensure they are coordinated to minimize disruptions and conflicts.





**Figure 22 - Consolidated Plan of Expo Enabling Projects**

**LEGEND**

**Portland Enabling Works Projects**

- 1 Essroc Quay Lakefilling
- 2 Polson Slip Naturalization
- 3 River Valley System
- 4 Don Greenway (Spillway & Wetland)
- 5 Site Wide Municipal Infrastructure
- 6 Basin Street Bridge
- 7a Don Roadway North
- 22 Additional Grading
- 7b Don Roadway South
- 8 Don Roadway Valley Wall Feature
- 9 First Gulf/Unilever Site Flood Protection Land Form
- 10 Sediment and Debris Management Area
- 11 Flow Control Weirs
- 12 Eastern Ave. Flood Protection
- 13 Lake Shore Bridge Modifications (Vehicular Only)
- 23 Additional Servicing
- 14a Cherry Street Re-alignment (Incl. BRT)
- 14b Cherry Street Bridge North (Vehicular + BRT)
- 14c Cherry Street Bridge South (Vehicular Only)
- 14d Old Cherry Street Bridge Demolition
- 15a Commissioners Street West (Incl. BRT)
- 15b Commissioners Street Bridge (Vehicular Only)
- 15c Commissioners Street East
- 24 Additional Bridge
- 16 Keating Channel Modifications
- 17a Promontory Park North (Interim Finish)
- 17b Promontory Park South (Full Vision)
- 18 Hydro One Integration
- 19 Villiers Island Grading
- 20 River Park North (Full Vision)
- 21 River Park South (Full Vision)

**Gardiner Projects**

- 25 Lakeshore Boulevard
- 26 Elevated Expressway & Ramps
- 27 DVP/Rail Bridge Modifications

**Metrolinx Projects**

- 28 Track Expansion
- 29 Don Yard Expansion
- 30 New GO Station at Unilever Site
- 31 Electrification

**Unilever Projects**

- 32 Development
- 33 Broadview Ave. Extension & Underpass

**Don River & Central Waterfront WWFC Projects**

- 34 Phase I - Coxwell Bypass

**Portlands & South of Eastern (P & SE) Projects**

- 35 Grading & Remediation
- 36 Municipal Servicing & Roads
- 37 Sanitary Outfall
- 38 Bridges (Pedestrian)
- 39 Lift Bridge (Vehicular)

- Expo Site
- Portland Enabling Works Site
- P & SE Study Area

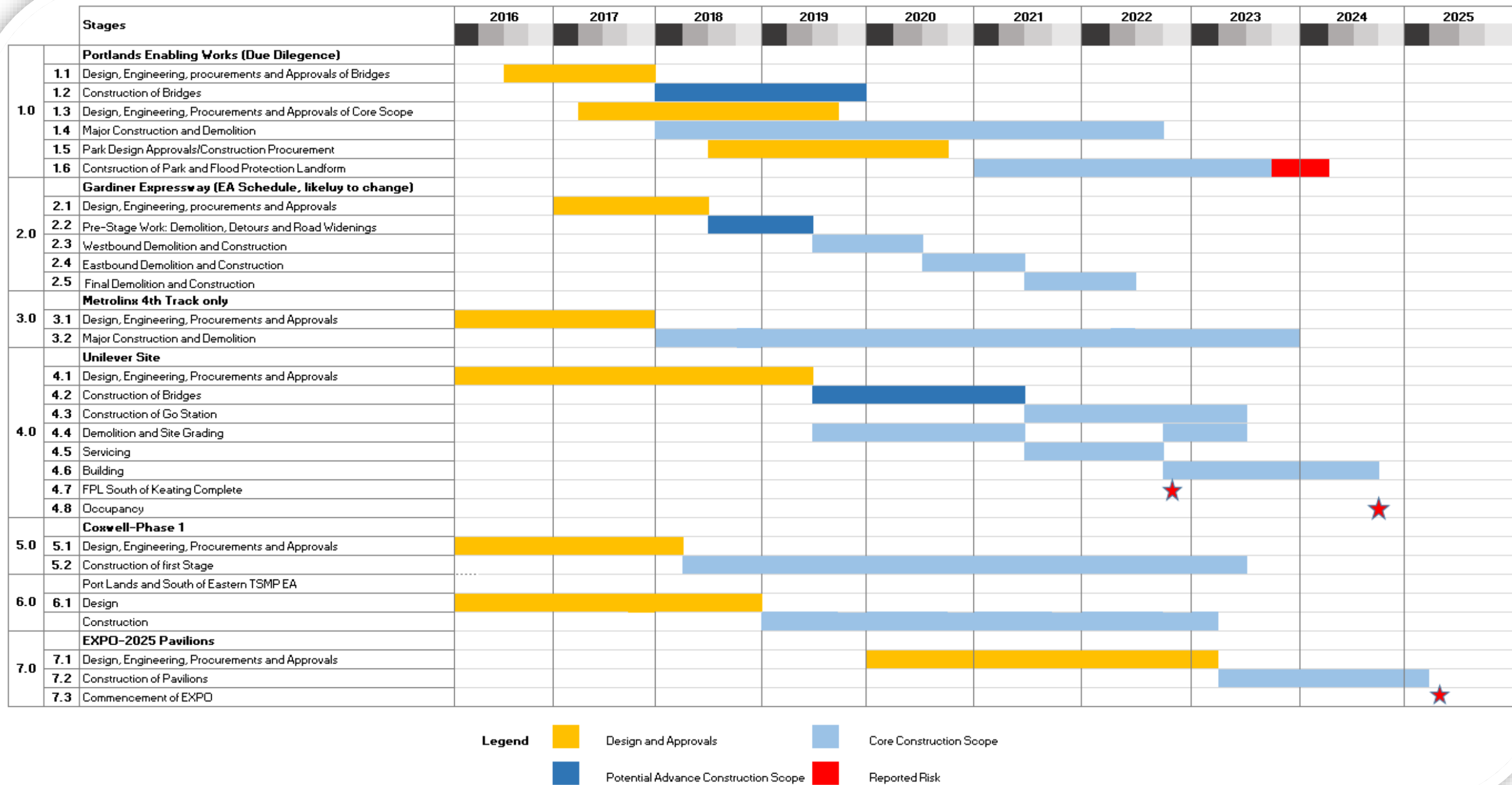


Figure 23 – Consolidated Schedule of Expo Enabling Projects



## 4.1 Port Lands Flood Protection and Enabling Infrastructure Project

### **Size of Expo Site – Larger site more work to be done**

The size of the Expo site is larger than the site contemplated in the Port Lands Flood Protection and Enabling Infrastructure Due Diligence Report (Port Lands Enabling Works Report). The easterly limit of the Due Diligence area is Saulter Street South, whereas the Expo site east limit is further east at the west side of the turning basin. The impact of increasing the site is more work in the way of site remediation, grading and servicing. Given the schedule is already just nominally achieving the Expo 2025 need, this additional work should be reviewed to determine if the extra area can be accommodated within the same time frame or should be undertaken by another contractor. The Due Diligence work included additional soil explorations to increase the level of certainty in budget and schedule. The degree to which soils explorations have been performed in the broader area should be reviewed.

### **Work to be undertaken as development proceeds – deferrals may no longer be possible**

The Port Lands Flood Protection Report references works to be completed as development proceeds. In consideration of Expo, it is anticipated that all work must be completed, hence, completing work as development proceeds is no longer a valid assumption.

### **A Stormwater Quality Facility was not included in the project budget – this assumption should be revalidated.**

Hosting Expo is an opportunity to showcase to the world the advanced methods being incorporated for environmental protection in Toronto/Ontario and Canada. Implementing the stormwater quality facility is indicated in the Port Lands Flood Protection Report as adding \$15M to the budget and one year to the schedule. The City should confirm if they would be willing to proceed with the build out of the site for Expo without requiring this facility. Should it be decided that this facility is warranted under an Expo scenario, Waterfront Toronto would have to review whether this could be incorporated into the schedule. As this facility is a “site development” type project, it could presumably be constructed in parallel with the two-year window for pavilion construction.

### **Parks Construction - a portion of the park construction is beyond May 2023.**

Although the assumption is to make the site available for Pavilion Construction by May 2023, some park construction work outside of the core pavilion building zones would seem to be manageable. There would also appear to be an opportunity to advance the park design and possibly the construction and this should be reviewed by Waterfront Toronto.

### **Grading Assumptions – different assumptions would apply for Expo**

The grading assumptions made for the development scenario where blocks are developed under market forces, resulted in blocks being left low in elevation. This may be benefit a developer wanting to excavate for a basement and then fill the surrounding areas of the block with surplus. However, under an Expo assumption, it is anticipated that many of the blocks will need to be left at or close to finished grade, as pavilions are unlikely to have basements and temporary pavilions may also be incorporated. The expectations for how a block is “turned over” to a participating country/agency would need to be researched. The change in the grading assumption would have an impact on the earthworks volumes.

Future grading (raising) of the individual sites was to be at the developer's cost, hence this cost savings may not be achieved. It is anticipated that more fill will be required with associated time and cost. The schedule impact should be reviewed under a revised grading strategy needed for Expo.

### **Municipal Servicing Assumptions – different assumptions would apply for Expo.**

Assumptions appear to have been made to minimize the municipal servicing scope and costs for the initial work to be undertaken as identified in the Port Lands Flood Protection Report. It must now be assumed that Expo will require all the municipal services to be completed to support the pavilions and visitors. Certainly, the roads would be completed and opening the roads up afterwards to install municipal services would seem inappropriate unless in extenuating circumstances. The schedule impact of providing full municipal services needs to be reviewed to accommodate Expo.

### **Certainty of schedule – schedule slippage would be less tolerable with a hard deadline for Expo.**

The Cost Risk Assessment Report (HDR, 2016) provides a review of schedule risk with a 90% probability of no exceedance of 7 months (or April 2024). This schedule risk would pose a threat to having pavilion sites available on time.

### **Summary comments on Port Lands Flood Protection Project:**

Given the additional area required to host Expo 2025, the hard completion date imposed, and the existing challenges in achieving the schedule for the smaller Port Lands Flood Protection site area, it will be unlikely that the current timelines can be met. Should the City wish to pursue this direction, it would be necessary to investigate and modify the approach to delivering the work described in the Port Lands Flood Protection Report. Some changes would include:

- Delivery Model (under review by WT) – Regardless of the preferred delivery model for the Port Lands Flood Protection Project, in order to complete all the work in time for Expo, a Construction Management (CM) approach would be required including modifications to the Port Lands Flood Protection scope of work to incorporate additional projects required by Expo and to shed some of the projects currently proposed to other contractors.
- Shed Scope – any scope that is not within the core area of the Port Lands (Villiers Island, Polson Quay and South River) should be considered to be undertaken by another contractor. This includes item 18- Hydro integration (outside Port Lands core area), item 14a- Cherry Street, item 12- Eastern Avenue Flood Protection, item 11- Flow Control Weirs, item 10- Sediment and Debris Management area, item 9- Unilever Site Flood Protection, item 13- Lake Shore Bridge Modifications.
- Add scope to the core area of the Port Lands CM contract – aspects of the Port Lands Enabling Projects that were deferred or to be done as development warrants/affords, will need to be advanced, as these features are presumed to be needed by the Expo site. This includes item 6- Basin Street Bridge, item 7b- Don Roadway South, item 22- additional grading of blocks and item 23- additional servicing, item 24- Munition St Bridge and possibly the inclusion of the stormwater management facility.

- Retain additional CM(s) and/or GC(s) to undertake work identified outside of the core area of the Port Lands – this could include the area south of the Ship Channel and the area west of the Don Roadway north of the Ship Channel where grading and municipal servicing and roads (items 35 and 36) would be needed.
- Prioritize work - a review of the priorities be undertaken with consideration of the broader Expo scope.
- The primary conflict with the existing schedule for the Port Lands Flood Protection Works and the May 2023 date for Expo pavilion start is with the Parkland design and construction. The design schedule should be advanced if possible and confirm whether the construction schedule present a conflict with the building sites. The 7-month schedule risk could present a serious problem pavilion construction start and should be reviewed.
- Confirm the need to implement the full SWM solution in time for Expo.

#### 4.2 Port Lands and South of Eastern Transportation and Servicing Master Plan

**Unknown conditions** – The areas proposed for Expo outside of the area of the Port Lands Flood Protection Project have not been subject to the substantial due-diligence of the Port Lands Flood Protection Project, hence the broader area of the Expo site will be inherently riskier areas containing unquantified and unknown risks. It is however known that the entire Port Lands areas are comprised of various fill materials, including compressible peat deposits and various levels of contaminations from legacy conditions. Explorations in these areas would be a high priority.

**Un-serviced Lands** – The area south of the Ship Channel is currently un-serviced and there are no current plans to extend services to this area for 20 years. Expo will advance the need for this servicing (item 36). This will require extension of water, sanitary and storm and new road construction for a considerable distance. We are not aware of adequate investigations having been done to support the design effort, therefore additional time should be included in the schedule for this work to be undertaken. The Expo areas are also constrained at the end of the schedule to facilitate pavilion construction.

**Sanitary Capacity** – Servicing previously un-serviced lands will to increase sanitary flows, likely to the point where the ultimate sanitary servicing solution (item 37 - 875mm sanitary sewer on Commissioners St and Carlaw Ave with connection the Mid Toronto Interceptor) will be needed.

**Access South of Shipping channel** – the only vehicular access to this area is by Cherry Street and Unwin Avenue via Leslie Street. Two pedestrian bridges are proposed at Don Roadway and Broadview Ave. Subject to emergency assess needs for Expo, the Broadview Lift Bridge may have to be considered for implementation, adding to the scope and cost. The Don Roadway pedestrian bridge would consider the needs of shipping (items 38 and 39).

**Property Acquisition** - There are several ROW's to be acquired or widened. Such negotiations are time consuming and should commence early to avoid delays.

## Summary of Comments on Port Lands and south of Eastern TSMP

- This area has insufficient information available to quantify risks and studies are recommended to commence.
- Additional time will be need up front to investigate site conditions and compile the ROW's.
- The schedule would be required to be compressed at the front end (investigations, compiling ROWs, design) and at the back end, to meet the requirements for early delivery for pavilion construction.
- Development in this area requires long extension of services and roads.
- Development will trigger the need for the ultimate sanitary servicing solution of connection to the Mid Toronto Interceptor at Carlaw Ave.
- Access south of the shipping channel should be reviewed.

### 4.3 Gardiner Expressway and Lake Shore Boulevard Reconfiguration Project

**Gardiner Ramps/Lakeshore East Rail Corridor Bridge** – The Gardiner Expressway / DVP ramp design is expected to result in a need to reconfigure the easterly 3 spans of the rail bridge over the DVP. The GO Station at the Unilever site would also appear to impact the bridge, as well as possible widening of the bridge to the south, possibly exacerbating the problem with the Gardiner/DVP ramps. We anticipate the widening and reconfiguration of this bridge will be a major undertaking with two benefiting parties – City of Toronto for the Gardiner ramps and Metrolinx for the GO Station. As a result, there would likely be a cost sharing arrangement. The major driver of the bridge work would appear to be Metrolinx, based on the concept provided by Unilever. In this case it would seem reasonable for Metrolinx to lead the design and construction of the Don River DVP rail bridge reconfiguration and coordinate with the City of Toronto (proponent of the Gardiner Project). This project is critical to several other projects including the Metrolinx GO Station, Track Expansion, and Electrification, Unilever Development, and the Gardiner Expressway Ramps.

**Schedule Conflict with completion of Gardiner Project in 2026** - Further to the construction timelines indicated in the EA, the City is reviewing an alternative approach to rehabilitation of the entire Gardiner Expressway as one large project which would extend to greater than six years. It is unlikely that this work could be completed prior to Expo.

**Transfer of Scope** - The relocation of Cherry Street (Port Lands scope item 14a) would be a candidate to add to the Gardiner Project, primarily due to the direct relationship this work has with Lake Shore Boulevard. Similarly, the Lake Shore Bridge Modifications (item 13) would best be transferred to the Gardiner Project.

**Lake Shore Boulevard / Expo Parking Area** - Immediately south of the relocated Lake Shore Boulevard will be a parking area and welcome Centre for Expo. The schedule for completion of Expo should accommodate time required to construct the parking lot and Welcome Centre.

**North of Lake Shore Boulevard (Cherry to Don River)** – The Lake Shore interfaces with a linear park area that could be included in the scope of the project.

**Lake Shore Boulevard Don River to Logan Avenue** – the area adjacent to the Unilever Site is programmed to include parking and pedestrian bridges for access to the Expo site. South of Lakeshore is programmed to be a Welcome Centre, Expo Centre and Support Zone. Activities in these adjacent area will need to be coordinated and consideration should be given to the Gardiner Contractor building the pedestrian overpasses. As well, access must be provided for work on the Coxwell Bypass Tunnel.

### **Summary Comments on Gardiner Expressway and Lake Shore Boulevard Reconfiguration Project:**

The Gardiner Expressway project involves many aspects, including the relocation of Lake Shore Boulevard. As the work is north of the core area of Expo, it has manageable conflicts that could be potentially addressed by a General Contractor, provided adequate description is included in the contract.

- The schedule requirements should be confirmed as soon as possible including a “work around” as necessary for any schedule conflict.
- Work on the Rail Bridge is recommended to be undertaken by Metrolinx (possible cost sharing) and this work must be coordinated with the surrounding projects.
- The work on Cherry Street (item 14a) and Lake Shore Bridge Modifications (item 13) should be transferred to the Gardiner Project to avoid conflicts.
- The work on the Pedestrian Bridges, per Expo Concept, is recommended to be transferred to the Gardiner Project.

Our understanding is that none of the above discussions have yet taken place.

## **4.4 Metrolinx Projects**

Metrolinx has several projects that may benefit from an alternative contract approach undertaken by GC(s) in terms of shortening the timelines and improved project coordination.

**Increase Track Capacity (4<sup>th</sup> Track)** – Coordinate with Metrolinx, otherwise not a significant impact on Expo. Impact on the Cherry Street Rail Bridge should be confirmed with Metrolinx as this could impair access to the area for several projects.

**Don Yard Expansion** – Coordination with Gardiner Expressway project. Site access to be facilitated by the Gardiner Project Via Lake Shore Boulevard. Coordination required with Hydro One Integration Project.

**Metrolinx GO Station at Unilever site** – see comments on Gardiner Ramps/Lakeshore East Rail Corridor in Section 4.3. The GO Station could proceed as a GC assignment, where coordination would be needed with First Gulf (Unilever Developer).

**Electrification** – This is primarily a Metrolinx need to coordination with other Metrolinx Projects, no significant impact on Expo.

It is our understanding that no discussions around coordination of projects between agencies has of yet taken place.

### **Summary of Comments on Metrolinx Projects:**

The new GO Station and resulting impacts on the Don River Bridge / DVP Rail Bridge are significant. Undertaking this early on would be critical to the success of several projects including the Gardiner/DVP Ramps, the GO Station at Unilever and the Unilever Development.

The bridge carries a major National Fibre Optic Transmission System that will add to the complexity of this project. It is suggested that this project proceed on an Early Works basis, as the duration will be significant and advanced planning will be needed for its orderly execution.

### **4.5 Unilever Precinct Development Project**

It is anticipated that First Gulf will want to control this project and the work on their site to the largest extent possible, hence, any work on their site should be under their full control (i.e hiring the contractor(s) or be under their coordination for access and separation of contractors in time or space.

**Broadview Avenue Extension** – The bridge for the Broadview Avenue Extension (item 33) is needed to facilitate the first phase of this development. The proponent of this project is the City of Toronto; therefore, First Gulf will need to facilitate construction access. This project would need to be undertaken as early work as it impacts other critical projects (GO Station, 4<sup>th</sup> Track projects). Time to obtain site access and property acquisition from the BMW site will need to be considered, if not already underway.

**Flood Protection Landform** – A flood protection landform is to be located on the Unilever site (item 9). This work would be more efficiently undertaken if delegated to First Gulf's control (this is not a commentary on who pays) and would relieve the Port Lands Flood Protection Project of this work, allowing them to focus on the critical scope in the Port Lands area. The timing of this work is critical as it may only be completed after the flood protection measures south of the Keating channel are implemented. This work may not proceed early on as it would increase the possibility of flooding if done prematurely.

**Unilever Site Work** – Work would be undertaken by contractors retained by First Gulf to complete servicing, roads and buildings. Contractors would be separated in time and/or space, otherwise First Gulf could take on the constructor responsibility.

**Metrolinx GO Station** – see Section 4.3. Don River/DVP Rail Bridge modifications are suggested to be undertaken as Early Works. First Gulf would be required to help facilitate access.

**Coxwell Bypass Tunnel** – Access to this site adjacent to the Unilever site is manageable. The contractor would be separated in space and a working easement is in process.

**Expo Parking Lot on Unilever Phase 2 Land** – The Expo Contractor will need to be provided with access by First Gulf to construct the parking lot. This contractor will be separated in space

from other activities that First Gulf may have underway. This requirement is likely to be within a year before Expo opening (i.e 2024).

### Summary of Comments on First Gulf Unilever Development Site:

Arrangements with First Gulf will be required for construction of:

- Broadview Avenue Extension Bridge as a separate Early Works project.
- Flood Protection Landform construction on the Unilever site is suggested to be put in First Gulf's control.
- First Gulf site work and buildings we be by First Gulf.
- Metrolinx GO Station, primarily Don River/DVP Rail Bridge modifications as Early Works as this is a critical project. First Gulf to help facilitate access.
- Coxwell Bypass Tunnel, First Gulf to facilitate access.
- Expo Parking, First Gulf to facilitate access.

### 4.6 Don And Central Waterfront (Coxwell Bypass Tunnel) Project

The Coxwell Bypass Tunnel requires a shaft site in the Keating Yard, north of Lake Shore Boulevard and south of the Unilever site. This work will be separated in space from adjacent projects (Unilever Site Work and Lake Shore Boulevard construction). Site access and separation in space to be facilitated by the adjacent contracts. No significant impacts expected.

### Summary of Comments on Coxwell Bypass Project:

Coordination required with adjacent projects, no significant impacts anticipated.

## 5. CONCLUSIONS

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Based on our review, we have concluded that **it will be a significant challenge to accomplish the full work program within the allotted time.** However, alternative approaches to planning, design and construction delivery may provide greater certainty of completion of some of the elements.

### Alternative Approach

- The Expo site area is larger in size compared to the area identified in the Port Lands Flood Protection Report. Figure 21 identifies the differences in these areas. This review suggests the scope of the Port Lands Flood Protection, to be undertake by Waterfront Toronto's contractors, be consolidated to allow them to focus on the core area of the

Port Lands, that must be delivered by May 2023. Projects outside of the Flood Protection Project lands are suggested to be undertaken by others.

- The area south of the Ship Channel should be undertaken as a separate project, subject to discussions with WT.
- For work outside the Port Lands Flood Protection core project area, conventional delivery of the remaining projects is recommended to be considered by separating General Contractors (GC) in time and/or space. In general, projects north of the Keating channel benefit by having an additional two-year window for completion (just prior Expo).
- Bundling nearby projects under one GC should be considered in specific areas (i.e. Don River Bridge, Broadview Bridge, GO Station). The role of a CM could be considered for large or complex bundled projects.
- Develop a “work around” solution for any component of the Gardiner Project that may not be completed before the start of Expo.
- The success of project delivery is based on design work not being delayed. Alternative delivery (possibly design-build) could be considered if design work is delayed.
- The parks work identified in the Port Lands Flood Protection Report that goes beyond May 2023 is not anticipated to be an impediment to pavilion construction and could possibly occur beyond May 2023.
- Availability of engineering and contracting resources was not investigated, however, a strategy that uses a mix of resources and delivery methods (i.e. CM’s and GC’s) will help ensure engineering and contracting resources are available.

### **Priorities (high level overview)**

The review considered completing all works on time for Expo; however, should it be necessary to defer work, the following is provided for general guidance.

- *Priority 1* – essential to Expo – the work identified in the core area of the Port Lands Flood Protection Report (i.e. Lower Don Lands area) including flood protection and Mouth of the Don, various bridges and municipal services and roads (some deferrals within this area are possible but should be reviewed early on), municipal services, roads and earthworks within the broader Expo site, sanitary connection to MTI at Carlaw Ave., Lake Shore Reconfiguration (including Don River bridge, Cherry Street connection to Lake Shore Blvd., Munition Street bridge and connection to Lake Shore Blvd.), Don River weirs and sediment trap, Flood Protection north of the Keating Channel (including Eastern Ave, and Unilever site), 4th Track Expansion (to be reviewed), Unilever GO Station including Don River/DVP rail bridge, Broadview underpass and Broadview Avenue Extension, Expo works north of the Keating Channel (pedestrian bridges, parking lots and Welcome Centre area preparation).
- *Priority 2* – nice to have – Broadview LRT, Stormwater management facility, and Don Yard Expansion (assuming these Metrolinx projects are required to provide better access to the area), Gardiner Reconfiguration (completed through the North Keating Precinct), Hydro Integration.



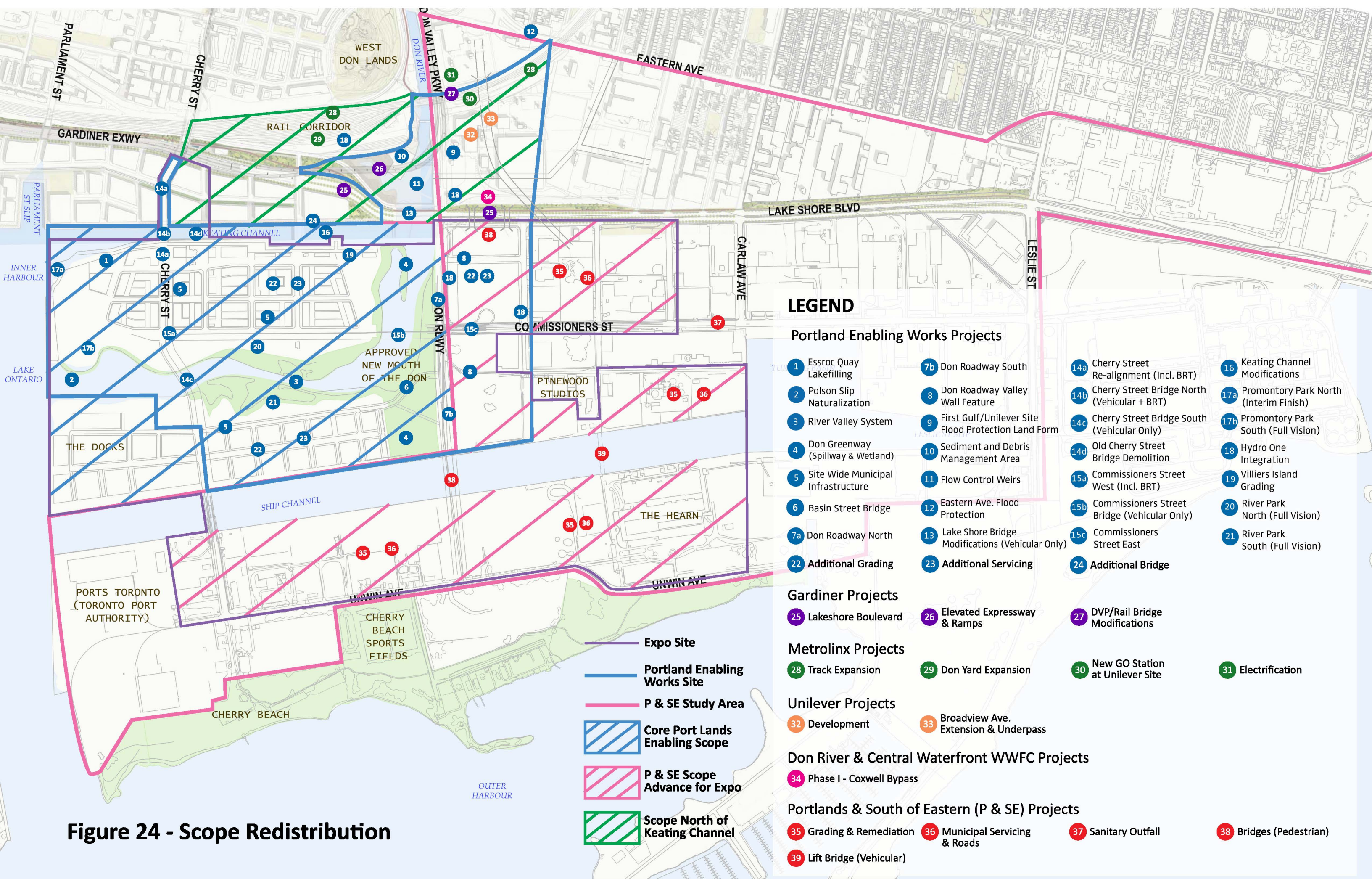
- *Priority 3* – non essential - Coxwell Bypass Tunnel Project, Metrolinx Electrification.
- The Metrolinx Rail Bridge over the Don River and DVP is anticipated to require major work and will be critical to several projects, hence should be given priority treatment.
- The Expo area, outside of the study area for the Port Lands Flood Protection, presents more risk as the conditions are largely unknown. These areas will require priority investigation and are likely to have shorted construction durations due to the additional time required at the front end of the schedule and at the back end, due to the need to delivery pavilion sites early on.
- It is imperative to make approval agencies aware of the project timelines to secure commitments for expedited reviews.

### **Avoiding Pitfalls**

- Additional soils investigation was done as part of the Due Diligence for the Port Lands Flood Protection, but the “Expo Boundary” is beyond the due diligence area, hence this aspect should be reviewed as it presents unknowns that have the potential to cause delays or increase costs.
- Early and ongoing coordination amongst all projects proponents and agencies having jurisdiction will be essential to help achieve the Expo schedule.
- Project tenders must include a good description of works in the surrounding environment to inform contractors of the need to coordinate to avoid claims.
- When CM’s are considered for project delivery, it is suggested the agreement the CM proposes to use with their sub trades be reviewed as part of the CM selection process, as these agreements could be an impediment to securing trades or securing trades at competitive pricing.
- Delays in confirming project financing may delay design and construction with significant detrimental results.

### **Assumptions/Clarifications**

- This report identifies areas in need of clarification such as the status of the Metrolinx Don River/DVP Rail Bridge, and these clarifications should be sought.
- This report does not address projects costs and availability of funding, which if not addressed early on in a comprehensive manner could be an impediment to achieving the Expo schedule.
- Schedules for several of the projects were derived based on limited information. More comprehensive schedules should be prepared for all project proponents and coordinated amongst the adjacent proponents/designers.
- Several assumptions were made throughout this report based on limited information available during the review and these assumptions should be reviewed by the various stakeholders, including the construction time frame for pavilions.
- Municipal servicing capacity assumes no limitations in the interceptor sewers, pumping facilities or at Ashbridges Bay WWTP.



### LEGEND

#### Portland Enabling Works Projects

- 1 Essroc Quay Lakefilling
- 2 Polson Slip Naturalization
- 3 River Valley System
- 4 Don Greenway (Spillway & Wetland)
- 5 Site Wide Municipal Infrastructure
- 6 Basin Street Bridge
- 7a Don Roadway North
- 22 Additional Grading
- 7b Don Roadway South
- 8 Don Roadway Valley Wall Feature
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- 10 Sediment and Debris Management Area
- 11 Flow Control Weirs
- 12 Eastern Ave. Flood Protection
- 13 Lake Shore Bridge Modifications (Vehicular Only)
- 23 Additional Servicing
- 14a Cherry Street Re-alignment (Incl. BRT)
- 14b Cherry Street Bridge North (Vehicular + BRT)
- 14c Cherry Street Bridge South (Vehicular Only)
- 14d Old Cherry Street Bridge Demolition
- 15a Commissioners Street West (Incl. BRT)
- 15b Commissioners Street Bridge (Vehicular Only)
- 15c Commissioners Street East
- 24 Additional Bridge
- 16 Keating Channel Modifications
- 17a Promontory Park North (Interim Finish)
- 17b Promontory Park South (Full Vision)
- 18 Hydro One Integration
- 19 Villiers Island Grading
- 20 River Park North (Full Vision)
- 21 River Park South (Full Vision)

#### Gardiner Projects

- 25 Lakeshore Boulevard
- 26 Elevated Expressway & Ramps
- 27 DVP/Rail Bridge Modifications

#### Metrolinx Projects

- 28 Track Expansion
- 29 Don Yard Expansion
- 30 New GO Station at Unilever Site
- 31 Electrification

#### Unilever Projects

- 32 Development
- 33 Broadview Ave. Extension & Underpass

#### Don River & Central Waterfront WWFC Projects

- 34 Phase I - Coxwell Bypass

#### Portlands & South of Eastern (P & SE) Projects

- 35 Grading & Remediation
- 36 Municipal Servicing & Roads
- 37 Sanitary Outfall
- 38 Bridges (Pedestrian)
- 39 Lift Bridge (Vehicular)

**Figure 24 - Scope Redistribution**

## MAIN REFERENCES DOCUMENTS

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1. Draft Expo 2025 Site Analysis, Master Plan, Transportation and Infrastructure, Revision 1, ARUP, Sept 2016, provided by COT
2. Expo Land areas and land ownership diagrams, Waterfront Toronto, provided by COT
3. Draft Port Lands Flood Protection and Enabling Infrastructure Due Diligence Report, MVVA et al, June 27, 2016, provided by COT
4. Draft Port Lands and South of Eastern Transportation and Servicing Master Plan Environmental Assessment, Dillon et al, 2016, provided by COT
5. Draft Gardiner Expressway and Lakeshore Boulevard Reconfiguration Environmental Assessment and Urban Design Study, Dillon et al, July 2016, provided by COT
6. Metrolinx Presentation to City of Toronto and Waterfront Toronto, Metrolinx, March 10, 2016, provided by COT
7. East Harbour (Unilever) Site Plan, Adamson, August 31,2016, provided by First Gulf
8. Don River and Central Waterfront Project – Pre-Submission Consultation Meeting - MOEE, Black and Veatch et al, June 13,2016
9. Cost Risk Assessment, Port Lands Flood Protection and Enabling Infrastructure, HDR, June 15, 2016, provided by COT