TORONTO

STAFF REPORT
ACTION REQUIRED

Next Steps on the Scarborough Subway Extension

Date: February 27, 2017
To: Executive Committee
From: City Manager, Deputy City Manager & Chief Financial Officer, and Deputy City Manager Cluster B
Wards: All

SUMMARY

This report was prepared in collaboration with the Chief Executive Officer of the Toronto Transit Commission (TTC).

The Scarborough Subway Extension (SSE) project first approved by City Council in late 2013 has advanced through the initial concept development and early planning phase.

In July, 2016, City Council directed staff to continue work on an express option for the SSE and to retain services to undertake a third-party review of costs and risks to date, based on TTC cost estimates at less than 5% design.

Since July 2016, TTC and City staff have undertaken further assessment on the preferred alignment for the SSE. An updated Initial Business Case (IBC) (Attachment 1) concludes that the McCowan alignment best meets both transit operations needs and encourages the development of Scarborough centre into a dynamic urban node. The TTC has identified a cost for the McCowan alignment of $3.159 billion. This cost includes an at-grade bus terminal.

Through continued study, a concept for an optimal configuration of the bus terminal at the Scarborough Centre station, the "Triton bus terminal concept," has been developed by City and TTC staff that will enable better pedestrian connections in the area and unlock the greatest amount of development potential around the subway station. The Triton bus terminal concept has an added cost of $187 million.

The cost for the recommended alignment and Triton bus terminal concept is $3.346 billion (Year of Expenditure (YOE) $, Class 4 Estimate). This does not include any potential costs associated with procurement and financing.

In May, 2015, City Council directed City and TTC staff to examine two different procurement methods for the SSE project: a design-bid-build (DBB) approach, under which the TTC would complete design and tender the construction work, and a design-build-finance (DBF) approach, where a single contractor or consortium would complete the design and oversee construction of the project. This report recommends City Council approve a DBF procurement approach for the SSE, subject to negotiating an agreement with Infrastructure Ontario (IO) for project procurement services at a cost not to exceed $15 million. In the event an agreement is not reached with IO for procurement services, a single-contract DBB model should be pursued.

In summary, this report:

- provides an update on planning work for the SSE, and recommends an alignment along the McCowan corridor, as well as a preferred bus terminal configuration (Triton Bus Terminal Concept);
- summarizes the results of a third-party review of costs and risk assessment for the project (Attachment 5);
- outlines analysis of the DBF and DBB procurement options for the SSE, and recommends Council approve a DBF approach with conditions;
- seeks approval to initiate the Transit Project Assessment Process (TPAP), including the submission of an Environmental Project Report (EPR) to Ontario's Minister of the Environment and Climate Change; and
- recommends City Council request the province and federal governments to confirm funding for the project.

The next decision milestone for the SSE project will be to authorize procurement and construction of the project. City and TTC staff will report at approximately 30% design with a Class 3 cost estimate in order to establish and update the project budget and schedule baseline. This is in accordance with best practices recommended in the TTC Capital Program Delivery Review led by KPMG.

RECOMMENDATIONS

The City Manager, Deputy City Manager Cluster B, and Deputy City Manager & Chief Financial Officer recommend that:

1. City Council approve, as described in Attachment 2 (Scarborough Subway Extension Draft Environmental Project Report Executive Summary):

a. the extension of Line 2 (Bloor-Danforth Subway) from Kennedy Station to Scarborough Centre via the McCowan alignment, including the station concept and tunnel at-grade facilities, and

b. the Triton bus terminal concept.

2. City Council authorize the Chief Planner and Executive Director, City Planning, in consultation with the Chief Executive Officer (CEO), Toronto Transit Commission, to conduct the necessary Transit Project Assessment Process for the SSE project, issue the Notice of Commencement for the Transit Project Assessment Process by Q2 2017, prepare the Environmental Project Report, as described in Attachment 2, and submit the Environmental Project Report to the Minister of the Environment and Climate Change.

3. City Council approve the procurement model for the SSE as:

a. Design-Build-Finance, subject to successful negotiation by the City Manager and the CEO of the TTC, in consultation with the Deputy City Manager & Chief Financial Officer and the City Solicitor and TTC General Counsel upon such terms as may be satisfactory to them, of an agreement with Infrastructure Ontario and the TTC for project procurement support services for a scope of work as substantially set out in this Report, and at a cost not to exceed $15 million; or

b. in the event that an agreement with Infrastructure Ontario is not reached pursuant to (a).Design-Bid-Build, based on a single construction contract,

4. City Council direct that if an agreement is reached with Infrastructure Ontario pursuant to Recommendation 3(a), the City Manager be authorized to enter into the agreement with Infrastructure Ontario and the TTC on behalf of the City, in a form satisfactory to the City Solicitor.

5. City Council direct that the City Manager, in consultation with the Chief Executive Officer of the TTC, report to Executive Committee at such time as the SSE Project has reached a Class 3 cost estimate for authority to proceed with procurement of the SSE, which report shall include an updated project budget.

6. City Council request the Province of Ontario and Government of Canada confirm the sources of funding for the provincial and federal commitments to the Scarborough Subway Extension.

FINANCIAL IMPACT

Approved Budget

In 2013, City Council approved a budget for the SSE project for $3.56 billion. This estimate was established prior to confirmation of an alignment or station configuration and with no detailed engineering and design work having been completed. This includes the estimated cost to extend the life, and decommission the Scarborough Rapid Transit (SRT) (Line 3). Table 1 outlines the funding reflected in the 10 year Capital Plan.

Table 1 - 2013 Scarborough Subway Extension Funding Plan ($millions)

Overall Funding Sources	Amount YOE/Escalated $	% of Total
Federal Contribution	660	19%
Provincial Contribution	1,990*	56%
City Contribution	910	26%
Total Funding:	3,560	100%
Breakdown of City Contribution		
Estimated Development Charge Funding	165	18%
Estimated Tax Supported Funding - Debt - Reserves Funds - Total	 541 204 745	 82%
Total City Funding:	910	100%
*The Province has committed $1.48B (2010$), less sunk costs associated with the cancellation of the Scarborough LRT project ($74.8M).		

The City has not yet entered into contribution agreements with either the provincial or the federal government. This report recommends that City Council request confirmation of both the amount and source of the contributions from both funding partners.

*Capital Cost Estimat*e

This report provides additional information and recommendations with respect to alignment and design of the required bus terminal.

The TTC has provided updated costing of a possible Brimley alignment. This would reduce the overall project cost by approximately $214 million. This is not recommended because it does not provide the same ridership, growth potential or convenient location as the McCowan alignment.

The McCowan alignment is recommended in this report. The TTC has identified a base cost for this alignment of $3.159 billion. This base cost includes an at-

grade bus terminal. The report notes that the at-grade bus terminal does not achieve a number of important planning and urban design goals; see section 1.

The report recommends an incremental design change to the bus terminal concept to better achieve project objectives. The Triton bus terminal concept, with an added cost of $187 million, is expected to support the long-term development of Scarborough Centre into an area with a street network that enables denser development and improved connections.

The recommended option is shown in Table 2 below.

Table 2 – Alignment and Bus Terminal Options - Construction Cost Estimate ($ billions YOE)

Description	Estimate
McCowan alignment with At-Grade Bus Terminal at SCC	3.159
Triton Bus Terminal	0.187
Total Recommended Alignment and Triton Bus Terminal Option	**3.346**

This estimate:

- Incorporates a 30 percent project contingency, which is allocated towards design evolution. TTC advises that this level reflects a typical industry allowance based on the very early stage of design, as noted below. It is not a full reserve against potential scope changes or risks.
- Does not include costs for project delivery or construction financing.
- Does not include lifecycle and operations/maintenance costs.
- Incorporates cost escalation based on the preliminary schedule. The schedule reflects an in service date of Q2 2026, with construction taking approximately 6 years (2020-2026). Schedule based on March 2017 approval to proceed.

The estimates were developed based on less than 5% design, and is considered to be a Class 4 estimate per the Association for the Advancement of Cost Engineering (AACE) scale, with an accuracy of -30% to +50%. As design continues, the estimate will be further refined based on the higher level of design and project scope definition and will be considered to have a higher level of accuracy.

Per best practice guidelines, the project budget and schedule should be established once a Class 3 estimate has been achieved (approximately 10% to 40% design). Staff plan to report back with a revised project budget and schedule based on 30% design prior to proceeding with procurement.

Procurement Method

This report recommends that City Council direct the TTC to proceed with a 'Design Build Finance (DBF)' procurement model, in order to enhance

accountability to schedule and budget through efficient and competitive design decisions where the designer and contractor have discretion and shares in risk. A DBF procurement would involve procurement advisory fees and additional financing charges by the contractor as indicated in the table below.

As discussed in the body of this report, a key component of the DBF model is the requirement that the contractor self-finance a substantial portion of all initial project expenditures along with a smaller portion of all ongoing expenditures until these self-financed amounts are recovered from the owner (i.e., City/TTC) upon substantial completion of the project.

For the purposes of preparing a financing cost estimate for the SSE, it has been assumed that the contractor will self-finance the first 15% of required expenditures and then self-finance 15% of the regular monthly expenditure amounts thereafter (i.e. the TTC would begin to provide progress payments to the contractor after 15% of the project expenditures have been made by the contractor and the TTC's progress payments would then only compensate the contractor for 85% of the expenditures made until substantial completion). At substantial completion, the contractor would recover the self-financed amounts from the TTC.

This payment structure creates the need for the contractor to self-finance a maximum of approximately 27% of total costs. It is this financing requirement, and the resulting supervision by the contractor's lenders, that promotes careful adherence to project schedules.

While this approach allows the owner to defer its own payments to the contractor, it creates financing costs for the contractor, which would be incorporated in the bid price for the project. It is estimated that the total cost of the contractor's financing will be approximately $110 million. However, after taking into account the forecast interest cost savings for the TTC from deferred payments to the contractor, the net incremental cost to the TTC from this procurement model is estimated to be only approximately $40 million. This incremental cost exists because the contractor's cost of capital is expected to be higher than the City/TTC's cost of capital.

Table 3 – Construction Cost and Procurement Cost Estimate

Estimate	$ Billions
Project Advisory Fees	0.015
Financing Costs	0.110

Cost Estimate Best Practices Identified Through Third-Party Reviews

The report provides further information with respect to additional potential cost factors.

The TTC Board and City Council received a report from KPMG[1] with recommendations to improve TTC Capital Program Delivery. An implementation plan, which included recommendations to improve the development of capital cost estimates and budgets was approved by the TTC Board in December 2016. In addition, as directed by City Council in July, 2016, the City Manager and the CEO of the TTC retained the services of a third-party rail transit construction and a cost-estimation expert (Hanscomb) to complete a detailed cost review of the TTC's cost estimate for the McCowan at-grade alignment.

The following enhancements would respond to recommendations from third-party experts and represent an attempt to better capture potential related costs of capital projects from the outset.

TTC and the City are exploring how to incorporate these enhancements into the budgeting process. As the design of the SSE is only approximately 5% complete, early estimates indicated below should be considered illustrative and subject to change as design progresses to 30% completion, when a full budget estimate based on the Class 3 cost estimate will be prepared and presented for TTC Board and City Council approval.

Optional Scope Enhancements

Large, complex transit projects generally serve city-building and place-making objectives as well as increasing transportation options. One of the key objectives of the SSE is to support the development of Scarborough centre into a dynamic urban node.

KPMG recommended in its review that the TTC adopt holistic scoping in order to fully capture all the costs associated with the multiple objectives of major transit projects, such as improvements to the public realm, urban renewal, etc. In response to this recommendation, the TTC is establishing holistic scoping requirements for application to all of its capital projects. This requirement will be documented as a corporate standard as approved by the TTC Board in December, 2016, which will be used for all TTC projects. This will reduce the likelihood that major scope changes will be made after the budget has been set at 30% design.

City Council will be presented with costed options and be provided an opportunity to decide whether or not to implement public realm improvements when the revised budget for the SSE is approved at the Class 3 estimate stage. At this time, the TTC is working with City Planning staff to identify an appropriate allowance for public realm improvements. This may be higher or lower, depending on public realm improvements that are planned or requested. Past experience indicates that this could cost in the range of $11 million.

[1] http://www.toronto.ca/legdocs/mmis/2017/ex/bgrd/backgroundfile-98219.pdf

In 2015, City Council requested that the TTC consider the inclusion of platform edge doors for all future extensions or new lines, in order to improve passenger safety. City Council will have an opportunity to decide whether or not to include platform edge doors when the revised budget for the SSE is approved at the Class 3 estimate stage. This is another example of holistic scoping as recommended by KPMG. The TTC has developed an estimate of the cost of platform edge doors for the SSE station, based on possible conceptual plans. At this point in time, the additional cost estimate for the doors is approximately $14 million.

Management Reserve for Potential Scope Changes: Scope requirements will change over the life of a project, especially on a major project like the SSE that will be constructed over a number of years. Both the KPMG review and the Hanscomb review of the SSE cost estimate recommend that a separate budget allowance be established for a "Management Reserve" to capture project scope changes that cannot be foreseen or are requested after the scope of the project and budget (at 30% design) have been approved. This is intended to clarify the use of other contingency amounts (for design, and for risk, including construction risk) so they are not applied to scope changes. City Council will have an opportunity to consider whether to approve a management reserve, and the delegation of authority for that reserve, if requested, when approval of the updated budget for the SSE is approved at the Class 3 estimate stage.

A higher management reserve may never be fully drawn down, while a lower management reserve may turn out to be insufficient. Based on work to date in developing the preliminary project scope, the TTC believes a reserve allowance of approximately $100 million is appropriate. This is approximately half of what Hanscomb, the cost review consultant, recommended (a reserve of about 7.5% of construction costs).

Risk Allowances: All infrastructure projects face risks. There are many potential sources of risk that may result in added costs and/or schedule delays. Some can be mitigated before construction begins, while others remain possibilities throughout construction of the project. Once an alignment is confirmed, there will be opportunities to mitigate risk through design. Steps will also be taken to determine which party is best suited to carry the responsibility for each risk, which can be assigned as follows: those retained by the owner, those transferred to the contractor and those that are shared.

In developing the cost estimate for the SSE, the TTC performed a risk assessment and developed a preliminary risk register with approximately 200 risks, which included an initial, pre-mitigated assessment of the likelihood and impact of risks materializing. This analysis identified a risk allowance, as well as their potential schedule delay of up to 22 months. These allowances are considered to be upset limits and it is expected that they will be reduced as risks are mitigated.

Both KPMG and the risk expert from Gannett Fleming contracted as part of the Value Engineering exercise recommended including a risk contingency, or allowance. City Council will have an opportunity to consider whether to approve a risk allowance, if requested, when approval of the updated budget for the SSE is approved at the Class 3 estimate stage.

At this point, the TTC has developed a working estimate for potential risk to cost of construction of $115 million.

In addition the TTC has developed a working estimate for potential risk of schedule delays of $190 million.

These are both considered upset limits.

Opportunities to Optimize Costs

The SSE project is still at an early stage of design. A peer review exercise was performed that led to the single tunnel concept as a cost saving measure. An initial value engineering exercise was also undertaken (Attachment 4) that identified a number of ideas about staging and construction that might optimize delivery of the project. These ideas will be examined more closely in the detailed design phase. In addition, the TTC could carry out a second value engineering exercise at a later point in design, which would identify other opportunities to optimize the project. The VE team recommended design development be reviewed at 20% to focus on cost, risk assessment and innovation.

The Deputy City Manager & Chief Financial Officer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

In September, 2016, the TTC Board adopted the recommendations of the staff report from the City Manager and the TTC Chief Executive Officer on the KPMG TTC Capital Delivery Review.

In July, 2016, City Council adopted EX16.1 Developing Toronto's Transit Network Plan to 2031, and requested that the 3-stop McCowan SSE option no longer be considered, that a SSE Express option continue to be developed, and that the services of a third-party rail transit construction and cost expert be retained to undertake a risk assessment and detailed review of the TTC's cost estimate.

On March 31, 2016, City Council adopted EX13.3 Developing Toronto's Transit Network Plan: Phase 1, which included direction to the Chief Planner and Executive Director, City Planning to complete the review of corridor options and related work for the SSE to report a recommended preferred corridor and alignment that includes an update on whether all or portions of the SSE could be built at-grade along with the number and location of stations.

On January 28, 2016, Executive Committee considered a report from the Chief Planner and Executive Director, City Planning, EX11.5 Scarborough Transit Planning Update, which outlined a recommended plan for a Scarborough transit network that includes an express SSE to Scarborough Centre, an extension of the Eglinton Crosstown east to the University of Toronto Scarborough Campus (UTSC), and SmartTrack, including a station at Lawrence Avenue East. Executive Committee directed the Chief Planner and Executive Director, City Planning, to continue technical work on remaining issues for the recommended Scarborough transit network and to report back with findings.

On May 5-7, 2015, City Council considered EX5.6 Scarborough Subway Extension - Project Delivery Options, and directed the City Manager, in consultation with the CEO of the Toronto Transit Commission and the Deputy City Manager & Chief Financial Officer to report back with a recommendation on whether to proceed with a Design-Bid-Build (DBB) or Design-Build-Finance (DBF) option for project procurement. Additionally, Council directed the Board of the Toronto Transit Commission to continue to structure any contracts for design or other advance work for the SSE in a way that could accommodate either procurement model.

On October 8, 2013, City Council confirmed support for the SSE and directed staff to confirm the alignment and station locations through an Environmental Assessment process; authorized the City to amend the Master Agreement with Metrolinx to redirect $1.48 billion (2010$) to the SSE, and to negotiate a contribution agreement with the federal government for its commitment of $660 million. An initial budget estimate of $3.56 billion (YOE) was developed prior to the alignment or station concept being selected.

ISSUE BACKGROUND

In July, 2016, City Council adopted EX16.1, Developing Toronto's Transit Network Plan to 2031, which included direction to remove the 3-stop Scarborough Subway Extension from consideration, and to develop an express option as part of an optimized transit network for Scarborough. Planning and costing work for an express SSE to Scarborough Centre has continued since that time.

An important planning priority for the SSE is supporting Scarborough Centre as a vibrant urban node. The Official Plan envisions Scarborough Centre as the "urban focal point for eastern Toronto where employment, housing, institutional, cultural, recreational, commercial and community services and transit will be concentrated in a dynamic mixed-use environment."[2] City Planning and the TTC have worked together to assess a number of alignments for the extension that would connect Kennedy Station, the current terminus station of the Bloor-Danforth line, with Scarborough Centre.

From a transit network perspective, the extension of the subway to Scarborough Centre reinforces and further increases its role as the main hub for local and regional transit in Scarborough. City Planning has worked with TTC to identify the connecting bus network required to maximize ridership on the new subway extension, adapt to the decommissioning of Line 3, and support the optimized transit network for Scarborough.

Once the alignment is approved, the next step will be commencing the Transit Project Assessment Process (TPAP) and the beginning of the design phase of the project.

Scarborough Transit Network

In addition to the express SSE, the Scarborough Transit Network proposal includes several projects including new SmartTrack stations in Scarborough, and the Eglinton East LRT. Metrolinx has also initiated work in planning the Durham-Scarborough BRT. Below is a summary update on the other key projects that form part of the Scarborough transit network improvements:

SmartTrack- Lawrence and Finch Stations

In November 2016, City Council approved the SmartTrack concept subject to a conditional approval process outlined in the report EX19.1 Transit Network Plan Update and Financial Strategy. The SmartTrack concept includes new SmartTrack stations at Lawrence Avenue East and Finch Avenue West on the Stouffville Corridor. These station concepts are currently being refined by City Planning and Metrolinx. An update on station concepts will be presented to

[2] Policy 1.1, Scarborough Centre Secondary Plan

Council later in 2017 before proceeding to TPAP and preparation for the procurement process. The update will be included as part of a broader report on SmartTrack project planning and progress.

Eglinton East LRT

In July 2016, City Council received a preliminary options analysis for the project which identified an estimated capital construction cost of $1.58 to $1.67 billion (YOE$, Class 5 Cost Estimate). As identified in the report additional analysis is required on key technical issues such as the interface at Kennedy station and the potential realignment of military trail. The development of an initial business case for the project is also required, in consultation with Metrolinx.

Following Council's direction in July, 2016, to update the original Scarborough Malvern 2009 EA and bring the design to 5%, a scope of work has been developed, a working group has been established, and technical work to update the project concept has begun.

City Council approved $7 million in funding for the initial planning work to bring the project to 5% design.

There is currently no additional funding committed for the project in the 10-year capital plan, however, the City has identified the project as a priority for Phase 2 federal infrastructure funding.

Scarborough-Durham (Highway 2) BRT

Metrolinx has recently initiated a working group and steering committee to guide the development of an initial business case for the Scarborough-Durham (Highway 2) BRT. The business case is expected to be complete in late 2017. This project will interface with the SSE at Scarborough Centre Station and with the Eglinton East LRT at UTSC.

Procurement and Project Management

The SSE project provides an opportunity to incorporate best practices in both procurement and project management. In May, 2015, EX5.6 Scarborough Subway Extension - Project Delivery Options directed staff to develop a Procurement Options Analysis and a recommended procurement option**.**

In the meantime, KPMG has completed a review of the TTC's capital program delivery. The review recommends the use of a stage gate process to ensure decisions can be made at each stage as more information is available, and recognize changes in design and budget as projects progress. A high-level road map for the project in section 5 indicates the decisions that have already been made on the project, and the next decision points that are anticipated.

COMMENTS

1. Planning Update

Recommended Alignment - McCowan

City Council received an Initial Business Case (IBC) for the Scarborough Subway Extension (SSE) at its July 12-15, 2016 meeting. The IBC examined options from a four case perspective: strategic, economic, financial, and deliverability. The preferred option according to the IBC was the extension of Line 2 along the McCowan corridor via Eglinton, Danforth, and McCowan - express from Kennedy Station to Scarborough Centre (known as Option 2A).

Options that closed Line 3 (Scarborough RT) during construction were screened out of the evaluation in the Deliverability case, as this closure would mean that Scarborough Centre would not be served by rapid transit for several years and these options presented no compelling advantage relative to McCowan. The SRT closure would result in greater travel times, less convenient and reliable transit service and would likely result in a reduction in transit ridership in Scarborough Centre. Option 2A preserved operations of Line 3 during construction of the SSE. The July 2016 report identified a cost of approximately $171 million (2016$) to shut down the SRT during the construction of the SSE.

City Council directed staff to consider other possible express subway alignment options, including an alignment along the existing Line 3 corridor. In an update to the initial business case (Attachment 1) staff re-evaluated the preferred McCowan express alignment, and identified and assessed six additional express subway alignments in an effort to reduce capital costs, while still meeting the objectives of the project, i.e., to encourage the development of Scarborough Centre as a vibrant urban node.

The update to the IBC concludes that the express subway extension along McCowan is preferred as it best supports the development of Scarborough Centre into a vibrant urban node:

- It better serves existing destinations, population and employment on both sides of McCowan Road;
- It is close to the McCowan Precinct, where future growth is planned and development pressure is greatest; and
- It supports plans to orient development around the McCowan Road corridor and specifically the Bushby/Town Centre Court gateway, including the expansion of the Scarborough Town Centre to this central area.

The express options that were considered, and initial screening results, are summarized in the table below.

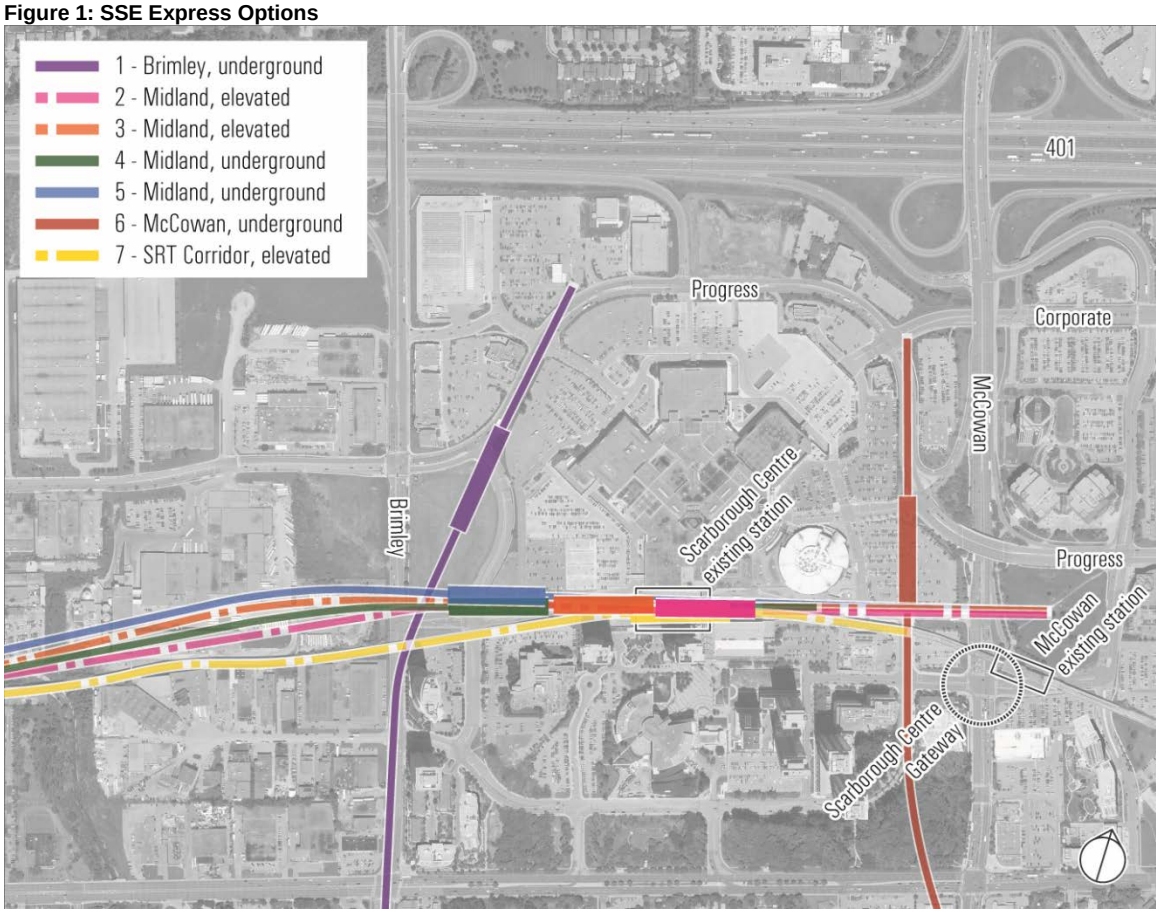
Table 4: Express Options – Initial Screening Results

Option	Screening Assessment	Cost Estimate ($B, YOE)
1. Brimley – Underground, north/south alignment	Carried forward for further analysis: Evaluation is included in this updated IBC	$2.945
2. Midland – Elevated, east/west alignment	Removed from consideration: Requires closure of SRT; cost savings not considered sufficient to justify impact to existing SRT customers	$3.013
3. Midland – Elevated, east/west alignment, station further west	Removed from consideration: Requires closure of SRT; inferior station location- i.e., further from centroid of existing and future customers; cost savings not considered sufficient to justify inferior station location and impact to existing SRT customers	$3.004
4. Midland – Underground, east/west alignment, station further west	Removed from consideration: Requires closure of SRT; cost savings not considered sufficient to justify impact to existing SRT customers	$3.129
5. Midland – Underground, east/west alignment, station further west	Removed from consideration: This option is approximately the same cost as the preferred McCowan alignment but has an inferior station location, i.e., further from centroid of existing and future customers	$3.316
6. McCowan– Underground, north/south alignment (previously preferred) **Recommended**	Carried forward for further analysis: Evaluation is included in update to IBC	$3.159; $3.346 with Triton bus terminal concept
7. SRT Corridor – Express subway to Scarborough Centre via SRT corridor (2.2km portion at-grade), with elevated east-west alignment into Scarborough Centre	Removed from consideration: Requires closure of SRT; cost savings not considered sufficient to justify impact to existing SRT customers	$2.966

Notes:
• SSE cost estimates prepared by the TTC. Estimates include cost to construct.
• Costs do not include costs for project delivery, management reserve or risk allowances. These costs are reflected in the staff report to the Executive Committee.
• Costs do not include lifecycle and operations/maintenance.
• Costs have been escalated based on the preliminary schedule. The schedule reflects in service by Q2 2026, with construction taking approximately 6 years (2020-2026). Schedule based on March 2017 approval to proceed.
• Cost estimates have been developed at approximately 5% design and are a Class 4 cost estimate (per AACE guidelines).

Figure **1** illustrates the alignment[3] and station location of all options evaluated.

Figure 1: SSE Express Options



Of the options evaluated, the previously-preferred McCowan alignment, and a new Brimley alignment were carried forward for further analysis in an update to the Initial Business Case (Attachment 1).

Brimley Express Alignment

The Brimley alignment emerged as an option because it would keep Line 3 operational during construction, and cost less than the previously-preferred McCowan option. An express extension along Brimley Road would place the station beneath Progress Avenue (oriented towards the north-east) east of Brimley Road and west of Scarborough Town Centre (Figure 2).

[3] East-west alignments overlap and are separated for illustrative clarity. Figure 3 provides a more accurate alignment for Option 7.

Figure 2: Brimley Express Alignment

The Brimley alignment is estimated to cost approximately **$**214 million (YOE) less than the McCowan alignment. Most of the cost savings can be attributed to the alignment being shorter and located on a less constrained station site. The station site is not encumbered by nearby buildings and has fewer roads or underground infrastructure; it is essentially an empty field and parking lot, not adjacent to any destinations. Further, significant growth in this area is not anticipated as it is in close proximity to successful industrial uses that are incompatible with a mixed use urban area.

Additional measures were added to the updated IBC to provide greater clarity regarding the differences between the Brimley and McCowan alignments. The updated IBC concludes that the express subway extension along McCowan is preferred as it best supports the development of Scarborough Centre into a vibrant urban node.

SRT Corridor

In July 2016, Council directed staff to assess and prepare a cost estimate for reusing the existing SRT corridor, using surface or above ground track from a point south of Lawrence. This option has been considered in the table above as "Option 7".

This option would be tunnelled east of Kennedy station, turn back to the west below a residential neighbourhood and meet the SRT corridor south of Lawrence Avenue. The alignment would emerge from the ground via a portal on the south side of Lawrence Avenue and north of Ellesmere Road; it would then rise on an elevated structure to cross over the Stouffville GO corridor. The alignment would remain elevated along the existing SRT corridor and into Scarborough station (Figure 3). This alignment differs from Option 2C that was part of the July IBC as it minimizes tunnelling while Option 2C was tunnelled beneath the Stouffville GO corridor and into Scarborough Centre station.

Figure 3: Elevated Option along SRT Corridor

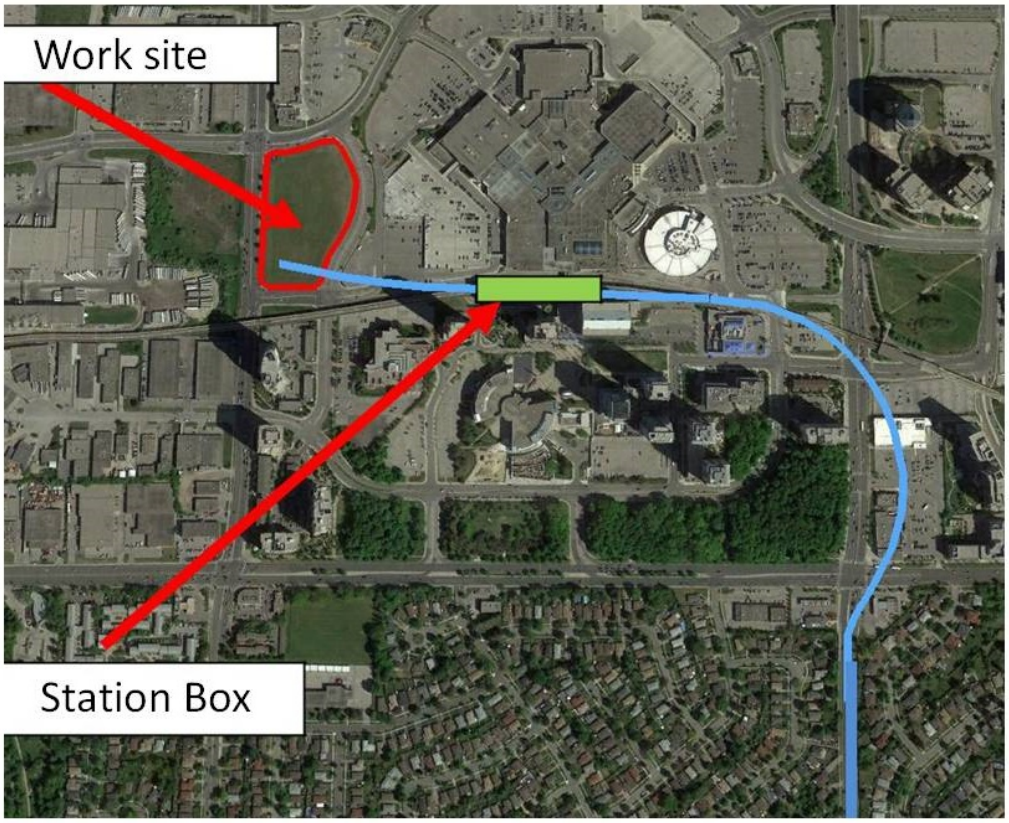
Further assessment has confirmed that this option would require the closure of the SRT during construction as the portal and elevated track would need to occupy the same area as the existing track.

Estimated cost for this option is $2.966 billion (YOE$). The SRT alignment has been removed from consideration because it would require the closure of the SRT.

The Big Bend

The project team reviewed an option introduced by the Glen Andrew Community Association (GACA). The alignment termed "the Big Bend" would be similar to the preferred McCowan alignment, but would turn west just north of Ellesmere Road, with a station located in the vicinity of the existing Scarborough Centre Station. The alignment's tail tracks would terminate in a vacant lot on the north-east quadrant of Brimley Road and Triton Road. An image of the group's proposal is shown below (Figure 4).

Figure 4: The Big Bend



Source: Glen Andrew Community Association

The GACA has suggested the Big Bend, if constructed using a large diameter tunnel, would:

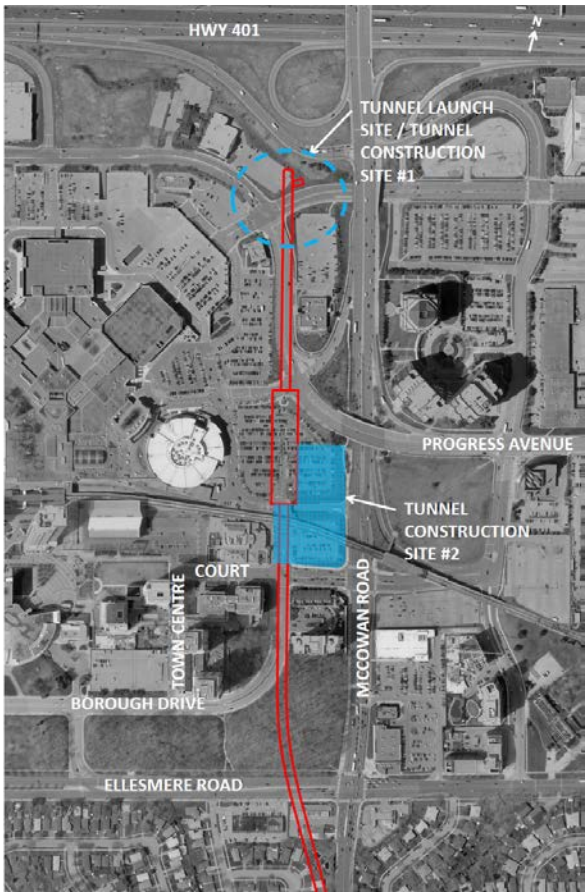
1. Place a station at the existing location of Scarborough Centre Station, without cut-and-cover construction or the decommissioning of the Scarborough RT;
2. Avoid tunnelling beneath 10 residential properties on Stanwell Drive; and
3. Avoid a tunnel work site location at Ellesmere/McCowan.The design and construction of a terminal subway station has significant complexities that require a width greater than the available space between the existing

Scarborough Centre Station and the Scarborough Town Centre. While TTC has undertaken significant work in this regard, it has not identified any station concept – regardless of tunnel diameter or construction method – that could be built in the area between the mall and the SRT structure without the closure of the SRT.

TTC staff identified two preliminary alternate alignments based on the Big Bend concept, by applying current design standards. It was determined that both of these alignments would cause much greater impact to private residences; one would require tunneling beneath 22 homes, while the other would require tunneling below two multi-storey buildings (YMCA and 300+ unit condominium at 61 Town Centre Court). Either of these alignments would impact more property owners than the recommended McCowan alignment.

Five potential tunnel work sites that each had significant community impacts were identified in the July 2016 report to Council. Based on outcomes of the Value Engineering workshop undertaken by TTC (see section 2), the tunnel construction site has been relocated to north of Town Centre Court, west of McCowan Road.

Figure 5: New Tunnel Construction Site Location



Although cost estimates have not been prepared for the alignments based on the Big Bend concept, both alignments were longer than the recommended McCowan alignment, which suggests that costs would be higher.

Analysis has shown the Big Bend alignment would require the removal of the SRT during construction and would affect more property owners than the preferred McCowan alignment. Additionally, TTC has found a feasible alternative tunnel work site away from the Ellesmere/McCowan intersection. Based on this analysis, the Big Bend concept is not recommended.

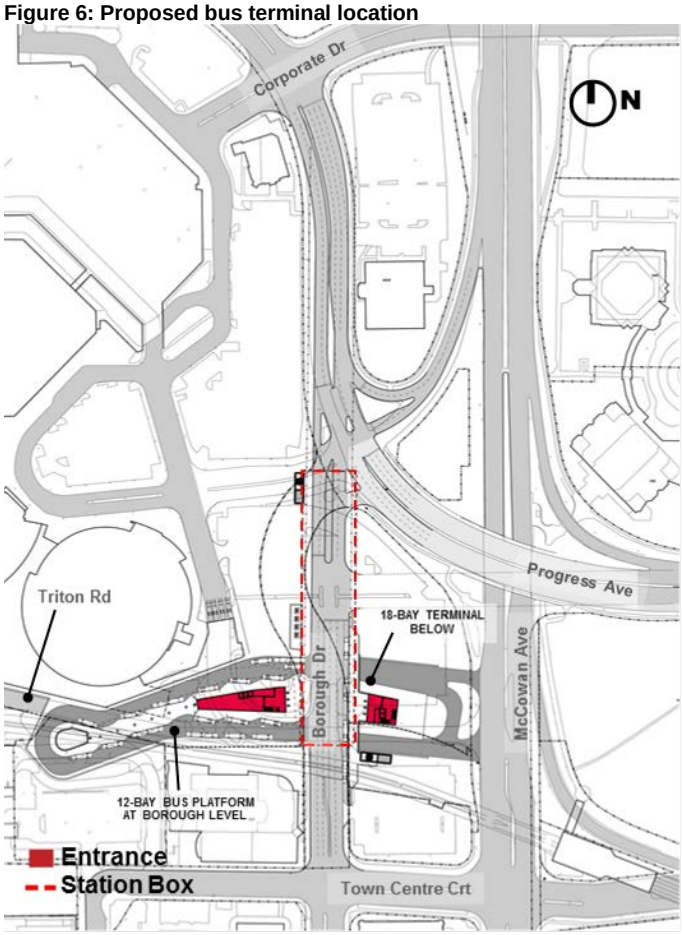
Bus Terminal for the Recommended McCowan Alignment

A key component of the SSE alignment is the station design, including all the elements needed for the station to operate as a transit hub. One significant station element is the bus terminal. The function of the bus terminal is integral to the success of the SSE as it provides a key transfer for many local and regional routes. A bus terminal that offers seamless transfers, with good connections, is essential to support existing riders, and can act as an incentive to attract new transit riders.

The future Scarborough Centre station will require a new bus terminal to accommodate an expansion of bus networks including TTC and GO Transit as well as Durham Rapid Transit (DRT) and private inter-city carriers. The terminal's proximity to the Scarborough Town Centre, and location in the core of Scarborough Centre, will provide fast and easy connections to this regional destination. Based on TTC design standards and the requirements of GO, Durham and the inter-city carriers, this terminal will require a total of 34 bus bays.

The bus terminal will be located in the vicinity of Triton Road and the preferred concept, while still under refinement, is proposed to be divided into two levels to reduce its overall footprint and protect future development potential near the subway station (Figure 6).

Figure 6: Proposed bus terminal location



City staff will continue to refine this concept to ensure the design supports growth and development in the area while potentially reducing cost. Examples of refinements include:

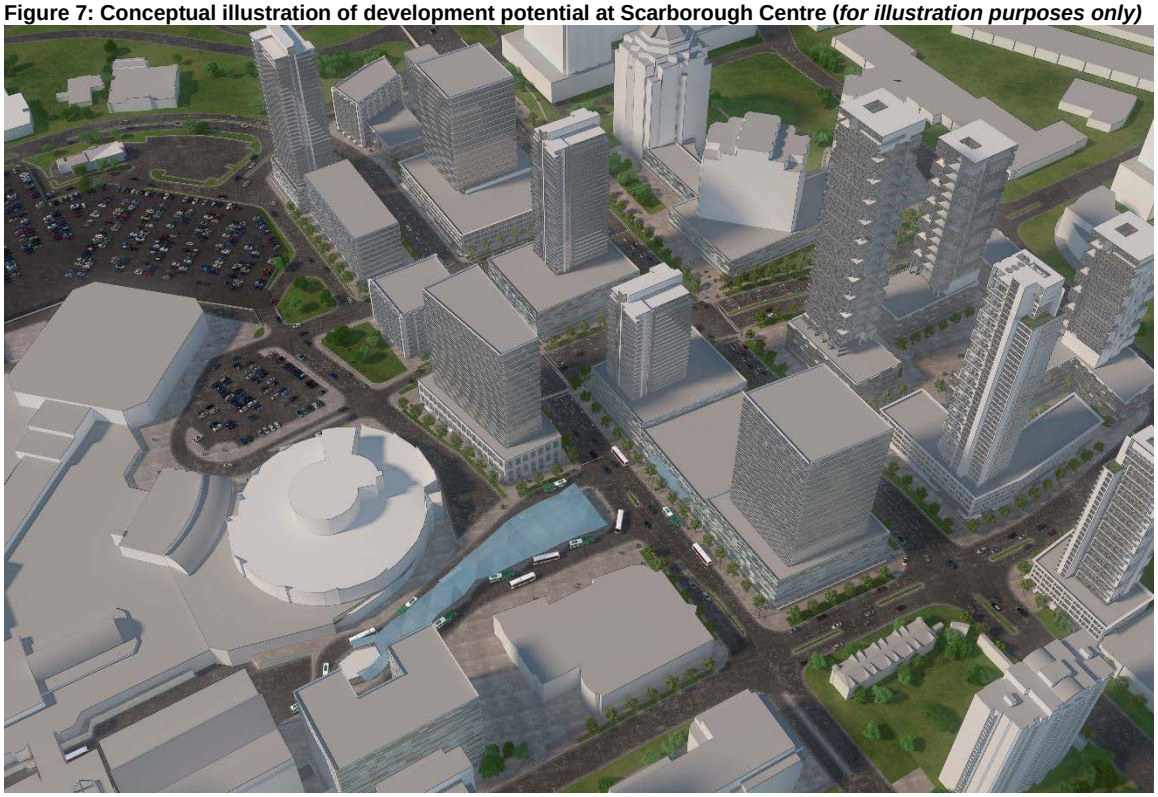
- footprint of stacked terminal to reduce property impacts
- design of entrances to bus terminal on both McCowan and Borough
- design of Borough Drive bus bays/stops
- cross section of Borough Drive
- public realm in the area surrounding the bus terminal

This conceptual design allows for a large bus terminal that also supports the development of Scarborough Centre into a dense downtown with an urban street network that enables denser development and improved pedestrian connections.

Figures 7 and 8 illustrate how Scarborough Centre could develop around the subway station and bus terminal. This illustration represents a long-term vision and has not taken specific plans of current land owners into account. This illustration also assumes that a street network consistent with approved planning policy is implemented. The street grid that will best support the development of

Scarborough Centre will be further articulated through the ongoing Scarborough Centre Transportation Master Plan.

Figure 7: Conceptual illustration of development potential at Scarborough Centre (*for illustration purposes only)*



The intersection of McCowan Road and Bushby Drive/Town Centre Court is envisioned as the gateway to the Centre. Today, McCowan Road is a challenging environment for pedestrians, including transit users. The road has been designed primarily for vehicles, with grade separated intersections at Progress Avenue and several free-flow access ramps. In order to achieve the vision for Scarborough Centre, it is critical to change the nature of McCowan Road in this area. Pedestrians must be able to access destinations, including the subway station, and they must feel safe walking along McCowan Road and crossing it.

Figure 8 shows how the bus terminal could enable the transformation of McCowan Road.

Figure 8 - Conceptual Illustration of McCowan Road Development *(for illustration purposes only)*

City and TTC staff will continue to refine this terminal concept to ensure the design supports growth and development in this area while minimizing cost and impact to private properties.

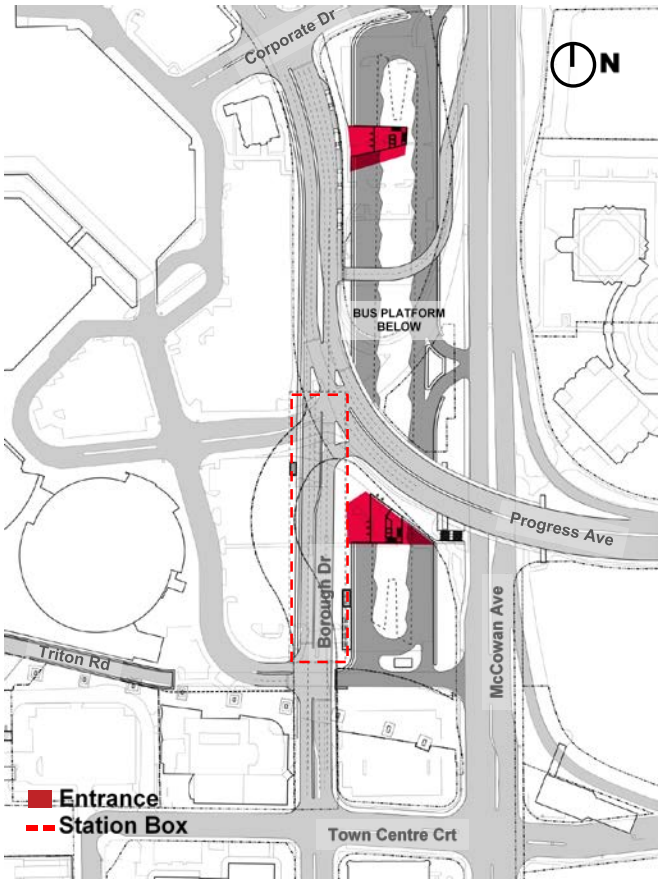
These issues will be addressed through the design stages of the project. Landowners in the area surrounding the bus terminal, including Oxford Properties and the Government of Canada, will be key stakeholders in further refinements. An update on the station concept will be provided to City Council at the same time as the Class 3 cost estimate for the project, prior to procurement.

The ongoing Scarborough Centre Transportation Master Plan (TMP) will be incorporating the selected bus terminal designs and associated bus movements to ensure the best future street network and design. The TMP will be advancing approval under the Environmental Assessment Act for street networks envisioned by approved planning policies. An information report on the progress of the TMP was discussed at Scarborough Community Council in February, 2017.

At-Grade Bus Terminal

The cost estimate presented to Council in July was based on an at-grade bus terminal concept. This concept would span approximately 400 metres from Triton Road to Corporate Drive, between McCowan Road and Borough Drive (Figure 9).

Figure 9: At-Grade Bus Terminal

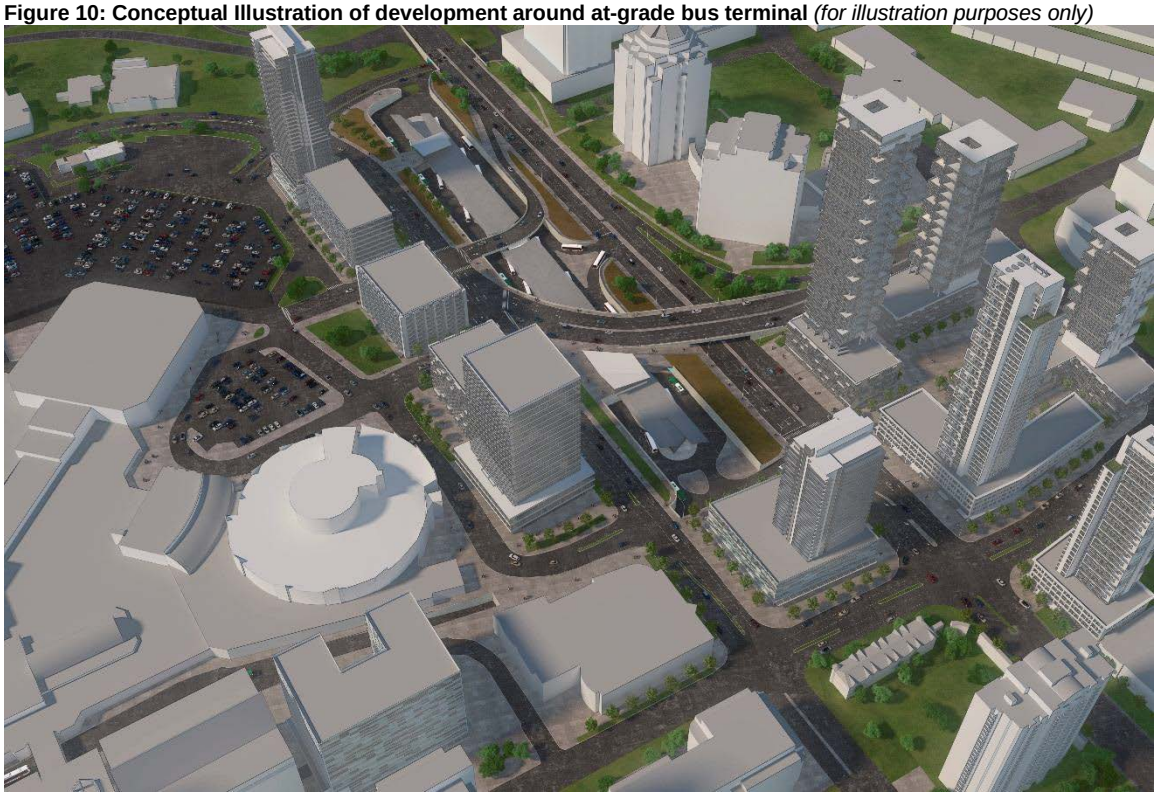


This terminal concept is not supported by City staff as it fails to deliver on project objectives:

1. Creates a physical barrier between the subway and the McCowan Precinct – where the greatest growth potential is anticipated;
2. Precludes a finer grain street grid needed to create a vibrant urban node; and
3. Eliminates prime development potential between Borough & McCowan (both future main streets).

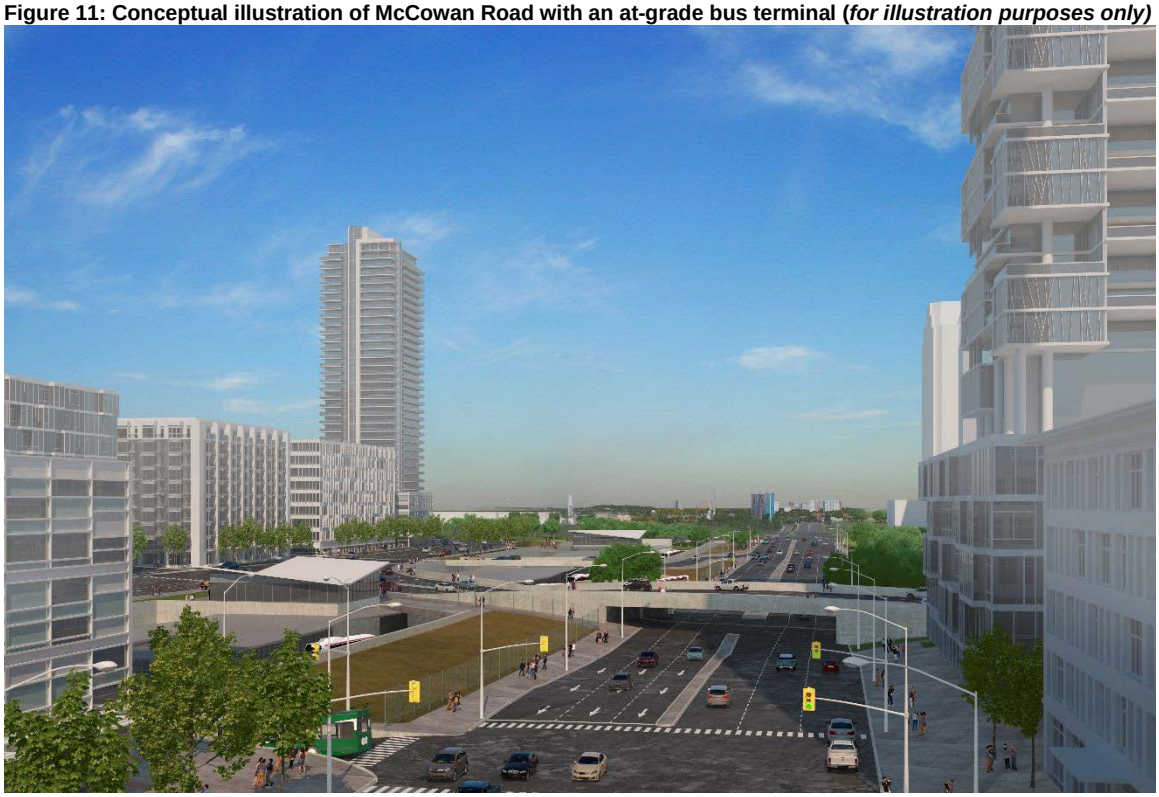
Figure 10 illustrates how this bus terminal would negatively impact development potential and create a barrier between the subway station and the McCowan Precinct, where future growth is planned and development pressure is the greatest.

Figure 10: Conceptual Illustration of development around at-grade bus terminal *(for illustration purposes only)*



The at-grade terminal design would preclude significant changes to the street grid around McCowan Road by requiring any new east-west streets to be built over top the terminal. The terminal would also reinforce McCowan's hostile environment for pedestrians, including transit users, by requiring more substantial free-flow ramps coming off of McCowan and completely sterilizing the western side of McCowan. Figure 11 illustrates how McCowan Road could look if an at-grade bus terminal was constructed.

Figure 11: Conceptual illustration of McCowan Road with an at-grade bus terminal (*for illustration purposes only)*



Additional renderings are shown in Attachment 3.

Bus Terminal Costs

The TTC has identified a cost for the McCowan alignment of $3.159 billion. The cost includes an at-grade bus terminal. The staff-recommended Triton Road bus terminal concept is estimated to cost $187 million (YOE) more than the at-grade bus terminal. Transforming Scarborough Centre into a denser urban node will benefit the city in many ways, and could encourage greater development around Scarborough Centre. Overall, ensuring that the Scarborough Centre Station is integrated with the surrounding urban neighbourhood will maximize the benefits realized from the investment in the SSE.

Property Requirements

The following 42 permanent property requirements have been identified based on the McCowan alignment:

1. Full property interest in one commercial property (for a traction power substation).
2. Partial property interests in 35 private properties and 6 properties under City of Toronto, provincial or federal ownership.

The temporary tunnel construction site is located on the Scarborough Town Centre lands. Further temporary property requirements for construction will be confirmed during design.

2. Value Engineering

Value Engineering

In July, 2016, City Council directed the City Manager and the CEO of the TTC to retain the services of a third-party rail transit construction and cost-estimation expert to assess the risks and complete a detailed cost review of the TTC's cost estimates for the express subway along the McCowan alignment.

In order to address this direction, in September, 2016, a value engineering (VE) team was convened to review the current design for the McCowan alignment, with the goal of investigating opportunities to reduce construction costs, simplify construction, or reduce maintenance. The scope included a review of the project risk assessment, schedule and cost estimate.

The exercise brought together a team of industry experts from across North America, specializing in the following areas:

- Tunnelling
- Architecture
- Structure
- Construction
- Risk Assessment
- Cost Estimating

The VE team evaluated the McCowan alignment, with an at-grade bus terminal, as the base case.

VE Workshop

A VE workshop was performed over a five-day period where, with support from the project team, the VE team worked to identify concepts that might address the noted goals. Pre-workshop activities included data collection and review and analysis of study materials prepared by the project's design team.

Workshop attendees identified and categorized the functions of the project to better understand which functions were most critical to the long term objective of the project of moving people. This exercise also ensured there could be a focus on generating ideas that might reduce the cost of the project.

The VE team proposed 62 items for consideration. Based on a preliminary assessment, the TTC will carry forward 29 ideas to be analysed or carried forward into detailed design. The items to be analysed touch on tunnel, station and bus terminal design, as well as construction staging. The items that were removed were either duplicates, were not acceptable or had no tangible benefit.

One VE item that has been adopted is based on staging of the tunnel construction. The concept has enabled the tunnelling construction site to be relocated north, into the mall area, away from the vicinity of McCowan and Ellesmere. In so doing, this addressed concerns of the local community.

Some other VE ideas associated with optimizing the at-grade bus terminal were examined. As the Triton bus terminal concept is being recommended, these ideas were not pursued past conceptual evaluation.

Risk Assessment

The VE team reviewed the TTC's initial risk register of approximately 200 risks, as well as the initial analysis of the likelihood and impact of certain risks materializing. The VE team identified 5 additional risks.

The VE review concluded that the work to date is in keeping with industry practice and developed beyond typical expectations at this early stage.

The review recommends:

- Incorporating VE-identified risks.
- Establishing a cost and schedule risk allowance. The need to establish these allowances was also captured in KPMG's recommendations.
- Establishing a Management Reserve that would be used to address unknown issues that will surface during the life of the project. For example, unknown issues could arise as changes in scope/stakeholder requirements, or unknown field conditions.
- Establishing a program risk committee that will actively evaluate and update the risk register during the life of the project.

Attachment 4 provides the Executive Summary of the Value Engineering Study Report.

3. Cost Review Findings

The VE team included a consulting firm that specializes in cost estimating. The cost consultant completed a peer review of the TTC's estimate for the McCowan alignment, with an at-grade bus terminal.

The TTC's estimate for the SSE project is based on per unit costing of some items, based on industry standards, quotes, and the TTC's own costs on past

projects such as the Toronto-York Spadina Subway Extension. Other elements of the estimate are allowance-based, calculated as a percentage of the hard costs.

The peer review confirmed the TTC estimate is valid and appropriate for the current level of design, which they believe to be 2-5% complete. At this level of design, cost estimates are anticipated to have a degree of accuracy of -30% to +50% according to AACE guidelines.

The peer review suggested a potential increase to the budget of approximately 5.7% from the TTC estimate. At the current level of design, this is considered to be equal.

A noted component of the suggested increase is the inclusion of a management reserve of 7.5% to address any changes in scope to the project outside the current concept. The establishment of a management reserve was also suggested as part of the VE review of the risk assessment. In its review of the TTC's delivery of its capital program delivery, KPMG also recommended that the TTC incorporate management reserve into its estimates to ensure that risk-based contingency is clearly associated with risks, and cost changes due to additional or altered scope can be clearly identified.

The Cost Review report can be found in Attachment 5.

4. Procurement options analysis

By adopting the recommendations set out in the staff report on Project Delivery Options in May, 2015, City Council directed City and TTC staff to:

- retain the services of Infrastructure Ontario ("IO") to carry out a Procurement Options Analysis ("POA");
- report back to Council with a recommendation on whether to proceed with a Design-Bid-Build ("DBB") or Design-Build-Finance ("DBF") option for procurement and also with recommendations with project management, delivery and governance; and
- structure preparatory work on the SSE so as to preserve the ability to proceed with whichever procurement and delivery option is recommended to Council.

Description and High-Level Comparison of Potential Procurement Options

The following is a high-level summary of the two options selected for further evaluation in the May, 2015 Council direction.

Design-Bid-Build

The TTC has traditionally used the DBB approach for all of its major capital projects. Under this approach, the infrastructure is designed by the TTC in collaboration with a team of private consultants. The TTC then initiates a competitive bidding process to select construction contractors to build the facility to the design specifications.

Debentures are issued by the City to raise the required funding and the TTC provides progress payments to the contractors throughout the project.

Although DBB is often described as a public sector approach, it is important to note that the vast majority of the project delivery under this approach is still provided through the private sector.

One of the principal benefits of the DBB approach is that the TTC, responsible for maintenance and operation of the infrastructure, can maintain a high level of input and control over the design. This may be a particularly important benefit in a project that involves the extension or expansion of an existing facility.

However, under a DBB approach, the contractors may not have a sufficiently high incentive to collaborate to achieve on-time completion because progress payments limit their exposure to financing costs, and delays by other contractors may entitle them to extra fees.

Finally, because the design is developed by a party separate from the contractors' team, the contractors might be more inclined to submit change orders for any deviations that add to the cost of construction.

This applies for the historical DBB approach with multiple construction contracts. DBB as a single contract is discussed later in this report.

Design-Build-Finance

Under the DBF approach, the TTC would work with various advisors to prepare high-level specifications that describe the desired outputs for the project rather than defining the specific design of the infrastructure.

The objective of this approach is to transfer design-related risks (additional costs resulting from design errors & omissions, unforeseen site conditions etc.) to the private partner and also to provide the private partner with the latitude to consider innovative design and construction approaches that could reduce the cost of the project.

This benefit arising from design latitude is potentially greatest in a project in which the private partner has a long-term stake in the project, such as a Design-

Build-Finance-Maintain ("DBFM") or Design-Build-Finance-Operate-Maintain ("DBFOM"). Under these project structures, the private partner will bear the responsibility if there are unforeseen maintenance or operation consequences arising from alternative approaches to the project design. However, under a DBF, the private partner will only have responsibility for the project until the end of a project warranty period (typically two or three years). Therefore, under a DBF, the output specifications may need to be more prescriptive to ensure that a quality project is delivered that meets the TTC's lifecycle requirements.

Under the DBF approach, the private partner will typically provide financing for a portion of the construction costs incurred until substantial completion of the project. This should result in a strong incentive for the private partner to achieve substantial completion at the earliest possible date. A failure to achieve the scheduled substantial completion date will result in substantial pressure on the contractor from the entities that have provided the necessary financing.

It should be noted that, although the private partner will be providing financing during the construction period, the funding for the project will still be provided through the City/TTC. Also, the City/TTC will be the owner of the project.

2016 Draft Procurement Options Analysis by Infrastructure Ontario

In accordance with Council's direction, Infrastructure Ontario was retained by the City and initiated work in the fall of 2015 on a POA based on the original 3-stop design for the SSE. The TTC provided IO with its available construction cost estimates based on a 2-3% level of design completion.

The analysis carried out by IO included the following steps:

- Assessment of Feasible Procurement Options
- Qualitative Assessment of Procurement Options
- Market Sounding
- Value for Money Analysis
- Summary of analysis
- Recommendation and considerations
- Next steps (e.g., costing)

The initial review of options confirmed the elimination of the DBFM and DBFOM P3 options from further assessment as the line will be an extension of the existing subway and the operation will have to be integrated with the TTC's operation of the existing subway. Consequently, the TTC will operate and maintain the extension.

With the comparison focused on DBB vs. DBF, the qualitative assessment highlighted certain important advantages for the DBF approach, such as higher

opportunity for budget and schedule certainty and improved innovation, which led to a higher overall qualitative score for DBF.

A Market Sounding sought opinions from general contractors, developers, and financiers with respect to their interest in the project, potential procurement models, and critical project risks. Feedback received indicated a preference for carrying out the project using an AFP (Alternative Financing and Procurement) model. Most feedback indicated there would be interest regardless of the delivery strategy.

The final element of the analysis carried out by IO was the Value for Money ("VFM") Analysis. This analysis compares the expected cost of delivering the project using a traditional public sector model (DBB in this case) with the expected cost of delivering the project using a P3 model (DBF in this case).

The fundamental principle underlying AFP is that the party which is best able to manage a given risk should assume that risk. In the VFM analysis, once the identified risks were quantified, the value of the risk retained by each party was added under each of the DBB and DBF models in order to compare procurement models on a risk-adjusted basis. In order to quantify the value of risk under each procurement model, a risk workshop was held with representatives from IO, the TTC, the City, PPP Canada and Ernst and Young. The VFM analysis indicated a preference for procuring the project through the DBF model.

Following Council's decision in July, 2016 to pursue the single-stop express model, a second quantitative VFM analysis for the new express scope was not undertaken as the scope changes were considered unlikely to result in a different outcome.

2016 TTC Contract Packaging Analysis

In the summer of 2016 the TTC coordinated a qualitative procurement options analysis based on the express one-stop SSE design option which was intended to complement the IO POA work done earlier on the original 3-stop design option. This analysis considered how to package the project elements under various delivery options and then evaluated the options using project-specific criteria, including schedule and risks.

The analysis on the express subway option was carried out in workshop format with members of the SSE project team who have:

- hands-on experience delivering large rail projects through DBB, DB and DBFM models;
- knowledge of risk allocation under the above models, and,
- experience carrying out delivery options and contract packaging analysis.

The analysis entailed the following stages:

- Project Definition
- Initial Screening of Delivery Options
- Contract Packaging Options Screening
- Selection of Preferred Option

The initial screening arrived at almost the same short list of delivery options as the IO POA. The analysis next considered various contract packaging options, which were narrowed down to single construction contract options: DB - one design and construction contract, and DBB - one construction contract. These options surfaced as they eliminate handover risks between contracts, and also simplify project management and dispute resolution.

DBB as a single contract differs from the DBB approach described above, which is the more historical approach of multiple contracts. As a single contract, the DBB contractor would have the benefit of having full control of the site and construction staging, similar to the DB contractor. DBB as one contract was also not contemplated in the IO review.

Financing, or the 'F' component, was included with each option based on the following benefits:

- increased contractor motivation for project completion because of the impact that delays have on financing costs, and
- additional oversight applied by the contractor's lender.

DBF and DBBF, both based on single construction contracts, were assessed on the following criteria:

- Schedule
- Budget
- Interface risk during construction
- Integration risk
- Requirements Definition Risk
- Design Errors & Omissions Risk
- Site Conditions Risk
- Construction Quality Risk
- Lifecycle Optimization

The analysis of these criteria concluded that there is a marginal benefit in choosing DBF over DBBF from the point of view of budget, integration risk, and site condition risks.

Other Considerations

This report recommends that a DBF approach be taken towards the procurement of the SSE. As discussed above, this approach has the potential to most effectively allocate project risks, particularly design risk.

However, it is anticipated that the basic nature of the project, as an extension of an existing subway line, will substantially constrain the scope for design innovation that is usually a principal benefit of P3 procurement. Many components of the SSE, such as control systems, will have to be tightly integrated with the existing systems on the rest of the Bloor Subway line. Therefore, these systems will have to be fully defined by the TTC in the contract documents, which will limit the potential for innovation by the contractor. This constraint results in the DBF approach only having a marginal benefit relative to a single-contract DBBF approach.

In addition, the TTC currently only has limited experience with the DBF form of procurement. In carrying out the procurement of the SSE, the TTC will already be adopting a number of other major changes to its methodology that address the issues and concerns that have been raised on recent projects.

As discussed above, the one-contract DBBF approach shortlisted in the TTC's Contract Packaging Analysis could allow the TTC to avoid the handover issues between contracts that have had negative schedule and project cost impacts on the Toronto York Spadina Subway Extension project.

The TTC will also, as discussed further below, be adopting a number of important recommendations made by KPMG as part of the broader TTC Capital Program Delivery Review. These include the creation of a Management Reserve, the adoption of a holistic approach to project budgeting, and the use a Stage-Gate approach for formal structuring of project approvals.

Finally, the TTC has also, through its Contract Packaging Analysis, implemented a much more formal and structured approach towards the budgeting for specific project risks.

Procurement Support for Design-Build-Finance Procurement

The TTC does not currently have significant experience with preparing high-level specifications that describe the desired project outputs as part of a DBF procurement. As discussed above, the TTC has previously carried procurement of major infrastructure projects through the DBB approach in which the full design of the project has been carried out by the TTC in collaboration with a team of private consultants.

IO has the greatest amount of experience in Ontario with preparing output specifications and procuring infrastructure through AFP methodology. Major construction companies are now familiar with the process and contract documentation that is commonly used by Infrastructure Ontario for AFP procurement. IO also has considerable experience in managing the various sub-consultants that support AFP procurement. It would be cost and time-prohibitive to replicate IO's capabilities within the TTC or to retain the services of another consulting firm to provide these capabilities.

Therefore, this report recommends that a critical condition for proceeding with a DBF procurement for the SSE be the successful negotiation of a project procurement support services agreement with IO. This agreement would provide the TTC with the support required with DBF procurement but still provide the TTC with the final authority to make all major project management decisions.

Under this agreement, it is anticipated that IO would:

- Provide and lead procurement coordination and transaction services up to and including the date of closing for the agreement with the successful proponent (Financial Close)
- In conjunction and coordination with the TTC, develop procurement documents and negotiate the terms and conditions of the project agreement and any other agreements entered into in respect of the contract
- In connection with the foregoing, provide Request for Qualification (RFQ), Request for Proposal (RFP) and other project documents based on Infrastructure Ontario standard processes and documents that shall, in conjunction and coordination with the TTC, be customized appropriately for this project
- Manage the development of the RFP, including the development of Project Specific Output Specifications (PSOS) incorporating planning, design, operations and background information as developed by the City and the TTC
- Provide support for the TTC for a substantial period following Financial Close to facilitate the orderly and effective transition of the project to the TTC

The agreement would recognize that the TTC, as operator of the project, with the responsibility to ensure that the project achieves the paramount objectives of public safety, efficient passenger transportation, and value for taxpayers, will have final approval authority on all decision-making during the entire project. Furthermore, the agreement and project delivery will also recognize other City Council approved objectives for the project, such as city building. It is anticipated that Infrastructure Ontario's relationship with the TTC will generally be based on the typical contractual arrangement for consulting advisors retained by the TTC.

5. Project governance

To date, an executive steering committee chaired by the City Manager and the CEO, TTC provides overall direction and oversight on the project.

The executive steering committee has overseen the work of a joint project team in developing the initial concept, early planning analysis and initial business case for the project. As the project moves from planning into detailed design, existing project oversight mechanisms will be refined.

In September, 2016, the TTC Board considered a review of the TTC's capital delivery process by KPMG. The report made 41 recommendations to improve delivery of the capital program at the TTC, all of which were accepted by the TTC. Several of the recommendations relate to enhancements to governance of major projects. The TTC is in the midst of implementing the recommendations through a plan approved by the TTC Board in December, 2016.

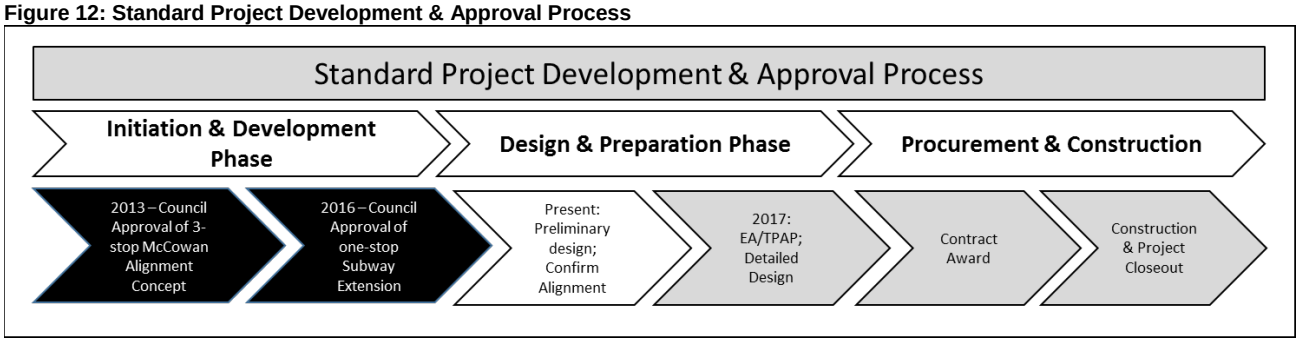
Stage Gate Process

A key recommendation of the KPMG review of the TTC Capital Program Delivery is to implement a stage gate process to introduce key decision points as new projects are developed and implemented.

The SSE was approved by City Council with a budget and schedule in 2013 prior to detailed due diligence on the project. Several reports to City Council and the TTC Board have reported on the development of the project from initial concept to more detailed feasibility and technical analysis, with an initial business case presented in 2016.

While work on the SSE is already underway, establishing subsequent decision points, or "gates", to guide subsequent stages of development and implementation of the SSE project will help to ensure that robust information and evidence is developed and shared on key aspects of the project to support decision-making. Formal check in points also offer an opportunity to confirm the project still achieves the intended benefits/objectives set out when first initiated. The diagram below shows the major gates the SSE project has already gone through, as well as the major decision points to come.

Figure 12: Standard Project Development & Approval Process



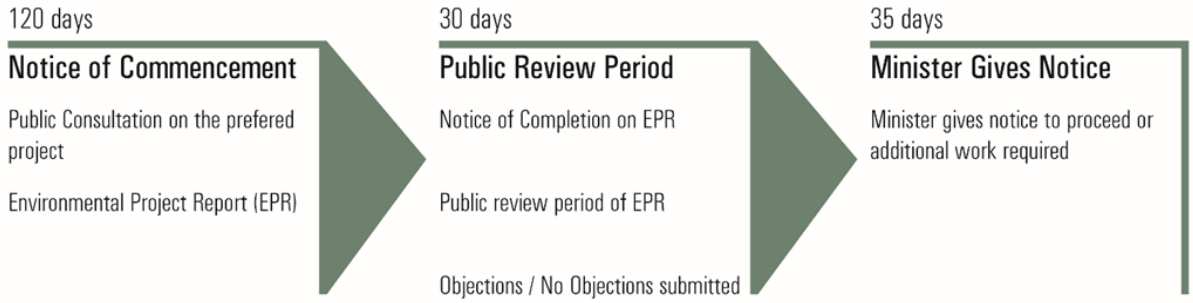
6. Next Steps

Transit Project Assessment Process

Once the preferred alignment is adopted by City Council, the project team will proceed to complete the Environmental Project Report (EPR). A Notice of Commencement will be issued in April 2017, with a public meeting to follow in early May. The project team will have 120 days to complete the EPR and issue a Notice of Completion.

Once complete, the EPR will be available for a 30-day Public Review Period. During this period, the public, regulatory agencies, aboriginal communities and other interested persons may submit objections. A 35-day Ministerial Review period will begin, where the Minister of Environment and Climate Change reviews the EPR and any submissions objecting to the project. Following the 35 day review period, the City and TTC will file a Statement of Completion, unless the Minister of the Environment and Climate Change gives notice that the project is subject to conditions or further steps.

Further information is available in the Guide to Ontario's Transit Project Assessment Process (https://dr6j45jk9xcmk.cloudfront.net/documents/1799/3-8a-6-ea-transit-projects-en-pdf.pdf)



Funding Commitments

The SSE project has received funding commitments from both the federal and provincial governments. These commitments comprise the majority of funding for the project. Neither commitment has progressed to a formal funding agreement.

The Province, through Metrolinx, has agreed to make available the funding allocation associated with the previous Metrolinx Scarborough LRT project that is part of the Master Agreement between Toronto, Metrolinx, and the TTC. The $1.48 billion allocation in 2010$ was estimated in 2013 by the City to be worth $1.99 billion against project cash flows, however, this total has not been confirmed through a funding agreement.

The federal funding commitment of $660 million was made under the Provincial-Territorial Infrastructure Component of the New Building Canada Fund program. In order to receive the federal funding, the Province must approve the allocation of the federal funding to the project under the program. A formal application was made by the City to the Province in 2014.

7. Conclusion

This report recommends City Council approve the McCowan express alignment following extensive due diligence on alternative options in the June 2016 Initial Business Case and the update to the IBC for the SSE (Attachment 1). The report also recommends approving a Triton bus terminal concept in order to support the project's planning objectives of supporting growth in the Scarborough Centre.

The report recommends an approach to procurement as the project moves into the next phases of detailed design and construction. City and TTC staff plan to report at the next key decision milestone for this project in late 2018 with the following:

- Class 3 cost estimate (approximately 30% design) suitable for establishing the project budget baseline;
- An updated budget to reflect the best practices recommended by KPMG (i.e. management reserve, risk-adjusted budget) and Council-directed scope additions (i.e. public realm, platform edge doors) in line with recommendations to include holistic scoping in the budget for major capital projects; and
- An updated funding and financing strategy to reflect the budget based on a Class 3 cost estimate, including status of the intergovernmental funding agreements with provincial and federal governments.

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Peter Wallace, City Manager

ATTACHMENTS

Attachment 1 - Update to the initial SSE business case
Attachment 2 - Draft Environmental Project Report Executive Summary
Attachment 3 - Additional Renderings of Scarborough Centre Station area
Attachment 4 - Value Engineering Report Executive Summary
Attachment 5 - Cost Estimate Peer Review report