

Attachment 3 STATUS OF PRELIMINARY TECHNICAL QUESTIONS

Background

In April 2019, City Council considered a supplementary report from the City Manager on Toronto's Transit Expansion Program- Update and Next Steps (EX4.1d). This report included an attachment which contained a series of preliminary technical questions for the Province related to the four transit projects identified in the 2019 Ontario Budget, released in April.

Throughout Q2 and Q3 2019, City and TTC staff have met with Provincial staff for the purposes of carrying out the technical assessment of the Province's transit proposal as directed by Council. Through this process, City and TTC staff have received information and insight that informs the responses below, and is reflective of the various stages of design of the Province's priority projects. In some instances, further work and due diligence will be required as planning and design development progresses.

Further information on the projects as well as more detailed technical information on the staff assessment can be found Attachment 4- Assessment of Ontario Line and Attachment 5- Assessment of Line 2 East Extension.

#	Question and Status of Current Answer
Transit Planning and Design	
1	<p>At what stage in the project lifecycle is each project, relative to either the City/TTC project lifecycle map (in EX4.1) or the Metrolinx Benefits Management Framework?</p> <p>Based on the information provided by the Province through the Ontario-Toronto Transit Expansion Technical Working Group, the City and TTC have assessed that the projects are currently at the following stages based on the City/TTC project lifecycle stage gate reporting:</p> <ul style="list-style-type: none"> • Ontario Line – Needs Assessment phase completed, project at Stage Gate 1 • Line 2 East Extension – Initiation and Development phase completed, project at Gate 2 • Yonge Subway Extension - Initiation and Development phase completed, project at Stage Gate 2 • Eglinton West LRT – Needs Assessment completed, project at Stage Gate 1

#	Question and Status of Current Answer
2	<p data-bbox="277 233 1349 338">Is Metrolinx preparing a business case analysis for each project in the new Ontario plan? If so, when will these be reported to the Metrolinx Board?</p> <ul data-bbox="326 359 1401 1073" style="list-style-type: none"> <li data-bbox="326 359 1401 506">• Ontario Line - Metrolinx has released the Initial Business Case (IBC) for the Ontario Line, which was brought to the Metrolinx Board in September 2019 where it was endorsed and advanced to the Preliminary Design stage. <li data-bbox="326 541 1401 653">• Line 2 East Extension - Metrolinx has indicated that the L2EE Preliminary Design Business Case (PDBC) is currently underway and will be presented to the Metrolinx Board in late 2019 or early 2020. <li data-bbox="326 674 1401 852">• Eglinton West LRT - An IBC for the EWLRT was completed by Metrolinx (in partnership with the City) in 2016. The timeline for reporting a revised EWLRT IBC to the Metrolinx Board is still to be determined. Metrolinx has shared a preliminary summary of the EWLRT IBC with the City and TTC. <li data-bbox="326 873 1401 1020">• Yonge Subway Extension - Metrolinx completed a benefits case analysis for the YSE in 2009. Given the stage of work completed, it is likely that Metrolinx will prepare a Preliminary Design Business Case (PDBC). The timeline for reporting to the Metrolinx Board is still to be determined. <li data-bbox="326 1041 1401 1073">• Sheppard – See response to Question 59.

#	Question and Status of Current Answer
3	<p data-bbox="277 233 1404 302">What level of design was used to develop the cost estimate and schedule for each project?</p> <p data-bbox="277 306 1382 415">The Province has not specifically identified the level of design used to prepare cost and schedule estimates, however, based on the information received to date, and the estimated project stages, the City/TTC have determined that:</p> <ul data-bbox="326 436 1404 1108" style="list-style-type: none"> <li data-bbox="326 436 1360 506">• Ontario Line – estimates are based on an approximate 0 -10% design level, in line with the Metrolinx IBC requirements. <li data-bbox="326 527 1404 779">• L2EE - the Province has confirmed that it is based on the TTC's Class 3 estimate for the express subway and the Province determining an order of magnitude estimate for the additional two stations. According to the Metrolinx process, the PDBC would be premised on an approximate 10% design. EWLRT - Information in the preliminary presentation used the Class 5 cost estimate produced by the City and based on conceptual design only. <li data-bbox="326 800 1365 909">• EWLRT – Information in the preliminary presentation used the Class 5 cost estimate produced by the City and based on conceptual design only. <li data-bbox="326 930 1404 1108">• YSE - The Province has established a subway expert advisory panel to review the plans for the Yonge North Subway Extension and has not yet confirmed any potential changes in scope to the work already completed on this project. The current level of design on the 6-stop option is approximately 15% design.

#	Question and Status of Current Answer
4	<p data-bbox="277 233 1354 268">What is the cost and schedule estimate classification for each project?</p> <p data-bbox="277 306 480 338">Ontario Line:</p> <ul data-bbox="326 363 1401 705" style="list-style-type: none"> <li data-bbox="326 363 1401 432">• Ontario Line IBC reports a total capital cost estimate (Class 5) as between \$9.5B and \$11.4B (unadjusted for P3 delivery). <li data-bbox="326 453 1401 522">• Industry standards identify accuracy ranges for a class 5 estimate are on the low end -20% to -50% and on the high end of +30% to +100%. <li data-bbox="326 527 1401 705">• The Province has stated a project timeline with a 2027 in-service date for the Ontario Line, with a more accurate estimate of schedule will be determined as the project advances. The Province has committed to ensuring the Ontario Line is in-service prior to the Yonge Subway Extension. <p data-bbox="277 726 370 758">L2EE:</p> <ul data-bbox="326 783 1354 1052" style="list-style-type: none"> <li data-bbox="326 783 1354 961">• The Province's cost estimate for the L2EE was based on the City's express L2EE Class 3 estimate of approximately \$4B (adjusted for inflation) and added \$1.5B for scope associated with two additional stops. This totals the \$5.5B announced for the L2EE in 2019 Ontario Budget. <li data-bbox="326 982 1354 1052">• The 2019 Ontario Budget estimated a completion date for the L2EE at 2029-30. <p data-bbox="277 1073 402 1104">EWLRT:</p> <ul data-bbox="326 1129 1390 1272" style="list-style-type: none"> <li data-bbox="326 1129 1390 1272">• The 2019 Ontario budget estimated a cost of \$4.7 Billion for the Toronto Segment. The City's Class 5 cost estimates for the EWLRT reported to Council in April 2019 showed costs between \$3 Billion and \$4 Billion for tunnelled options. <p data-bbox="277 1293 354 1325">YSE:</p> <ul data-bbox="326 1329 1354 1545" style="list-style-type: none"> <li data-bbox="326 1329 1354 1472">• The Province's cost estimate for YSE was based on work already underway between City, TTC, York Region, and Metrolinx. The latest cost estimate was a Class 4/5 estimate of \$5.6 billion, as reported in a May 2017 City staff report EX25.1. <li data-bbox="326 1476 1354 1545">• The 2019 Ontario Budget estimated a completion date for the YSE at 2029-30, following completion of the Ontario Line.

#	Question and Status of Current Answer
5	<p data-bbox="277 233 1360 338">What is included in each cost estimate (e.g., financing, property acquisition, escalation, operating, maintenance, fleet, maintenance and storage facilities, etc.)?</p> <p data-bbox="277 380 480 411">Ontario Line:</p> <ul data-bbox="326 436 1369 611" style="list-style-type: none"> <li data-bbox="326 436 1369 611">• As reflected in the IBC, the cost estimate includes infrastructure, financing, fleet and rehab capital costs such as: track and guideway, stations, Maintenance and Storage Facility (MSF), site work, systems, vehicles, and including: property acquisition, professional services and contingency. <p data-bbox="277 632 370 663">L2EE:</p> <ul data-bbox="326 688 1344 831" style="list-style-type: none"> <li data-bbox="326 688 1344 831">• Staff have not received the detailed cost information for L2EE, but expect that the base assumption includes the cost elements from the TTC's project estimate, such as above. The City/TTC anticipate that more detail will be released as part of Metrolinx PDBC in Fall 2019. <p data-bbox="277 852 402 884">EWLRT:</p> <ul data-bbox="326 909 1398 1045" style="list-style-type: none"> <li data-bbox="326 909 1398 1045">• Class 5 cost estimates produced by the City as referenced, include track and guideway, stations, expansion of the Mt. Dennis MSF, an extension to Pearson Airport, site work, systems, vehicles, professional services and contingency. <p data-bbox="277 1066 354 1098">YSE:</p> <ul data-bbox="326 1123 1333 1230" style="list-style-type: none"> <li data-bbox="326 1123 1333 1230">• Class 5 estimate includes tunnelling, track and guideway, stations, storage facility, systems, vehicles, property acquisition, professional services and contingency

#	Question and Status of Current Answer
6	<p>Who prepared the cost estimates? Have they been peer-reviewed/validated by a third party?</p> <p>Ontario Line:</p> <ul style="list-style-type: none"> Metrolinx have recently supplied details of the class 5 cost estimate undertaken by an international project management consultant. Accuracy ranges for a Class 5 estimate can be anywhere on the low end from -50% and on the high end of +100%. <p>L2EE:</p> <ul style="list-style-type: none"> We have not received further details regarding the preparation of the cost estimate, beyond the peer reviewed baseline estimate provided by the TTC for the express project. <p>EWLRT</p> <ul style="list-style-type: none"> Class 5 cost estimates produced by the City and used in Metrolinx's preliminary presentation were developed by AECOM and reviewed/approved by Metrolinx. <p>YSE</p> <ul style="list-style-type: none"> The Class 5 estimate was prepared by the TTC.
7	<p>Have operating cost estimates been prepared for each project?</p> <ul style="list-style-type: none"> Ontario Line IBC reports Net Present Value operating costs of \$2.463B. This has not been validated by City/TTC. L2EE- The City/TTC anticipate that it will be released as part of Metrolinx PDBC in Fall 2019 EWLRT- The City/TTC anticipate that it will be released as part of Metrolinx revised IBC YSE- The City/TTC anticipate that it will be released as part of Metrolinx revised business case (likely PDBC)

#	Question and Status of Current Answer
8	<p data-bbox="277 233 1276 302">What are the ridership projections for each project for each of the following:</p> <p data-bbox="277 342 1281 411">Based on the travel demand modelling work, the preliminary results (all projections to 2041) are as follows:</p> <p data-bbox="277 451 824 485">Peak Point Demand (AM Peak Hour)</p> <ul data-bbox="326 506 1284 861" style="list-style-type: none"> <li data-bbox="326 506 781 539">• Ontario Line 19,500 - 20,000 <li data-bbox="326 560 1284 751">• Line 2 East Extension <ul data-bbox="423 615 1195 751" style="list-style-type: none"> <li data-bbox="423 615 1195 651">○ On extension: 9,500 (Westbound, east of Kennedy) <li data-bbox="423 665 1078 701">○ Westbound, east of Pape: 23,000 – 28,000 <li data-bbox="423 716 1284 751">○ Peak point, eastbound, west of Bathurst: 23,000 – 31,000 <li data-bbox="326 772 1057 808">• EWLRT: 4,300 (Eastbound, East of Jane Street) <li data-bbox="326 829 1192 861">• YSE: 14,000-20,300 (Southbound, North of Finch Station) <p data-bbox="277 882 781 915">Impact on Line 1 (AM Peak Hour)</p> <ul data-bbox="326 936 1321 1150" style="list-style-type: none"> <li data-bbox="326 936 951 970">• Demand south of Bloor: 33,500 – 36,000 <li data-bbox="326 991 946 1024">• Demand north of Bloor: 31,000 – 38,500 <li data-bbox="326 1045 1321 1150">• Relief to Line 1 may be impacted by some of the Province’s project design decisions still to be confirmed, and land use changes for Downtown and Yonge-Eglinton, prescribed by the Province. <p data-bbox="277 1171 662 1205">Weekday Demand (Daily)</p> <ul data-bbox="326 1226 992 1423" style="list-style-type: none"> <li data-bbox="326 1226 834 1260">• Ontario Line: 391,000 – 410,000 <li data-bbox="326 1281 862 1314">• Line 1 (including) YSE): 1,154,100 <li data-bbox="326 1335 992 1369">• Line 2 (including L2EE): 600,000 – 675,000 <li data-bbox="326 1390 873 1423">• Line 5 (including EWLRT): 136,500 <p data-bbox="277 1444 565 1478">New Riders (Daily)</p> <ul data-bbox="326 1499 1243 1730" style="list-style-type: none"> <li data-bbox="326 1499 797 1533">• Ontario Line: 35,000 – 35,500 <li data-bbox="326 1554 1243 1623">• L2EE: 11,000 (compared to base case with no rapid transit to Scarborough Centre) <li data-bbox="326 1644 586 1677">• EWLRT: 5,500 <li data-bbox="326 1698 558 1730">• YSE: 19,800

<p>9</p>	<p>What input assumptions were used in the modelling work with respect to the following:</p> <p>Forecast year (e.g., 2031, 2041)</p> <ul style="list-style-type: none"> • 2041 <p>Land Use Assumptions</p> <ul style="list-style-type: none"> • Population and employment growth assumptions as agreed by City and Province, consistent with previous work. Does not include assumptions for increased Transit Oriented Development at stations or changes to downtown and Yonge-Eglinton land use plans recently prescribed by the Province. <p>Service integration with TTC surface transit</p> <ul style="list-style-type: none"> • Assumes fare integration as now exists. Bus/streetcar/subway connections assumed to work similarly to existing TTC system. Indicative bus and streetcar networks, connecting to the new line, have been provided to the modellers by TTC staff. <p>Proposed service plan(s)</p> <ul style="list-style-type: none"> • Ontario Line assumed to operate with 90 second headway. • EWLRT assumed to operate with 4 minute headway from Renforth Gateway to Mt. Dennis. • YSE assumed to operate with 110 second headways consistent with the rest of Line 1. <p>Capacity of transit lines and proposed transfer stations</p> <p>All figures represented as "riders per hour":</p> <ul style="list-style-type: none"> • Ontario Line: 34,000 • Future, planned Line 1: 36,000 • Existing Line 2: 26,000 • Line 5: 5,900 <p>Fares</p> <ul style="list-style-type: none"> • Assume TTC fare system for Ontario Line and L2EE; assume existing double discount co-fares between TTC and GO. <p>Other planned network improvements</p> <ul style="list-style-type: none"> • Metrolinx base network includes St. Clair, Liberty Village, East Harbour and Finch East SmartTrack Stations, Line 1 Capacity Improvements, GO Expansion, Yonge North Subway Extension, Eglinton West LRT, Sheppard Subway, and Broadview streetcar extension.
-----------------	---

#	Question and Status of Current Answer
	<ul style="list-style-type: none"> City base network includes all of the above except the Sheppard Subway and includes the Lawrence East and Gerrard SmartTrack Stations, Sheppard East LRT, and Waterfront Transit Network.
10	<p>What are the impacts on the City/TTC transit network resulting from these projects?</p> <p>The technical assessment has determined that the Ontario Line and L2EE concepts would be planned to seamlessly integrate into Toronto's Transit Network. The current understanding of the impacts of these projects on the City/TTC's transit network is summarized below, however these impacts may change as further design is undertaken on these projects.</p> <p>Ontario Line:</p> <ul style="list-style-type: none"> Reduces projected demand on 504 King east/west streetcar services and estimated station usage at Gerrard SmartTrack Station. Depending on the design of the Exhibition station, there may be impacts on the TTC's project to connect the Dufferin and Exhibition Loops as part of the Waterfront transit reset. There are no significant impacts on design or projected ridership on the East Bayfront component of the Waterfront transit reset <p>L2EE:</p> <ul style="list-style-type: none"> Reduces estimated station usage at Lawrence East SmartTrack and increases demand in Sheppard corridor east of McCowan but reduces demand west of McCowan. <p>EWLRT:</p> <ul style="list-style-type: none"> No significant impacts to existing network; would need to maintain existing bus service on corridor due to stop spacing. <p>Eglinton East LRT:</p> <ul style="list-style-type: none"> Design decisions for the L2EE may require changes to the EELRT conceptual design and how it connects to Kennedy Station Clarity about future rapid transit on Sheppard East corridor is required before recommendations about the location of the Maintenance and Storage Facility and Malvern Extension can be made. <p>YSE</p> <ul style="list-style-type: none"> The Province has indicated that service on the YSE will not begin before the Ontario Line is in service. This responds to a City Council concern about the potential impact on crowding on Line 1 of extending the subway to Richmond Hill. As Metrolinx shares further project details, the City and TTC will need to assess the impacts on operations of the existing network.

#	Question and Status of Current Answer
11	<p>What existing planning and design work can be used for each of the proposed projects? Has an assessment been undertaken yet?</p> <p>Metrolinx has confirmed that it will leverage the planning and design work for the Ontario Line and Line 2 East Extension. Metrolinx has established a Subway Expert Panel to review the existing plans for the Line 2 East Extension and Yonge North Subway Extension. The extent to which this previous work can be utilized will be determined once the expert panel results are considered, and as the projects continue to develop.</p>
12	<p>Do you anticipate new TPAPs or amendments being required to previously approved TPAPs? If so, what is the expected timing on this?</p> <p>Based on current requirements for transit projects, City and TTC staff anticipate that new TPAPs or addendums will be required. Per Bill 107, Metrolinx will be the sole proponent on these TPAPs or addendums. The City/TTC have not received a detailed project schedule for Metrolinx's projects.</p>
13	<p>With respect to "transit-oriented development" and seeking private sector investment, what assumptions are being made with respect to compliance with the City's Official Plan policies and guidelines?</p> <p>The Province has committed to work with the City to ensure that transit oriented developments advance a shared understanding for effective growth and high quality development of Toronto. The City and the Province are working through the details of an agreement on how they will work together to advance TOD opportunities.</p>

#	Question and Status of Current Answer
14	<p>What is the Province's plan for public consultation?</p> <p>The City and TTC have been advised that project-specific consultation plans are currently under development. Through discussions with Provincial and Metrolinx staff, City and TTC staff have been advised that the Province and Metrolinx's consultation approach includes:</p> <ul style="list-style-type: none"> • Designing a consultation program that, where possible, reflects core consultation principles that were utilized for the Relief Line (e.g. inclusiveness, timeliness, transparency, balance, flexibility, and traceability) • Conducting project-specific consultations to provide the opportunity for focused input on local community impacts • Engaging communities throughout the project's development • Leveraging existing consultations that have been undertaken to-date in project design and delivery • Utilizing a variety of tactics including town halls, public meetings, stakeholder meetings, etc. <p>The opportunity for feedback and input throughout a project's development may differ given the anticipated P3 delivery model. Details regarding the Province's proposed approach are provided as Attachment 11 to this report. City and TTC will continue to advocate for meaningful public consultation on provincial transit projects.</p>
15	<p>Will the proposed lines meet the requirements of NFPA 130 and the Ontario Building Code?</p> <p>The City/TTC have assumed that the designs will be compliant with OBC and NFPA 130.</p>
16	<p>Will the accessibility features for the proposed vehicles and infrastructure be consistent with those used by TTC?</p> <p>The City/TTC have assumed that the designs will be compliant.</p>
Project Delivery	
17	<p>What assumptions were made with respect to procurement?</p> <p>Illustrated in Infrastructure Ontario's Fall 2019 – P3 Market Update: indicates the Ontario Line will be Design-Build-Finance-Maintain (DBFM) procurement model. The procurement models for L2EE, EWLRT and YSE are listed as to be determined (TBD).</p> <p>https://www.infrastructureontario.ca/uploadedFiles/CONTENT/News/2_Market_Update/2019-Market-Update.PDF</p>

#	Question and Status of Current Answer								
18	<p>Has a procurement options analysis been conducted for each project?</p> <p>Metrolinx has completed an initial procurement options analysis for the Ontario Line has been completed, informing the selection of Design-Build-Finance-Maintain. Procurement options analyses for the L2EE and YSE are pending. It is unknown if a procurement options analysis has been completed for the EWLRT.</p>								
19	<p>What are the anticipated property impacts (including City property and private property)?</p> <p>Given the early stage of development for each of the Provincial projects, the specific property impacts of these projects are not yet known. Property impacts for each of the four projects will be determined as the projects become further developed.</p> <p>While detailed analysis of property requirements has not been completed or shared with the City, staff anticipate that additional property acquisition is likely for L2EE, with the addition of two new stations. It is staff's understanding that alternative concepts for Scarborough Centre Station are being examined and may therefore have different property impacts.</p> <p>Property owners impacted by the previous Relief Line South project have been provided with an update on the status of the project.</p> <p>Metrolinx will be communicating directly with impacted property owners as the projects develop further.</p>								
20	<p>What is the timeline for going to procurement for each project? At what stage of design will the project be tendered?</p> <p>The City/TTC have not received a detailed schedule from Metrolinx, however the Infrastructure Ontario Fall update includes the following timelines:</p> <table border="1" data-bbox="280 1350 1406 1724"> <tbody> <tr> <td data-bbox="280 1350 841 1457">Ontario Line</td> <td data-bbox="841 1350 1406 1457">RFQ Spring 2020 RFP Summer/Fall 2020</td> </tr> <tr> <td data-bbox="280 1457 841 1564">L2EE</td> <td data-bbox="841 1457 1406 1564">RFQ Winter/Spring 2021 RFP Summer/Fall 2021</td> </tr> <tr> <td data-bbox="280 1564 841 1671">YSE</td> <td data-bbox="841 1564 1406 1671">RFQ Fall 2021 RFP Spring 2022</td> </tr> <tr> <td data-bbox="280 1671 841 1724">EWLRT</td> <td data-bbox="841 1671 1406 1724">To be determined.</td> </tr> </tbody> </table>	Ontario Line	RFQ Spring 2020 RFP Summer/Fall 2020	L2EE	RFQ Winter/Spring 2021 RFP Summer/Fall 2021	YSE	RFQ Fall 2021 RFP Spring 2022	EWLRT	To be determined.
Ontario Line	RFQ Spring 2020 RFP Summer/Fall 2020								
L2EE	RFQ Winter/Spring 2021 RFP Summer/Fall 2021								
YSE	RFQ Fall 2021 RFP Spring 2022								
EWLRT	To be determined.								

#	Question and Status of Current Answer
21	<p>Has an assessment of impacts on City infrastructure been undertaken (e.g., roads, bridges, water mains, public realm, etc.)?</p> <p>The City will undertake this assessment as a natural part of the design phases for each of the four projects. The City/TTC and Province have convened a working group that is focused on understanding the required coordination of major capital construction projects, especially in the area of the Lower Don River.</p>
22	<p>Has an assessment of construction-related impacts been undertaken as part of the preliminary planning and design? What about impacts on community, businesses, traffic congestion, noise, etc.? If not, when will this occur and be factored into decisions on build methodology, procurement, and a program for business and community supports?</p> <p>The City/TTC expect that this will be undertaken as part of the updated environmental work for the TPAP(s).</p>
23	<p>Will the Province adhere to City permits and approvals, per the practice under the LRT Master Agreement?</p> <p>The applicable Master agreement(s) for these projects are to be developed, and it will be the expectation that agreed upon service standards and timelines for applications, permits and approvals will be adhered to. The Province is seeking city commitment to explore opportunities to accelerate and expedite delivery including review of processes, and leveraging powers and authorities.</p>
24	<p>Do the project schedules factor in risks associated with current market capacity to undertake all projects concurrently? What approach will be taken to prioritizing projects should the market not allow for all projects to proceed concurrently?</p> <p>It can be expected that as the projects advance through the design and procurement phases, the consideration of market capacity and prioritization will be undertaken by the delivery agent (IO and/or Metrolinx – as applicable).</p>
25	<p>How will the Metrolinx "market-driven approach" apply to these projects? Have any private sector partners been engaged on any of these projects to date?</p> <p>The City and Province will be developing a Memorandum of Understanding for the purpose of TOD.</p>

#	Question and Status of Current Answer
Relief Line/Ontario Line	
26	<p>For the segment of the Ontario Line between Pape and Osgoode, are the proposed alignment and stations/stops the same as the current plan for the Relief Line South?</p> <p>Based on information obtained from meetings with the Provincial staff and on review of the IBC, the Ontario Line and Relief Line South share a common conceptual alignment and station locations between Osgoode Station and Sherbourne/Moss Park Stations. The projects differ between Sherbourne and Gerrard Stations. Both projects generally follow under Pape Avenue to an interchange at Pape Station.</p>
27	<p>With respect to the new technology proposed for the Ontario Line, please clarify the following:</p> <p>Type, number length and weight of trains</p> <ul style="list-style-type: none"> • Metrolinx is proposing that 100-metre light rail trains will be used, however have indicated this will be determined through their procurement approach. <p>Depth and diameter of the tunnel</p> <ul style="list-style-type: none"> • The tunneling technology has not been confirmed and will form a part of the design process through their planned procurement approach. TTC has provided design work from the Relief Line South project as information to assist Metrolinx in their work. <p>Whether the design will achieve a 90-second headway or better</p> <ul style="list-style-type: none"> • This is a working assumption by Metrolinx and has been assumed in all assessments. The ability of the design to ultimately achieve this objective will be determined in future phases of design. <p>The carrying capacity of the technology</p> <ul style="list-style-type: none"> • Assuming 100-metre trains carrying 850 passengers each, a 90 second headway would result in 34,000 people per hour based on Metrolinx's proposed crowding standard. <p>Whether the technology has been proven to perform under similar climate conditions experienced in Toronto</p> <ul style="list-style-type: none"> • The specific technology has not been confirmed and will be determined as part of the procurement process.

#	Question and Status of Current Answer
28	<p>If the approach is to have the market define the technology, what requirements are being included in the PSOS document? How were these requirements defined in order to determine an estimate of \$10.9 B?</p> <p>Requirements to be included in a PSOS document will be determined in the next phases of work.</p>
29	<p>Are you building the line to a budget of \$10.9 B or are you building a line with a defined scope of work?</p> <p>The project cost estimate is preliminary based on the current state of development. The scope in so far as length and areas served have been consistently stated. Future adjustments to scope, budget and schedule will be identified as part of subsequent phases of work.</p>
30	<p>What is the proposed build methodology along the various segments of the alignment? What elements of the alignment are tunnelled, at-grade or elevated?</p> <p>The Ontario Line Initial Business Case outlines the build methodology of the various segments as part of an indicative alignment. The L2EE and EWLRT, are expected to be advanced as tunnelled and partially-tunnelled projects, respectively.</p> <p>City/TTC staff are aware that Metrolinx has assembled a panel of experts to review the plans for L2EE and YSE, and anticipate that the outputs of this group will inform the proposed build methodology.</p>
31	<p>Are existing GO tracks/corridors being used as part of the alignment?</p> <p>According to the Metrolinx IBC, the Ontario Line would travel in the same corridor (right-of-way) as the Lake Shore East GO corridor, along a widened embankment.</p>
32	<p>Are the tunnelled stations mined or cut-and-cover construction?</p> <p>The specific construction techniques will be determined through the design and procurement phase of the project.</p>
33	<p>Does your proposal include for the diversion of the Enwave energy system?</p> <p>TTC has provided information from the Relief Line South project which was being designed to avoid the diversion of the Enwave energy system. Potential impacts to the Enwave system will be determined as design is developed.</p>

#	Question and Status of Current Answer
34	<p>What geotechnical analysis has been undertaken, particularly in the areas north and west of the current Relief Line South PDE work?</p> <p>The City/TTC is not aware of any geotechnical work having been undertaken, beyond what was previously done for the Relief Line South project.</p>
35	<p>Has the planning analysis taken into account current plans for SmartTrack Stations and the Waterfront Transit Network?</p> <p>The provincial plan may have impacts on the SmartTrack Stations Program and the Waterfront Transit Network. Further impacts will be determined as design advances on the Ontario Line. These projects have been considered in the modelling exercise that has been undertaken.</p>
36	<p>Has the design taken into account necessary facilities for passenger transfers to and from TTC buses and streetcars?</p> <p>Design specific to stations and points of transfer will be determined in the next phases of work as the project design advances.</p>
37	<p>How were the proposed alignment and the station stops identified in the 2019 Ontario Budget map (p. 68) determined? Is this still preliminary?</p> <p>Based on the work undertaken to date, the Province has identified an indicative alignment and assumptions in their IBC. Further design work will be undertaken as the project progresses.</p>
38	<p>What are the configuration of the bridges proposed over the Don River, both at the south end near Eastern Avenue and farther north near Thorncliffe Park? What are the proposed elevations, grades, locations of tunnel portals, etc.?</p> <p>The Province has shared their indicative alignment options with the City/TTC but until a final alignment is determined and design is advanced, City/TTC staff are unable to confirm this level of detail.</p>
39	<p>What are the proposed interfaces and plans for surface transit at each station location to ensure multi-modal integration of the network and achievement of Line 1 relief objectives?</p> <p>TTC has provided an indicative surface network for modelling purposes. Specific terminal designs at stations have not been developed, and therefore not evaluated at this time. However, the Province has indicated its goal of seamless integration with the existing TTC system.</p>

#	Question and Status of Current Answer
40	<p>Where will the maintenance and storage facility (MSF) be located?</p> <p>The Ontario Line IBC states that the MSF is assumed to be located alongside the CP Rail Corridor in the area of Wicksteed Avenue and Beth Neilson Drive.</p>
41	<p>Has a cost-benefit analysis been undertaken that suggests a separate MSF facility from the Greenwood Yard is preferable?</p> <p>A cost-benefit analysis has not yet been undertaken. The Province's policy decision is to have a separate MSF for the Ontario Line due to the different vehicle technology and gauge of the track.</p>
42	<p>Given the proximity of the Ontario Science Centre to the flood plain of the Don River, are flood control measures included in the scope or cost estimate?</p> <p>The impact of the alignment and related mitigation measures/costs will be determined in later stages of design.</p>
Line 2 East Extension	
43	<p>What assumptions have been made related to the re-design of Scarborough Centre Station if it is no longer a terminus?</p> <p>The Province is currently reviewing the alignment options to determine the scope of the project. An update is anticipated as part of the Preliminary Design Business Case.</p>
44	<p>Has the design taken into account necessary facilities for passenger transfers to and from TTC buses and streetcars?</p> <p>Design will be determined as the project advances.</p>
45	<p>What are the bus-bay requirements at each station?</p> <p>This will be determined during the design phase as the project advances.</p>
46	<p>What assumptions have been made related to extending the life of Line 3 Scarborough (RT) and supplementary bus service?</p> <p>A study is being undertaken by the TTC to determine if the current life of Line 3 can be extended to 2030. This is expected to be complete in Q1/Q2 2020, and is a matter of ongoing discussion with the Province.</p>

#	Question and Status of Current Answer
47	<p>Does the cost estimate include or not include Automatic Train Control (ATC) implementation on Line 2?</p> <p>No, this is not currently assumed.</p>
48	<p>Has the province undertaken a comparative analysis of the requirements for a station at Lawrence East given the current plan for a SmartTrack station at Lawrence-Kennedy?</p> <p>The Province has identified that a Lawrence East Station will be included in the L2EE project scope. City staff will assess the impact of a Lawrence East subway station on the performance of a Lawrence-Kennedy SmartTrack station</p>
49	<p>What assumptions about the Scarborough transit network have been made with respect to Sheppard East Extension, SmartTrack Stations, GO Expansion, Eglinton East LRT to UTSC and to Malvern Centre, etc.?</p> <p>Eglinton East LRT has not been assumed in any modelling by the City or Metrolinx. The City's modelling has included GO Expansion, and also tested the inclusion of Lawrence East SmartTrack Station and both a Sheppard Subway Extension and the Sheppard East LRT. These changes have limited impact on network ridership.</p> <p>See answer to Question 9.</p>
50	<p>Is the McCowan station proposed to be an interchange with the proposed future Sheppard East Extension or a direct connection? What intersection on the McCowan alignment is the McCowan station (i.e., Sheppard and McCowan)?</p> <p>An interchange station is assumed and is protected at Sheppard East and McCowan.</p> <p>The assumption is that the Line 2 terminal station at Sheppard and McCowan would include future provision for passenger connections to a future east-west rapid transit line on Sheppard Avenue. There is currently no provision for through-running of trains between Line 2 and any future east-west line on Sheppard.</p>
51	<p>Is the project completion date of 2030 for L2EE for revenue service only, or does that include demolition of Line 3 Scarborough (RT)?</p> <p>The current plan is that revenue service for L2EE would be achieved by 2030.</p>

#	Question and Status of Current Answer
Eglinton West LRT	
52	<p>How many stations are proposed and where are they located?</p> <p>The City and TTC understand the Province is generally considering seven stations on Eglinton, west of Mount Dennis Station, at Jane, Scarlett, Royal York, Islington, Kipling, Martin Grove and Renforth. A future extension in Mississauga would run to Pearson Airport.</p> <p>Additional details regarding station locations are expected to be discussed in an Initial Business Case anticipated to be released in late 2019 or early 2020.</p>
53	<p>Will the service levels and fare be comparable to the Eglinton Crosstown LRT?</p> <p>Per the package of terms presented by the Province, the City/TTC and Province will discuss service levels and fare agreements as part of the negotiation of the Master Agreement or Agreement(s).</p>
54	<p>Has the design taken into account necessary facilities for passenger transfers to and from TTC buses and streetcars?</p> <p>Design specific to stations and points of transfer will be determined in the next phases of work as the project design advances.</p>
55	<p>Metrolinx has previously recommended an at-grade LRT for the Eglinton West LRT; what new information has Metrolinx considered that supports a tunneled option?</p> <p>The City and TTC expect that this will be provided as part of the revised Initial Business Case to be produced by Metrolinx.</p>
56	<p>City analysis shows that a significant portion of the congestion along Eglinton Avenue West is caused by the configuration of highway ramps in the area and constrictions on the 401. What concurrent work does the Province propose to mitigate traffic congestion at Martin Grove Rd and Eglinton Ave W?</p> <p>Traffic impacts and mitigation will be addressed as the project design advances.</p>

#	Question and Status of Current Answer
57	<p>The \$4.7 B estimate in the 2019 Ontario Budget (p. 71) is for an extension to Renforth Drive to be delivered by 2030-31.</p> <p><i>What is the timing for the extension from Renforth to Pearson post 2030-31? What is the timeline for concluding the planning analysis on the Airport Segment of the LRT?</i></p> <p>There has been minimal engagement on this project at this point, therefore, information has not been provided about this.</p> <p><i>Will Metrolinx be conducting an updated business case for the full alignment from Renforth Station to Pearson International Airport?</i></p> <ul style="list-style-type: none"> - Metrolinx has indicated that its revised IBC will include consideration of the impacts of the connection to the airport.
58	<p>What is the timeline for completing the PDE phase of work for the Eglinton West LRT Toronto Segment?</p> <p>A timeline for completion of PDE work is still to be determined.</p>
Sheppard East Extension	
59	<p>How will the Province advance work on the proposed extension of Line 4 (Sheppard) to McCowan?</p> <p>The City and TTC have not received any additional details regarding the Sheppard East Extension. The provincial budget indicated this will follow work on the L2EE.</p>
60	<p>What is the status of the confirmed funding for the Sheppard East LRT?</p> <p>The City and TTC have not received any additional details regarding the Sheppard East Extension or funding for the Sheppard East LRT.</p>
61	<p>What technology is proposed for the rapid transit line east of McCowan? What will this change of plans mean for the approved Conlins LRV Maintenance and Storage Facility?</p> <p>The City and TTC have not received any additional details regarding the Sheppard East Extension.</p>