TORONTO

REPORT FOR ACTION WITH CONFIDENTIAL ATTACHMENT

Supplementary Report on Acceleration of the State of Good Repair Design-Build Contract for the F.G. Gardiner Expressway Rehabilitation Section 2 - Dufferin Street to Strachan Avenue and Enhanced Congestion Management Measures

Date: July 24, 2024
To: City Council
From: Chief Engineer and Executive Director, Engineering and Construction Services, General Manager, Transportation Services, and Chief Procurement Officer, Purchasing and Materials Management
Wards: Ward 10 (Spadina-Fort York)

REASON FOR CONFIDENTIAL INFORMATION

The attachment to this report involves the measures to be applied to negotiations by or on behalf of the municipality or local security and contains technical, commercial, and financial information supplied in confidence to the City of Toronto, which, if disclosed, could reasonably be expected to prejudice significantly the competitive position or interfere significantly with the contractual or other negotiations of a person, group of persons, or organization.

City Council authorize the public release of the confidential instructions to staff once executed, and direct that the balance of Confidential Attachment 1 be released following the completion of Contract Number 22ECS-BE-01GE.

SUMMARY

This is a supplementary report on the Acceleration of the State of Good Repair Design-Build Contract for the F.G. Gardiner Expressway Rehabilitation Section 2 - Dufferin Street to Strachan Avenue and Enhanced Congestion Management Measures, Item EX16.1.

The F.G. Gardiner Expressway is more than 60 years old and is undergoing critical rehabilitation as part of a Strategic Rehabilitation Plan adopted in December 2016.

The current project under the State of Good Repair Design-Build Contract for the F.G. Gardiner Expressway Rehabilitation Section 2 - Dufferin Street to Strachan Avenue, Contract Number 22ECS-BE-01GE (the "Gardiner Section 2 Contract") addresses critical needs between Dufferin Street and Strachan Avenue. This is a complex project that involves the demolition and reconstruction of two lanes of the elevated expressway at a time, while allowing four lanes of traffic to remain open.

Toronto's traffic congestion, exacerbated by construction, costs our economy $11 billion annually (Toronto Region Board of Trade). Given what a key role the Gardiner Expressway plays in our local and regional transportation network, accelerating the Gardiner Section 2 Contract will help reduce travel delay and support further economic recovery in the city and the region.

City Council has directed the General Manager of Transportation Services and the Chief Engineer and Executive Director of Engineering and Construction Services to report back, based on the results of the industry expert workshops held on June 11 and 12, 2024, as well as negotiations with the current contractor, on a plan that includes tangible, implementable measures to advance construction acceleration and congestion management measures.

This report presents information on a plan to accelerate the work under the Gardiner Section 2 Contract.

This report also provides information on the implementation of additional congestion management measures, incorporating recommendations from the industry expert workshops to focus on improving access to get onto the Gardiner, improving traffic flow on feeder routes, and improved signage and traveler communication information.

RECOMMENDATIONS

The Chief Engineer and Executive Director, Engineering and Construction Services, the Chief Procurement Officer, Purchasing and Materials Management, and the General Manager, Transportation Services recommend that:

1. City Council authorize the Chief Engineer and Executive Director, Engineering and Construction Services to negotiate with Grascan Construction Limited for acceleration of the State of Good Repair Design-Build Contract for the F.G. Gardiner Expressway Rehabilitation Section 2 - Dufferin Street to Strachan Avenue, Contract Number 22ECS-BE-01GE to an upset limit identified in Confidential Attachment 1, including fixed costs and incentive (the "Acceleration Payment") and enter into any amending agreements in a form satisfactory to the City Solicitor.

2. City Council authorize the General Manager, Transportation Services and the Chief Engineer and Executive Director, Engineering and Construction Services to enact congestion management measures associated with the State of Good Repair Design-Build Contract for the F.G. Gardiner Expressway Rehabilitation Section 2 - Dufferin Street to Strachan Avenue, Contract Number 22ECS-BE-01GE by retaining resources

and negotiating and entering into agreements or amending agreements as necessary to an upset limit identified in Confidential Attachment 1.

3. City Council adopt the confidential instructions to staff in Confidential Attachment 1.

4. City Council authorize the public release of Confidential Attachment 1 following the completion of the State of Good Repair Design-Build Contract for the F.G. Gardiner Expressway Rehabilitation Section 2 - Dufferin Street to Strachan Avenue, Contract Number 22ECS-BE-01GE.

FINANCIAL IMPACT

The financial implications of accelerating construction under the Gardiner Section 2 Contract are discussed in Confidential Attachment 1.

The financial implications of enacting congestion management measures are discussed in Confidential Attachment 1.

COMMENTS

Project Background

The F.G. Gardiner Expressway has been in service for more than 60 years and is approaching the end of its original design life. To address this, a Strategic Rehabilitation Plan consisting of six complex projects was adopted by City Council in December 2016. Section 1 construction work between Jarvis Street and Cherry Street was completed in 2021.

The current project, Gardiner Section 2, addresses the urgent rehabilitation needs between Dufferin Street and Strachan Avenue.

The procurement strategy for this project used a Design-Build approach to encourage innovation and mitigate construction-related risks for the City. The Request for Proposals process involved separate technical and financial submissions. The bidders were evaluated on their technical approach to the work including construction staging and sequencing, lane closures, traffic impact strategy, compliance with the project constraints and overall project schedule.

Since the work takes place close to residential neighbourhoods, constraints were included in the Gardiner Section 2 Contract to limit the impact of overnight noise. Drawing on the lessons learned from Gardiner Section 1 (Jarvis Street to Cherry Street) the generation of excessive noise is restricted between the hours of 11 p.m. and 7 a.m., with exceptions for work required over the Exhibition GO Station and the TTC streetcar Exhibition Loop, which must take place overnight to avoid impact to daytime transit operations.

Multiple additional constraints and risks impacted the development of the project schedule:

- Significant site constraints: the proximity to the Metrolinx Ontario Line Exhibition Station construction project requires the Contractor to provide continuous access for Metrolinx's contractor through the Gardiner work zone.
- Requiring continuous public access to adjacent transit services: the Contractor is required to maintain public access to the Exhibition GO Station and the TTC streetcar Exhibition Loop despite major demolition and reconstruction overhead. The Contractor must avoid impacting these key transit stations.
- Maintain access to Exhibition Place and local special event venues: the Contractor must provide clear access to Exhibition Place, which is just to the south of the work zone, including during events at BMO Field, Coca-Cola Coliseum, Enercare Centre and numerous significant special events.
- Return full capacity of the Gardiner during FIFA World Cup: Critically, the Contractor must ensure that full capacity of the Gardiner (3 lanes in each direction) is open during the FIFA World Cup.

City staff structured the existing Gardiner Section 2 Contract to reflect the project constraints noted above and the financial challenges facing the City at the time. This period was also marked by high inflation, escalating material costs, and shortages of skilled labour. City staff had to work within these constraints to ensure the project's financial feasibility.

Both prequalified proponents exceeded the initial $240 million Affordability Threshold (proposed maximum budget) which underscores the project's complexity, risk and substantial cost to deliver. After comprehensive evaluation, Grascan Construction Limited (the "Contractor") was selected as the preferred proponent based on price and their ability to meet project requirements.

The Gardiner Section 2 Contract was awarded to Grascan Construction Limited on October 30, 2023, for $260,250,000 net of all taxes and charges. A contingency allowance of an additional $40,000,000 net of all taxes and charges is available to the Chief Engineer and Executive Director, Engineering and Construction Services for the Project as may be required.

Project Details and Current Schedule

The Gardiner Section 2 Contract includes full demolition and rebuilding of 700 metres of the elevated roadway (including the concrete deck and concrete and steel girders); and rehabilitating the supporting substructure from the west abutment (approximately 340 metres east of Dufferin Street) to Bent 35 (approximately 280 metres west of Strachan Avenue), including modifying 35 vertical piers (also known as bents).

This section of the expressway is narrow, limiting space for the work zone and complicating the accommodation of high traffic volumes during construction. The Contractor must replace the superstructure (girders and concrete deck) while keeping two lanes of traffic open in each direction. Temporary supports must be constructed

before each demolition stage to ensure the stability and safety of the structure. This complex operation involves shifting traffic and reducing lanes in three stages:

Stage 1: South portion (current stage)
Stage 2: Centre portion (timing in contract: pre-FIFA)
Stage 3: North portion (timing in contract: post-FIFA)

The current project schedule requires the Contactor to complete Stages 1 and 2 by April 15, 2026, in order to allow for three lanes of traffic in each direction (full capacity) to be open during the FIFA World Cup. Stage 3 is currently scheduled to commence following the FIFA World Cup with final completion in mid-2027.

Project Acceleration Assessment and Planning

Commencing demolition was essential to understanding the project's on-ground realities and the probability of accelerating the work. Since the start of Stage 1 demolition in early May 2024, City staff and the Contractor have closely monitored the pace of work, which is critical to the overall project schedule and potential for acceleration. The pace of work achieved by the Contractor has presented opportunities for collaboration with City staff to determine options to accelerate the construction.

The commencement of demolition also allowed City staff and the Contractor to evaluate noise levels in the nearby residential areas. At the beginning of Stage 1 demolition, which started at the southwest corner of the site, noise readings were lower than expected and within the noise limits. However, as demolition progressed towards the east, closer to the residential areas, increased noise levels were identified in the readings, with occasional noise level exceedances, especially during overnight demolition over the Exhibition GO station and TTC streetcar loop. Monitoring of noise impacts and assessing the feasibility of increased overnight work has been reviewed as part of evaluating the feasibility of project acceleration.

Given that this design-build Gardiner Section 2 Contract has already been awarded, it is not feasible to issue a competitive bid to implement an acceleration plan. Therefore, a critical strategy for accelerating the project involves negotiating with the current Contractor. Accordingly, an acceleration plan has been developed by collaborating with the Contractor and industry experts during the Construction Acceleration Workshop which took place on June 12, 2024.

At the Construction Acceleration Workshop, participants included representatives from the Contractor as well as other highly experienced professionals with global expertise in various aspects of bridge engineering and construction. The collective experience of the participants spans project management, structural analysis, and design for large-scale infrastructure projects and the involvement in significant projects such as the Bayonne Bridge, the Tappan Zee Bridge, and the Governor Mario M. Cuomo Bridge. Backgrounds include leadership roles in both the public and private sectors, with a focus on innovative engineering solutions, sustainability, and safety in bridge construction.

The industry experts assessed the Contractor's work and schedule. They found that the Contractor demonstrates a high degree of skill in performing the work. The experts focused their efforts on strategies to speed up the Contractor's existing processes by removing constraints and adjusting critical activities. Assessing the acceleration potential required an assessment of each component of the work, as well as an evaluation of which project constraints could be modified or adjusted to support compressing the project schedule.

Evaluation of the acceleration potential of the project has been undertaken within the following parameters: 2 lanes of traffic in each direction to remain open, with additional overnight and/or weekend lane closures; Exhibition GO Station to remain open during operating hours; access to the lands adjacent to and under the Gardiner must be provided to the Metrolinx Ontario Line Project in accordance with the existing Agreement; Exhibition Place events must be accommodated as per the terms of the Gardiner Section 2 Contract; and 3 lanes of traffic in each direction must be open during the FIFA World Cup.

Assessment of the feasibility of undertaking 24/7 construction has been undertaken with the Contractor and industry experts. Adding additional crews and shifts of workers, including overnight work, can provide project acceleration during several phases of the work. However, true 24/7 operations are typically only feasible during short term intensive operations. The recommended shifts for accelerated construction on a project of this magnitude, based on industry standards and best practices, include two 10-hour shifts, 6-days per week allowing for efficient crew changes, worker safety and site preparation. A seventh workday can be added if necessary to make up time lost due to inclement weather or to ensure critical path activities are on track to meet accelerated milestone targets. During any down time between work shifts the Contractor may undertake activities to ensure that continuous operations can occur during the operating hours. These activities include moving equipment in and out of the site to prepare for various stages of the work, preparing for material deliveries, setting up for concrete pours, health and safety reviews, and on-going maintenance of equipment both on and off the site.

Prefabrication technology is a critical component of the planned reconstruction of the expressway that is being implemented by the Contractor. The existing superstructure system of concrete and steel girders is being replaced by precast concrete box girders. The new structure requires 705 precast concrete boxes which are being fabricated off-site in parallel with the ongoing Stage 1 demolition. The proposed acceleration plan includes faster production of the girders to ensure they are ready for installation in accordance with the accelerated schedule, further enhancing efficiency. In addition, as a result of the industry expert workshop, changes to the design of some of the girders to minimize the time it takes on site to build the elevated expressway are being evaluated.

Assessment and Planning Findings

Industry experts from the workshop, City staff, and the Contractor have evaluated the planned project schedule, the current pace of demolition, and opportunities for project acceleration in the various components of the work. Findings indicate that the pursuit of an acceleration schedule is possible.

Acceleration Plan Proposal

In response to City Council's request for construction acceleration and by leveraging industry experts, a plan to expedite the work has been developed. Grascan Construction Limited has provided a proposal to achieve a modified completion of Gardiner Section 2 before the FIFA World Cup in 2026 (target April 15, 2026). The Contractor would return to the Gardiner post-FIFA for two (2) weekends for median and final paving. Achieving this Pre-FIFA target goal is contingent on many factors, including weather, constraints, resources, and approvals.

If all three stages are not completed before FIFA, the acceleration plan will switch to a fallback target where the Contractor will accelerate Stage 1 and Stage 2, and re-open the expressway 4 to 6 months in advance of April 15, 2026. The Contractor will then return for Stage 3 after the FIFA World Cup and complete and accelerate construction of the final two lanes (Stage 3) to achieve overall early completion ahead of the Gardiner Section 2 Contract milestone date of April 23, 2027.

The submitted acceleration proposal includes but is not limited to adding additional crews of workers, extending the working hours, additional equipment to facilitate faster demolition, temporary lighting for additional night work, additional equipment to facilitate concrete curing in winter, additional winter heat and protection and additional snow and ice clearing, modifying techniques for removing steel girders, securing additional precast beds for fabrication of precast concrete box girders, accelerated fabrication and delivery of bearings and expansion joints, accelerated rebar production, additional parapet wall forms, extending hours of concrete and asphalt plants to facilitate deliveries outside of regular operating hours, and asphalt, waterproofing, and line marking premiums for winter operations.

To maintain the integrity of the ongoing negotiation process with the Contractor, further details about the proposal are provided in Confidential Attachment 1.

Managing the Congestion Impacts

Congestion Management is an integral part of the project. On June 11, 2024, a workshop was held with industry experts to explore further opportunities to improve traffic operations. Between the workshop findings and subsequent planning sessions, four critical areas of focus have been identified to help mitigate the congestion impacts.

Congestion management measures to support the acceleration of the Gardiner Section 2 construction will be included as part of the Congestion Management update that is scheduled to be considered by the Infrastructure and Environment Committee in September 2024.

Getting People on the Gardiner

Currently, eastbound motorists can only go north on Spadina Avenue via the eastbound Gardiner off-ramp at British Columbia Drive. The construction acceleration workshop identified the opportunity to redesign the intersection at Gardiner/Lake Shore and Spadina to introduce an alternate eastbound option to access Spadina Avenue from

Lake Shore Boulevard. This would make the eastbound Lake Shore a viable option for people coming into the City and create the opportunity to divert a significant amount of traffic off of the Gardiner and away from the construction area by leveraging underutilized capacity on Lake Shore Blvd. Upstream electronic variable message signs can be used to inform the public of this option as well as provide travel time information to try to encourage people to stay on the eastbound Lake Shore which is underutilized past British Columbia Drive.

For westbound commuters trying to leave the City, earlier efforts identified the opportunity to temporarily extend the westbound Jameson Ave on-ramp such that it could be opened. This increases the opportunity for westbound traffic to use Lake Shore Blvd to get past the construction area. It is proposed to further improve operations by:

- Making the Jameson on-ramp extension semi-permanent by implementing flex posts/bollards. This would prohibit westbound cars in the left lane of Lake Shore Boulevard from cutting the Gardiner on-ramp queue and impacting the flow of traffic.
- Adding a northbound left turn signal phase (i.e., left turn green arrow) at Jameson Ave to support new queuing of northbound left traffic on Jameson gaining access to the Gardiner on-ramp.
- Providing Travel time Variable Message Signs upstream on Lake Shore Blvd. The advance messaging would enable westbound traffic to decide whether to stay on Lake Shore Blvd. or to get on the Gardiner.

Getting People to the Gardiner: Strategies to Keep Traffic Moving on North/South and East/West Corridors Impacted by the Gardiner Closures

The north/south major arterials such as Jarvis/Lower Jarvis Street, Yonge Street, York Street, Spadina Avenue, Dufferin Street, The Queensway and Jameson Avenue that feed onto the Gardiner Expressway need to have a much higher level of traffic management support applied. Traffic congestion on these routes not only compound the overall travel time for commuters trying to get to the Gardiner but, also have significant impacts on east/west corridors supporting transit.

Staff will also use travel time and traffic flow data to identify where there are issues within the arterial road network and from that identify the strategies and solutions that would be most appropriate to alleviate or mitigate them. Based on this analysis, more rigorous measures will be implemented including:

- A review of all City construction activities taking place on the north/south and east/west streets to see which projects could be either accelerated or held in order to open up the streets sooner and regain the necessary capacity on the streets until such time as the Gardiner Section 2 work is complete.
- Placing a hold on all non-essential utility work on these north/south and east/west corridors essentially establishing 'no-fly' zones.
- Revisiting rush-hour parking restrictions and/or implementing no-stopping regulations if not already in place along these key corridors.
- Implementing Intelligent Intersection technology at critical intersections along these corridors to allow for real-time suggestions to RESCU traffic operations staff on

signal timing adjustments that can be made in response to variations in traffic patterns.
- Implementing Transit Signal Priority, a technology that automatically detects and favours transit operations at traffic signals where feasible.
- Implementation of Bluetooth readers and arterial travel time variable message signs along key routes to better help commuters navigate the network and be made aware of any incidents or emergency construction work that may impede specific routes and provide some alternative options.
- Deployment of additional traffic agents at critical intersections to keep all modes of travel moving safely and efficiently through the pinch points on the road network.

The evaluation of all active and planned construction projects along adjacent traffic corridors is already underway to access opportunities for acceleration or deferral of existing work. Preliminary work on reviewing future planned projects has started and further efforts will be integrated into the 2025 capital coordination and contract review strategy.

More Rigorous Traffic Management Coordination and Planning Around Special Events

Since the end of the COVID-19 public health crisis, the City of Toronto has experienced a resurgence of special events, especially during the summer months. Managing traffic around these events is critical, even more so now with the lane closures on Gardiner Section 2 being compounded by closures associated with ongoing construction projects such as watermain work and TTC track reconstruction on King Street and other major construction projects, e.g., Ontario Line. This is particularly more important in Liberty Village where there is a significant need for enhanced coordination and support for traffic and congestion management.

City staff recently created the Special Event Advisory Team (SEAT), led by Economic Development and Culture and Transportation Services. SEAT is comprised of various City Divisions and Operating Partners including Toronto Police, Toronto Emergency Management, Toronto Paramedics, TTC and Toronto Fire Services. Its primary goal is to enhance inter-divisional and inter-agency coordination for planning and execution of special events in the city. SEAT centralizes decision-making regarding these events, with a focus on early coordination of major events. Coordination through SEAT will include traffic modelling to address compounded congestion issues in areas with multiple small events.

Transportation Services has also established a Traffic Event Management Planning (TEMP) unit to focus on developing comprehensive traffic management strategies for special events. These strategies aim to mitigate congestion and ensure safe and efficient transportation for people to and from events. The TEMP unit has had some early success in managing traffic congestion during major 2024 events including home games at major venues like BMO Field and Rogers Centre. Enhanced traffic management plans and/or support were also implemented to provide better traffic flow during the Bike for Brain Health, Do West Festival, Pride Parade and Dragon Boat Race Festival events. Advanced traffic management planning is also underway for Caribbean Carnival and the Taylor Swift concert series all coming this year. This year, TEMP has already deployed over 670 signal timing adjustments, 420 Traffic Agent hours, 192

Traffic Control Personnel hours, seven (7) portable variable message sign deployments and three (3) new traffic camera installations in support of special events.

As the teams continue to coordinate special events through the summer, particular attention will be paid to Liberty Village given the impacts of both the Gardiner Section 2 lane closures and the King Street closures. A review of the special events calendar provides staff with all of the necessary dates whereby there are combinations of Toronto FC games and LiveNation events that generate significant traffic from attendees trying to access/egress parking. The following are proposed measures to be reviewed and/or implemented:

- Dedicated traffic agents being deployed particularly on East Liberty on weekends when a number of special events are occurring.
- Dedicated traffic control personnel to be deployed at parking lots to support traffic accessing and egressing the parking facilities.
- Review of the traffic signal lights in the neighbourhood to identify the necessary signal modifications (e.g., additions of dedicated left-turn phases) to help support traffic trying to get from East Liberty onto Dufferin.
- Establishing a 'no-fly' zone policy for any non-essential utility work as well as a hold on any crane hoist work on weekends when both Toronto FC and LiveNation have events occurring.
- Reviewing parking restrictions and coming up with a strategy to temporarily relocate permit parking off the road during times when special events are ending and there is heavy traffic flow out of the area.
- Reviewing the neighbourhood to see if it is possible to establish dedicated rideshare pick-up spots and to seek support from Toronto Police in enforcing the no-parking, no-stopping restrictions elsewhere (i.e., mitigating the impacts of rideshare vehicles stopping and blocking routes into or out of the neighbourhood) when the special events end.
- Leveraging traffic simulation models to see if more dramatic temporary changes can be made to surrounding streets to improve traffic movement (e.g. temporary addition of turn movements where traditionally prohibited, temporary implementation of parking restrictions, temporary conversions of one-way streets to two-way street operations).

Ease Commuter Movement into and Out of the City

The workshop team proposed that City staff should fully engage the Downtown BIAs and the major downtown employers, as well as employers across the GTA, in an effort to strongly promote carpooling and transit options for commuting reliably into and out of the City. While this was downtown focused to reflect that delays are primarily related to movement to (morning peak) and from (evening peak) the downtown, the engagement strategy should be broader to also reflect travellers commuting from further distances. This engagement campaign would also be the opportunity to incorporate the idea of employers encouraging their workforces to go into the workplace on Mondays and Fridays where historically traffic volumes have been lighter. These efforts will need to be made in partnership with GO Transit at the regional level and the TTC at the local level to incentivize the use of transit.

Further details about the cost of the congestion management measures and an implementation strategy are provided in Confidential Attachment 1.

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ATTACHMENTS

Confidential Attachment 1: Acceleration of Gardiner Section 2 and Enhanced Congestion Management Measures