

Update on the Ontario Line Joint Corridor Noise Barrier and Retaining Walls

Date: April 24, 2024

To: Toronto and East York Community Council

From: Executive Director, Transit Expansion Division

Wards: 14 - Toronto - Danforth

SUMMARY

As directed by the Toronto and East York Community Council on January 24, 2024 under *TE10.40 - Metrolinx's Ontario Line Construction within the Toronto and East York District - First Quarter Update*, the purpose of this report is to provide an update on the Lakeshore East Joint Corridor Noise Barrier and Retaining Wall that is currently being constructed by Metrolinx for the Ontario Line and the GO Expansion Program, including the approved designs, known costs, and estimated construction schedule. This report also provides additional information about noise and vibration levels for the operations of the Ontario Line.

RECOMMENDATIONS

The Executive Director, Transit Expansion Division, recommends that:

1. Toronto and East York Community Council receive this report for information.

FINANCIAL IMPACT

There are no financial impacts associated with this report. The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

On October 1, 2021, City Council adopted MM36.48 – Design Excellence in Riverside and Leslieville, which directed City staff to request Metrolinx to ensure the retaining

walls and noise barriers on the Lakeshore East Joint Corridor are of the highest level of design excellence, and report back to the Executive Committee.

Link: <https://secure.toronto.ca/council/agenda-item.do?item=2021.MM36.48>

On December 14, 2022, City Council adopted MM2.7 – Update on Member Motion MM36.48 "Design Excellence in Riverside and Leslieville" which directed City staff to report back on the Metrolinx Noise Wall Design Competition, including consideration of whether the competition met City standards for consultation, procurement, and whether the selected design meets the City's Urban Design and Public Realm standards.

Link: <https://secure.toronto.ca/council/agenda-item.do?item=2023.MM2.7>

On May 10, 2023, City Council adopted TE4.70 Update on Metrolinx's Ontario Line Construction within the Toronto and East York District, which provided details on the current status of the Ontario Line project within the boundaries of Toronto East York Community Council (TEYCC). This report also included an update on the Joint Corridor Design Competition, as directed by City Council in MM36.48 and MM2.7.

Link: <https://secure.toronto.ca/council/agenda-item.do?item=2023.TE4.70>

On June 14, 2023, City Council adopted TE5.46 Report Back on Metrolinx's Ontario Line Construction within the Toronto and East York District, which provided additional details on the Ontario Line Construction requested by City Council.

Link: <https://secure.toronto.ca/council/agenda-item.do?item=2023.TE5.46>

On July 19, 2023, City Council adopted TM2.1 City of Toronto Recommendations for Metrolinx's Ontario Line Construction within the Toronto and East York District to fulfill the mandate of the Subcommittee on Metrolinx's Ontario Line Construction by consolidating City staff recommendations, public feedback and City Council directives to create recommendations on reducing the construction impacts, providing opportunities for residents and businesses and supporting the communities most impacted by the Ontario Line construction.

Link: <https://secure.toronto.ca/council/agenda-item.do?item=2023.TM2.1>

On October 11, 2023, City Council adopted TE7.81 Protecting and Upgrading Jimmie Simpson Playground due to Ontario Line Construction including a report from staff to provide an update on City Council's request for Metrolinx to replace the wading pool and playground in Jimmie Simpson Park and to provide details on the status of the license agreement for Metrolinx to access Jimmie Simpson Park to complete works related to the Ontario Line.

Link: <https://secure.toronto.ca/council/agenda-item.do?item=2023.TE7.81>

On January 24, 2024, City Council adopted TE10.40 Metrolinx's Ontario Line Construction within the Toronto and East York District - First Quarter Update, which provided an update on the current status of the Ontario Line construction within the boundaries of TEYCC and provided an update on the recommendations shared with Metrolinx as directed through TM2.1. Through this report, TEYCC directed City staff to provide an update on the construction, design and costs of the Lakeshore East Joint Corridor retaining walls and noise barriers.

Link: <https://secure.toronto.ca/council/agenda-item.do?item=2024.TE10.40>

COMMENTS

Current Status

The scope of the Ontario Line includes an at-grade segment that will operate along the existing Lakeshore East (LSE) GO corridor approximately between Tannery Road west of the proposed East Harbour Station and the proposed Gerrard Station at Gerrard Street and Carlaw Avenue. As the rail corridor will serve both GO trains and Ontario Line trains, it is referred to as the Joint Corridor. To facilitate the Ontario Line and GO Expansion projects, the Joint Corridor is being widened to accommodate six tracks. Four tracks will serve GO trains on the southeast side, and two tracks will serve Ontario Line trains on the northwest side (see Figure 1).

The existing bridge crossings at Eastern Avenue, Queen Street, Dundas Street, and Logan Avenue will also be replaced and updated through the Metrolinx advanced works project (see Figure 2). Retaining walls will generally be required along both sides of the corridor and will replace the embankments currently being used to retain the rail corridor. Once retaining wall construction is complete, noise barriers will be constructed by Metrolinx above the retaining walls to mitigate the impact of sound emanating from trains to the surrounding communities.

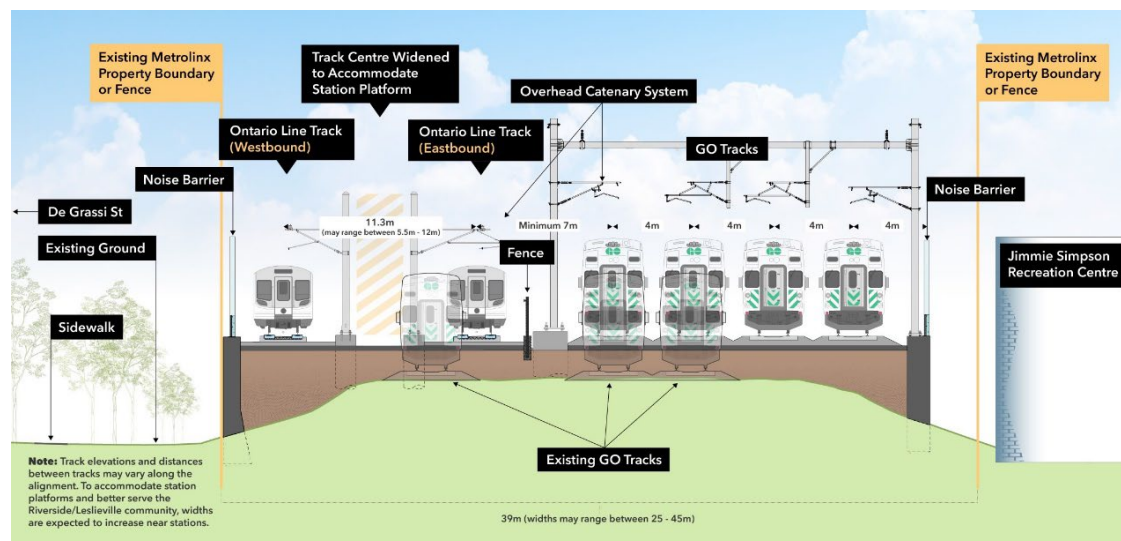


Figure 1: Cross section north of Queen Street at the north end of Jimmie Simpson Recreation Centre (Source: Metrolinx)



Figure 2: Overview map of the bridges to be reconstructed for the Ontario Line and GO Expansion projects in the LSE Joint Corridor (Source: Metrolinx)

Construction Schedule on the Lakeshore East (LSE) Joint Corridor

Construction of the LSE Joint Corridor is being primarily delivered through the LSE Joint Corridor Early Works (Early Works) contract, however future contracts, as determined by Metrolinx, will address later-stage design elements such as landscaping. The Early Works contract was awarded to Dufferin Construction and construction began in April 2023. The scope of the early works includes utility relocations, upgrades to the existing rail corridor, upgrading the bridges at Queen Street East, Logan Avenue, and Dundas Street East, realigning GO tracks, and constructing the noise barrier and retaining walls to help prepare for construction of Riverside-Leslieville and Gerrard Ontario Line stations. Work performed so far includes demolition of the eastern half of the Queen Street East, Dundas Street East and Logan Avenue bridges, creation of 7 access roads, relocation of utilities, excavation and the commencement of retaining wall removals. Construction on the retaining walls along the east side of the Joint Corridor began in Summer 2023 (see below) and the Early Works are expected to be completed by January 2026.

Table 1 below provides a summary of the work underway and planned by Metrolinx in the LSE Joint Corridor.

Table 1: 2024 Future Milestones and In-Corridor Construction Timeline

Approximate Timeline	Activity
Ongoing until June 2024	Excavation and shoring <ul style="list-style-type: none"> Complete major excavation and shoring work on the east side of the rail corridor to prepare for retaining wall installation. Timber shoring walls and steel rods (tiebacks) will be installed to support excavation. This work is being done to prepare for retaining wall and bridge construction.

Approximate Timeline	Activity
Ongoing until August 2024	Retaining wall and fence removals <ul style="list-style-type: none"> • Removal of the existing retaining walls and fencing along the east side of the rail corridor from Gerrard Street East to Jones Avenue. • Vegetation, shrubs, and trees will be removed along the fence line within the rail corridor. • New noise barriers and fencing will be installed once the removals are completed. • See Figure 3 below for more specific retaining wall work schedule.
May 2024 until September 2024	Retaining wall and noise barrier installation <ul style="list-style-type: none"> • Pre-cast concrete block retaining walls will be installed on the east side of the rail corridor. • Noise barriers will be installed on top of retaining walls and steel beams.
Ongoing until Late 2024	Track relocation and train signal installation <ul style="list-style-type: none"> • Installation and commissioning of new train signals within the rail corridor east of First Avenue. • Relocation of two rail tracks and installation of one new track line.
Ongoing until December 2024	Bridge demolition and construction <ul style="list-style-type: none"> • Complete the demolition of the bridges on the east side of the rail corridor and start constructing the new bridges, including the abutments and piers between April – June 2024. • Complete construction of the new bridge piers and abutments between July – September 2024. • Complete construction of the new bridges on the east side of the rail corridor by December 2024.
Fall 2024	Preparation work on the west side of the corridor <ul style="list-style-type: none"> • Construction of six new access roads on the west side of the corridor. • Removal of vegetation and trees along the perimeter of the rail corridor. • Clearing and grubbing to start in September 2024 to provide space for major construction activities. • Work also includes preparing for bridge construction on the west side of the rail corridor.

Approximate Timeline	Activity
November – December 2024 and onwards	<p>Construction of retaining and noise walls on the west side of corridor and design competition elements</p> <ul style="list-style-type: none"> Construction on the west side of the corridor is targeted to commence in late 2024 and is tracking to be completed by January 2026. The newly installed retaining walls will include the architectural features (surface treatments) selected by the Joint Corridor design competition's community jury (as detailed below). The tentative installation date for these architectural features (i.e., decorative bridge fascia and landscaping) is December 2025.

(Source: Metrolinx, February 29, 2024, Riverside-Leslieville open house presentation boards; March 21 and April 18 Joint Corridor CLC; correspondence with Metrolinx dated February 1, 2024)

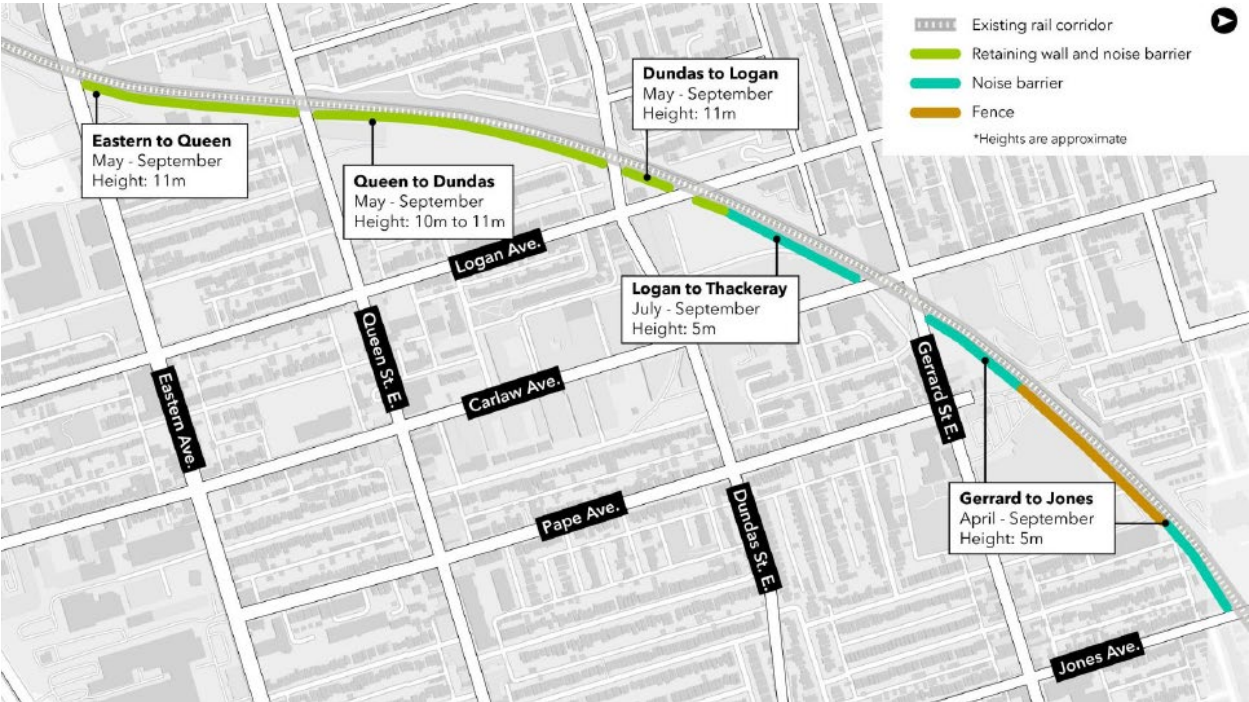


Figure 3: East of corridor Retaining Wall Construction 2024 Timeline Update (retaining wall surface treatments will be included as part of this scope). (Source: Metrolinx, April 18 Joint Corridor CLC)

Jimmie Simpson Park

Work by Metrolinx contractors at Jimmie Simpson Park began on November 10, 2023, to remove the existing, aging retaining wall and build the new retaining wall. Removal of the existing retaining wall will also provide up to three metres of additional linear park space. Construction is currently underway and is estimated to be completed in September 2024. A three-metre-high barrier has been installed to separate the work zone from the playground area for the duration of construction. Metrolinx has completed removal of the existing retaining walls located along the corridor edge at Jimmie

Simpson Park to the satisfaction of the City. Noise barriers will be constructed once the retaining wall is complete.

Noise and Vibration Levels for Ontario Line Operations

As reported by Metrolinx in the Ontario Line Environmental Impact Assessment Report - Noise and Vibration Impact Assessment Report¹, train movements on the Ontario Line are expected to comply with the applicable criteria and standards set by the Province and the City. Pass-by noise from an Ontario Line train is estimated to range from 56 to 78 dBA (A-weighted decibels).

For the Lakeshore East (LSE) Joint Corridor, Ontario Line trains will run along dedicated tracks in the existing rail corridor, alongside GO and VIA Rail trains. The Ontario Line will be electrified, and the noise profile of an electric train is lower than that of a diesel train. Noise barriers of varying heights will be utilized in the LSE joint corridor to mitigate the level of noise that additional trains will cause and remains within the permitted range. As communicated in the open letter to the communities of Riverside and Leslieville, Metrolinx notes that studies undertaken as part of the LSE Joint Corridor Early Works Report showed the new noise walls to be built along the rail corridor from Eastern Avenue to Pape Avenue will result in noise levels that are lower than they are today in most areas of Riverside and Leslieville.

Compared to existing noise levels, Metrolinx has projected that future levels adjacent to the joint corridor where noise barriers are installed will reduce current noise by between 0 dBA to minus 11 (-11) dBA during the day and 0 dBA and minus 12 (-12) dBA at night. For example, noise from passing trains at Jimmie Simpson Recreation Centre, are expected to have an average daytime reduction of 7dB below current conditions based on current designs.

Train movements in the northern sections of the Ontario Line are predicted to comply with applicable criteria with minimal mitigation, based on the assessment of existing design information. Once the Ontario Line is in operation, Metrolinx will continue to engage with the local community including Councillors, and work with the City to manage and mitigate noise and vibration, through continual track and vehicle maintenance, monitoring, and inspections.

Metrolinx has also produced a website with acoustic samples to demonstrate future conditions of the joint corridor area following the construction of the Ontario Line - specifically to show noise levels that would be experienced with and without the noise barrier². Residents can visit the Ontario Line Sound Studio webpage to learn more about the predicted changes in sound levels.

Community Engagement

LSE Joint Corridor Early Works Construction Liaison Committee (CLC)

¹ https://assets.metrolinx.com/image/upload/v1663152363/Documents/Metrolinx/appendix_a6_-_noise_and_vibration_report_-_aoda_v70k5w.pdf

² <https://www.ontariolinesoundstudio.ca/listen/#east1>

Metrolinx currently has eight CLCs for the Ontario Line which meet on a monthly-basis: King-Bathurst Station; Queen-Spadina Station; Osgoode Station; Queen Station; Moss Park Station; Corktown Station; Lakeshore East Joint Corridor Early Works; and Pape Avenue Junior Public School. These CLCs were created to be a forum for two-way communication between the Metrolinx project team and the local community, and timely sharing of information related to Ontario Line construction activities for each specified area. CLC Members include local community groups and organizations, elected officials, City staff, and Metrolinx project team members.

The LSE Joint Corridor Early Works CLC was established in May 2023, with a focus on the Riverside-Leslieville Station and Gerrard Station areas (collectively known as the “LSE Joint Corridor”), and generally meets once a month. Eleven meetings have been held to date, with the most recent one being April 18, 2024³. The next meeting is scheduled for May 16, 2024.

Joint Corridor Design Excellence Working Group

In response to City Council’s request in MM36.48, Metrolinx established the Joint Corridor Design Excellence Working Group (Working Group) in 2022 to collaborate with the Riverside and Leslieville community members on design elements that will be introduced in the joint Lakeshore East GO rail corridor as part of future Ontario Line construction, namely the retaining wall and noise barriers. The group included local community members and organizations, elected officials and project team members that met regularly to discuss design elements such as retaining and noise walls, landscaping and vegetation plans. The Working Group held nine meetings between January 24, 2022, and April 4, 2022.

In addition, between April 2021 and October 2021, Metrolinx hosted four Virtual Open Houses and created a design survey to receive feedback from the Riverside and Leslieville community on the design of the new noise walls, retaining wall options and vegetative landscaping.

Design Excellence in Riverside and Leslieville

As a result of community input from the Working Group, Metrolinx held a design competition to mitigate concerns related to noise, vibration and to enhance the design for the retaining walls and public spaces along the rail corridor in Riverside and Leslieville. The competition, which began June 2022, focused on soliciting design solutions for Metrolinx-funded public realm features, such as retaining walls, noise barriers, and bridges.

The community jury, which consisted of two community leaders, one representative for the Riverside Business Improvement Area, four architecture/urban design professionals, and one City of Toronto employee (the Director of Urban Design from the City Planning Division), carefully reviewed proposals. Canadian design firm O2 Planning and Design

³ <https://www.metrolinx.com/en/projects-and-programs/ontario-line/community-meetings/lse-jc-clc>

Inc. was chosen by the community jury in July 2023⁴. On July 27, 2023, Metrolinx also hosted a community open house at the Jimmie Simpson Recreation Centre where residents learned more about the design competition, the winning designs and construction in the area⁵. Materials were also posted online and include presentation boards with O2's design renderings that detail the design strategy⁶, planting strategy and renderings of the Riverside-Leslieville Station Plaza⁷.

Through *MM36.48 - Design Excellence in Riverside and Leslieville*, City Council directed City staff to report back on the Design Competition, including consideration of whether the competition met City standards for consultation and procurement, and whether the selected design meets the City's Urban Design and Public Realm standards. The Design Competition followed a standard and rigorous process to secure a successful design team and creative design solutions that would enhance the Ontario Line Joint Corridor. The winning design submission included enhancements to the proposed noise barriers, custom design form liners for the retaining walls, artwork, terraced landscapes, seat walls, enhanced tree and perennial planting, trellises, play equipment and canopies, decorative pavers, lighting, furniture, and decorative facades. The City's Director of Urban Design was involved in selecting the winning design as a member of the community jury responsible for awarding the winner of the competition.

Construction of Design Competition Features

Elements from the design competition such as the retaining wall finishes, noise walls, bridge cladding/fascia and under bridge lighting are being completed as part of the LSE Joint Corridor Early Works construction, as outlined earlier in this report. Metrolinx shared images of the final retaining wall finishes (see Figure 4a), and they are aligned with the winning designs, pictured in Figure 4d and 4e.

Some additional design work, including landscaping and station plazas, will be completed as part of future Ontario Line contracts such as the recently awarded Elevated Guideway Stations Contract, as determined by Metrolinx. City staff will be engaged on the design review and will provide updates on this work in future reports to City Council on the Subways Program.

O2's design for the Joint Corridor consists of four zones. Zone 1 is from the Eastern Avenue Overpass Bridge to Queen Street West of the Joint Corridor, Zone 2 is from the Queen Street Overpass Bridge to Dundas Street, Zone 3 is from Dundas Street to the proposed Gerrard Station platform, and Zone 4 is from Gerrard Station to Pape Avenue⁸.

⁴https://assets.metrolinx.com/image/upload/v1690561966/Images/Metrolinx/Community_bulletin_LSE_design_competition_updated.pdf

⁵ <https://www.metrolinx.com/en/projects-and-programs/ontario-line/events/lakeshore-east-joint-corridor-open-house>

⁶ https://assets.metrolinx.com/image/upload/v1690481837/Images/Metrolinx/2022-01-04_O2_Metrolinx_PresentationBoards.pdf

⁷ https://assets.metrolinx.com/image/upload/v1690815044/Images/Metrolinx/2023.07.25_-_Plaza_Board.pdf

⁸ https://assets.metrolinx.com/image/upload/v1690481837/Images/Metrolinx/2022-01-04_O2_Metrolinx_PresentationBoards.pdf

The retaining walls that are being installed in Zones 1 and 2 are currently being fabricated based on the winning design. They are expected to be installed by September 2024, and are pictured below in Figure 4a-4b. The designs for Zone 3 and 4 have not been finalized or shared with the City yet, however O2's design submission stated Zone 3 will focus on concealing and mitigating visual and acoustic impacts, and Zone 4 will focus on connecting with the established cultural communities. Retaining walls in Zone 3 and 4 are expected to begin construction in late 2024, and be completed by January 2026, as part of the Early Works contract.

On top of the retaining walls, noise barriers will be installed through the Joint Corridor area. The noise barriers will be transparent with a bird-friendly pattern applied to them. An industry standard pattern will be used to ensure damaged panels can be easily replaced in the future, while maintaining the design. The patterns meet City of Toronto Green Standards as well as Metrolinx's standards. Figure 4c is an example of where the noise barrier will be located along the retaining wall. Figure 4d-4f are examples of artist renderings, which are conceptual and subject to change in the final design as noted by Metrolinx.



Figure 4a: Retaining wall surface patterns to be installed in Zone 1 (left) and Zone 2 (right). (Source: Metrolinx, March 21 Joint Corridor CLC)



Figure 4b: Fabrication of the Joint Corridor retaining wall system (Source: Metrolinx, March 21 Joint Corridor CLC)



Figure 4c: Rendering of a noise barrier atop of the retaining wall (example to illustrate configuration, is not the final design) (Source: Metrolinx)



Fig. 4d: Artist's rendering of the future retaining wall and noise barrier along the rail corridor in the Saulter Street Parkette. Zone 1 retaining wall surface patterns shown in Fig. 4a will be installed at this location. Additional park amenities pictured are conceptual. (Source: Metrolinx)



Fig. 4e: Artist's rendering of the future retaining wall and noise barrier along the rail corridor in Jimmie Simpson Park. Zone 2 retaining wall surface patterns shown in Fig. 4a will be installed at this location. Additional park amenities pictured are conceptual. (Source: Metrolinx)



Fig. 4f: Artist's rendering of proposed future landscaping in Bruce Mackey Park to help conceal the visual impacts of the noise barriers and passing trains. Zone 2 retaining wall surface patterns shown in fig. 4a will be installed at this location (Source: Metrolinx)

Construction Costs

Metrolinx has advised that the value of the Early Works contract awarded to Dufferin Construction is \$328 million and is fully funded by the Province. Within the contract, Metrolinx advised the cost specifically associated with the retaining wall construction (excluding existing retaining wall removals, grading and drainage) is approximately \$39 million, and approximately \$40 million for noise wall construction, for a total of \$79 million. Both these costs are exclusive of the treatments required for both the retaining and noise walls (custom form liner, etc.). The costs for the design competition elements in the LSE Joint Corridor Early Works is estimated to be an additional \$4.2 million on top of the \$79 million but is pending the final design. These costs are also funded fully by Metrolinx and the Province.

Metrolinx has also agreed to contribute \$170,000 in funds to deliver enhanced playground equipment at Jimmie Simpson Park as part of the Community Benefits delivered by the Ontario Line as noted in TE10.40.

Next Steps

OL South Segments

Major construction is underway for the southern portion of the Ontario Line, including utility relocations, excavation and demolition works, and works to prepare for delivery of new bridges along the LSE Joint Corridor. The construction to replace the old retaining walls and install noise barriers on the east side of the corridor will be complete by September 2024. Retaining and noise wall construction on the west side of the corridor is targeted to begin at the end of the year and be completed by January 2026.

OL North Segments

Infrastructure Ontario (IO) and Metrolinx announced on January 17, 2024, that Pape North Connect was selected to deliver the Pape Tunnel and Underground Stations contract for the northern portion of the Ontario Line. The development phase for this segment is anticipated to take approximately two years to complete. To prepare and facilitate for further development of the Ontario Line, construction around Pape Station such as demolition of buildings and vegetation began in February 2024⁹. By the end of March 2024, construction is expected to begin at Pape Station¹⁰.

OL Thorncliffe Drive Segments

IO and Metrolinx selected Trillium Guideway Partners to deliver the Ontario Line Elevated Guideway and Stations contract On February 20, 2024. The development

⁹ https://assets.metrolinx.com/image/upload/v1710181994/Images/Metrolinx/Oline_-_Pape_Bus_Bay_Construction.pdf

¹⁰ <https://www.ttc.ca/riding-the-ttc/Updates/Pape-Station-construction>

phase for this segment is expected to take approximately 20 months to complete. Once the design development phase is completed, Metrolinx will execute contracts for the delivery of the projects included in the OL Elevated Guideway and Stations contract. More details will be shared by Metrolinx on upcoming construction milestones for the Ontario Line once they are available. Metrolinx has agreed to continue to meet with all the CLCs on a monthly basis and keep the community informed of developments.

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