Rail Safety Strategy

Peer Review Letter of Response

2150 Lake Shore Boulevard West
Park Lawn GO Station

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1. Introduction

1.1 The intention of this document is to provide a response to the City of Toronto's peer review of the Rail Safety Strategy for 2150 Lake Shore Boulevard West.

1.2 On May 28, 2020, the Owners (First Capital (Park Lawn) Corporation and 2253213 Ontario Limited) and Hatch received the peer review response to the Rail Safety Strategy for the proposed development at 2150-2194 Lake Shore Boulevard West and 23 Park Lawn Road, Toronto, ON that was submitted as part of the OPA application in October 2019.

1.3 A more detailed *Rail Safety and Development Viability Assessment* report was submitted to the City of Toronto by the Property owner in May 2020 as part of the Zoning By-law Amendment (ZBA) and Draft Plan of Subdivision (DPS) application, and Official Plan. At this time, comments and feedback on the Rail Safety Strategy had not been provided.

1.4 The Rail Safety Strategy and peer review response are now superseded and/or out-of-date. The preferred option was identified and advanced in further detail in the Rail Safety and Development Viability Assessment report submitted in May 2020.

1.5 The current rail safety measures proposed respond to, first and foremost, the need to protect the buildings and their occupants from rail-related activities and operations.

1.6 The current rail safety measures proposed also consider the rail operator's ability to effectively operate and maintain their service and infrastructure for the long-term future.

1.7 The rail safety measures also (and importantly) consider the context of the site – a new passenger train station, Park Lawn GO. The entire property line shared between 2150 Lake Shore Boulevard West and the rail corridor is proposed to be fully developed into a 300m + long station facility. An integrated station and platform running the length of the property line that encourages access to the rail corridor must also be considered; this runs contrary to many of the guiding principles in the FCM/RAC Guidelines and other applicable 'Railway Adjacent Development Guidelines' where the general intention is to discourage and inhibit any interaction with the rail corridor.

1.8 The purpose of the Rail Safety Strategy, submitted in 2019, was to present to the City and the Owners different development scenarios and how the rail safety requirements might be achieved were they to proceed. The preferred design option has since been carried forward for further refinement and detailed planning.

1.9 The initial Rail Safety Strategy (2019) was prepared at a high level as many of the specific details of the station had not been discussed at that time. During the preparation of the initial Rail Safety Strategy, many details of the project and much of the information requested in the peer review response was not available. Most of the information requested was however included in the May 19, 2020 submission of the Rail Safety Assessment.

1.10 This letter is in response to the peer review report received on May 28, 2020 (written by WSP, dated March 3, 2020) and is intended to be submitted to the City of Toronto for follow up with the peer-review team, as needed.

2. Review and Comments

Hatch reviewed the report submitted by WSP to the City of Toronto and notes the following

Page No.	Peer Review Comment	Hatch Response	*Status O / C / PA
10	"The Property is in The Queensway Humber Bay neighborhood in the eastern end of Toronto, between the Gardiner Expressway and Lakeshore Boulevard West (See Figure 1 for location plan)."	Note: Should read 'western end of Toronto'.	
10	"Due to the proximity of the project site to an active Principal Main line corridor, the installation of a safety barrier along an extent of the southern proposed development boundary is proposed."	The safety barrier is planned to be constructed close to the northern property boundary	
Page 10	"As it is noted in the RSP, the proposed development is partially within, and over the air rights of the rail corridor and aims to integrate the private and public spaces."	This has been superseded. Most recent Rail Safety Assessment clarifies the preferred option. The current design does not encroach the airspace above the rail corridor.	
Page 12	"According to Land Use Study, Exhibit 2-1, the total volume of trains at Oakville Subdivision is 205 train per day, and the Permissible speed of trains at Oakville Subdivision is 95 mph. Therefore, the track design speed of 95 mph shall be used in the design of safety barriers for the proposed development."	Track design speeds, as confirmed by Metrolinx, at the site is 75mph for GO, 80mph for VIA and 60mph for freight. Written confirmation from Metrolinx is attached with this response. The crash wall is planned to be design based on the existing rail corridor speeds at the site, consistent with best practices and the existing guidelines.	
Page 16	"The RSR also proposes overhangs above the station area. The nature of these overhangs is not specified in the RSR besides that they will be designed to maintain the minimum operating height requirements for GO and TTC electrification."	Noted. See updated report and design. The catenary systems necessary for both TTC and GO will require close consultation with affected stakeholders during construction. Minimum design standards will apply for vertical and horizontal clearances.	
Page 16	"The RSR proposes that crash colonnades and/or bollards are used as safety barriers. A Crash wall is the standard safety barrier recommended by the guidelines for development adjacent to railway corridor, however RSR states that the crash colonnades and/or bollards would allow for unobstructed pedestrian flow in and out of the proposed GO station. The characteristics of the proposed safety barriers and their compliance with the guideline requirements are described in detail in Section 3.0 of this report."	Superseded. The strategy proposed crash colonnades / bollards / columns as an option, but they are not currently proposed in the most recent plan. The current Rail Safety Assessment includes the proposal for a continuous crash wall against both building blocks D1 and D2. The most recent submission (ZBA/DPS Application and OPA resubmission) includes details of the preferred crash wall options.	
Page 19	"3.1.2 SETBACK ANALYSIS: DISTANCE" Section	This response is in regards to section 3.1.2. The various options were presented to provide a baseline from which to develop the preferred option. It was not the intent for these options to be peer reviewed as they do not contain a sufficient level of information necessary to inform the peer review team. The most recent submission of the Rail Safety Assessment identifies and explains the preferred option for the development and provides more information than the previously submitted rail safety strategy.	

*Status O = Open
C = Closed
PA = Pending Approval (with additional information and/or detail necessary)

Page 20	"WSP recommends increasing the total setback distance to 30m to comply with the Guidelines; however, Section 1.4 of the RSR states that Metrolinx has accepted the reduced combined vertical and horizontal setbacks of as low as 20m (see Page 17 of the RSR). It is ultimately up to authorities having jurisdiction to approve the proposed setback distance and the Developer to obtain such approvals."	This response is in regard to items A-D on page 20 of the peer review: a). Hatch agrees with the interpretation of the guidelines. Early engagement with the rail operator (as recommended by the guidelines) concluded that a reduction in the total setback would be considered acceptable when a crash wall is built that exceeds the minimum height requirements, consistent with similar development sites in the GTA. The most up-to-date Rail Safety Assessment maintains a 25m total setback, as agreed upon with the rail operator. b). The proposed setback is measured from the edge of the platform, which the rail operator deemed acceptable in the 2019 engagement with the Third-Party Projects Review and New Stations Planning teams. The most recent Rail Safety Assessment includes written confirmation from Metrolinx of this approval. While it is acknowledged that a standard development next to the rail corridor would measure the setback from the property line, special consideration should be given to the context of the site. Interaction with the rail corridor, as far as the edge of the platform is facilitated and encouraged at this site. c). No longer applicable. The most recent Rail Safety Assessment clarifies this option and provides additional details and specifications. d). The Property Owner will coordinate all works with Metrolinx and ensure that all designs meet the necessary minimum requirements of the TTC.	
Page 21	"Structural elements (scenarios 2 and 3): These elements support the sensitive uses spaces above. Typically, it is recommended to locate the structural elements supporting sensitive spaces outside of the setback area, however since these elements are proposed to be protected by a secondary line of safety barriers (in addition to the first line of safety barrier closest to the rail corridor to provide defense against a train derailment), WSP finds the proposed approach acceptable."	This option (overhang, overbuild) is not pursued in the current, preferred option. Multiple safety barriers were not considered in the refined Rail Safety and Development Viability Assessment report. The most recent report provides clarity on the extent and location of the proposed crash wall.	
Page 22	"3.2 Safety Barrier: A, B" Section	This is in response to Section 3.2 Safety Barriers, comment A and B: A continuous crash wall has been identified as the preferred option instead of colonnades and/or bollards. Several openings in the crash wall are currently being explored to allow for connectivity between the development and the station. The final crash wall design will be reviewed by Metrolinx's technical advisor, AECOM, upon completion of detailed design. The details of this review and assessment will be made available to the City's peer review team upon completion.	
Page 22	"3.2 Safety Barrier: C" Section	This is in response to Section 3.2 Safety Barriers, comment C: This comment has been addressed in the most recent Rail Safety Assessment submitted as part of the ZBA/DPS Application and OPA resubmission package. The setbacks and high-level crash wall specifications are included in the most recent report. A 25-metre setback, measured from the edge of the platform to the closest sensitive use, is proposed.	
Page 23	"The RSR does not summarise the accident/incident history of the Oakville Subdivision in the area of the development location. Also, potential hazards and mitigating measures for identified hazards are not identified in the RSR."	The current Rail Safety Assessment provides an overview of the historical railway incidents in the vicinity of the site. The initial Rail Safety Strategy that was reviewed did not include this information as it was not intended to be peer reviewed.	
Page 24	"3.4.1 Trespassing" Section	This is in response to Section 3.4.1: The most recent Rail Safety Assessment considers the possibility of trespassing. The Owners are working with Metrolinx to determine the appropriate measures to secure the station and limit access to the rail corridor outside of operating hours. These measures will be included in the final Rail Safety Assessment at the SPA stage.	

Page 24	"3.4.2 Noise and Vibration" Section	This is in response to Section 3.4.2. The most recent Rail Safety Assessment includes mention of Noise and Vibration mitigation. A separate Noise and Vibration Assessment has now been conducted and is included as part of the current OPA/ZBA/DBS resubmission (February 2021).	
Page 26	"The existing railway corridor infrastructure, including the signal frame and the structural framing on the east boundary of the proposed development with the railway corridor, shall be protected and maintained during and after construction."	The anticipated construction of the relief road and planned upgrades within the rail corridor may result in the removal or relocation of this infrastructure during construction. Discussions are underway with the rail operator to discuss the details of this work. However, the rail operator will be consulted before any construction work that could impact the rail right-of-way or any of the infrastructure within their property limits.	
Page 27	: "3.4.2 Noise and Vibration" Section	This is in response to Section 3.5 Other Studies: A Noise and Vibration Assessment has been prepared as part of the rezoning application, should the City's peer review team wish to review.	
Page 28	"4.0 Conclusions and Recommendations: Comment 1" The RSR suggests the use of safety barriers integrated with the proposed development for mitigating the potential risk and damage of impacts from train operations. Since the standard mitigation requirements for development adjacent to a railway corridor (30m horizontal setback from the railway property line and an earthen berm as safety barrier) cannot be met due to the site limited space, the concept of utilizing a safety barrier to allow a combination of horizontal and vertical setback distances found to be in general compliance with FCM/RAC guidelines. Please see item 6 below regarding the setback distance	Noted. No action required.	
Page 28	"4.0 Conclusions and Recommendations: Comment 2" It is recommended that as part of future development documents, the Developer submit to Metrolinx the detailed plans and considerations of the proposed development with respect to the future development plans for railway corridor, including the allowance for electrification of the corridor and the future traffic volume of the corridor, for review and approval, to ensure that the existing and future rail corridor operations are fully considered (see Section 2.2.2).	The proposed mitigation measures have been accepted, in principle, by the rail operator. As part of this development site, Park Lawn GO Station will be designed to all Metrolinx standards and will be built to meet all future rail corridor requirements for signalling, electrification, expansion, etc. The Owners will work closely with Metrolinx to ensure the functional station requirements are completely satisfied.	
Page 28	"4.0 Conclusions and Recommendations: Comment 3" The RSR does not include any plans or sketches with accurate measurement from the railway corridor property lines to the proposed safety barriers or development. The Consultant to confirm that the encroachment of private development into Metrolinx property is coordinated with Metrolinx and necessary property easement agreements will be in place prior to any advanced design and construction (see Section 2.3.1).	The recently submitted Rail Safety and Development Viability Assessment (as part of the ZBA application) includes measurements that indicate the property line distance to the closest proposed buildings and crash wall. Property easements may be required but the details of this are not known at this time. The Owners understands that any easement and encroachment into the rail corridor must be carefully coordinated with the rail operator to ensure that railway operations remained wholly unaffected by the development site. Importantly, the delivery of the new GO Station will drive the design standards and the construction requirements as well as any easements into the development site. Inevitably, construction of the new station and platforms will require access to the rail corridor. The necessary property agreements will be in place prior to any construction activities.	

Page 28	"4.0 Conclusions and Recommendations: Comment 4" A detailed survey of the site shall be performed prior to advancing the design of the safety barrier. It is recommended to extend the survey area to cover the full length of the development land, and the full width of the rail corridor land. This will provide a basis for crash load calculations and safety barrier dimensioning, as well as keeping a record of the track alignments at the time of the crash wall design. This will be helpful for any future vertical or horizontal track re-alignment design and/or rail capacity improvements (see Section 2.3.1).	A detailed survey of the site was undertaken in late 2019. This has been considered in the most recent Rail Safety Assessment. A detailed survey of the rail corridor will also be provided in the final Rail Safety Assessment submitted during the SPA stage following the re-zoning of the site.	
Page 28	"4.0 Conclusions and Recommendations: Comment 5" If an overbuild to be constructed above the railway corridor as shown in Figure 5 of the RSR, there shall be no physical intrusion into the railway corridor (i.e. structural columns supporting the overbuild). The minimum vertical clearances above the railway corridor shall be coordinated and approved by Metrolinx (see section 2.3.4).	The current plan does not include overbuild. This is no longer applicable to the development site and has been superseded in the 2020 report.	
Page 28	"4.0 Conclusions and Recommendations: Comment 6 It is recommended to increase the proposed 15-25 m total combined horizontal and vertical setback distances to 30 m, in order to comply with the guidelines. It is ultimately up to authorities having jurisdiction to approve the proposed setback distance and Developer to obtain such approvals (See Section 3.1.2).	This comment is not entirely applicable. The preferred option and total allowable setback have been updated in the most recent version of the Rail Safety Assessment submitted to the City in May 2020, prior to receiving WSP's peer review. A 25m setback has been proposed, measured from the edge of platform. This is consistent with feedback provided by Metrolinx in 2019 and 2020.	
Page 29	"4.0 Conclusions and Recommendations: Comment 7" The proposed setback distances in the RSR are measured from the edge of the closest track's dynamic train envelope. This is not in compliance with FCM/RAC Guidelines, which requires the setback distances to be measured from the railway corridor property line (See Section 3.1.2).	The most recent submission of the Rail Safety Assessment clarifies that the setback is measured from the edge of the platform. This approach was taken after initial engagement with Metrolinx. We understand that the setback is typically taken from the rail corridor property line. This is not consistent with the guidelines in that sense. However, the setback being measured from the property line is not a matter of safety. The setback is recommended to be measured from the mutual property line so that the rail operator may maintain full flexibility to expand their railway operations in the future. Metrolinx has asked that the new GO station be designed to protect for future track expansion. We have included confirmation from Metrolinx that the rail setback may be taken from the edge of the platform in the updated Rail Safety Assessment. Additionally, the construction of a new station represents a long-term commitment by Metrolinx to maintain the rail corridor alignment at the station. As such, an alternative approach to rail safety has been proposed that reflects the general intention of the guidelines while recognizing that there is a large gap in information regarding new developments at train stations. A package of mitigation measures are proposed that work together to protect the people and property from the railway operations. It is understood that the risk cannot ever be completely eliminated but rather, appropriately mitigated. We consider the alternative approach to offer an equivalent level of protection as the standard measure, particularly given the superior protective capabilities of a crash wall.	

Page 29	"4.0 Conclusions and Recommendations: Comment 8" There is no fundamental difference between the safety measures proposed for the three scenarios shown in Figures 3, 4 and 5 of the RSR and it is not clear why the setback is arbitrarily reduced from the required 30 m setback (according to the guidelines) to 25 m, 20 m and 15 m in scenarios 1 to 3, respectively (See Section 3.1.2).	This has been clarified in the most recent Rail Safety Assessment. These were meant to be presented as options for development. Given the lack of guidelines around overbuild, Hatch, in consultation with the rail operator, developed several scenarios to present to the client/municipality if overbuild was considered in the design. However, the most recent application May 2020 submission does not include overbuild. The most recent Rail Safety Assessment provides more detail on the preferred option.	
Page 29	"4.0 Conclusions and Recommendations: Comment 9" The horizontal clearance from the proposed streetcars to adjacent safety barriers and structural columns, and the minimum vertical clearances to be coordinated and approved by TTC (See Section 3.1.2).	Response to Conclusions and Recommendations Comment 9: Noted. The TTC will be consulted to ensure the proposed development meets the minimum clearance for TTC operations, including turning radius, passenger waiting areas/shelters, electrification and OCS poles, etc.	
Page 29	"4.0 Conclusions and Recommendations: Comment 10" The RSR does not provide any details about the analysis or design of the safety barriers, and it is understood (and recommended) that those details, including the height and spacing of the safety barriers, will be provided in the future Rail Safety and Development Viability Assessment Report and future design documents. The analysis shall prove that the proposed safety barriers will provide the equivalent resistance in the case of a derailment as a standard berm (See Section 3.2).	Response to Conclusions and Recommendations Comment 10: This has been clarified in the most recent Rail Safety Assessment. The most recent ZBA submission provides detailed measurements related to the setbacks, specification of the proposed crash wall, as well as the energy balance calculations to inform the crash wall design loads. The detailed design of the crash wall will be submitted for review to the rail operator and municipality during the subsequent SPA stage.	
Page 29	"4.0 Conclusions and Recommendations: Comment 11" The Consultant to clarify how the flying debris, fire and smoke protection will be provided in case of a train derailment. The crash colonnades/bollards do not provide continuity unlike a typical crash wall (See Section 3.2).	Response to Conclusions and Recommendations Comment 11: Colonnades are no longer considered in the design of Park Lawn GO. The wall will be designed using the standard AECOM crash wall guidelines to ensure that the wall provides the necessary resistance and protection. Wall returns are also included to protect the sides of the new development from a derailed train. As per the recommendations in the updated report, explosion resistant glass and other design measures are being explored to ensure protect the development from risk of fire, explosion, etc.	
Page 29	"4.0 Conclusions and Recommendations: Comment 12" The future Rail Safety and Development Viability Assessment report shall include the risk assessment and analysis of the current and future rail corridor risks and mitigation measure proposed as part of the development (See Section 3.3)	Response to Conclusions and Recommendations Comment 12: Noted. The most recent Rail Safety Assessment includes a risk assessment for the development site.	
Page 29	"4.0 Conclusions and Recommendations: Comment 13" Trespassing mitigation measures shall be provided along the entirety of the property line between the rail corridor and the proposed development. The RSR does not specify any trespassing protection fences between the development, outside the station area, and the rail corridor (See Section 3.4.1).	Response to Conclusions and Recommendations Comment 13: Trespassing measures are currently being discussed with Metrolinx. Given the 'Station Square' and planned pedestrian realm immediately adjacent to the station, careful consideration will be required to balance the need for effective public space planning while minimizing trespassing events. Due to the proposed station, access to the rail corridor can be gained easily, during normal hours of operation. As such, the concern then becomes unauthorized access to the rail corridor outside of normal operating hours. These details will be provided as the design advances.	

Page 29	"4.0 Conclusions and Recommendations: Comment 14" It is recommended to perform a Noise and Vibration Study for review by the City (see Section 3.4.2).	Response to Conclusions and Recommendations Comment 14: A Noise and Vibration Assessment has been completed with the latest version, submitted to the City of Toronto as part of this OPA/ZBA/DPS resubmission. The results of the study will inform the design team of the exterior noise and vibration levels. Appropriate mitigation measures will be included in the building design to reduce the impact of these risks (inoperable windows, triple pane glass, vibration isolation pads, etc)	
Page 29	"4.0 Conclusions and Recommendations: Comment 15" Provisions shall be made for water drainage such that no wastewater or stormwater be discharged or directed to the railway property (see Section 3.4.3).	Response to Conclusions and Recommendations Comment 15: Noted, agreed. A stormwater management report will be submitted with the final Rail Safety Assessment during the Site Plan Application to the City. It is understood that any development should not adversely impact the rail corridor or operating environment. Stormwater discharge should be directed away from the site and into municipal stormwater drains.	
Page 30	"4.0 Conclusions and Recommendations: Comment 16" It is recommended to perform a comprehensive Air Quality Report for review by the City.	Response to Conclusions and Recommendations Comment 16: Noted. An Air Quality report has been prepared and submitted to the City of Toronto with the latest version included with this OPA/ZBA/DBS resubmission.	
Page 30	"4.0 Conclusions and Recommendations: Comment 17" It is recommended to perform a comprehensive Geotechnical Report for review by the City. The close proximity of the proposed safety barriers to the existing tracks, will require careful design of support of excavation and monitoring of the existing structures (see Section 3.4.5).	Response to Conclusions and Recommendations Comment 17: Noted. A preliminary Geotechnical report has been prepared by Arup for the current OPA/ZBA/DBS resubmission.	
Page 30	"4.0 Conclusions and Recommendations: Comment 18" It is recommended to provide a Constructability Report to City for review and ensure that no adverse impact to the railway corridor infrastructure, operations and access will occur during and after construction. The existing railway corridor infrastructure, including the signal frame and the structural framing on the east boundary of the proposed development with the railway corridor, shall be protected and maintained during and after construction (see Section 3.4.6).	Response to Conclusions and Recommendations Comment 18: A Constructability Report will be submitted at the appropriate time by the applicant. The May 2020 ZBA submission did not include a constructability report as it is still considered too early in the planning process to possess this information. The subsequent detailed design phase and Site Plan Application will include a constructability report to ensure that the rail corridor infrastructure is not impacted by the proposed development. In the event that there is an impact, the Owners will work with Metrolinx to coordinate construction work and minimize disruption to railway operations.	
Page 30	"4.0 Conclusions and Recommendations: Comment 19" The RSR does not provide any information about the development on the north side of the rail corridor, however, Figures 3, 4 and 5 of the RSR indicate a proposed platform and station facilities on the north side of the corridor. The Consultant shall coordinate such developments with Metrolinx, provide details, and obtain necessary approvals.	Response to Conclusions and Recommendations Comment 19: The newest Rail Safety Assessment does not consider the property to the north of the rail corridor. The station and platform work will be closely coordinated with Metrolinx. It is understood that future development on the Site may require additional mitigation measures.	

3. Conclusion

The comments above are in response to the peer review report received on May 28, 2020.

The full Rail Safety and Development Viability Assessment Report was submitted as part of the rezoning application in May 2020. This report responds to many of the comments raised in the peer review report received on May 28, 2020 (written by WSP, dated March 3, 2020).

We trust that the full Rail Safety and Development Viability Assessment Report more clearly conveys the proposed mitigation measures.

It should be also noted that First Capital Project Team are currently in discussion with Metrolinx to permit the derailment protection measures (crash wall) to be located within the GO Station building. The details of the maintenance terms and liabilities considerations of the crash wall are to be further considered and finalized.

In parallel, Metrolinx informed First Capital Project Team that a Letter of Effort is being prepared by Metrolinx and will be issue to the Applicant in order to commission Technical Advisor to commence the technical peer review of the Rail Safety and Development Viability Assessment Report, which will need to be further refined consistent with the current GO Station design and once the aforementioned crash wall details are finalized.