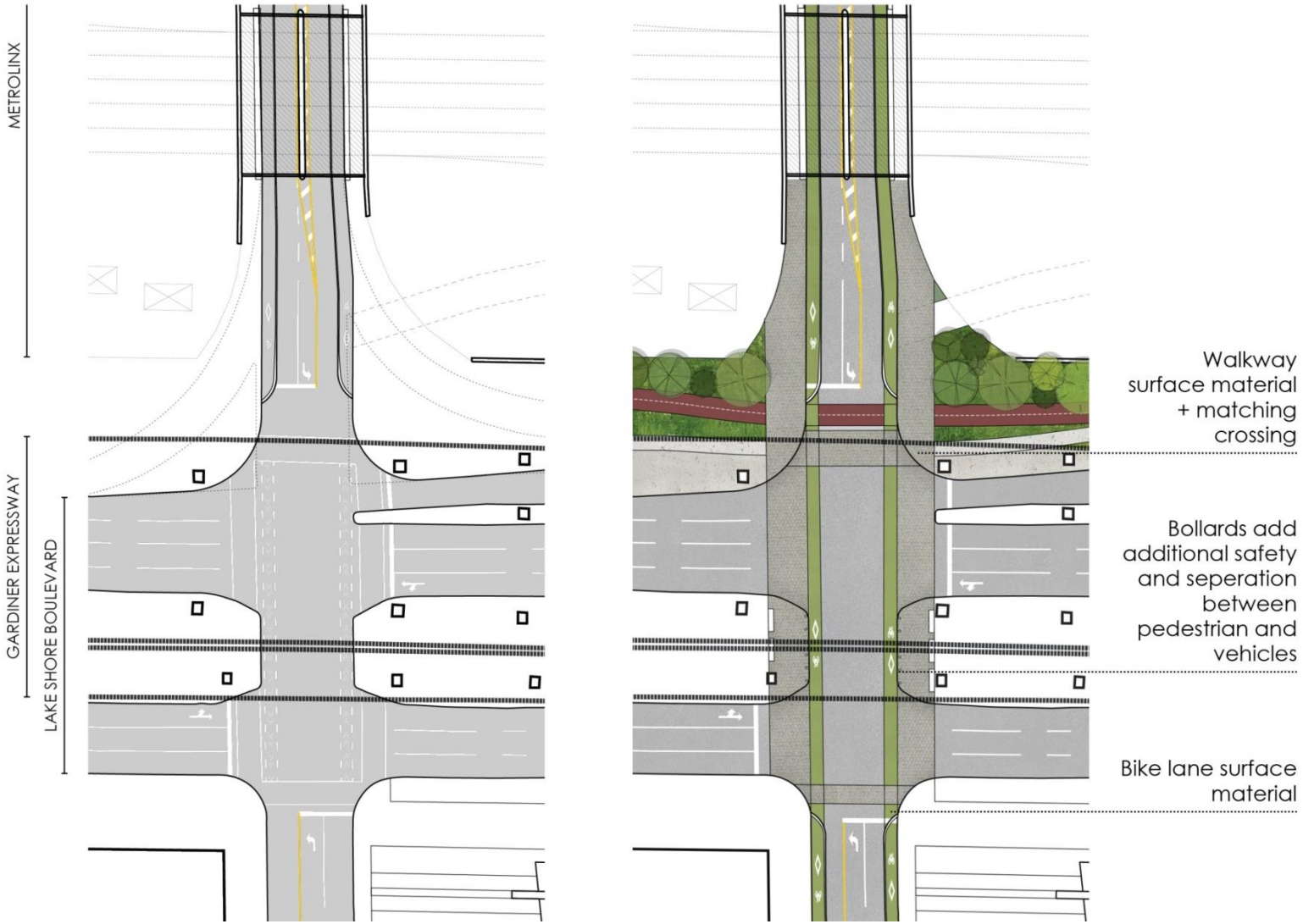
Figure 6.7: Lower Jarvis Street Intersection Concept

6.6.2. Lower Sherbourne Street Intersection

The improvements proposed for the Lower Sherbourne Street and Lake Shore Boulevard Intersection are illustrated in **Figure 6.8**. These include:

- Enhancing cycling connections;
- Adding bollards to the pedestrian refuge medians on Lake Shore Boulevard to provide additional safety and separation between pedestrians and vehicles;
- Provide texture to road surface to demark pedestrian crossing area;
- Increasing the setback of intersection stop lines to support safe pedestrian crossings; and,
- Implementing hard and soft landscaping along Lake Shore Boulevard to improve the pedestrian experience.

Figure 6.8: Proposed Lower Sherbourne Street and Lake Shore Boulevard Intersection Design



6.6.3. Cherry Street Intersection

The improvements proposed for the Cherry Street and Lake Shore Boulevard Intersection are illustrated in **Figures 6.9 and 6.10**. There are two options for the Cherry Street intersection design depending on the Hybrid design alternative selected. If design alternative 1 is selected the intersection design would include (shown in Figure 6.9):

- Regularizing the intersection as much as possible by removing any free right turn lanes;
- Implementing north-south curb enlargements which will allow for bike lanes to be incorporated;
- Increasing the setback of intersection stop lines to support safe pedestrian crossings;
- Provide texture to road surface to demark pedestrian crossing area; and,
- Implementing hard and soft landscaping along Lake Shore Boulevard to improve the pedestrian experience.

If design alternative 2 or 3 is selected the intersection design would include (shown in Figure 6.10), include the above plus:

- Implementing hard and soft landscaping along Lake Shore Boulevard to improve the pedestrian experience. Landscaping along the south side of Lake Shore Boulevard would allow for tree planting and soft landscaping. This is because in alternatives 2 and 3 the Gardiner structure is shifted further north, allowing light onto Lake Shore Boulevard.

The key difference between design alternative 1 and design alternatives 2 and 3 is the pedestrian experience on the south side of the street. In alternative 1 the elevated Gardiner structure sits over the south side of Lake Shore Boulevard. As such, the pedestrian experience is compromised as much of it would be crossing underneath the structure.

Figure 6.11 illustrates a conceptual example of what the proposed improvements for this intersection could look like.

Figure 6.9: Proposed Cherry Street and Lake Shore Boulevard Intersection Design for Design Alternative 1

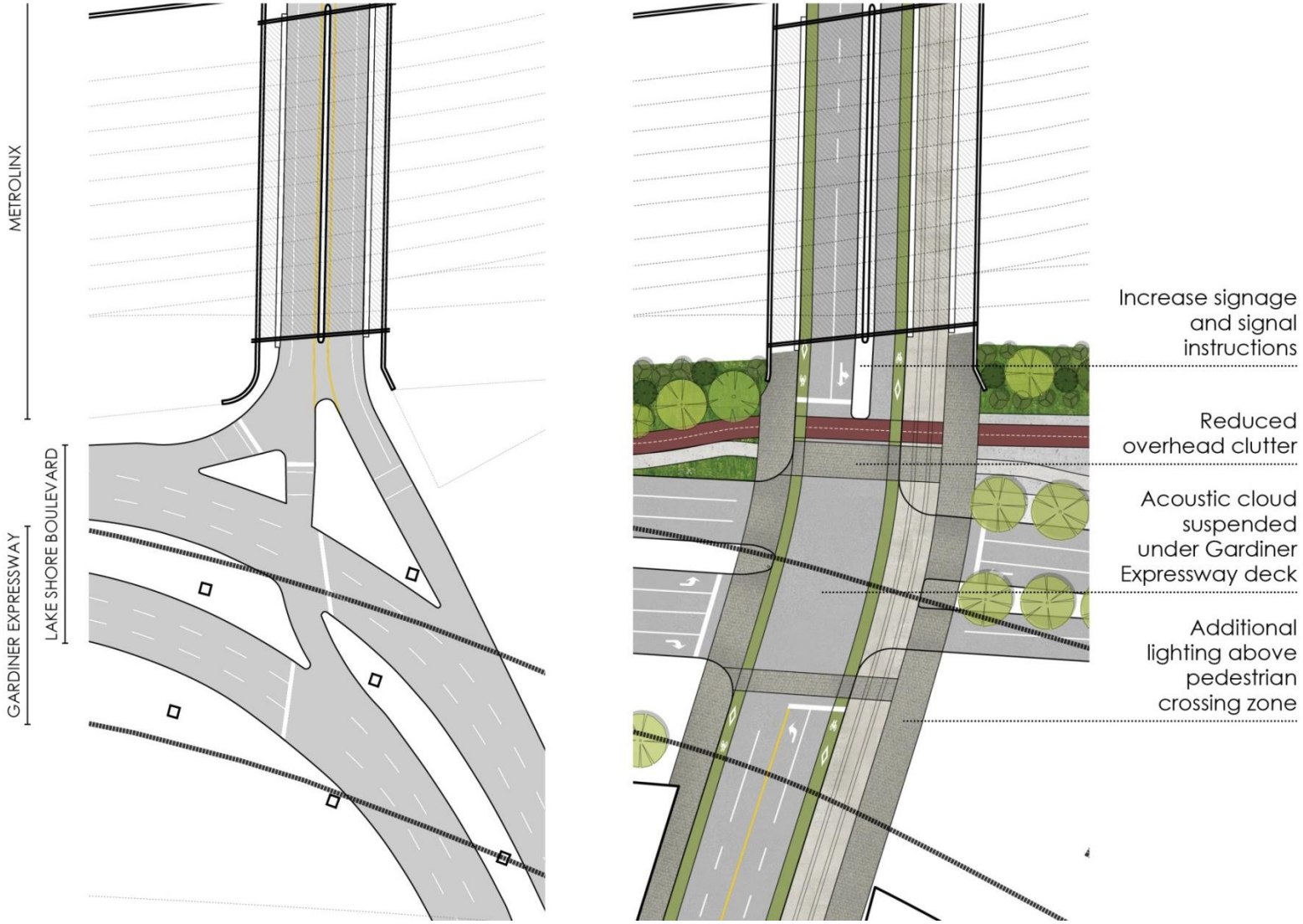


Figure 6.10: Proposed Cherry Street and Lake Shore Boulevard Intersection Design for Design Alternatives 2 and 3

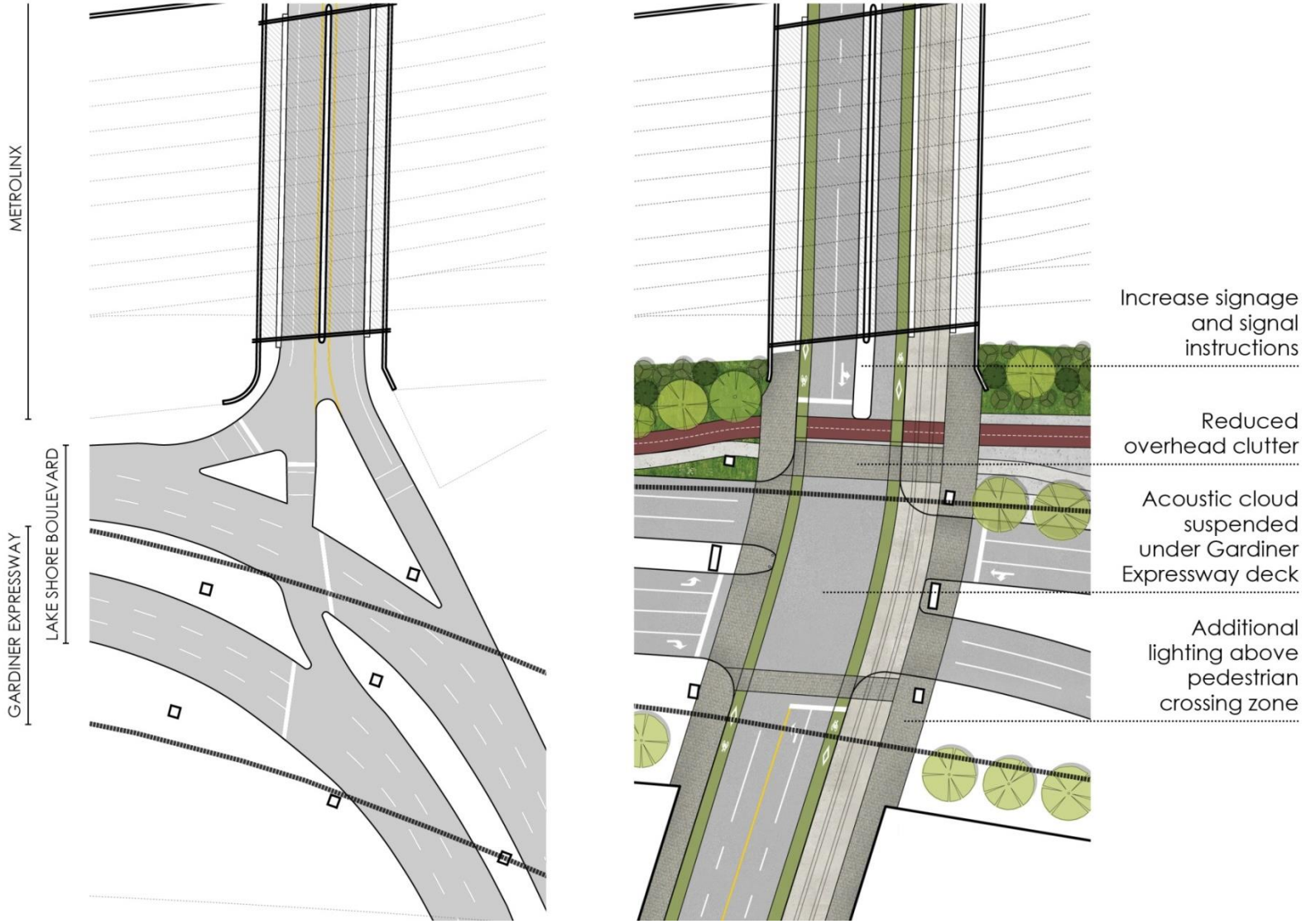


Figure 6.11: Cherry Street Intersection Concept (Alternatives 2 and 3)

6.7. Design Plan for Don Roadway to Leslie Street

East of the Don River, the Gardiner Expressway will be removed and a boulevard design will be constructed for Lake Shore Boulevard. The design of the boulevard will mirror the design of Lake Shore Boulevard east of Carlaw Avenue. Improvements to the design will include:

- Enhanced tree planting;
- A wider pedestrian median for pedestrian refuge to cross the boulevard;
- Enhanced landscaping on the north edge supporting the multi-use trail; and,
- Improved pedestrian sidewalk on the south side of the street.

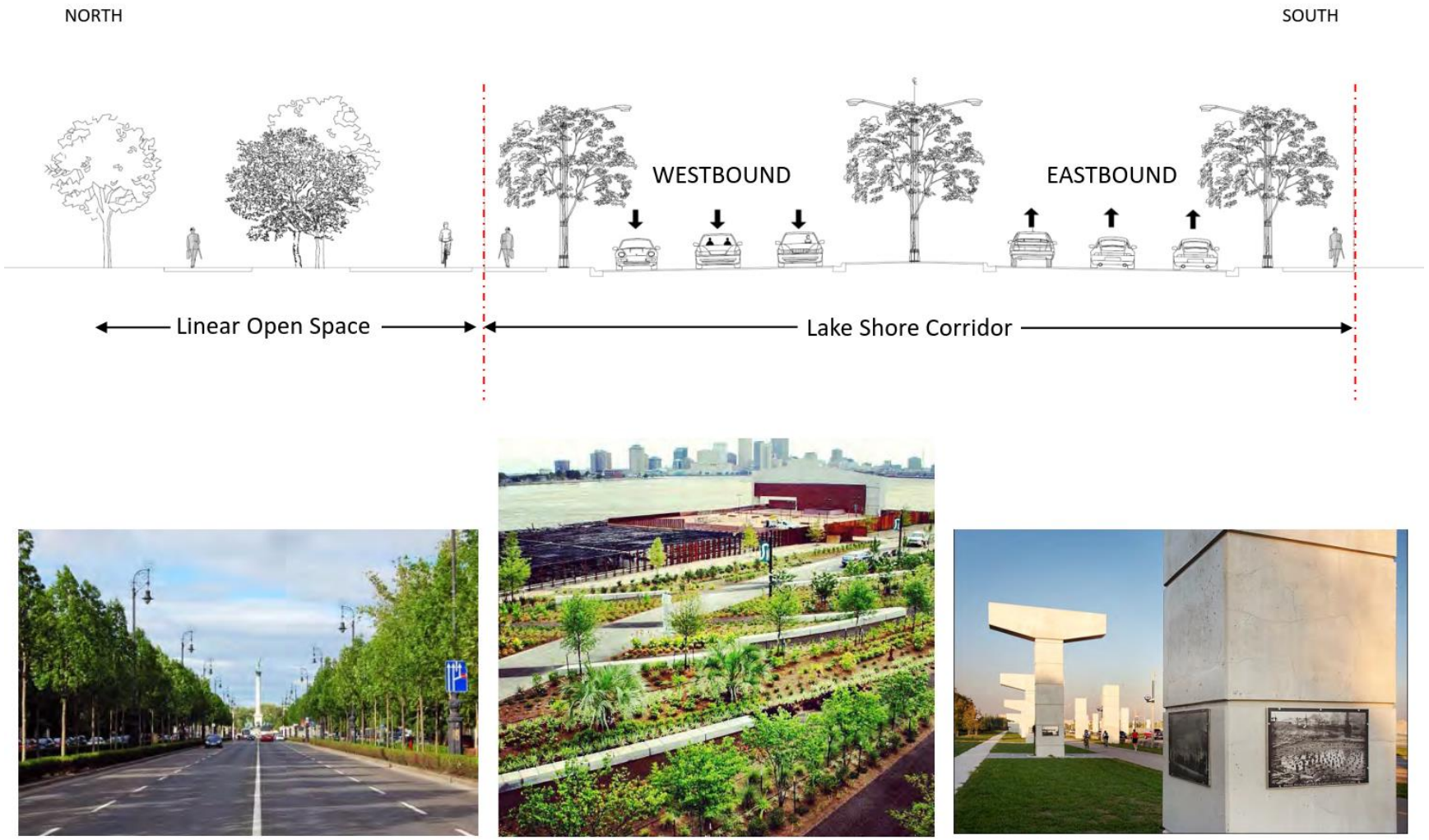
Figure 6.12 presents a cross-section of the boulevard design.

It is important to note that the design for this eastern segment of the corridor is preliminary pending the completion of local area planning and transportation studies currently underway for the lands on both the north and south sides of Lake Shore Boulevard. The proposed design presented here allows for flexibility to accommodate the recommendations for the other ongoing studies. The design includes consideration for plans related to:

- Port Lands redevelopment;
- South of Eastern redevelopment;
- First Gulf Site (Unilever property) development; and,
- Extension of Broadview Avenue south into the Port Lands.

The design for this segment of the corridor, in conjunction with alternatives presented for the Keating Precinct unlocks the First Gulf site development (30 acres) and adjacent City-owned parcels (20 acres) at 21 The Don Roadway. Without the presence of the Gardiner ramps, these lands can be developed to their full potential with improved accessibility and visibility. According to First Gulf, the 20 acres of City owned land that would benefit from the removal of the Gardiner through this section could generate approximately $100 million (2014$) in land sales.

Figure 6.12: Lake Shore Boulevard Design East of the Don River



7. CONCLUSION

The design alternatives phase of work for the Gardiner East EA has included a detailed examination of Keating Precinct possibilities and design potential. The evaluation of the three Hybrid design alternatives prepared for the Keating Precinct segment of the corridor demonstrate the trade-offs among the alternatives on the basis of the evaluation criteria and measures. Overall, Hybrid design alternatives 2 and 3 are more desirable for Transportation, Urban Design and Environment. Alternative 3 is more desirable than alternative 2 for Urban Design and Environment. However, alternative 3 is more expensive than alternative 2, with an additional capital cost of approximately $31million NPV.

Comments and input received through public and stakeholder consultation, including online and in-person meetings, indicate a preference for Hybrid design alternative 3.

Considering the identified tradeoffs among the Hybrid design alternatives and the input received from stakeholders, Hybrid design alternative 3 is recommended as preferred. To complement the preferred Hybrid Design 3, public realm and streetscape improvements from Jarvis Street to Cherry Street and from Don Roadway to Logan Ave have been proposed.

Once the preferred alternative design has been confirmed by the City and Waterfront Toronto, the next step of the EA will be to complete the assessment of effects and identify appropriate mitigation measures. This will be documented in the EA Report which would then be made available for stakeholder and MOECC review.

The alternative Hybrid designs have been developed at a concept level of detail to facilitate their comparative evaluation and identification of potential environmental effects. Following EA approval by the MOECC, changes to some of the project components may be required or desirable as a result of future detailed design work being undertaken and/or changes to the project area considering its transitional nature. Specifically changes to the project might be required due to:

- More detailed baseline information that may become available (e.g. below surface geo-physical data);
- Required or preferred facility design changes that may become apparent during the facility detailed design;
- The advancement in the design of other infrastructure and land development projects in the local project area that may for example, allow for further project benefits to be realized;
- Issues emerging from the approvals of other projects in the project area;
- Completion of other studies (e.g. Don River Flood conveyance modelling);
- Circumstances that become apparent once construction commences;
- The emergence of new technology or construction processes that could result in a reduction in environmental effects and/or project costs or construction timelines; and,
- Changes required to accommodate other permits or approvals and/or changes to the regulatory process.

To accommodate potential project changes, whether required and/or desirable, the EA Report will include amendment procedures which will detail the process to be followed to accommodate the project changes. This will include procedures to accommodate what are considered to be Minor Changes and Major Changes. The procedures will outline how the MOECC and the public are to be informed and consulted with regarding the project changes.

APPENDIX A

LAND VALUATION REPORT

Gardiner Realignment Alternatives - Land Value Impact Analysis

February 11, 2016

Table of Contents

Executive Summary

Background

- An environmental assessment is being conducted, addressing the impacts of various alternatives for the alignment of the Gardiner Expressway and its linkage to the Don Valley Parkway. These include:
  - Hybrid Alternative 1
  - Hybrid Alternative 2
  - Hybrid Alternative 3
- Cushman & Wakefield Valuation & Advisory was retained to determine the impact of these alternatives on the value of the lands within:
  - the Study Area
  - the Villiers Island Precinct

  effective 2025.

Impact of Gardiner Realignment Alternatives on Land Values

Study Area

Gardiner Realignment Land Value Impacts Analysis Benchmark Land Value Assumptions ($ psf)					
Unadjusted Benchmark Values	Residential	Office	Retail	Institutional	Total
	$35 to $40	$18 to $20	$35 to $40	$35 to $40	-
Adjusted Benchmark Values	Residential	Office	Retail	Institutional	Total
Alternative 1	$31 to $36	$15 to $18	$36 to $41	$36 to $41	$30 to $34
Alternative 2	$35 to $40	$17 to $19	$39 to $44	$36 to $41	$34 to $39
Alternative 3	$36 to $41	$17 to $20	$39 to $44	$36 to $41	$34 to $39
Development Density Assumptions (msf)					
Based on HR&A assumptions at FAR 6.57	Residential	Office	Retail	Institutional	Total
Alternative 1	1.26	0.14	0.05	0.09	1.53
Alternative 2	2.01	0.22	0.07	0.15	2.45
Alternative 3	2.01	0.22	0.07	0.15	2.46
Based on Keating Channel Precinct Plan at FAR 4.00	Residential	Office	Retail	Institutional	Total
Alternative 1	0.77	0.08	0.03	0.06	0.93
Alternative 2	1.22	0.13	0.04	0.09	1.49
Alternative 3	1.23	0.13	0.04	0.09	1.5
Results (millions)					
Based on HR&A assumptions at FAR 6.57	Residential	Office	Retail	Institutional	Total
Alternative 1	$39 to $45	$2 to $2	$2 to $2	$3 to $4	$46 to $53
Alternative 2	$71 to $81	$4 to $4	$3 to $3	$5 to $6	$83 to $95
Alternative 3	$72 to $82	$4 to $4	$3 to $3	$5 to $6	$84 to $96
Based on Keating Channel Precinct Plan at FAR 4.00	Residential	Office	Retail	Institutional	Total
Alternative 1	$24 to $27	$1 to $1	$1 to $1	$2 to $2	$28 to $32
Alternative 2	$43 to $49	$2 to $3	$2 to $2	$3 to $4	$50 to $58
Alternative 3	$44 to $50	$2 to $3	$2 to $2	$3 to $4	$51 to $59

Impact of Gardiner Realignment Alternatives on Land Values

Villiers Island

Gardiner Realignment Land Value Impacts Analysis Benchmark Land Value Assumptions ($ psf)			
	Residential	**Non-residential**	**Total**
Unadjusted Benchmark Values	$35 to $40	$18 to $20	-
Adjusted Benchmark Values			
Alternative 1	$40 to $46	$19 to $22	$36 to $41
Alternative 2	$40 to $46	$19 to $22	$36 to $41
Alternative 3	$40 to $46	$19 to $22	$36 to $41
Development Density Assumptions (msf)			
	Residential	**Non-residential**	**Total**
Alternative 1	4.51	1.13	5.64
Alternative 2	4.51	1.13	5.64
Alternative 3	4.51	1.13	5.64
Results (millions)			
	Residential	**Non-residential**	**Total**
Alternative 1	$180 to $206	$21 to $24	$202 to $230
Alternative 2	$183 to $209	$22 to $25	$205 to $234
Alternative 3	$183 to $209	$22 to $25	$205 to $234

Green Gardiner (Consolidated) Option

Additional Land Value Created

High Level (Order-of-Magnitude) Land Value Indications					
		Jarvis to Sherbourne	**Sherbourne to Parliament**	**Parliament to Cherry**	**Total**
Green Gardiner (Consolidated) Option					
Acres		2.47	2.47	2.47	7.41
FAR		10.0	10.0	10.0	10.0
Density		1,075,931	1,075,931	1,075,931	3,227,793
% Allocation by Section		33%	33%	33%	100%
Land Density Value	Lower	$50	$40	$30	
2016 $	Higher	$55	$45	$35	
Land Density Value	Lower	$69	$55	$41	
2025 $	Higher	$76	$62	$48	
Total Land Value Indication (rounded)	**Lower**	**$53,800,000**	**$43,000,000**	**$32,300,000**	**$129,100,000**
	Higher	**$59,200,000**	**$48,400,000**	**$37,700,000**	**$145,300,000**
Land Value Growth	2.5%				

Viaduct Option

Value of Land to be Acquired

High Level (Order-of-Magnitude) Land Value Indications					
		Jarvis to Sherbourne	**Sherbourne to Parliament**	**Parliament to Cherry**	**Total**
Viaduct Option					
Acres		0.82	0.82	0.82	2.47
FAR		10.00	10.00	10.00	10.00
Density		358,644	358,644	358,644	1,075,931
% Allocation by Section		33%	33%	33%	100%
Land Density Value 2016 $	Lower	$50	$40	$30	
	Higher	$55	$45	$35	
Land Density Value 2025 $	Lower	$69	$55	$41	
	Higher	$76	$62	$48	
Total Land Value Indication (rounded)	**Lower**	**$17,900,000**	**$14,300,000**	**$10,800,000**	**$43,000,000**
	Higher	**$19,700,000**	**$16,100,000**	**$12,600,000**	**$48,400,000**
Land Value Growth	2.5%				

Background

Background

Scope of Work - Hybrid Alternatives Land Value Impacts

- An environmental assessment is being conducted, addressing the impacts of various alternatives for the alignment of the Gardiner Expressway and its linkage to the Don Valley Parkway. These include:
  - Hybrid Alternative 1
  - Hybrid Alternative 2
  - Hybrid Alternative 3
- Cushman & Wakefield Valuation & Advisory was retained to determine the impact of these alternatives on the value of the lands within:
  - the Study Area
  - the Villiers Island Precinct

  effective 2025.
- Cushman & Wakefield was provided with drawings showing the boundaries of potential development blocks within the above areas, to facilitate the valuation.
- We were also provided with development metrics (block land areas and associated development density by land use)

Background

Scope of Work – Consolidated and Viaduct Options Land Value Impacts

- Members of the public submitted two further options, entitled:
  - The Consolidated Option (otherwise known at the “Green Gardiner” option)
  - The Viaduct Option
- Cushman & Wakefield was provided with:
  - The land area that would need to be expropriated, for the Viaduct Option (2.47 acres).
  - The land area that would be created (7.41 acres), for the Consolidated Option.
  - Sketches that illustrate the intended alignments for these options.
  - A architectural drawing that shows potential massing for the Consolidated option, at a very high (as distinct from detailed) level.
  - Instruction to calculate development density at a Floor Space Index of 10, relative to the above land areas.
- Cushman & Wakefield was requested to provide a very high level, order-of-magnitude indication of the value of the above lands, as of 2025.

Background

Key Assumptions and Limiting Conditions

- It is most important to recognize that Cushman and Wakefield was retained to complete high level, order of magnitude indications of value, for the purposes of comparing Gardner alignment alternatives, with in an EA.
- Cushman & Wakefield was not retained to complete a formal appraisal or an opinion of value, as might be completed by either an appraiser or a broker.
- Cushman & Wakefield relied upon all of the documentation and information provided by Waterfront Toronto and the City of Toronto, and did not verify the information for accuracy. Accordingly, we recommend that the reader verify this information.

Methodology

Methodology

Benchmark Land Value Estimates (before adjustment for development block location)

- Cushman & Wakefield identified neighbourhoods and precincts that are located within the City of Toronto, which transitioned (over time) from large blocks of underdeveloped (generally industrial) land to become vibrant mixed use areas.
- We sought to identify the year that each neighhourhood/precinct resembled the Study Area and/or Villiers Island ("the Subject Land Area"), in terms of its infrastructure investment and planning status, and the broader nature and character of development within and surrounding the neighbourhood/precinct.
- We examined land value trends in these neighbourhoods/precints from 1997 (the earliest date of land sales data availability) onwards, focusing on land values as of the aforementioned comparison year.
- We further adjusted the aforementioned neighbourhood/precint land values to reflect the locational differences between each neighbourhood/precinct and the Subject Land Area.
- Finally, we inflated the neighbourhood/precinct land values from the comparison year to 2015 and then to 2025, at a 2.5% inflation rate.
- The preceding analysis provided us with residential condominium density land value benchmarks.
- Retail land density was assumed to be part of broader condominium developments and is thereby valued at residential density levels.
- Office land values were separately analyzed.

Methodology

Benchmark Land Value Estimates (before adjustment for development block location)

- The above process is not fully empirical; experienced judgment is required.
- The result is broad land value density benchmarks and trends, rather then precise values.

Methodology

Block-by-Block Land Value Adjustments

- We then considered the adjustments that should be made to the aforementioned benchmark land values, relative to the location of each block and the following adjustment criteria:
  - View, light and noise impacts of the Gardiner/DVP
  - View and noise impacts of the rail corridor
  - Proximity to adverse land uses
  - Transit accessibility
  - Building density quantum (very large sites with substantial amounts of development density have lower values)
  - Block size, shape and configuration
  - Visibility
  - Water/park views/access
- Land density the value adjustments for each criteria ranged from 0% to 25%.
- The percentage adjustments for each of the above criteria were summed to a total.
- The unadjusted land density value benchmark values were increased (or decreased) by the percentage total, to produce an adjusted land density value for each block, by land use (residential condominium, office, retail or institutional).

Methodology

Block-by-Block Land Density Value Indications

- Block areas and development densities, by land use, for each block within the Study Area and also Villiers Island, were provided by Waterfront Toronto.
- For the Study Area, two Floor Area Ratio (“FAR”) assumptions were provided: 4.0 and 6.57
- For Villiers Island, specific amounts of development density were provided, emanating from prior urban planning studies.
- For the Viaduct and Consolidated options, Waterfront Toronto directed that we assume an FAR of 10.0, as per the proposals received.
- The land development densities for each block were multiplied by the adjusted land density value to determine the total value of each block, which sums to the indicated value of the total land area.
- The total land values for each of the Study Area and Villiers Island (under each Hybrid Option) is then compared, to determine land value impacts.
- A very high level, order-of-magnitude estimate of land taking costs is provided for the Viaduct option.
- A similarly very high level, order-of-magnitude estimate of land value created is provided for the Consolidated option.
- All values are stated in 2025 dollars.

Benchmark Land Density Values

Benchmark Land Density Values

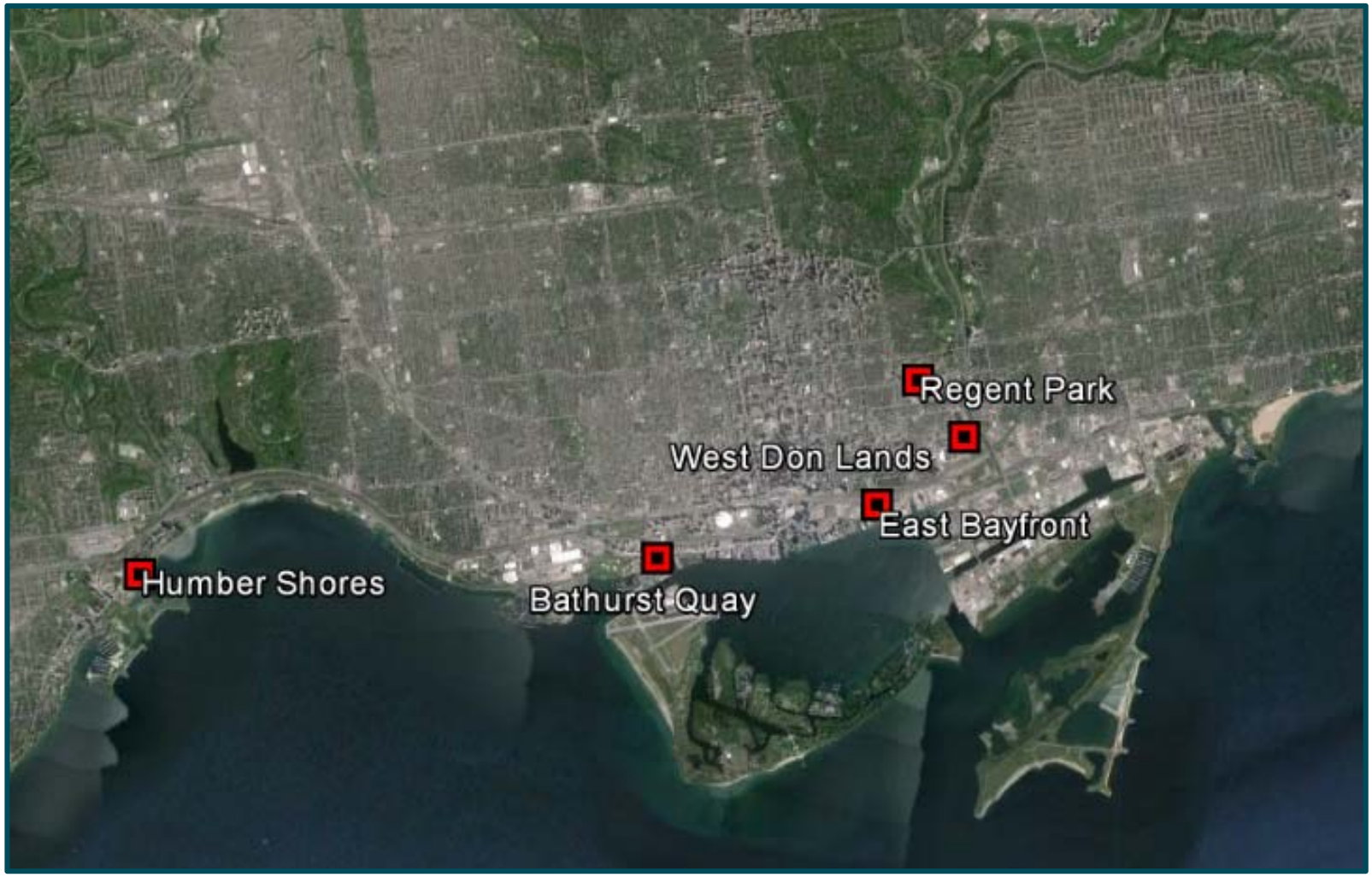
Comparable Development Precincts

- Cushman & Wakefield identified neighbourhoods and precincts that are located within the City of Toronto, which transitioned (over time) from large blocks of underdeveloped (generally industrial) land to become vibrant mixed use areas.
- We sought to identify the year that each neighhourhood/precinct resembled the Study Area and/or Villiers Island ("the Subject Land Area"), in terms of its infrastructure investment and planning status, and the broader nature and character of development within and surrounding the neighbourhood/precinct.
  - Accordingly, we reviewed land density values in the following Precincts:
  - Humber Bay Shores
  - Bathurst Quay
  - East Bayfront
  - West Don Lands

The following slides provide summary information on the boundaries, planning context and development timing of each Precinct. Information on representative land sales transactions is also provided.

Benchmark Land Density Values

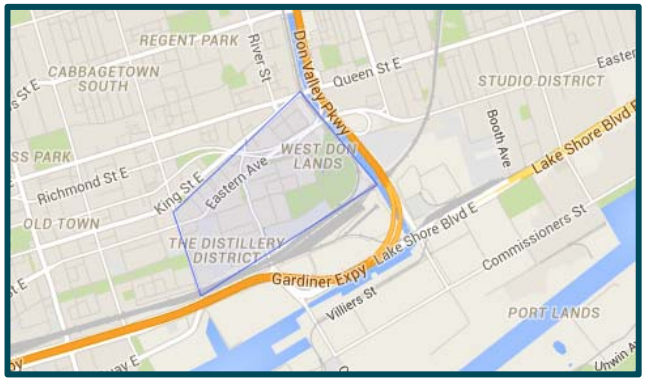
Comparable Development Precincts - Locations



Benchmark Land Density Values

Comparable Development Precinct - West Don Lands

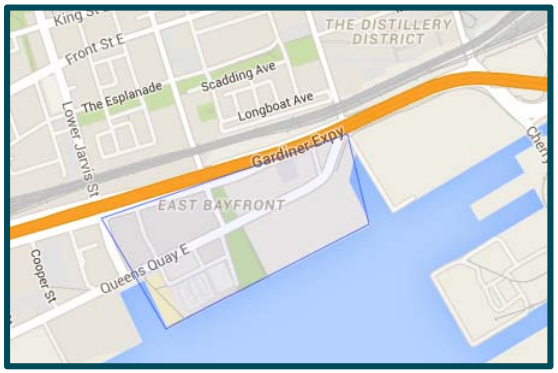
- Description: A mixed–use district covering approx. 79 acres.



- Boundaries
  - North: King St East
  - South: Rail Corridor
  - West: Parliament St.
  - East: Don River
- Planning Context
  - The neighbourhood plan was completed in May 2005. A phased approach to development was taken with the total area being divided into 4 districts.
  - Development began in 2008, active marketing commenced in 2009 and the first phase achieved occupancy in 2014.
  - Approx. 6,000 residential units are planned.
- Residential Land Values
  - The most recent land sale in the West Don Lands area occurred in September 2015, at $31 psf of density for 339,000 sf of density at Eastern Avenue and Lower River Street.
  - Historic land density values in the broader West Don Lands area have ranged from $19 psf of density in October 2004 (at Mill/Trinity) to $38 psf in December 2007 (at Queen/Broadview, just east of the DVP).
  - The above West Don Lands area sales are preferably located to the Study Area or Villiers Island in 2025.

Benchmark Land Density Values

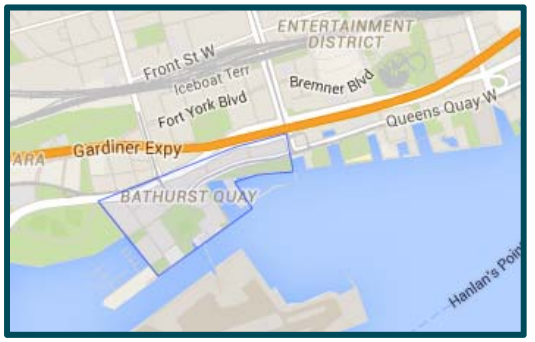
Comparable Development Precinct – East Bayfront



- Description: A mixed-use eastward extension of the waterfront.
  - Boundaries
  - North: Lakeshore Blvd. East
  - South: Lake Ontario
  - West: Lower Jarvis St.
  - East: Parliament St.
- Planning Context
  - The neighbourhood plan was approved in 2006.
  - Approximately 6,000 residential units are planned, of which 1,141 have been completed and/or are now actively being marketing.
  - Development is expected to unfold in phases over the next 10 years.
- Land Values
  - Two residential land sales have occurred: one for $53 psf of residential density in March 2015 and another for $41 psf of residential density in November 2014, both at Lakeshore Blvd. East and Lower Sherbourne St.
  - The office component of a mixed-use site at Queens Quay East and Lower Jarvis Street sold for $38 psf in January 2014. This is a superior location to Lakeshore and Lower Sherbourne.
  - Given their much closer proximity to Yonge Street, these sites are considered to be substantially superior to the Subject Land Area in 2025.

Benchmark Land Density Values

Comparable Development Precinct – Bathurst Quay

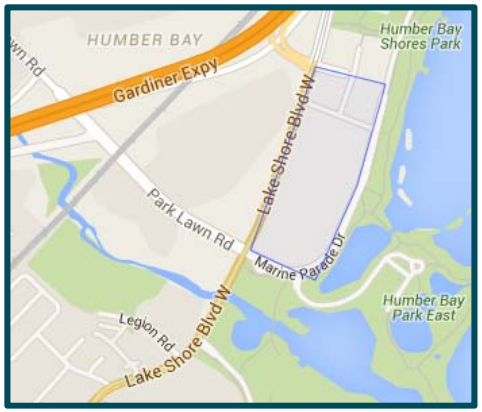


- Description: A Mixed – Use district along Toronto's Central Waterfront covering approx. 74 acres.
- Boundaries
  - North: Lakeshore Blvd. West
  - South: Western Channel of Billy Bishop Airport
  - West: HMCS York property
  - East: Spadina Ave.
- Planning Context
  - Major mid-rise redevelopment took place in 2000. The latest building was completed in 2011 (Quay West by Monarch).
  - A preliminary neighbourhood plan (the Bathurst Quay Neighbourhood Plan Preliminary Directions) was adopted by council in 2015. This plan provides for approximately 1,651 residential units. The final Bathurst Quay Neighbourhood Plan is still under development.
  - Going forward, several areas are expected to be redeveloped including the Canadian Malting Silos property.
- Land values
  - Two notable land sales occurred in the Bathurst Quay area. A site at Lakeshore Boulevard West and Dan Leckie Way transacted in September 1997 at $30 per square foot of density. Another site at Lakeshore Boulevard West and Spadina Avenue occurred in February 2000 at $22 per square foot.
  - Both sites had substantially superior Downtown West locations to that of the Subject Land Area.

Benchmark Land Density Values

Comparable Development Precinct – Humber Bay Shores

- Description: A mixed-use neighbourhood with mid-rise buildings and towers located north of Humber Bay Shores Parks, covering an area of approx. 20 acres.



- Boundaries
  - North: Lakeshore Blvd. West
  - South: Marine Park Drive
  - West: Marine Park Drive
  - East: Brookers Lane
- Planning Context
  - The first phase of development began in 2003 with occupancy taking place in 2006. Several buildings are currently under construction.
  - The neighbourhood plan was ultimately approved in June 2010.
  - The plan includes 5,270 residential units.
- Land Values
  - Two sites sold in 1997 at $25 and $28 per square foot of density, respectively; both were located at Lakeshore Boulevard West and Marine Parade Drive.
  - These sites had a significantly superior west location to the Subject Lands Area in 2025.

Benchmark Land Density Values

Comparable Land Sales – Residential

Residential Land Sales								
#	Date	Address	Precinct	Location	Size (acres)	Price (millions)	Density (sf)	$ psf of Density
Recent Sales								
1	Nov-2014	215 - 225 Queens Quay East	East Bayfront	Lakeshore Blvd. East/Lower Sherbourne St.	1.28	$15.54	378,917	$41
2	Mar-2015	190 Queens Quay East & 12 Bonnycastle Street	East Bayfront	Lakeshore Blvd. East/Lower Sherbourne St.	0.97	$25.20	475,472	$53
3	Jun-2015	897 - 899 Queen Street East	West Don Lands	Queen St. East/Logan Ave.	0.37	$4.00	61,538	$65
4	Sep-2015	210 Eastern Avenue	West Don Lands	Eastern Ave./Lower River St.	1.01	$10.50	338,710	$31
Comparable Sales								
5	Aug-1997	2067 Lake Shore Boulevard W	Humber Bay Shores	Lakeshore Blvd. West/Marine Parade Dr.	0.91	$2.09	82,801	$25
6	Sep-1997	590 - 600 Queens Quay West	Bathurst Quay	Lakeshore Blvd. West/Dan Leckie Way	1.20	$6.42	213,000	$30
7	Oct-1997	2097-2111 Lake Shore Blvd West	Humber Bay Shores	Lakeshore Blvd. West/Marine Parade Dr.	2.60	$6.00	217,803	$28
8	Feb-2000	410 Queens Quay West	Bathurst Quay	Lakeshore Blvd. West/Spadina Avenue	0.96	$6.00	274,365	$22
9	Jan-2001	68-78 Broadview Avenue	West Don Lands	Queen St. East/Broadview Ave.	1.45	$6.90	209,091	$33
10	Oct-2004	Mill Street	West Don Lands	Mill St./Trinity St.	12.79	$15.50	815,789	$19
11	Nov-2004	736 Dundas Street East	Regent Park	Dundas St. East/ River St.	0.21	$1.04	34,050	$31
12	Dec-2007	90-100 Broadview Avenue	West Don Lands	Queen St. East/Broadview Ave.	1.16	$11.05	290,789	$38
13	Apr-2009	246 & 252 Sackville Street	Regent Park	Dundas St. East/Sackville St.	0.74	$5.71	196,948	$29

Benchmark Land Density Values

Comparable Land Sales – Residential – Map

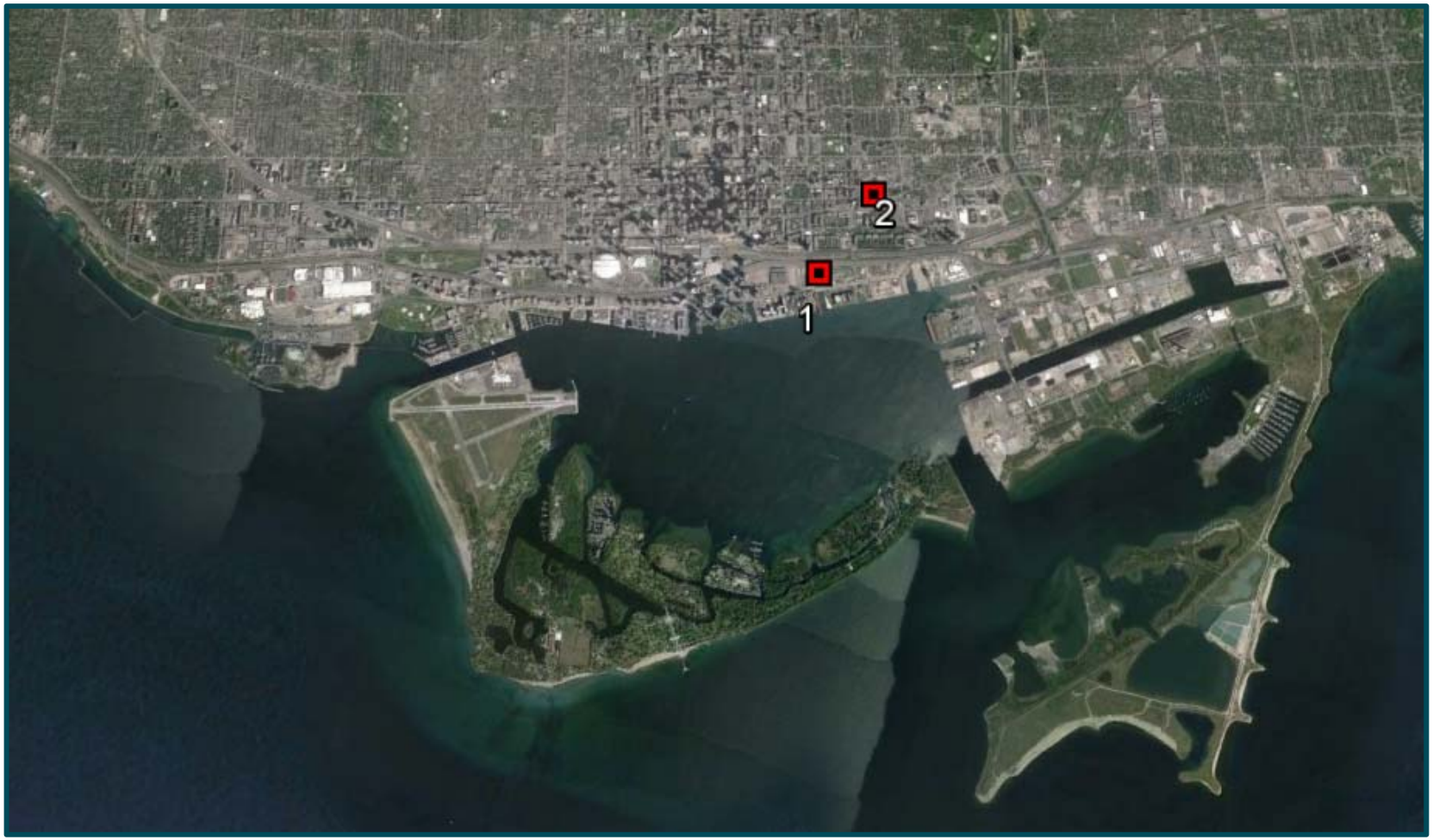
Benchmark Land Density Values

Comparable Land Sales – Office

Office Land Sales								
#	Date	Address	Precinct	Location	Size (acres)	Price (millions)	Density (sf)	$ psf of Density
Recent Sales								
1	Jan-2014	130 - 132 Queens Quay East	East BayFront	Queens Quay East /Lower Jarvis St.	1.54	$17.00	447,368	$38
Comparable Sales								
2	Apr-2010	333 King Street East	King East	King St. East/Berkeley St.	3.91	$41.00	1,000,000	$41

Benchmark Land Density Values

Comparable Land Sales – Office – Map



Benchmark Land Density Values

Residential Land Value Analysis

- We completed a benchmark residential land sales adjustment grid, wherein we adjusted historic land sales in each precinct, to reflect their locational attributes as of the year of sale, in comparison to the attributes of the Subject Land area in 2025.
- The Subject Land Area in 2025 will have full municipal planning approvals and servicing infrastructure in place since only 2023. In this light, the image of the Subject Land Area as a desirable place to live, work and play will be just emerging.
- It is further important to recognize that the Subject Land Area is located considerably to the east of all of the precincts evaluated (with the exception of the West Don Lands area).
- Furthermore, the Subject Land Area is located well to the south of many of the precincts evaluated, as it is south of the rail corridor.
- Given both the emerging nature and southeast location of the Subject Land Area, relative to the precincts evaluated, a downwards adjustment (from benchmark land values) is warranted for all precincts.
- Accordingly, the benchmark residential land sales adjustment grid that follows this page reflects this reality.
- The adjusted land values are then inflated to 2025 dollars.

Benchmark Land Density Values

Residential Land Value Analysis

Benchmark Residential Land Sales Adjustment Grid						
Precinct	**Sale Year**	**$PSF of Density**	**Location Adjustment %**	**Adjusted Value**	**Inflated to $2015**	**Inflated to $2025**
Just East of the DVP (Broadview/Queen)	2007	$38.00	-20%	$ 30.40	$37.04	$47.41
	2001	$33.00	-15%	$ 28.05	$40.62	$52.00
West of DVP (Mill/Trinity)	2004	$19.00	-25%	$ 14.25	$18.70	$23.93
Humber Bay Shores (Lakeshore Bldv./West/Marine Drive)	1997	$25.00	-20%	$ 20.00	$31.19	$39.93
	1997	$28.00	-20%	$ 22.40	$34.94	$44.72
East Bayfront (Lakeshore Boulevard East/Lower Sherbourne)	2005	$37.00	-30%	$ 25.90	$33.15	$42.44
Bathurst Quay	2000	$22.00	-35%	$ 14.30	$21.23	$27.17
	1997	$30.00	-30%	$ 21.00	$32.75	$41.93
Average		**$29.00**	**24%**	**$22.04**	**$31.20**	**$39.94**

Benchmark Land Density Values

Office Land Value Analysis

- With regard to office land values, there are very few office land transactions that we can point to as appropriate land value benchmarks.
- The 2010 sale of 333 King Street East to First Gulf at $41 per square foot of density, and the 2014 sale of 130 – 132 Queens Quay East at $38 per square foot of density, represent values that are very considerably higher than that obtainable within the Subject Land Area, as these sites have substantially superior locational attributes.
- Suburban office land sales may offer better guidance. Cushman & Wakefield managed the 2012 sale of an 8.7 acre Metrolinx owned parcel of office lands (at Trafalgar Road and Davis Drive) in Oakville to First Gulf, with approximately 400,000 ft.² of office development density at approx. $8.7 million ($1 million per acre). This equated to $21.75 psf of development density. We note that First Gulf paid a premium for the site, in order to secure a tenant (PriceWaterhouse Coopers) who was keen to lease the office space. We would have normally (in 2012) valued the lands at $850,000 per acre, which equates to $18.48 psf of density.
- While Midtown Oakville was then a newly emerging office market, it was clearly superior to the Subject Land Area; a 25% downwards adjustment of the $18.48 psf is warranted, to $13.86 psf. The inflation of this 2012 value to 2025 dollars produces a $19.11psf value, which we round to $20 psf.
- We consider the aforementioned $20 psf land value to represent the higher end of office land density value for the Study Area and Villiers Island lands. A range of $17.50 to $20.00 psf was thereby assumed.

Benchmark Land Density Values

Conclusions

Benchmark Land Value Conclusions ($ psf)				
	Residential	Non - Residential		
		Office	Retail	Institutional
Higher Benchmark Land Values	$40	$20	$40	$40
Lower Benchmark Land Values	$35	$18	$35	$35
Benchmark Land Value Range	**$35 to $40**	**$18 to $20**	**$35 to $40**	**$35 to $40**

- The preceding Benchmark Residential Land Sales Adjustment grid points us to a midpoint value of $40 per square foot of residential development density.
- However, the very recent (September 2015) sale of 210 Eastern Avenue (at Eastern Avenue and Lower River Street, in the West Don Lands), of 339,000 sf of density at $31 psf, sets a precedent for the area and leads us to believe that $40 per square foot likely represents that higher (not midpoint) end of the benchmark residential land density value range.
- The site is preferably located in the immediate West Don Lands area, which through the design excellence and Pan Am Games related marketing has gained popularity. An at least 15% downward adjustment is thereby warranted, resulting in an adjusted value for this key transaction of $26.35. The inflation of this value (at a 2.5% compound annual rate) from 2015 to 2025 dollars results in a value $33.73 per square foot, which we would round to $34 psf.
- This precedent sale thereby supports the lower ($35 per square foot) end of our residential density value range. The higher ($40 per square foot) end of the range is supported by the preceding Benchmark Residential Land Sales Adjustment Grid.

Benchmark Land Density Values

Conclusions

- We assume that the retail space will be located at the ground level of (or abutting) residential condominiums and thereby will likely form part of a broader condominium land transaction. We thereby valued the “retail” land density at the same value as indicated for the residential land density.
- Institutional land is typically valued on the basis of its highest and best market use. In other words, the vendor typically takes the position that they will develop to highest and best market use (such as residential) and requires that land value from their institutional purchasers, irrespective of the ultimately intended institutional use. Similarly, institutional purchasers recognize that the must pay highest and best use value or not be in a position to acquire the lands.
- Accordingly, we have valued the “institutional” lands at residential land value.
- We have valued the office lands at $20 psf of density, in accordance with the preceding office land value analysis.
- All of the preceding are benchmark land values, which must then be adjusted on a development block by block basis.

Impact of Gardiner Realignment Alternatives on Study Area Land Values

Impact of Gardiner Realignment alternatives on Land Values

Study Area Lands

The following pages provide, for each alternative:

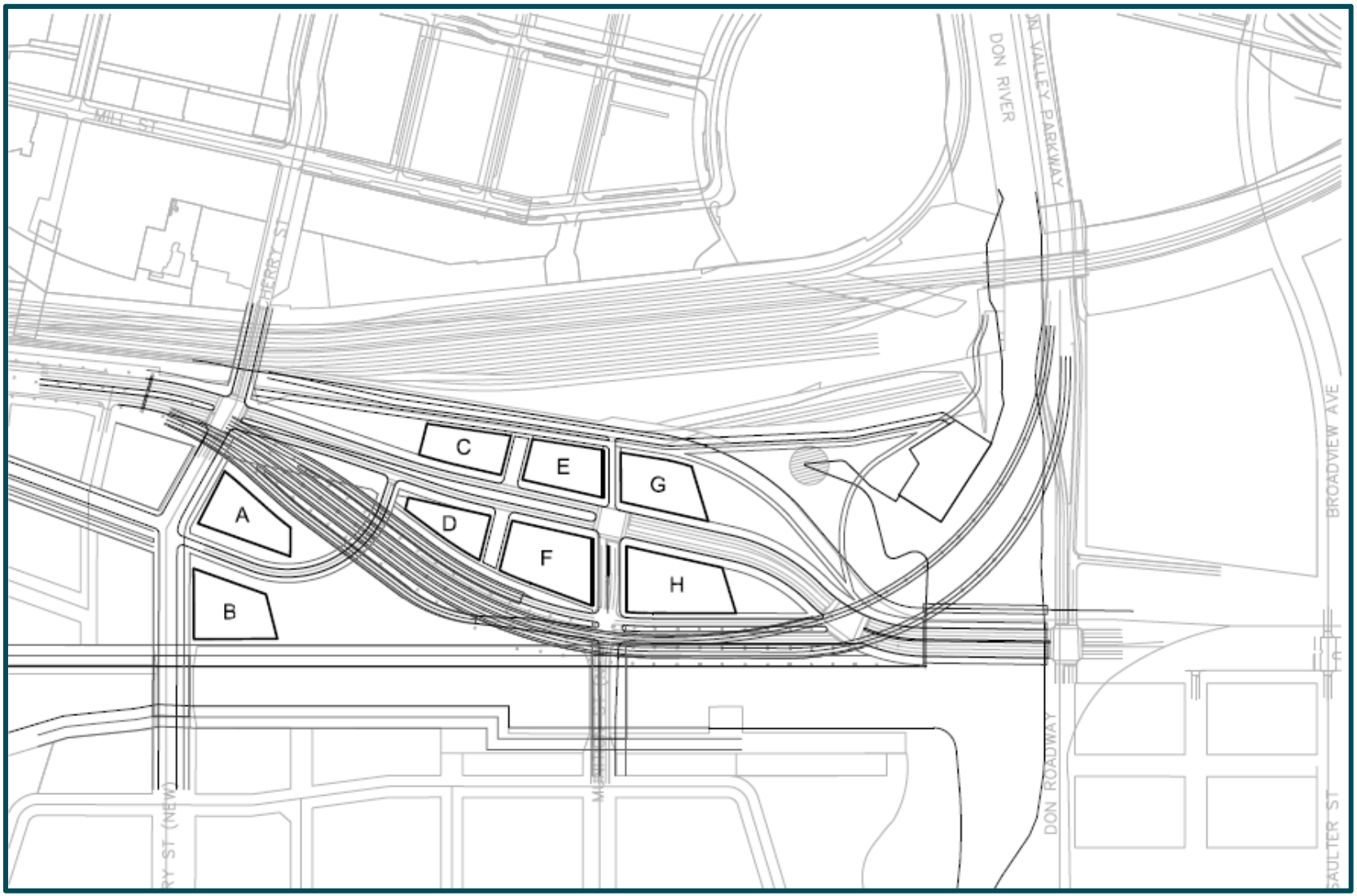
- Study Area block plans
- Key land density value assumptions
- Results summaries

More detail is appended, including:

- Development densities by block and land use
- Land density value adjustment grids
- Detailed (block by block) land density value assumptions

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 1 – Study Area Block Plan



Impact of Gardiner Realignment Alternatives on Land Values

Alternative 1 – Key Study Area Assumptions

Benchmark Land Value Assumptions ($ psf)	Residential	Office	Retail	Institutional	Total
Unadjusted Benchmark Land Value	$35 to $40	$18 to $20	$35 to $40	$35 to $40	-
Adjusted Benchmark Land Value	$31 to $36	$15 to $18	$36 to $41	$36 to $41	$30 to $34

Development Density Assumptions (msf)	Residential	Office	Retail	Institutional	Total
Based on HR&A assumptions at FAR 6.57	1.26	0.14	0.05	0.09	1.53
Based on Keating Channel Precinct Plan at FAR 4.00	0.77	0.08	0.03	0.06	0.93

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 1 – Study Area Results Summary

Gardiner Realignment Land Value Impacts Analysis

Benchmark Land Value Assumptions ($ psf)

	Residential	Office	Retail	Institutional	Total
Unadjusted Benchmark Land Values	$35 to $40	$18 to $20	$35 to $40	$35 to $40	-
Adjusted Benchmark Land Values	$31 to $36	$15 to $18	$36 to $41	$36 to $41	$30 to $34

Development Density Assumptions (msf)

	Residential	Office	Retail	Institutional	Total
Based on HR&A assumptions at FAR 6.57	1.26	0.14	0.05	0.09	1.53
Based on Keating Channel Precinct Plan at FAR 4.00	0.77	0.08	0.03	0.06	0.93

Results (millions)

	Residential	Office	Retail	Institutional	Total
Based on HR&A assumptions at FAR 6.57	$39 to $45	$2 to $2	$2 to $2	$3 to $4	$46 to $53
Based on Keating Channel Precinct Plan at FAR 4.00	$24 to $27	$1 to $1	$1 to $1	$2 to $2	$28 to $32

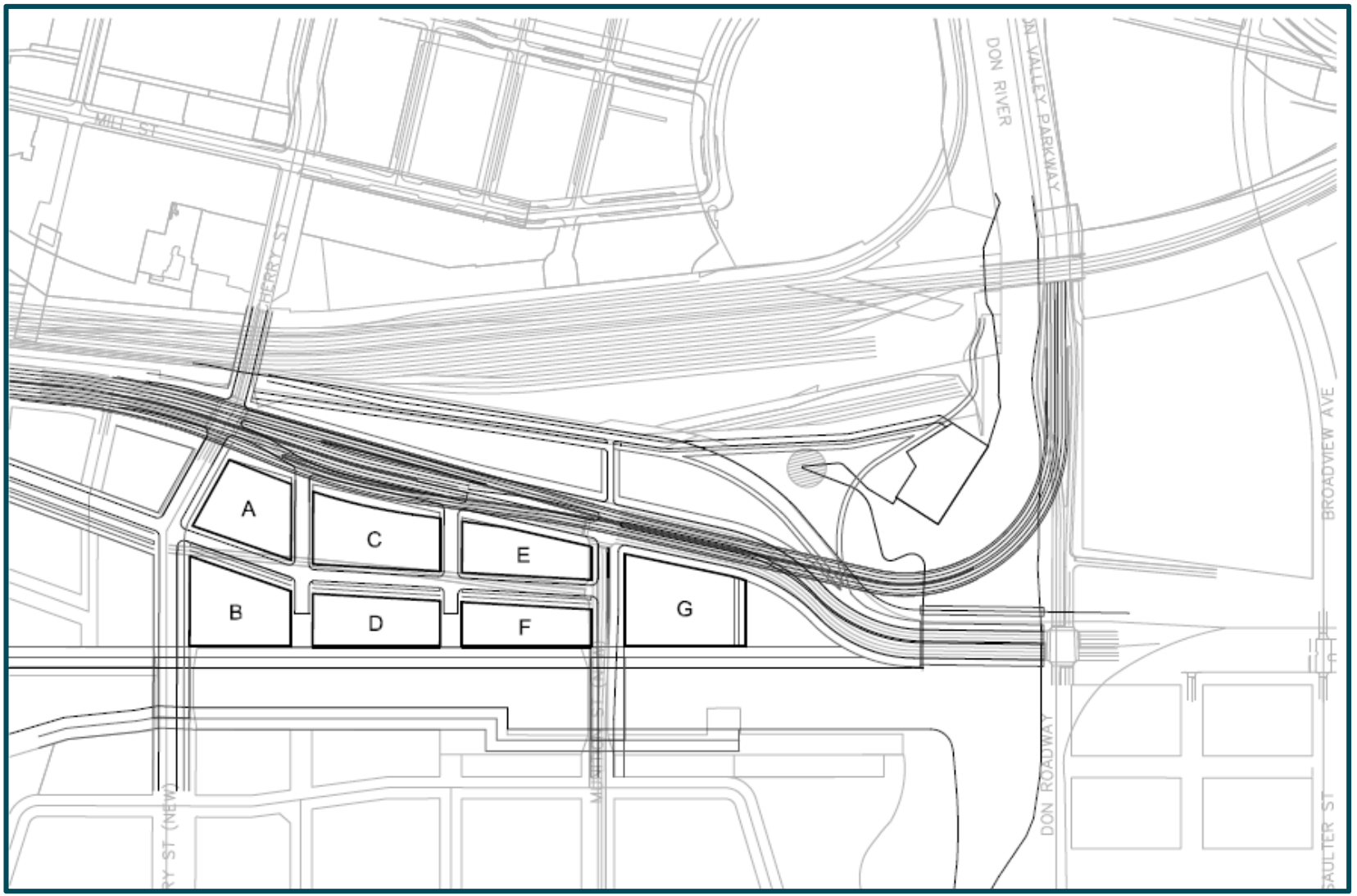
Impact of Gardiner Realignment Alternatives on Land Values

Alternative 1 – Study Area Land Value Impact Results

Results (millions)					
	Residential	**Office**	**Retail**	**Institutional**	**Total**
Based on HR&A assumptions at FAR 6.57	$39 to $45	$2 to $2	$2 to $2	$3 to $4	$46 to $53
Based on Keating Channel Precinct Plan at FAR 4.00	$24 to $27	$1 to $1	$1 to $1	$2 to $2	$28 to $32

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 2 – Study Area Block Plan



Impact of Gardiner Realignment Alternatives on Land Values

Alternative 2 – Study Area Key Assumptions

Benchmark Land Value Assumptions ($ psf)					
	Residential	**Office**	**Retail**	**Institutional**	**Total**
Unadjusted Benchmark Land Values	$35 to $40	$18 to $20	$35 to $40	$35 to $40	-
Adjusted Benchmark Land Values	$35 to $40	$17 to $19	$39 to $44	$36 to $41	$34 to $39

Development Density Assumptions (msf)					
	Residential	**Office**	**Retail**	**Institutional**	**Total**
Based on HR&A assumptions at FAR 6.57	2.01	0.22	0.07	0.15	2.45
Based on Keating Channel Precinct Plan at FAR 4.00	1.22	0.13	0.04	0.09	1.49

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 2 – Study Area Results Summary

Gardiner Realignment Land Value Impacts Analysis					
Benchmark Land Value Assumptions ($ psf)					
	Residential	Office	Retail	Institutional	Total
Unadjusted Benchmark Land Values	$35 to $40	$18 to $20	$35 to $40	$35 to $40	-
Adjusted Benchmark Land Values	$35 to $40	$17 to $19	$39 to $44	$36 to $41	$34 to $39
Development Density Assumptions (msf)					
	Residential	Office	Retail	Institutional	Total
Based on HR&A assumptions at FAR 6.57	2.01	0.22	0.07	0.15	2.45
Based on Keating Channel Precinct Plan at FAR 4.00	1.22	0.13	0.04	0.09	1.49
Results (millions)					
	Residential	Office	Retail	Institutional	Total
Based on HR&A assumptions at FAR 6.57	$71 to $81	$4 to $4	$3 to $3	$5 to $6	$83 to $95
Based on Keating Channel Precinct Plan at FAR 4.00	$43 to $49	$2 to $3	$2 to $2	$3 to $4	$50 to $58

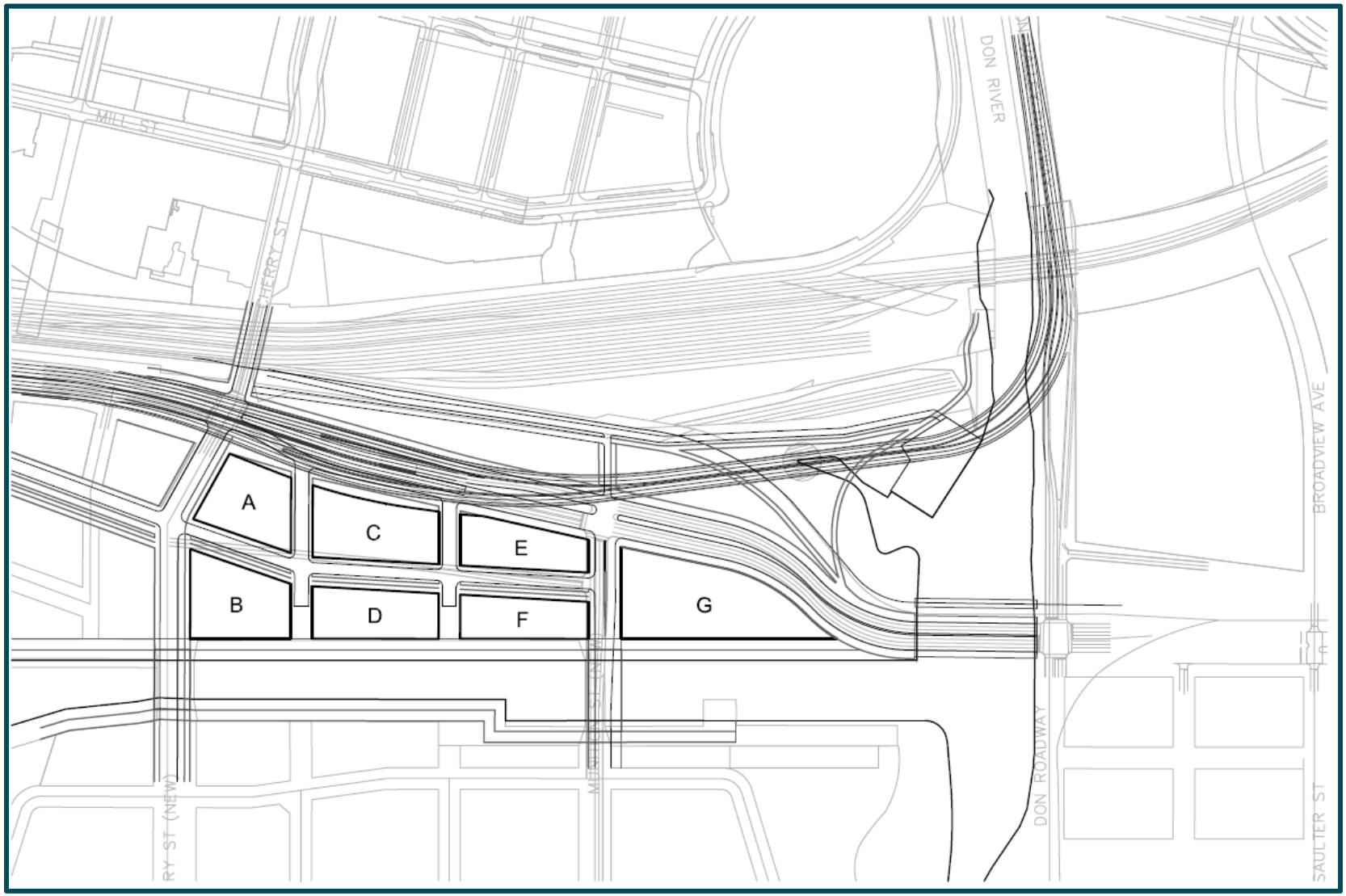
Impact of Gardiner Realignment Alternatives on Land Values

Alternative 2 – Study Area Land Value Results

Results (millions)					
	Residential	**Office**	**Retail**	**Institutional**	**Total**
Based on HR&A assumptions at FAR 6.57	$71 to $81	$4 to $4	$3 to $3	$5 to $6	$83 to $95
Based on Keating Channel Precinct Plan at FAR 4.00	$43 to $49	$2 to $3	$2 to $2	$3 to $4	$50 to $58

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 3 – Study Area Block Plan



Impact of Gardiner Realignment Alternatives on Land Values

Alternative 3 – Key Study Area Assumptions

Benchmark Land Value Assumptions ($ psf)	Residential	Office	Retail	Institutional	Total
Unadjusted Benchmark Land Value	$35 to $40	$18 to $20	$35 to $40	$35 to $40	-
Adjusted Benchmark Land Value	$36 to $41	$17 to $20	$39 to $44	$36 to $41	$34 to $39

Development Density Assumptions (msf)	Residential	Office	Retail	Institutional	Total
Based on HR&A assumptions at FAR 6.57	2.01	0.22	0.07	0.15	2.46
Based on Keating Channel Precinct Plan at FAR 4.00	1.23	0.13	0.04	0.09	1.5

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 3 - Results Summary

Gardiner Realignment Land Value Impacts Analysis Benchmark Land Value Assumptions ($ psf)					
	Residential	Office	Retail	Institutional	Total
Unadjusted Benchmark Land Values	$35 to $40	$18 to $20	$35 to $40	$35 to $40	-
Adjusted Benchmark Land Values	$36 to $41	$17 to $20	$39 to $44	$36 to $41	$34 to $39
Development Density Assumptions (msf)					
	Residential	Office	Retail	Institutional	Total
Based on HR&A assumptions at FAR 6.57	2.01	0.22	0.07	0.15	2.46
Based on Keating Channel Precinct Plan at FAR 4.00	1.23	0.13	0.04	0.09	1.5
Results (millions)					
	Residential	Office	Retail	Institutional	Total
Based on HR&A assumptions at FAR 6.57	$72 to $82	$4 to $4	$3 to $3	$5 to $6	$84 to $96
Based on Keating Channel Precinct Plan at FAR 4.00	$44 to $50	$2 to $3	$2 to $2	$3 to $4	$51 to $59

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 3 – Study Area Land Value Results

Results (millions)					
	Residential	**Office**	**Retail**	**Institutional**	**Total**
Based on HR&A assumptions at FAR 6.57	$72 to $82	$4 to $4	$3 to $3	$5 to $6	$84 to $96
Based on Keating Channel Precinct Plan at FAR 4.00	$44 to $50	$2 to $3	$2 to $2	$3 to $4	$51 to $59

Impact of Gardiner Realignment Alternatives on Land Values

Alternatives 1, 2 & 3 – Study Area Summary

Gardiner Realignment Land Value Impacts Analysis Benchmark Land Value Assumptions ($ psf)					
Unadjusted Benchmark Values	Residential	Office	Retail	Institutional	Total
	$35 to $40	$18 to $20	$35 to $40	$35 to $40	-
Adjusted Benchmark Values	Residential	Office	Retail	Institutional	Total
Alternative 1	$31 to $36	$15 to $18	$36 to $41	$36 to $41	$30 to $34
Alternative 2	$35 to $40	$17 to $19	$39 to $44	$36 to $41	$34 to $39
Alternative 3	$36 to $41	$17 to $20	$39 to $44	$36 to $41	$34 to $39
Development Density Assumptions (msf)					
Based on HR&A assumptions at FAR 6.57	Residential	Office	Retail	Institutional	Total
Alternative 1	1.26	0.14	0.05	0.09	1.53
Alternative 2	2.01	0.22	0.07	0.15	2.45
Alternative 3	2.01	0.22	0.07	0.15	2.46
Based on Keating Channel Precinct Plan at FAR 4.00	Residential	Office	Retail	Institutional	Total
Alternative 1	0.77	0.08	0.03	0.06	0.93
Alternative 2	1.22	0.13	0.04	0.09	1.49
Alternative 3	1.23	0.13	0.04	0.09	1.5
Results (millions)					
Based on HR&A assumptions at FAR 6.57	Residential	Office	Retail	Institutional	Total
Alternative 1	$39 to $45	$2 to $2	$2 to $2	$3 to $4	$46 to $53
Alternative 2	$71 to $81	$4 to $4	$3 to $3	$5 to $6	$83 to $95
Alternative 3	$72 to $82	$4 to $4	$3 to $3	$5 to $6	$84 to $96
Based on Keating Channel Precinct Plan at FAR 4.00	Residential	Office	Retail	Institutional	Total
Alternative 1	$24 to $27	$1 to $1	$1 to $1	$2 to $2	$28 to $32
Alternative 2	$43 to $49	$2 to $3	$2 to $2	$3 to $4	$50 to $58
Alternative 3	$44 to $50	$2 to $3	$2 to $2	$3 to $4	$51 to $59

Impact of Gardiner Realignment Alternatives on Villiers Island Land Values

Impact of Gardiner Realignment Alternatives on Land Values

Villiers Island

The following pages provide, for each alternative:

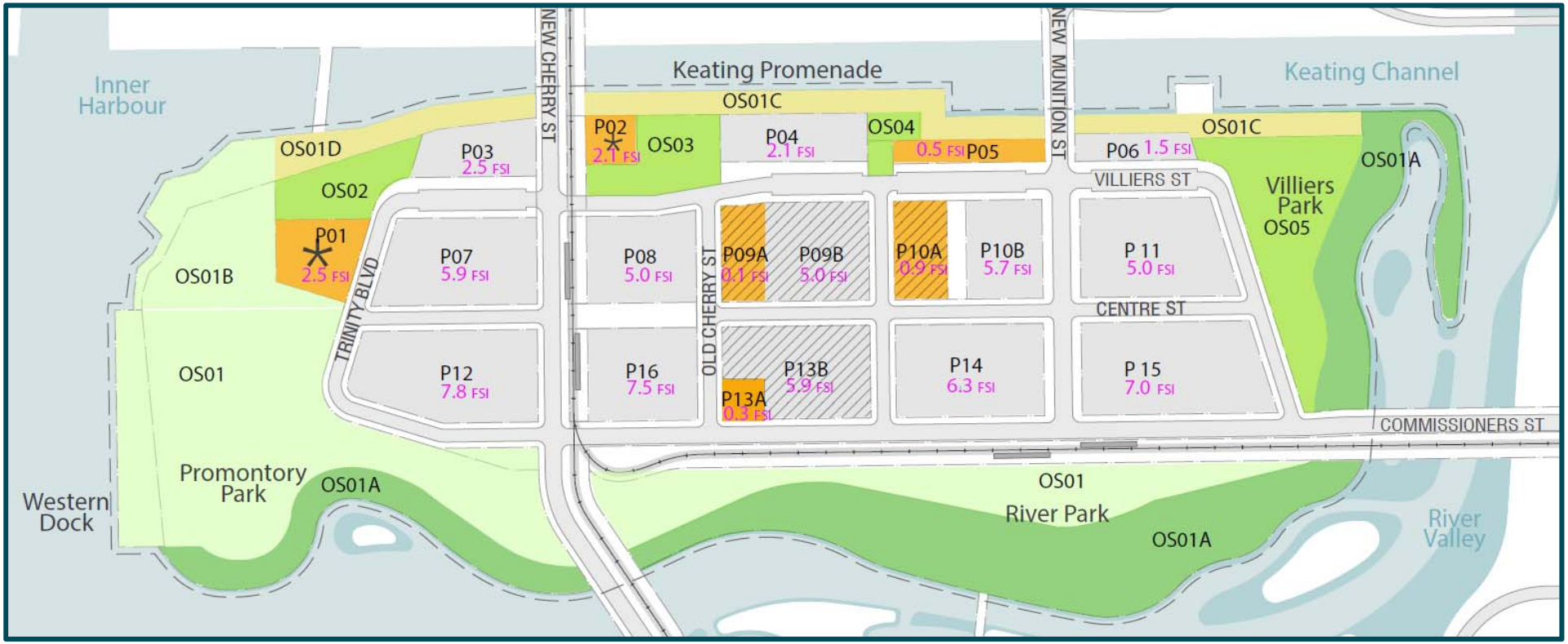
- Study Area block plans
- Key land density value assumptions
- Results summaries

More detail is appended, including:

- Development densities by block and land use
- Land density value adjustment grids
- Detailed development density value assumptions, by block

Impact of Realignment Alternatives on Villiers Island

Block Plan



Impact of Alternatives on Villiers Island Land Values

Key Assumptions

Benchmark Land Value Assumptions ($ psf)	Residential	Non-residential	Total
Unadjusted Benchmark Values	$35 to $40	$18 to $20	-
Adjusted Benchmark Values			
Alternative 1	$40 to $46	$19 to $22	$36 to $41
Alternative 2	$40 to $46	$19 to $22	$36 to $41
Alternative 3	$40 to $46	$19 to $22	$36 to $41

Gardiner Realignment Land Value Impacts Analysis Development Density Assumptions (msf)	Residential	Non-residential	Total
Alternative 1	4.51	1.13	5.64
Alternative 2	4.51	1.13	5.64
Alternative 3	4.51	1.13	5.64

Impact of Alternatives on Villiers Island Land Values

Results Summary

Gardiner Realignment Land Value Impacts Analysis Benchmark Land Value Assumptions ($ psf)			
	Residential	**Non-residential**	**Total**
Unadjusted Benchmark Values	$35 to $40	$18 to $20	-
Adjusted Benchmark Values			
Alternative 1	$40 to $46	$19 to $22	$36 to $41
Alternative 2	$40 to $46	$19 to $22	$36 to $41
Alternative 3	$40 to $46	$19 to $22	$36 to $41
Development Density Assumptions (msf)			
	Residential	**Non-residential**	**Total**
Alternative 1	4.51	1.13	5.64
Alternative 2	4.51	1.13	5.64
Alternative 3	4.51	1.13	5.64
Results (millions)			
	Residential	**Non-residential**	**Total**
Alternative 1	$180 to $206	$21 to $24	$202 to $230
Alternative 2	$183 to $209	$22 to $25	$205 to $234
Alternative 3	$183 to $209	$22 to $25	$205 to $234

Impact of Alternatives on Villiers Island Land Values

Land Value Impact Results

Gardiner Realignment Land Value Impacts Analysis Results (millions)			
	Residential	**Non-residential**	**Total**
Alternative 1	$180 to $206	$21 to $24	$202 to $230
Alternative 2	$183 to $209	$22 to $25	$205 to $234
Alternative 3	$183 to $209	$22 to $25	$205 to $234

Green Gardiner (Consolidated) Option

Green Gardiner (Consolidated) Option

Additional Land Value Created

High Level (Order-of-Magnitude) Land Value Indications					
		Jarvis to Sherbourne	**Sherbourne to Parliament**	**Parliament to Cherry**	**Total**
Green Gardiner (Consolidated) Option					
Acres		2.47	2.47	2.47	7.41
FAR		10.0	10.0	10.0	10.0
Density		1,075,931	1,075,931	1,075,931	3,227,793
% Allocation by Section		33%	33%	33%	100%
Land Density Value	Lower	$50	$40	$30	
2016 $	Higher	$55	$45	$35	
Land Density Value	Lower	$69	$55	$41	
2025 $	Higher	$76	$62	$48	
Total Land Value Indication (rounded)	**Lower**	**$53,800,000**	**$43,000,000**	**$32,300,000**	**$129,100,000**
	Higher	**$59,200,000**	**$48,400,000**	**$37,700,000**	**$145,300,000**
Land Value Growth	2.5%				

Viaduct Option

Viaduct Option

Value of Land to be Acquired

High Level (Order-of-Magnitude) Land Value Indications					
		Jarvis to Sherbourne	**Sherbourne to Parliament**	**Parliament to Cherry**	**Total**
Viaduct Option					
Acres		0.82	0.82	0.82	2.47
FAR		10.00	10.00	10.00	10.00
Density		358,644	358,644	358,644	1,075,931
% Allocation by Section		33%	33%	33%	100%
Land Density Value 2016 $	Lower	$50	$40	$30	
	Higher	$55	$45	$35	
Land Density Value 2025 $	Lower	$69	$55	$41	
	Higher	$76	$62	$48	
Total Land Value Indication (rounded)	**Lower**	**$17,900,000**	**$14,300,000**	**$10,800,000**	**$43,000,000**
	Higher	**$19,700,000**	**$16,100,000**	**$12,600,000**	**$48,400,000**
Land Value Growth	2.5%				

Appendices

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 1 – Study Area Development Metrics

Block Name	Lot Area	Development Density Breakdown				
		Total Dev. Area	Residential	Commerical	Retail	Institutional
	acres	**sq. ft.**				
Density Distribution		**100%**	**82%**	**9%**	**3%**	**6%**
		Using HR&A Assumptions at FAR 6.57				
A	0.37	104,572	85,749	9,411	3,137	6,274
B	0.03	7,828	6,419	705	235	470
C	0.64	183,000	150,060	16,470	5,490	10,980
D	0.53	150,322	123,264	13,529	4,510	9,019
E	0.71	201,842	165,511	18,166	6,055	12,111
F	1.09	311,784	255,663	28,061	9,354	18,707
G	0.83	237,489	194,741	21,374	7,125	14,249
H	1.17	336,006	275,525	30,241	10,080	20,160
TOTAL	**5.36**	**1,532,844**	**1,256,932**	**137,956**	**45,985**	**91,971**
		Using Keating Precinct Plan at FAR 4.00				
		63,666	52,206	5,730	1,910	3,820
		4,766	3,908	429	143	286
		111,416	91,361	10,027	3,342	6,685
		91,520	75,047	8,237	2,746	5,491
		122,887	100,767	11,060	3,687	7,373
		189,823	155,655	17,084	5,695	11,389
		144,590	118,564	13,013	4,338	8,675
		204,570	167,747	18,411	6,137	12,274
		933,238	**765,255**	**83,991**	**27,997**	**55,994**

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 1 – Study Area Land Value Adjustment Grid - Higher Land Values

Land Density Value Adjustment Grid												
		View, Light and Noise Impacts of Gardiner/DVP	View and Noise Impacts of Rail Corridor	Proximity to Adverse Land Uses	Transit Accessibility	Buildable Density Quantum	Block Size, Shape and Configuration	Visibility	Water/ Park Views/ Access	Effective Adjustment (additive)		Unadjusted Land Density Value ($ psf)	Adjusted Land Density Value ($ psf)
A	Residential Condo	0%	0%	0%	20%	0%	0%	0%	0%	20%		$40	$48
	Office	0%	0%	0%	20%	0%	0%	10%	0%	30%		$20	$26
	Retail	0%	0%	0%	10%	0%	0%	10%	0%	20%		$40	$48
	Institutional	0%	0%	0%	20%	0%	0%	10%	0%	30%		$40	$52
B	Residential Condo	0%	0%	0%	20%	0%	0%	0%	0%	20%		$40	$48
	Office	0%	0%	0%	20%	0%	0%	10%	0%	30%		$20	$26
	Retail	0%	0%	0%	10%	0%	0%	10%	0%	20%		$40	$48
	Institutional	0%	0%	0%	20%	0%	0%	10%	0%	30%		$40	$52
C	Residential Condo	0%	-25%	-10%	10%	0%	0%	0%	0%	-25%		$40	$30
	Office	0%	-25%	-10%	10%	0%	0%	0%	0%	-25%		$20	$15
	Retail	0%	0%	-10%	5%	0%	0%	0%	0%	-5%		$40	$38
	Institutional	0%	0%	-10%	10%	0%	0%	0%	0%	0%		$40	$40
D	Residential Condo	-25%	0%	0%	10%	0%	0%	0%	0%	-15%		$40	$34
	Office	-25%	0%	0%	10%	0%	0%	0%	0%	-15%		$20	$17
	Retail	0%	0%	0%	5%	0%	0%	0%	0%	5%		$40	$42
	Institutional	0%	0%	0%	10%	0%	0%	0%	0%	10%		$40	$44
E	Residential Condo	0%	-15%	0%	5%	0%	0%	0%	0%	-10%		$40	$36
	Office	0%	-15%	0%	5%	0%	0%	0%	0%	-10%		$20	$18
	Retail	0%	0%	0%	2.5%	0%	0%	0%	0%	3%		$40	$41
	Institutional	0%	0%	0%	5%	0%	0%	0%	0%	5%		$40	$42
F	Residential Condo	-15%	0%	0%	5%	0%	0%	0%	0%	-10%		$40	$36
	Office	-15%	0%	0%	5%	0%	0%	0%	0%	-10%		$20	$18
	Retail	0%	0%	0%	2.5%	0%	0%	0%	0%	3%		$40	$41
	Institutional	0%	0%	0%	5%	0%	0%	0%	0%	5%		$40	$42
G	Residential Condo	0%	-15%	-10%	0%	0%	0%	0%	15%	-10%		$40	$36
	Office	0%	-15%	-10%	0%	0%	0%	0%	5%	-20%		$20	$16
	Retail	0%	0%	-10%	0%	0%	0%	0%	15%	5%		$40	$42
	Institutional	0%	0%	-10%	0%	0%	0%	0%	0%	-10%		$40	$36
H	Residential Condo	-15%	0%	0%	0%	0%	0%	0%	0%	-15%		$40	$34
	Office	-15%	0%	0%	0%	0%	0%	0%	0%	-15%		$20	$17
	Retail	0%	0%	0%	0%	0%	0%	0%	0%	0%		$40	$40
	Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%		$40	$40

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 1 – Study Area Land Value Adjustment Grid - Lower Land Values

Land Density Value Adjustment Grid												
		View, Light and Noise Impacts of Gardiner/DVP	View and Noise Impacts of Rail Corridor	Proximity to Adverse Land Uses	Transit Accessibility	Buildable Density Quantum	Block Size, Shape and Configuration	Visibility	Water/Park Views/Access	Effective Adjustment (additive)		Unadjusted Land Density Value ($ psf)	Adjusted Land Density Value ($ psf)
A	Residential Condo	0%	0%	0%	20%	0%	0%	0%	0%	20%		$35	$42
	Office	0%	0%	0%	20%	0%	0%	10%	0%	30%		$18	$23
	Retail	0%	0%	0%	10%	0%	0%	10%	0%	20%		$35	$42
	Institutional	0%	0%	0%	20%	0%	0%	10%	0%	30%		$35	$46
B	Residential Condo	0%	0%	0%	20%	0%	0%	0%	0%	20%		$35	$42
	Office	0%	0%	0%	20%	0%	0%	10%	0%	30%		$18	$23
	Retail	0%	0%	0%	10%	0%	0%	10%	0%	20%		$35	$42
	Institutional	0%	0%	0%	20%	0%	0%	10%	0%	30%		$35	$46
C	Residential Condo	0%	-25%	-10%	10%	0%	0%	0%	0%	-25%		$35	$26
	Office	0%	-25%	-10%	10%	0%	0%	0%	0%	-25%		$18	$13
	Retail	0%	0%	-10%	5%	0%	0%	0%	0%	-5%		$35	$33
	Institutional	0%	0%	-10%	10%	0%	0%	0%	0%	0%		$35	$35
D	Residential Condo	-25%	0%	0%	10%	0%	0%	0%	0%	-15%		$35	$30
	Office	-25%	0%	0%	10%	0%	0%	0%	0%	-15%		$18	$15
	Retail	0%	0%	0%	5%	0%	0%	0%	0%	5%		$35	$37
	Institutional	0%	0%	0%	10%	0%	0%	0%	0%	10%		$35	$39
E	Residential Condo	0%	-15%	0%	5%	0%	0%	0%	0%	-10%		$35	$32
	Office	0%	-15%	0%	5%	0%	0%	0%	0%	-10%		$18	$16
	Retail	0%	0%	0%	2.5%	0%	0%	0%	0%	3%		$35	$36
	Institutional	0%	0%	0%	5%	0%	0%	0%	0%	5%		$35	$37
F	Residential Condo	-15%	0%	0%	5%	0%	0%	0%	0%	-10%		$35	$32
	Office	-15%	0%	0%	5%	0%	0%	0%	0%	-10%		$18	$16
	Retail	0%	0%	0%	2.5%	0%	0%	0%	0%	3%		$35	$36
	Institutional	0%	0%	0%	5%	0%	0%	0%	0%	5%		$35	$37
G	Residential Condo	0%	-15%	-10%	0%	0%	0%	0%	15%	-10%		$35	$32
	Office	0%	-15%	-10%	0%	0%	0%	0%	5%	-20%		$18	$14
	Retail	0%	0%	-10%	0%	0%	0%	0%	15%	5%		$35	$37
	Institutional	0%	0%	-10%	0%	0%	0%	0%	0%	-10%		$35	$32
H	Residential Condo	-15%	0%	0%	0%	0%	0%	0%	0%	-15%		$35	$30
	Office	-15%	0%	0%	0%	0%	0%	0%	0%	-15%		$18	$15
	Retail	0%	0%	0%	0%	0%	0%	0%	0%	0%		$35	$35
	Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%		$35	$35

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 2 – Study Area Development Metrics

Block Name	Lot Area	Development Density Breakdown				
		Total Dev. Area	Residential	Commerical	Retail	Institutional
	acres	**sq. ft.**				
Density Distribution			**82%**	**9%**	**3%**	**6%**
		Using HR&A Assumptions at FAR 6.57				
A	0.78	224,439	184,040	20,200	6,733	13,466
B	0.29	82,731	67,839	7,446	2,482	4,964
C	1.60	458,709	376,142	41,284	13,761	27,523
D	1.31	373,579	306,335	33,622	11,207	22,415
E	1.17	333,678	273,616	30,031	10,010	20,021
F	1.10	313,757	257,280	28,238	9,413	18,825
G	2.32	665,187	545,454	59,867	19,956	39,911
TOTAL	**8.57**	**2,452,081**	**2,010,706**	**220,687**	**73,562**	**147,125**
		Using Keating Precinct Plan at FAR 4.00				
		136,645	112,049	12,298	4,099	8,199
		50,369	41,303	4,533	1,511	3,022
		279,275	229,006	25,135	8,378	16,757
		227,445	186,505	20,470	6,823	13,647
		203,153	166,585	18,284	6,095	12,189
		191,024	156,640	17,192	5,731	11,461
		404,985	332,087	36,449	12,150	24,299
		1,492,896	**1,224,174**	**134,361**	**44,787**	**89,574**

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 2 – Study Area Land Value Adjustment Grid - Higher Land Values

Land Density Value Adjustment Grid												
		View, Light and Noise Impacts of Gardiner/DVP	View and Noise Impacts of Rail Corridor	Proximity to Adverse Land Uses	Transit Accessibility	Buildable Density Quantum	Block Size, Shape and Configuration	Visibility	Water/Park Views/ Access	Effective Adjustment (additive)		Unadjusted Land Density Value ($ psf)	Adjusted Land Density Value ($ psf)
A	Residential Condo	-15%	0%	0%	20%	0%	0%	0%	0%	5%		$40	$42
	Office	-15%	0%	0%	20%	0%	0%	10%	0%	15%		$20	$23
	Retail	0%	0%	0%	10%	0%	0%	10%	0%	20%		$40	$48
	Institutional	0%	0%	0%	20%	0%	0%	10%	0%	30%		$40	$52
B	Residential Condo	0%	0%	0%	20%	-10%	0%	0%	20%	30%		$40	$52
	Office	0%	0%	0%	20%	0%	0%	10%	5%	35%		$20	$27
	Retail	0%	0%	0%	10%	0%	0%	10%	20%	40%		$40	$56
	Institutional	0%	0%	0%	20%	0%	0%	10%	0%	30%		$40	$52
C	Residential Condo	-15%	0%	0%	10%	-10%	0%	0%	0%	-15%		$40	$34
	Office	-15%	0%	0%	10%	0%	0%	0%	0%	-5%		$20	$19
	Retail	0%	0%	0%	5%	0%	0%	0%	0%	5%		$40	$42
	Institutional	0%	0%	0%	10%	0%	0%	0%	0%	10%		$40	$44
D	Residential Condo	0%	0%	0%	10%	0%	0%	0%	20%	30%		$40	$52
	Office	0%	0%	0%	10%	0%	0%	0%	5%	15%		$20	$23
	Retail	0%	0%	0%	5%	0%	0%	0%	20%	25%		$40	$50
	Institutional	0%	0%	0%	10%	0%	0%	0%	0%	10%		$40	$44
E	Residential Condo	-15%	0%	0%	5%	0%	0%	0%	0%	-10%		$40	$36
	Office	-15%	0%	0%	5%	0%	0%	0%	0%	-10%		$20	$18
	Retail	0%	0%	0%	2.5%	0%	0%	0%	0%	3%		$40	$41
	Institutional	0%	0%	0%	5%	0%	0%	0%	0%	5%		$40	$42
F	Residential Condo	0%	0%	0%	5%	0%	0%	0%	20%	25%		$40	$50
	Office	0%	0%	0%	5%	0%	0%	0%	5%	10%		$20	$22
	Retail	0%	0%	0%	2.5%	0%	0%	0%	20%	23%		$40	$49
	Institutional	0%	0%	0%	5%	0%	0%	0%	0%	5%		$40	$42
G	Residential Condo	-15%	0%	0%	0%	-20%	0%	0%	20%	-15%		$40	$34
	Office	-15%	0%	0%	0%	0%	0%	-20%	5.0%	-30%		$20	$14
	Retail	0%	0%	0%	0%	0%	0%	-20%	20%	0%		$40	$40
	Institutional	0%	0%	0%	0%	0%	0%	-20%	0%	-20%		$40	$32

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 2 – Study Area Land Value Adjustment Grid - Lower Land Values

Land Density Value Adjustment Grid												
		View, Light and Noise Impacts of Gardiner/DVP	View and Noise Impacts of Rail Corridor	Proximity to Adverse Land Uses	Transit Accessibility	Buildable Density Quantum	Block Size, Shape and Configuration	Visibility	Water/Park Views/Access	Effective Adjustment (additive)		Unadjusted Land Density Value ($ psf)	Adjusted Land Density Value ($ psf)
A	Residential Condo	-15%	0%	0%	20%	0%	0%	0%	0%	5%		$35	$37
	Office	-15%	0%	0%	20%	0%	0%	10%	0%	15%		$18	$20
	Retail	0%	0%	0%	10%	0%	0%	10%	0%	20%		$35	$42
	Institutional	0%	0%	0%	20%	0%	0%	10%	0%	30%		$35	$46
B	Residential Condo	0%	0%	0%	20%	-10%	0%	0%	20%	30%		$35	$46
	Office	0%	0%	0%	20%	0%	0%	10%	5%	35%		$18	$24
	Retail	0%	0%	0%	10%	0%	0%	10%	20%	40%		$35	$49
	Institutional	0%	0%	0%	20%	0%	0%	10%	0%	30%		$35	$46
C	Residential Condo	-15%	0%	0%	10%	-10%	0%	0%	0%	-15%		$35	$30
	Office	-15%	0%	0%	10%	0%	0%	0%	0%	-5%		$18	$17
	Retail	0%	0%	0%	5%	0%	0%	0%	0%	5%		$35	$37
	Institutional	0%	0%	0%	10%	0%	0%	0%	0%	10%		$35	$39
D	Residential Condo	0%	0%	0%	10%	0%	0%	0%	20%	30%		$35	$46
	Office	0%	0%	0%	10%	0%	0%	0%	5%	15%		$18	$20
	Retail	0%	0%	0%	5%	0%	0%	0%	20%	25%		$35	$44
	Institutional	0%	0%	0%	10%	0%	0%	0%	0%	10%		$35	$39
E	Residential Condo	-15%	0%	0%	5%	0%	0%	0%	0%	-10%		$35	$32
	Office	-15%	0%	0%	5%	0%	0%	0%	0%	-10%		$18	$16
	Retail	0%	0%	0%	2.5%	0%	0%	0%	0%	3%		$35	$36
	Institutional	0%	0%	0%	5%	0%	0%	0%	0%	5%		$35	$37
F	Residential Condo	0%	0%	0%	5%	0%	0%	0%	20%	25%		$35	$44
	Office	0%	0%	0%	5%	0%	0%	0%	5%	10%		$18	$19
	Retail	0%	0%	0%	2.5%	0%	0%	0%	20%	23%		$35	$43
	Institutional	0%	0%	0%	5%	0%	0%	0%	0%	5%		$35	$37
G	Residential Condo	-15%	0%	0%	0%	-20%	0%	0%	20%	-15%		$35	$30
	Office	-15%	0%	0%	0%	0%	0%	-20%	5.0%	-30%		$18	$12
	Retail	0%	0%	0%	0%	0%	0%	-20%	20%	0%		$35	$35
	Institutional	0%	0%	0%	0%	0%	0%	-20%	0%	-20%		$35	$28

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 3 – Study Area Development Metrics

Block Name	Lot Area	Development Density Breakdown				
		Total Dev. Area	Residential	Commerical	Retail	Institutional
	acres	**sq. ft.**				
Density Distribution			**82%**	**9%**	**3%**	**6%**
		Using HR&A Assumptions at FAR 6.57				
A	0.78	224,439	184,040	20,200	6,733	13,466
B	0.29	82,731	67,839	7,446	2,482	4,964
C	1.60	458,709	376,142	41,284	13,761	27,523
D	1.31	373,579	306,335	33,622	11,207	22,415
E	1.18	338,386	277,476	30,455	10,152	20,303
F	1.10	313,757	257,280	28,238	9,413	18,825
G	2.32	665,187	545,454	59,867	19,956	39,911
TOTAL	**8.58**	**2,456,788**	**2,014,566**	**221,111**	**73,704**	**147,407**
		Using Keating Precinct Plan at FAR 4.00				
		136,645	112,049	12,298	4,099	8,199
		50,369	41,303	4,533	1,511	3,022
		279,275	229,006	25,135	8,378	16,757
		227,445	186,505	20,470	6,823	13,647
		206,019	168,935	18,542	6,181	12,361
		191,024	156,640	17,192	5,731	11,461
		404,985	332,087	36,449	12,150	24,299
		1,495,761	**1,226,524**	**134,619**	**44,873**	**89,746**

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 3 – Study Area Land Value Adjustment Grid - Higher Land Values

Land Density Value Adjustment Grid												
		View, Light and Noise Impacts of Gardiner/DVP	View and Noise Impacts of Rail Corridor	Proximity to Adverse Land Uses	Transit Accessibility	Buildable Density Quantum	Block Size, Shape and Configuration	Visibility	Water/Park Views/Access	Effective Adjustment (additive)	Unadjusted Land Density Value ($ psf)	Adjusted Land Density Value ($ psf)
A	Residential Condo	-15%	0%	0%	20%	0%	0%	0%	0%	5%	$40	$42
	Office	-15%	0%	0%	20%	0%	0%	10%	0%	15%	$20	$23
	Retail	0%	0%	0%	10%	0%	0%	10%	0%	20%	$40	$48
	Institutional	0%	0%	0%	20%	0%	0%	10%	0%	30%	$40	$52
B	Residential Condo	0%	0%	0%	20%	-10%	0%	0%	20%	30%	$40	$52
	Office	0%	0%	0%	20%	0%	0%	10%	5%	35%	$20	$27
	Retail	0%	0%	0%	10%	0%	0%	10%	20%	40%	$40	$56
	Institutional	0%	0%	0%	20%	0%	0%	10%	0%	30%	$40	$52
C	Residential Condo	-15%	0%	0%	10%	-10%	0%	0%	0%	-15%	$40	$34
	Office	-15%	0%	0%	10%	0%	0%	0%	0%	-5%	$20	$19
	Retail	0%	0%	0%	5%	0%	0%	0%	0%	5%	$40	$42
	Institutional	0%	0%	0%	10%	0%	0%	0%	0%	10%	$40	$44
D	Residential Condo	0%	0%	0%	10%	0%	0%	0%	20%	30%	$40	$52
	Office	0%	0%	0%	10%	0%	0%	0%	5%	15%	$20	$23
	Retail	0%	0%	0%	5%	0%	0%	0%	20%	25%	$40	$50
	Institutional	0%	0%	0%	10%	0%	0%	0%	0%	10%	$40	$44
E	Residential Condo	-15%	0%	0%	5%	0%	0%	0%	0%	-10%	$40	$36
	Office	-15%	0%	0%	5%	0%	0%	0%	0%	-10%	$20	$18
	Retail	0%	0%	0%	2.5%	0%	0%	0%	0%	3%	$40	$41
	Institutional	0%	0%	0%	5%	0%	0%	0%	0%	5%	$40	$42
F	Residential Condo	0%	0%	0%	5%	0%	0%	0%	20%	25%	$40	$50
	Office	0%	0%	0%	5%	0%	0%	0%	5%	10%	$20	$22
	Retail	0%	0%	0%	2.5%	0%	0%	0%	20%	23%	$40	$49
	Institutional	0%	0%	0%	5%	0%	0%	`	0%	5%	$40	$42
G	Residential Condo	0%	0%	0%	0%	-20%	-10%	0%	20%	-10%	$40	$36
	Office	0%	0%	0%	0%	0%	-10%	-10%	5%	-15%	$20	$17
	Retail	0%	0%	0%	0%	0%	-10%	-10%	20%	0%	$40	$40
	Institutional	0%	0%	0%	0%	0%	-10%	-10%	0%	-20%	$40	$32

Impact of Gardiner Realignment Alternatives on Land Values

Alternative 3 – Study Area Land Value Adjustment Grid - Lower Land Values

Land Density Value Adjustment Grid												
		View, Light and Noise Impacts of Gardiner/DVP	View and Noise Impacts of Rail Corridor	Proximity to Adverse Land Uses	Transit Accessibility	Buildable Density Quantum	Block Size, Shape and Configuration	Visibility	Water/Park Views/Access	Effective Adjustment (additive)	Unadjusted Land Density Value ($ psf)	Adjusted Land Density Value ($ psf)
A	Residential Condo	-15%	0%	0%	20%	0%	0%	0%	0%	5%	$35	$37
	Office	-15%	0%	0%	20%	0%	0%	10%	0%	15%	$18	$20
	Retail	0%	0%	0%	10%	0%	0%	10%	0%	20%	$35	$42
	Institutional	0%	0%	0%	20%	0%	0%	10%	0%	30%	$35	$46
B	Residential Condo	0%	0%	0%	20%	-10%	0%	0%	20%	30%	$35	$46
	Office	0%	0%	0%	20%	0%	0%	10%	5%	35%	$18	$24
	Retail	0%	0%	0%	10%	0%	0%	10%	20%	40%	$35	$49
	Institutional	0%	0%	0%	20%	0%	0%	10%	0%	30%	$35	$46
C	Residential Condo	-15%	0%	0%	10%	-10%	0%	0%	0%	-15%	$35	$30
	Office	-15%	0%	0%	10%	0%	0%	0%	0%	-5%	$18	$17
	Retail	0%	0%	0%	5%	0%	0%	0%	0%	5%	$35	$37
	Institutional	0%	0%	0%	10%	0%	0%	0%	0%	10%	$35	$39
D	Residential Condo	0%	0%	0%	10%	0%	0%	0%	20%	30%	$35	$46
	Office	0%	0%	0%	10%	0%	0%	0%	5%	15%	$18	$20
	Retail	0%	0%	0%	5%	0%	0%	0%	20%	25%	$35	$44
	Institutional	0%	0%	0%	10%	0%	0%	0%	0%	10%	$35	$39
E	Residential Condo	-15%	0%	0%	5%	0%	0%	0%	0%	-10%	$35	$32
	Office	-15%	0%	0%	5%	0%	0%	0%	0%	-10%	$18	$16
	Retail	0%	0%	0%	2.5%	0%	0%	0%	0%	3%	$35	$36
	Institutional	0%	0%	0%	5%	0%	0%	0%	0%	5%	$35	$37
F	Residential Condo	0%	0%	0%	5%	0%	0%	0%	20%	25%	$35	$44
	Office	0%	0%	0%	5%	0%	0%	0%	5%	10%	$18	$19
	Retail	0%	0%	0%	2.5%	0%	0%	0%	20%	23%	$35	$43
	Institutional	0%	0%	0%	5%	0%	0%	`	0%	5%	$35	$37
G	Residential Condo	0%	0%	0%	0%	-20%	-10%	0%	20%	-10%	$35	$32
	Office	0%	0%	0%	0%	0%	-10%	-10%	5%	-15%	$18	$15
	Retail	0%	0%	0%	0%	0%	-10%	-10%	20%	0%	$35	$35
	Institutional	0%	0%	0%	0%	0%	-10%	-10%	0%	-20%	$35	$28

Impact of Realignment Alternatives on Villiers Island

Development Metrics

Development Metrics					
Parcel Number - Development	Parcel FSI	Parcel Area (sq. ft.)	Gross Total GFA (sq. ft.)	Residential GFA (sq. ft.)	Non-RES GFA (sq. ft.)
Parcel 01 (catalytic use)	2.5	41,334	103,334	-	103,334
Parcel 02 (catalytic use)	2.1	16,770	35,220	-	35,220
Parcel 03(pool)	2.5	44,358	110,901	76,575	34,326
Parcel 04	2.1	46,866	98,415	-	98,415
Parcel 05 (heritage)	0.5	18,449	9,225	-	9,225
Parcel 06 (school)	1.5	29,483	44,219	-	44,219
Parcel 07	5.9	90,428	533,528	515,423	18,105
Parcel 08	5.0	65,015	325,073	-	325,073
Parcel 09A (heritage)	0.1	26,566	17,793	-	17,793
Parcel 09B (Castlepoint Property)	5.0	71,721	358,603	306,634	51,969
Parcel 10A (heritage Cherry Sound)	0.9	35,510	31,958	-	31,958
Parcel 10B	5.7	47,006	267,937	237,583	30,354
Parcel 11	5.0	97,350	486,748	461,270	25,478
Parcel 12 (T NewCherry)	7.8	107,382	837,579	818,301	19,278
Parcel 13A (heritage)	0.3	12,034	3,606	-	3,606
Parcel 13B (T) (Castlepoint Property)	5.9	81,010	477,954	459,827	18,127
Parcel 14 (T)	6.3	93,055	586,250	562,279	23,971
Parcel 15 (T)	7.0	114,088	798,613	771,068	27,545
Parcel 16 (T NewCherry mixed use)	7.5	68,728	515,466	304,514	210,953
Total		**1,107,153**	**5,642,424**	**4,513,474**	**1,128,950**

Impact of Realignment Alternatives on Villiers Island

Alternative 1 - Land Value Adjustment Grid – Using Higher Land Values

Value Adjustment Grid											
		View, Light and Noise Impacts of Gardiner/DVP	View and Noise Impacts of Rail Corridor	Transit Accessibility	Buildable Density Quantum	Block Size, Shape and Configuration	Visibility	Water/Park Views/Access	Effective Adjustment (additive)	Unadjusted Land Density Value ($ psf)	Adjusted Land Density Value ($ psf)
Parcel 01 (catalytic use)	Residential	0%	0%	5%	0%	0%	0%	25%	30%	$40	$52
	Non-Residential	0%	0%	5%	0%	0%	0%	13%	18%	$20	$24
Parcel 02 (catalytic use)	Residential	-25%	0%	10%	0%	-10%	0%	20%	-5%	$40	$38
	Non-Residential	-25%	0%	10%	20%	-10%	0%	10%	5%	$20	$21
Parcel 03(pool)	Residential	0%	0%	10%	10%	0%	0%	20%	40%	$40	$56
	Non-Residential	0%	0%	0%	0%	0%	0%	10%	10%	$0	$0
Parcel 04	Residential	-10%	0%	5%	0%	0%	0%	20%	15%	$40	$46
	Non-Residential	-10%	0%	5%	0%	0%	0%	10%	5%	$20	$21
Parcel 05 (heritage)	Residential	-25%	0%	5%	0%	-20%	0%	20%	-20%	$40	$32
	Non-Residential	-25%	0%	5%	20%	-20%	-15%	10%	-25%	$20	$15
Parcel 06 (school)	Residential	0%	0%	0%	0%	0%	0%	0%	0%	$0	$0
	Non-Residential	0%	0%	0%	0%	0%	0%	0%	0%	$0	$0
Parcel 07	Residential	0%	0%	20%	-20%	0%	0%	0%	0%	$40	$40
	Non-Residential	0%	0%	20%	0%	0%	10%	0%	30%	$20	$26
Parcel 08	Residential	0%	0%	20%	0%	0%	0%	0%	20%	$40	$48
	Non-Residential	0%	0%	20%	-20%	0%	10%	0%	10%	$20	$22
Parcel 09A (heritage)	Residential	-5%	0%	10%	0%	0%	0%	0%	5%	$40	$42
	Non-Residential	-5%	0%	10%	20%	0%	-10%	0%	15%	$20	$23
Parcel 09B (Castlepoint Property)	Residential	-5%	0%	10%	0%	0%	0%	0%	5%	$40	$42
	Non-Residential	-5%	0%	10%	0%	0%	0%	0%	5%	$20	$21
Parcel 10A (heritage Cherry Sound)	Residential	-7.5%	0.0%	10%	0%	0%	0%	0%	3%	$40	$41
	Non-Residential	-7.5%	0.0%	10%	20%	0%	-10%	0%	13%	$20	$23
Parcel 10B	Residential	-7.5%	0.0%	10%	0%	0%	0%	0%	3%	$40	$41
	Non-Residential	-7.5%	0.0%	10%	0%	0%	0%	0%	3%	$20	$21
Parcel 11	Residential	-7.5%	0.0%	10%	-10%	0%	0%	20%	13%	$40	$45
	Non-Residential	-7.5%	0.0%	10%	0%	0%	0%	10%	13%	$20	$23
Parcel 12 (T NewCherry)	Residential	0%	0%	20%	-30%	0%	0%	25%	15%	$40	$46
	Non-Residential	0%	0%	20%	0%	0%	10%	13%	43%	$20	$29
Parcel 13A (heritage)	Residential	0%	0%	10%	0%	0%	0%	20%	30%	$40	$52
	Non-Residential	0%	0%	10%	20%	0%	0%	10%	40%	$20	$28
Parcel 13B (T) (Castlepoint Property)	Residential	0%	0%	10%	-10%	0%	0%	20%	20%	$40	$48
	Non-Residential	0%	0%	10%	0%	0%	0%	10%	20%	$20	$24
Parcel 14 (T)	Residential	0%	0%	20%	-20%	0%	0%	20%	20%	$40	$48
	Non-Residential	0%	0%	20%	0%	0%	10%	10%	40%	$20	$28
Parcel 15 (T)	Residential	0%	0%	20%	-30%	0%	0%	20%	10%	$40	$44
	Non-Residential	0%	0%	20%	0%	0%	10%	10%	40%	$20	$28
Parcel 16 (T NewCherry mixed use)	Residential	0%	0%	20%	0%	0%	0%	20%	40%	$40	$56
	Non-Residential	0%	0%	20%	-10%	0%	10%	10%	30%	$20	$26

Impact of Realignment Alternatives on Villiers Island

Alternative 1 - Land Value Adjustment Grid – Using Lower Land Values

Value Adjustment Grid												
		View, Light and Noise Impacts of Gardiner/DVP	View and Noise Impacts of Rail Corridor	Transit Accessibility	Buildable Density Quantum	Block Size, Shape and Configuration	Visibility	Water/Park Views/Access		Effective Adjustment (additive)	Unadjusted Land Density Value ($ psf)	Adjusted Land Density Value ($ psf)
Parcel 01 (catalytic use)	Residential	0%	0%	5%	0%	0%	0%	25%		30%	$35	$46
	Non-Residential	0%	0%	5%	0%	0%	0%	13%		18%	$18	$21
Parcel 02 (catalytic use)	Residential	-25%	0%	10%	0%	-10%	0%	20%		-5%	$35	$33
	Non-Residential	-25%	0%	10%	20%	-10%	0%	10%		5%	$18	$18
Parcel 03(pool)	Residential	0%	0%	10%	10%	0%	0%	20%		40%	$35	$49
	Non-Residential	0%	0%	0%	0%	0%	0%	10%		10%	$0	$0
Parcel 04	Residential	-10%	0%	5%	0%	0%	0%	20%		15%	$35	$40
	Non-Residential	-10%	0%	5%	0%	0%	0%	10%		5%	$18	$18
Parcel 05 (heritage)	Residential	-25%	0%	5%	0%	-20%	0%	20%		-20%	$35	$28
	Non-Residential	-25%	0%	5%	20%	-20%	-15%	10%		-25%	$18	$13
Parcel 06 (school)	Residential	0%	0%	0%	0%	0%	0%	0%		0%	$0	$0
	Non-Residential	0%	0%	0%	0%	0%	0%	0%		0%	$0	$0
Parcel 07	Residential	0%	0%	20%	-20%	0%	0%	0%		0%	$35	$35
	Non-Residential	0%	0%	20%	0%	0%	10%	0%		30%	$18	$23
Parcel 08	Residential	0%	0%	20%	0%	0%	0%	0%		20%	$35	$42
	Non-Residential	0%	0%	20%	-20%	0%	10%	0%		10%	$18	$19
Parcel 09A (heritage)	Residential	-5%	0%	10%	0%	0%	0%	0%		5%	$35	$37
	Non-Residential	-5%	0%	10%	20%	0%	-10%	0%		15%	$18	$20
Parcel 09B (Castlepoint Property)	Residential	-5%	0%	10%	0%	0%	0%	0%		5%	$35	$37
	Non-Residential	-5%	0%	10%	0%	0%	0%	0%		5%	$18	$18
Parcel 10A (heritage Cherry Sound)	Residential	-7.5%	0.0%	10%	0%	0%	0%	0%		3%	$35	$36
	Non-Residential	-7.5%	0.0%	10%	20%	0%	-10%	0%		13%	$18	$20
Parcel 10B	Residential	-7.5%	0.0%	10%	0%	0%	0%	0%		3%	$35	$36
	Non-Residential	-7.5%	0.0%	10%	0%	0%	0%	0%		3%	$18	$18
Parcel 11	Residential	-7.5%	0.0%	10%	-10%	0%	0%	20%		13%	$35	$39
	Non-Residential	-7.5%	0.0%	10%	0%	0%	0%	10%		13%	$18	$20
Parcel 12 (T NewCherry)	Residential	0%	0%	20%	-30%	0%	0%	25%		15%	$35	$40
	Non-Residential	0%	0%	20%	0%	0%	10%	13%		43%	$18	$25
Parcel 13A (heritage)	Residential	0%	0%	10%	0%	0%	0%	20%		30%	$35	$46
	Non-Residential	0%	0%	10%	20%	0%	0%	10%		40%	$18	$25
Parcel 13B (T) (Castlepoint Property)	Residential	0%	0%	10%	-10%	0%	0%	20%		20%	$35	$42
	Non-Residential	0%	0%	10%	0%	0%	0%	10%		20%	$18	$21
Parcel 14 (T)	Residential	0%	0%	20%	-20%	0%	0%	20%		20%	$35	$42
	Non-Residential	0%	0%	20%	0%	0%	10%	10%		40%	$18	$25
Parcel 15 (T)	Residential	0%	0%	20%	-30%	0%	0%	20%		10%	$35	$39
	Non-Residential	0%	0%	20%	0%	0%	10%	10%		40%	$18	$25
Parcel 16 (T NewCherry mixed use)	Residential	0%	0%	20%	0%	0%	0%	20%		40%	$35	$49
	Non-Residential	0%	0%	20%	-10%	0%	10%	10%		30%	$18	$23

Impact of Alternatives on Villiers Island

Alternative 1 – Adjusted Land Density Value Assumptions (higher)

Land Value Indications			
	Lot Area (sf)	Residential	Non-Residential
		Adjusted Land Density Value ($ psf)	
Parcel 01 (catalytic use)	41,334	$52.00	$23.50
Parcel 02 (catalytic use)	16,770	$38.00	$21.00
Parcel 03(pool)	44,358	$56.00	$0.00
Parcel 04	46,866	$46.00	$21.00
Parcel 05 (heritage)	18,449	$32.00	$15.00
Parcel 06 (school)	29,483	$0.00	$0.00
Parcel 07	90,428	$40.00	$26.00
Parcel 08	65,015	$48.00	$22.00
Parcel 09A (heritage)	26,566	$42.00	$23.00
Parcel 09B (Castlepoint Property)	71,721	$42.00	$21.00
Parcel 10A (heritage Cherry Sound)	35,510	$41.00	$22.50
Parcel 10B	47,006	$41.00	$20.50
Parcel 11	97,350	$45.00	$22.50
Parcel 12 (T NewCherry)	107,382	$46.00	$28.50
Parcel 13A (heritage)	12,034	$52.00	$28.00
Parcel 13B (T) (Castlepoint Property)	81,010	$48.00	$24.00
Parcel 14 (T)	93,055	$48.00	$28.00
Parcel 15 (T)	114,088	$44.00	$28.00
Parcel 16 (T NewCherry mixed use)	68,728	$56.00	$26.00
TOTAL	**1,107,153**		

Impact of Realignment Alternatives on Villiers Island

Alternative 1 – Adjusted Land Density Value Assumptions (lower)

Land Value Indications			
	Lot Area (sf)	Residential	Non-Residential
		Adjusted Land Density Value ($ psf)	
Parcel 01 (catalytic use)	41,334	$45.50	$20.56
Parcel 02 (catalytic use)	16,770	$33.25	$18.38
Parcel 03(pool)	44,358	$49.00	$0.00
Parcel 04	46,866	$40.25	$18.38
Parcel 05 (heritage)	18,449	$28.00	$13.13
Parcel 06 (school)	29,483	$0.00	$0.00
Parcel 07	90,428	$35.00	$22.75
Parcel 08	65,015	$42.00	$19.25
Parcel 09A (heritage)	26,566	$36.75	$20.13
Parcel 09B (Castlepoint Property)	71,721	$36.75	$18.38
Parcel 10A (heritage Cherry Sound)	35,510	$35.88	$19.69
Parcel 10B	47,006	$35.88	$17.94
Parcel 11	97,350	$39.38	$19.69
Parcel 12 (T NewCherry)	107,382	$40.25	$24.94
Parcel 13A (heritage)	12,034	$45.50	$24.50
Parcel 13B (T) (Castlepoint Property)	81,010	$42.00	$21.00
Parcel 14 (T)	93,055	$42.00	$24.50
Parcel 15 (T)	114,088	$38.50	$24.50
Parcel 16 (T NewCherry mixed use)	68,728	$49.00	$22.75
TOTAL	**1,107,153**		

Impact of Realignment Alternatives on Villiers Island

Alternative 1 – Land Value Impact Results (assuming higher land density values)

Land Value Indications			
	Residential	Non-Residential	Total
	Indicated Land Value ($millions)		
Parcel 01 (catalytic use)	-	$2.4	$2.4
Parcel 02 (catalytic use)	-	$0.7	$0.7
Parcel 03(pool)	$4.29	$0.0	$4.3
Parcel 04	-	$2.1	$2.1
Parcel 05 (heritage)	-	$0.1	$0.1
Parcel 06 (school)	-	$0.0	$0.0
Parcel 07	$20.62	$0.5	$21.1
Parcel 08	-	$7.2	$7.2
Parcel 09A (heritage)	-	$0.4	$0.4
Parcel 09B (Castlepoint Property)	$12.88	$1.1	$14.0
Parcel 10A (heritage Cherry Sound)	-	$0.7	$0.7
Parcel 10B	$9.74	$0.6	$10.4
Parcel 11	$20.76	$0.6	$21.3
Parcel 12 (T NewCherry)	$37.64	$0.5	$38.2
Parcel 13A (heritage)	-	$0.1	$0.1
Parcel 13B (T) (Castlepoint Property)	$22.07	$0.4	$22.5
Parcel 14 (T)	$26.99	$0.7	$27.7
Parcel 15 (T)	$33.93	$0.8	$34.7
Parcel 16 (T NewCherry mixed use)	$17.05	$5.5	$22.5
TOTAL	**$206**	**$24**	**$230**

Impact of Realignment Alternatives on Villiers Island

Alternative 1 – Land Value Impact Results (assuming lower land density values)

Land Value Indications			
	Residential	Non-Residential	Total
	Indicated Land Value ($millions)		
Parcel 01 (catalytic use)	-	$2.1	$2.1
Parcel 02 (catalytic use)	-	$0.6	$0.6
Parcel 03(pool)	$3.75	$0.0	$3.8
Parcel 04	-	$1.8	$1.8
Parcel 05 (heritage)	-	$0.1	$0.1
Parcel 06 (school)	-	$0.0	$0.0
Parcel 07	$18.04	$0.4	$18.5
Parcel 08	-	$6.3	$6.3
Parcel 09A (heritage)	-	$0.4	$0.4
Parcel 09B (Castlepoint Property)	$11.27	$1.0	$12.2
Parcel 10A (heritage Cherry Sound)	-	$0.6	$0.6
Parcel 10B	$8.52	$0.5	$9.1
Parcel 11	$18.16	$0.5	$18.7
Parcel 12 (T NewCherry)	$32.94	$0.5	$33.4
Parcel 13A (heritage)	-	$0.1	$0.1
Parcel 13B (T) (Castlepoint Property)	$19.31	$0.4	$19.7
Parcel 14 (T)	$23.62	$0.6	$24.2
Parcel 15 (T)	$29.69	$0.7	$30.4
Parcel 16 (T NewCherry mixed use)	$14.92	$4.8	$19.7
TOTAL	**$180**	**$21**	**$202**

Impact of Alternatives on Villiers Island

Alternative 2 - Land Value Adjustment Grid- Higher Land Values

Value Adjustment Grid											
		View, Light and Noise Impacts of Gardiner/DVP	View and Noise Impacts of Rail Corridor	Transit Accessibility	Buildable Density Quantum	Block Size, Shape and Configuration	Visibility	Water/Park Views/Access	Effective Adjustment (additive)	Unadjusted Land Density Value ($ psf)	Adjusted Land Density Value ($ psf)
Parcel 01 (catalytic use)	Residential	0%	0%	5%	0%	0%	0%	25%	30%	$40	$52
	Non-Residential	0%	0%	5%	0%	0%	0%	13%	18%	$20	$24
Parcel 02 (catalytic use)	Residential	0%	0%	10%	0%	-10%	0%	20%	20%	$40	$48
	Non-Residential	0%	0%	10%	20%	-10%	0%	10%	30%	$20	$26
Parcel 03(pool)	Residential	0%	0%	10%	10%	0%	0%	20%	40%	$40	$56
	Non-Residential	0%	0%	0%	0%	0%	0%	10%	10%	$0.00	$0
Parcel 04	Residential	0%	0%	5%	0%	0%	0%	20%	25%	$40	$50
	Non-Residential	0%	0%	5%	0%	0%	0%	10%	15%	$20	$23
Parcel 05 (heritage)	Residential	0%	0%	5%	0%	-20%	0%	20%	5%	$40	$42
	Non-Residential	0%	0%	5%	20%	-20%	-15%	10%	0%	$20	$20
Parcel 06 (school)	Residential	0%	0%	0%	0%	0%	0%	0%	0%	$0	$0
	Non-Residential	0%	0%	0%	0%	0%	0%	0%	0%	$0.00	$0
Parcel 07	Residential	0%	0%	20%	-20%	0%	0%	0%	0%	$40	$40
	Non-Residential	0%	0%	20%	0%	0%	10%	0%	30%	$20	$26
Parcel 08	Residential	0%	0%	20%	0%	0%	0%	0%	20%	$40	$48
	Non-Residential	0%	0%	20%	-20%	0%	10%	0%	10%	$20	$22
Parcel 09A (heritage)	Residential	0%	0%	10%	0%	0%	0%	0%	10%	$40	$44
	Non-Residential	0%	0%	10%	20%	0%	-10%	0%	20%	$20	$24
Parcel 09B (Castlepoint Property)	Residential	0%	0%	10%	0%	0%	0%	0%	10%	$40	$44
	Non-Residential	0%	0%	10%	0%	0%	0%	0%	10%	$20	$22
Parcel 10A (heritage Cherry Sound)	Residential	0.0%	0.0%	10%	0%	0%	0%	0%	10%	$40	$44
	Non-Residential	0.0%	0.0%	10%	20%	0%	-10%	0%	20%	$20	$24
Parcel 10B	Residential	0.0%	0.0%	10%	0%	0%	0%	0%	10%	$40	$44
	Non-Residential	0.0%	0.0%	10%	0%	0%	0%	0%	10%	$20	$22
Parcel 11	Residential	0.0%	0.0%	10%	-10%	0%	0%	20%	20%	$40	$48
	Non-Residential	0.0%	0.0%	10%	0%	0%	0%	10%	20%	$20	$24
Parcel 12 (T NewCherry)	Residential	0%	0%	20%	-30%	0%	0%	25%	15%	$40	$46
	Non-Residential	0%	0%	20%	0%	0%	10%	13%	43%	$20	$29
Parcel 13A (heritage)	Residential	0%	0%	10%	0%	0%	0%	20%	30%	$40	$52
	Non-Residential	0%	0%	10%	20%	0%	0%	10%	40%	$20	$28
Parcel 13B (T) (Castlepoint Property)	Residential	0%	0%	10%	-10%	0%	0%	20%	20%	$40	$48
	Non-Residential	0%	0%	10%	0%	0%	0%	10%	20%	$20	$24
Parcel 14 (T)	Residential	0%	0%	20%	-20%	0%	0%	20%	20%	$40	$48
	Non-Residential	0%	0%	20%	0%	0%	10%	10%	40%	$20	$28
Parcel 15 (T)	Residential	0%	0%	20%	-30%	0%	0%	20%	10%	$40	$44
	Non-Residential	0%	0%	20%	0%	0%	10%	10%	40%	$20	$28
Parcel 16 (T NewCherry mixed use)	Residential	0%	0%	20%	0%	0%	0%	20%	40%	$40	$56
	Non-Residential	0%	0%	20%	-10%	0%	10%	10%	30%	$20	$26

Impact of Alternatives on Villiers Island

Alternative 2 - Land Value Adjustment Grid - Lower Land Values

Value Adjustment Grid											
		View, Light and Noise Impacts of Gardiner/DVP	View and Noise Impacts of Rail Corridor	Transit Accessibility	Buildable Density Quantum	Block Size, Shape and Configuration	Visibility	Water/Park Views/Access	Effective Adjustment (additive)	Unadjusted Land Density Value ($ psf)	Adjusted Land Density Value ($ psf)
Parcel 01 (catalytic use)	Residential	0%	0%	5%	0%	0%	0%	25%	30%	$35	$46
	Non-Residential	0%	0%	5%	0%	0%	0%	13%	18%	$18	$21
Parcel 02 (catalytic use)	Residential	0%	0%	10%	0%	-10%	0%	20%	20%	$35	$42
	Non-Residential	0%	0%	10%	20%	-10%	0%	10%	30%	$18	$23
Parcel 03(pool)	Residential	0%	0%	10%	10%	0%	0%	20%	40%	$35	$49
	Non-Residential	0%	0%	0%	0%	0%	0%	10%	10%	$0	$0
Parcel 04	Residential	0%	0%	5%	0%	0%	0%	20%	25%	$35	$44
	Non-Residential	0%	0%	5%	0%	0%	0%	10%	15%	$18	$20
Parcel 05 (heritage)	Residential	0%	0%	5%	0%	-20%	0%	20%	5%	$35	$37
	Non-Residential	0%	0%	5%	20%	-20%	-15%	10%	0%	$18	$18
Parcel 06 (school)	Residential	0%	0%	0%	0%	0%	0%	0%	0%	$0	$0
	Non-Residential	0%	0%	0%	0%	0%	0%	0%	0%	$0	$0
Parcel 07	Residential	0%	0%	20%	-20%	0%	0%	0%	0%	$35	$35
	Non-Residential	0%	0%	20%	0%	0%	10%	0%	30%	$18	$23
Parcel 08	Residential	0%	0%	20%	0%	0%	0%	0%	20%	$35	$42
	Non-Residential	0%	0%	20%	-20%	0%	10%	0%	10%	$18	$19
Parcel 09A (heritage)	Residential	0%	0%	10%	0%	0%	0%	0%	10%	$35	$39
	Non-Residential	0%	0%	10%	20%	0%	-10%	0%	20%	$18	$21
Parcel 09B (Castlepoint Property)	Residential	0%	0%	10%	0%	0%	0%	0%	10%	$35	$39
	Non-Residential	0%	0%	10%	0%	0%	0%	0%	10%	$18	$19
Parcel 10A (heritage Cherry Sound)	Residential	0.0%	0.0%	10%	0%	0%	0%	0%	10%	$35	$39
	Non-Residential	0.0%	0.0%	10%	20%	0%	-10%	0%	20%	$18	$21
Parcel 10B	Residential	0.0%	0.0%	10%	0%	0%	0%	0%	10%	$35	$39
	Non-Residential	0.0%	0.0%	10%	0%	0%	0%	0%	10%	$18	$19
Parcel 11	Residential	0.0%	0.0%	10%	-10%	0%	0%	20%	20%	$35	$42
	Non-Residential	0.0%	0.0%	10%	0%	0%	0%	10%	20%	$18	$21
Parcel 12 (T NewCherry)	Residential	0%	0%	20%	-30%	0%	0%	25%	15%	$35	$40
	Non-Residential	0%	0%	20%	0%	0%	10%	13%	43%	$18	$25
Parcel 13A (heritage)	Residential	0%	0%	10%	0%	0%	0%	20%	30%	$35	$46
	Non-Residential	0%	0%	10%	20%	0%	0%	10%	40%	$18	$25
Parcel 13B (T) (Castlepoint Property)	Residential	0%	0%	10%	-10%	0%	0%	20%	20%	$35	$42
	Non-Residential	0%	0%	10%	0%	0%	0%	10%	20%	$18	$21
Parcel 14 (T)	Residential	0%	0%	20%	-20%	0%	0%	20%	20%	$35	$42
	Non-Residential	0%	0%	20%	0%	0%	10%	10%	40%	$18	$25
Parcel 15 (T)	Residential	0%	0%	20%	-30%	0%	0%	20%	10%	$35	$39
	Non-Residential	0%	0%	20%	0%	0%	10%	10%	40%	$18	$25
Parcel 16 (T NewCherry mixed use)	Residential	0%	0%	20%	0%	0%	0%	20%	40%	$35	$49
	Non-Residential	0%	0%	20%	-10%	0%	10%	10%	30%	$18	$23

Impact of Realignment Alternatives on Villiers Island

Alternative 2 – Adjusted Land Density Value Assumptions (higher)

Land Value Indications			
	Lot Area (sf)	Residential	Non-Residential
		Adjusted Land Density Value ($ psf)	
Parcel 01 (catalytic use)	41,334	$52.00	$23.50
Parcel 02 (catalytic use)	16,770	$48.00	$26.00
Parcel 03(pool)	44,358	$56.00	$0.00
Parcel 04	46,866	$50.00	$23.00
Parcel 05 (heritage)	18,449	$42.00	$20.00
Parcel 06 (school)	29,483	$0.00	$0.00
Parcel 07	90,428	$40.00	$26.00
Parcel 08	65,015	$48.00	$22.00
Parcel 09A (heritage)	26,566	$44.00	$24.00
Parcel 09B (Castlepoint Property)	71,721	$44.00	$22.00
Parcel 10A (heritage Cherry Sound)	35,510	$44.00	$24.00
Parcel 10B	47,006	$44.00	$22.00
Parcel 11	97,350	$48.00	$24.00
Parcel 12 (T NewCherry)	107,382	$46.00	$28.50
Parcel 13A (heritage)	12,034	$52.00	$28.00
Parcel 13B (T) (Castlepoint Property)	81,010	$48.00	$24.00
Parcel 14 (T)	93,055	$48.00	$28.00
Parcel 15 (T)	114,088	$44.00	$28.00
Parcel 16 (T NewCherry mixed use)	68,728	$56.00	$26.00
TOTAL	**1,107,153**		

Impact of Alternatives on Villiers Island

Alternative 2 – Adjusted Land Density Value Assumptions (lower)

Land Value Indications			
	Lot Area (sf)	Residential	Non-Residential
		Adjusted Land Density Value ($ psf)	
Parcel 01 (catalytic use)	41,334	$45.50	$20.56
Parcel 02 (catalytic use)	16,770	$42.00	$22.75
Parcel 03(pool)	44,358	$49.00	$0.00
Parcel 04	46,866	$43.75	$20.13
Parcel 05 (heritage)	18,449	$36.75	$17.50
Parcel 06 (school)	29,483	$0.00	$0.00
Parcel 07	90,428	$35.00	$22.75
Parcel 08	65,015	$42.00	$19.25
Parcel 09A (heritage)	26,566	$38.50	$21.00
Parcel 09B (Castlepoint Property)	71,721	$38.50	$19.25
Parcel 10A (heritage Cherry Sound)	35,510	$38.50	$21.00
Parcel 10B	47,006	$38.50	$19.25
Parcel 11	97,350	$42.00	$21.00
Parcel 12 (T NewCherry)	107,382	$40.25	$24.94
Parcel 13A (heritage)	12,034	$45.50	$24.50
Parcel 13B (T) (Castlepoint Property)	81,010	$42.00	$21.00
Parcel 14 (T)	93,055	$42.00	$24.50
Parcel 15 (T)	114,088	$38.50	$24.50
Parcel 16 (T NewCherry mixed use)	68,728	$49.00	$22.75
TOTAL	**1,107,153**		

Impact of Realignment Alternatives on Villiers Island

Alternative 2 – Land Value Impact Results (assuming higher land density values)

Land Value Indications			
	Residential	Non-Residential	Total
	Indicated Land Value ($millions)		
Parcel 01 (catalytic use)	-	$2.4	$2.4
Parcel 02 (catalytic use)	-	$0.9	$0.9
Parcel 03(pool)	$4.29	$0.0	$4.3
Parcel 04	-	$2.3	$2.3
Parcel 05 (heritage)	-	$0.2	$0.2
Parcel 06 (school)	-	$0.0	$0.0
Parcel 07	$20.62	$0.5	$21.1
Parcel 08	-	$7.2	$7.2
Parcel 09A (heritage)	-	$0.4	$0.4
Parcel 09B (Castlepoint Property)	$13.49	$1.1	$14.6
Parcel 10A (heritage Cherry Sound)	-	$0.8	$0.8
Parcel 10B	$10.45	$0.7	$11.1
Parcel 11	$22.14	$0.6	$22.8
Parcel 12 (T NewCherry)	$37.64	$0.5	$38.2
Parcel 13A (heritage)	-	$0.1	$0.1
Parcel 13B (T) (Castlepoint Property)	$22.07	$0.4	$22.5
Parcel 14 (T)	$26.99	$0.7	$27.7
Parcel 15 (T)	$33.93	$0.8	$34.7
Parcel 16 (T NewCherry mixed use)	$17.05	$5.5	$22.5
TOTAL	**$209**	**$25**	**$234**

Impact of Alternatives on Villiers Island

Alternative 2 – Land Value Impact Results (assuming lower land density values)

Land Value Indications			
	Residential	**Non-Residential**	**Total**
	Indicated Land Value ($millions)		
Parcel 01 (catalytic use)	-	$2.1	$2.1
Parcel 02 (catalytic use)	-	$0.8	$0.8
Parcel 03(pool)	$3.75	$0.0	$3.8
Parcel 04	-	$2.0	$2.0
Parcel 05 (heritage)	-	$0.2	$0.2
Parcel 06 (school)	-	$0.0	$0.0
Parcel 07	$18.04	$0.4	$18.5
Parcel 08	-	$6.3	$6.3
Parcel 09A (heritage)	-	$0.4	$0.4
Parcel 09B (Castlepoint Property)	$11.81	$1.0	$12.8
Parcel 10A (heritage Cherry Sound)	-	$0.7	$0.7
Parcel 10B	$9.15	$0.6	$9.7
Parcel 11	$19.37	$0.5	$19.9
Parcel 12 (T NewCherry)	$32.94	$0.5	$33.4
Parcel 13A (heritage)	-	$0.1	$0.1
Parcel 13B (T) (Castlepoint Property)	$19.31	$0.4	$19.7
Parcel 14 (T)	$23.62	$0.6	$24.2
Parcel 15 (T)	$29.69	$0.7	$30.4
Parcel 16 (T NewCherry mixed use)	$14.92	$4.8	$19.7
TOTAL	**$183**	**$22**	**$205**

Impact of Alternatives on Villiers Island

Alternative 3 - Land Value Adjustment Grid - Higher Land Values

Value Adjustment Grid											
		View, Light and Noise Impacts of Gardiner/DVP	View and Noise Impacts of Rail Corridor	Transit Accessibility	Buildable Density Quantum	Block Size, Shape and Configuration	Visibility	Water/Park Views/Access	Effective Adjustment (additive)	Unadjusted Land Density Value ($ psf)	Adjusted Land Density Value ($ psf)
Parcel 01 (catalytic use)	Residential	0%	0%	5%	0%	0%	0%	25%	30%	$40	$52
	Non-Residential	0%	0%	5%	0%	0%	0%	13%	18%	$20	$24
Parcel 02 (catalytic use)	Residential	0%	0%	10%	0%	-10%	0%	20%	20%	$40	$48
	Non-Residential	0%	0%	10%	20%	-10%	0%	10%	30%	$20	$26
Parcel 03(pool)	Residential	0%	0%	10%	10%	0%	0%	20%	40%	$40	$56
	Non-Residential	0%	0%	0%	0%	0%	0%	10%	10%	$0	$0
Parcel 04	Residential	0%	0%	5%	0%	0%	0%	20%	25%	$40	$50
	Non-Residential	0%	0%	5%	0%	0%	0%	10%	15%	$20	$23
Parcel 05 (heritage)	Residential	0%	0%	5%	0%	-20%	0%	20%	5%	$40	$42
	Non-Residential	0%	0%	5%	20%	-20%	-15%	10%	0%	$20	$20
Parcel 06 (school)	Residential	0%	0%	0%	0%	0%	0%	0%	0%	$0	$0
	Non-Residential	0%	0%	0%	0%	0%	0%	0%	0%	$0	$0
Parcel 07	Residential	0%	0%	20%	-20%	0%	0%	0%	0%	$40	$40
	Non-Residential	0%	0%	20%	0%	0%	10%	0%	30%	$20	$26
Parcel 08	Residential	0%	0%	20%	0%	0%	0%	0%	20%	$40	$48
	Non-Residential	0%	0%	20%	-20%	0%	10%	0%	10%	$20	$22
Parcel 09A (heritage)	Residential	0%	0%	10%	0%	0%	0%	0%	10%	$40	$44
	Non-Residential	0%	0%	10%	20%	0%	-10%	0%	20%	$20	$24
Parcel 09B (Castlepoint Property)	Residential	0%	0%	10%	0%	0%	0%	0%	10%	$40	$44
	Non-Residential	0%	0%	10%	0%	0%	0%	0%	10%	$20	$22
Parcel 10A (heritage Cherry Sound)	Residential	0%	0%	10%	0%	0%	0%	0%	10%	$40	$44
	Non-Residential	0%	0%	10%	20%	0%	-10%	0%	20%	$20	$24
Parcel 10B	Residential	0%	0%	10%	0%	0%	0%	0%	10%	$40	$44
	Non-Residential	0%	0%	10%	0%	0%	0%	0%	10%	$20	$22
Parcel 11	Residential	0%	0%	10%	-10%	0%	0%	20%	20%	$40	$48
	Non-Residential	0%	0%	10%	0%	0%	0%	10%	20%	$20	$24
Parcel 12 (T NewCherry)	Residential	0%	0%	20%	-30%	0%	0%	25%	15%	$40	$46
	Non-Residential	0%	0%	20%	0%	0%	10%	13%	43%	$20	$29
Parcel 13A (heritage)	Residential	0%	0%	10%	0%	0%	0%	20%	30%	$40	$52
	Non-Residential	0%	0%	10%	20%	0%	0%	10%	40%	$20	$28
Parcel 13B (T) (Castlepoint Property)	Residential	0%	0%	10%	-10%	0%	0%	20%	20%	$40	$48
	Non-Residential	0%	0%	10%	0%	0%	0%	10%	20%	$20	$24
Parcel 14 (T)	Residential	0%	0%	20%	-20%	0%	0%	20%	20%	$40	$48
	Non-Residential	0%	0%	20%	0%	0%	10%	10%	40%	$20	$28
Parcel 15 (T)	Residential	0%	0%	20%	-30%	0%	0%	20%	10%	$40	$44
	Non-Residential	0%	0%	20%	0%	0%	10%	10%	40%	$20	$28
Parcel 16 (T NewCherry mixed use)	Residential	0%	0%	20%	0%	0%	0%	20%	40%	$40	$56
	Non-Residential	0%	0%	20%	-10%	0%	10%	10%	30%	$20	$26

Impact of Alternatives on Villiers Island

Alternative 3 - Land Value Adjustment Grid - Lower Land Values

Value Adjustment Grid											
		View, Light and Noise Impacts of Gardiner/DVP	View and Noise Impacts of Rail Corridor	Transit Accessibility	Buildable Density Quantum	Block Size, Shape and Configuration	Visibility	Water/Park Views/Access	Effective Adjustment (additive)	Unadjusted Land Density Value ($ psf)	Adjusted Land Density Value ($ psf)
Parcel 01 (catalytic use)	Residential	0%	0%	5%	0%	0%	0%	25%	30%	$35	$46
	Non-Residential	0%	0%	5%	0%	0%	0%	13%	18%	$18	$21
Parcel 02 (catalytic use)	Residential	0%	0%	10%	0%	-10%	0%	20%	20%	$35	$42
	Non-Residential	0%	0%	10%	20%	-10%	0%	10%	30%	$18	$23
Parcel 03(pool)	Residential	0%	0%	10%	10%	0%	0%	20%	40%	$35	$49
	Non-Residential	0%	0%	0%	0%	0%	0%	10%	10%	$0	$0
Parcel 04	Residential	0%	0%	5%	0%	0%	0%	20%	25%	$35	$44
	Non-Residential	0%	0%	5%	0%	0%	0%	10%	15%	$18	$20
Parcel 05 (heritage)	Residential	0%	0%	5%	0%	-20%	0%	20%	5%	$35	$37
	Non-Residential	0%	0%	5%	20%	-20%	-15%	10%	0%	$18	$18
Parcel 06 (school)	Residential	0%	0%	0%	0%	0%	0%	0%	0%	$0	$0
	Non-Residential	0%	0%	0%	0%	0%	0%	0%	0%	$0	$0
Parcel 07	Residential	0%	0%	20%	-20%	0%	0%	0%	0%	$35	$35
	Non-Residential	0%	0%	20%	0%	0%	10%	0%	30%	$18	$23
Parcel 08	Residential	0%	0%	20%	0%	0%	0%	0%	20%	$35	$42
	Non-Residential	0%	0%	20%	-20%	0%	10%	0%	10%	$18	$19
Parcel 09A (heritage)	Residential	0%	0%	10%	0%	0%	0%	0%	10%	$35	$39
	Non-Residential	0%	0%	10%	20%	0%	-10%	0%	20%	$18	$21
Parcel 09B (Castlepoint Property)	Residential	0%	0%	10%	0%	0%	0%	0%	10%	$35	$39
	Non-Residential	0%	0%	10%	0%	0%	0%	0%	10%	$18	$19
Parcel 10A (heritage Cherry Sound)	Residential	0%	0%	10%	0%	0%	0%	0%	10%	$35	$39
	Non-Residential	0%	0%	10%	20%	0%	-10%	0%	20%	$18	$21
Parcel 10B	Residential	0%	0%	10%	0%	0%	0%	0%	10%	$35	$39
	Non-Residential	0%	0%	10%	0%	0%	0%	0%	10%	$18	$19
Parcel 11	Residential	0%	0%	10%	-10%	0%	0%	20%	20%	$35	$42
	Non-Residential	0%	0%	10%	0%	0%	0%	10%	20%	$18	$21
Parcel 12 (T NewCherry)	Residential	0%	0%	20%	-30%	0%	0%	25%	15%	$35	$40
	Non-Residential	0%	0%	20%	0%	0%	10%	13%	43%	$18	$25
Parcel 13A (heritage)	Residential	0%	0%	10%	0%	0%	0%	20%	30%	$35	$46
	Non-Residential	0%	0%	10%	20%	0%	0%	10%	40%	$18	$25
Parcel 13B (T) (Castlepoint Property)	Residential	0%	0%	10%	-10%	0%	0%	20%	20%	$35	$42
	Non-Residential	0%	0%	10%	0%	0%	0%	10%	20%	$18	$21
Parcel 14 (T)	Residential	0%	0%	20%	-20%	0%	0%	20%	20%	$35	$42
	Non-Residential	0%	0%	20%	0%	0%	10%	10%	40%	$18	$25
Parcel 15 (T)	Residential	0%	0%	20%	-30%	0%	0%	20%	10%	$35	$39
	Non-Residential	0%	0%	20%	0%	0%	10%	10%	40%	$18	$25
Parcel 16 (T NewCherry mixed use)	Residential	0%	0%	20%	0%	0%	0%	20%	40%	$35	$49
	Non-Residential	0%	0%	20%	-10%	0%	10%	10%	30%	$18	$23

Impact of Alternatives on Villiers Island

Alternative 3 – Adjusted Land Density Value Assumptions (higher)

Land Value Indications			
	Lot Area (sf)	Residential	Non-Residential
		Adjusted Land Density Value ($ psf)	
Parcel 01 (catalytic use)	41,334	$52.00	$23.50
Parcel 02 (catalytic use)	16,770	$48.00	$26.00
Parcel 03(pool)	44,358	$56.00	$0.00
Parcel 04	46,866	$50.00	$23.00
Parcel 05 (heritage)	18,449	$42.00	$20.00
Parcel 06 (school)	29,483	$0.00	$0.00
Parcel 07	90,428	$40.00	$26.00
Parcel 08	65,015	$48.00	$22.00
Parcel 09A (heritage)	26,566	$44.00	$24.00
Parcel 09B (Castlepoint Property)	71,721	$44.00	$22.00
Parcel 10A (heritage Cherry Sound)	35,510	$44.00	$24.00
Parcel 10B	47,006	$44.00	$22.00
Parcel 11	97,350	$48.00	$24.00
Parcel 12 (T NewCherry)	107,382	$46.00	$28.50
Parcel 13A (heritage)	12,034	$52.00	$28.00
Parcel 13B (T) (Castlepoint Property)	81,010	$48.00	$24.00
Parcel 14 (T)	93,055	$48.00	$28.00
Parcel 15 (T)	114,088	$44.00	$28.00
Parcel 16 (T NewCherry mixed use)	68,728	$56.00	$26.00
TOTAL	**1,107,153**		

Impact of Alternatives on Villiers Island

Alternative 3 – Adjusted Land Density Value Assumptions (lower)

Land Value Indications			
	Lot Area (sf)	Residential	Non-Residential
		Adjusted Land Density Value ($ psf)	
Parcel 01 (catalytic use)	41,334	$45.50	$20.56
Parcel 02 (catalytic use)	16,770	$42.00	$22.75
Parcel 03(pool)	44,358	$49.00	$0.00
Parcel 04	46,866	$43.75	$20.13
Parcel 05 (heritage)	18,449	$36.75	$17.50
Parcel 06 (school)	29,483	$0.00	$0.00
Parcel 07	90,428	$35.00	$22.75
Parcel 08	65,015	$42.00	$19.25
Parcel 09A (heritage)	26,566	$38.50	$21.00
Parcel 09B (Castlepoint Property)	71,721	$38.50	$19.25
Parcel 10A (heritage Cherry Sound)	35,510	$38.50	$21.00
Parcel 10B	47,006	$38.50	$19.25
Parcel 11	97,350	$42.00	$21.00
Parcel 12 (T NewCherry)	107,382	$40.25	$24.94
Parcel 13A (heritage)	12,034	$45.50	$24.50
Parcel 13B (T) (Castlepoint Property)	81,010	$42.00	$21.00
Parcel 14 (T)	93,055	$42.00	$24.50
Parcel 15 (T)	114,088	$38.50	$24.50
Parcel 16 (T NewCherry mixed use)	68,728	$49.00	$22.75
TOTAL	**1,107,153**		

Impact of Alternatives on Villiers Island

Alternative 3 – Land Value Impact Results (assuming higher land density values)

Land Value Indications			
	Residential	**Non-Residential**	**Total**
	Indicated Land Value ($millions)		
Parcel 01 (catalytic use)	-	$2.4	$2.4
Parcel 02 (catalytic use)	-	$0.9	$0.9
Parcel 03(pool)	$4.29	$0.0	$4.3
Parcel 04	-	$2.3	$2.3
Parcel 05 (heritage)	-	$0.2	$0.2
Parcel 06 (school)	-	$0.0	$0.0
Parcel 07	$20.62	$0.5	$21.1
Parcel 08	-	$7.2	$7.2
Parcel 09A (heritage)	-	$0.4	$0.4
Parcel 09B (Castlepoint Property)	$13.49	$1.1	$14.6
Parcel 10A (heritage Cherry Sound)	-	$0.8	$0.8
Parcel 10B	$10.45	$0.7	$11.1
Parcel 11	$22.14	$0.6	$22.8
Parcel 12 (T NewCherry)	$37.64	$0.5	$38.2
Parcel 13A (heritage)	-	$0.1	$0.1
Parcel 13B (T) (Castlepoint Property)	$22.07	$0.4	$22.5
Parcel 14 (T)	$26.99	$0.7	$27.7
Parcel 15 (T)	$33.93	$0.8	$34.7
Parcel 16 (T NewCherry mixed use)	$17.05	$5.5	$22.5
TOTAL	**$209**	**$25**	**$234**

Impact of Alternatives on Villiers Island

Alternative 3 – Land Value Impact Results (assuming lower land density values)

Land Value Indications			
	Residential	Non-Residential	Total
	Indicated Land Value ($millions)		
Parcel 01 (catalytic use)	-	$2.1	$2.1
Parcel 02 (catalytic use)	-	$0.8	$0.8
Parcel 03(pool)	$3.75	$0.0	$3.8
Parcel 04	-	$2.0	$2.0
Parcel 05 (heritage)	-	$0.2	$0.2
Parcel 06 (school)	-	$0.0	$0.0
Parcel 07	$18.04	$0.4	$18.5
Parcel 08	-	$6.3	$6.3
Parcel 09A (heritage)	-	$0.4	$0.4
Parcel 09B (Castlepoint Property)	$11.81	$1.0	$12.8
Parcel 10A (heritage Cherry Sound)	-	$0.7	$0.7
Parcel 10B	$9.15	$0.6	$9.7
Parcel 11	$19.37	$0.5	$19.9
Parcel 12 (T NewCherry)	$32.94	$0.5	$33.4
Parcel 13A (heritage)	-	$0.1	$0.1
Parcel 13B (T) (Castlepoint Property)	$19.31	$0.4	$19.7
Parcel 14 (T)	$23.62	$0.6	$24.2
Parcel 15 (T)	$29.69	$0.7	$30.4
Parcel 16 (T NewCherry mixed use)	$14.92	$4.8	$19.7
TOTAL	**$183**	**$22**	**$205**

APPENDIX B

ROAD SAFETY AUDIT MEMOS

(Includes Dillon Consulting Limited response memo to AECOM RSA Memo as well as the original AECOM RSA Memo)

MEMO

DATE: February 16, 2016

SUBJECT: Gardiner-Lake Shore Boulevard East Reconfiguration EA – Safety Review Responses

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This memo presents the status of the conceptual design of the three current Hybrid alternatives (Options 1, 2A and 3) with respect to addressing safety review comments chiefly outlined in AECOM's January 5, 2015 memorandum and Dillon's own in-house reviews. These reviews were based on initial, preliminary plans and profiles of the three alternatives. These alternatives are continuing to go through revision as the designs evolve and undergo more detailed evaluation and scrutiny. Figure 1, taken from the AECOM memo, was used to divide the project into sections to assist in the organization of this summary.

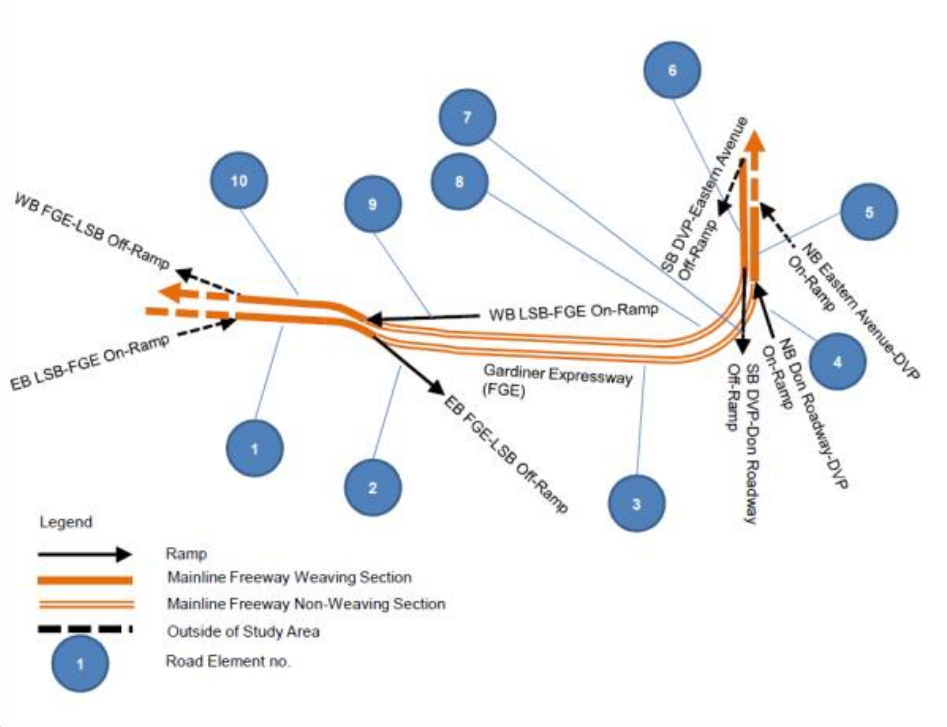

FIGURE 1: SAFETY ANALYSIS SECTIONS

The Comment/response table below is separated into two parts; Part A is a summary by road element (there are ten road elements) and Part B is a summary of potential mitigation comments/responses organized by Alternative. Part B reference numbers (i.e. ID #s) have been noted in the Part A table to aid in the review of recommended actions to be taken.

ID #	AECOM Comment	Dillon Response	Mitigation Reference

ID #	AECOM Comment	Dillon Response	Mitigation Reference
PART A: Comments & Responses By Road Element			
Road Element #1: Eastbound FGE between the Jarvis Street On-Ramp and the New LSB EB Off-ramp			
Alternative 1			
1.	Potential One-Sided Weaving / Speed Differential Issue with cars entering FGE at Jarvis exiting at the FGE-DVP W-N ramp. Potential Sightline Issue at the downstream bullnose	Agree that this is a potential issue with Alternative 1 that has the DVP exit on the median side. This condition is improved with Alternatives 2A and 3 where the DVP exit is on the right side.	23
Alternatives 2A and 3			
2.	Potential Sightline Issue at the downstream bullnose	The bull nose is located 40 m east of the road high spot and is 0.96 m below the high spot in elevation. Although there is a sightline issue (ability to see the road service at the bullnose from west of the high spot) a vehicle stopped at the bullnose, as well as any bullnose signage/hazard warning, will be visible. Shifting the bullnose location to the west and/or moving the vertical curve high spot further east should be reviewed during the design phase. Note that the desire, from an urban design/aesthetic standpoint, to minimize any Gardiner deck widening over the Cherry Street corridor, led to the positioning of the new exit bullnose to the east side and matching the vertical profile of the Gardiner to the west (with its highpoint).	27
3.	Potential for Violation of Drivers' Expectations (left side ramp exit to LSB)	Acknowledged	23
Road Element #2: FGE Eastbound Off-Ramp to LSB			
Alternative 1			
4.	Potential Sightline Issue: approach to Munition Street may have sightlines blocked due to FGE piers and parapet walls – potentially exacerbated by ramp's horizontal curve and step downgrade as well as lighting condition under FGE	Acknowledged. Pier locations will be adjusted, where required, to accommodate this ramp. This has been allowed for in the project costing. The relatively steep downgrade slope (6%) is to ensure adequate flat grade on west approach to Munition intersection. Also see explanation above (ID #2 for bullnose positioning. Lighting will not be an issue – adequate lighting will be provided.	24
Alternative 2A and 3			
5.	Potential Sightline Issue: Stopping sight distance appears not to be available at the western end due to presence of a crest vertical curve with K-value of 9 on top of	K value has been increased to 11.	28

ID #	AECOM Comment	Dillon Response	Mitigation Reference
	the ramp (at STA.0+300).		
Road Element #3: FGE-DVP W-N Ramp			
Alternative 1			
6.	On existing W-N ramp (which is utilized in this option) there is a narrower-than-standard shoulder width for emergency purposes along the curved eastern portion.	Acknowledged – this is an existing condition	25
Alternative 2A and 3			
7.	Potential for Violation of Drivers' Expectations: transition from high speed FGE section to the west to tight 60 km/h ramp)	Acknowledged – mitigation required in advance of this ramp to adjust drivers' approach speed.	29
8.	Potential Sightline / Increased Driver Workload / Vehicle Instability Issues: Along the curved eastern portion of the ramp, motorists sightline could be blocked by the inside parapet walls (exacerbated by presence of parapet walls and steep downgrades /horizontal curve)	Acknowledged – existing ramp downgrade is currently at 6% - same as proposed. Right shoulder increase to 2.5 m. Reduced posted speeds recommended.	30
Road Element #4: Don Roadway-DVP Northbound On-Ramp			
Alternatives 1, 2A and 3			
9.	No issues identified	n/a	n/a
Road Element #5: Northbound DVP			
Alternatives 1, 2A and 3			
10.	No issues identified	n/a	n/a
Road Element #6: Southbound DVP north of FGE Ramp			
Alternatives 1 and 2A			
11.	No issues identified	n/a	n/a
Alternative 3			
12.	Potential for Speed Differentials: Shorter than standard speed-change lane at exit terminal.	Acknowledged. Approach speeds into this section of the DVP recommended for reduction. Increase in length of speed change lane (south from the Richmond – Adelaide interchange) to be assessed further in design phase.	36
Road Element #7: DVP-Don Roadway Southbound Off-ramp			
Alternative #1			
13.	Not reviewed - Profile drawing is needed for further review	Profile not developed as this ramp is unchanged from existing conditions.	n/a
Alternative 2A			
14.	Potential Sightline Issue: Stopping sight	Very tight constraints exist in this area as	31

ID #	AECOM Comment	Dillon Response	Mitigation Reference
	distance appears not to be available for motorists exiting DVP from the ramp due to presence of a crest vertical curve with K-value equal to 4 at STA.0+300.	evidenced by the profile issues with existing southbound Don Roadway. New road profile improvements have been made: K value has been increased from 4 to 10 at STA. 0+287 and road slope after vertical curve has been modified from 6% down to 3.9%	
Alternative 3			
15.	Vertical Clearance Issue: Elevated westbound DVP-FGE ramp located above would create vertical clearance issue for motorists exiting DVP from Don Roadway off-ramp.	Target vertical clearance of 7.0 m has been achieved.	37
Road Element #8: DVP-FGE N-W Ramp			
Alternative 1			
16.	Based on field observations, there is a narrower than standard shoulder width for emergency purposes along the curved eastern portion. No further comment - Profile drawing and design speed are needed for further review, if available.	Acknowledged. Profile not developed as this ramp is unchanged from existing conditions.	26
Alternative 2A			
17.	Potential Sightline / Increased Driver Workload: Along the curved eastern portion of the ramp, motorists' sightlines could be blocked by the outside parapet walls in an environment creating heavy workload for drivers to adjust their vehicles' lane positioning. Proposed geometry would likely not provide necessary unobstructed sight lines for collision avoidance manoeuvering.	Acknowledged –Right shoulder width increase to 2.5 m will aid sightlines as will speed reduction recommendations.	32
Alternative 3			
18.	Potential Sightline Issue / Increased Driver Workload Issue: For a shorter distance in comparison to that of Alternative #2A, along the curved eastern portion of the ramp, motorists' sightlines could be blocked by the outside parapet walls in an environment with heavy workload for drivers to adjust their vehicles' lane positioning. Proposed geometry would likely not provide necessary unobstructed sight lines for collision avoidance manoeuvering.	Acknowledged –Right shoulder width increase to 2.5 m will aid sightlines as will speed reduction recommendations.	38

ID #	AECOM Comment	Dillon Response	Mitigation Reference
19.	Potential for Speed Differentials: Trucks may experience significant loss of speed (especially in icy road conditions) due to presence of a 6.9% upgrade along the curved portion of the ramp.	Grade reduced to 6.0%. This grade Is maintained for only approximately 120 m, truck speed differential not expected to be an issue.	38
Road Element #9: LSB Westbound On-Ramp to FGE			
Alternative #1			
20.	No issues identified.	n/a	n/a
Alternatives 2A and 3			
21.	Potential Sightline Issue: Stopping sight distance appears not to be available for entering motorists from the ramp to FGE due to presence of a crest vertical curve with K-value of 6 at the top of the ramp (STA.0+310).	Crest vertical curve increased form K=6 to K=13.	33
Road Element #10: FGE Westbound to Sherbourne Off-Ramp			
Alternatives 1, 2A and 3			
22.	Potential One-Sided Weaving Issue: between entering vehicles from the DVP N-W and the LSB-FGE on ramps and the Sherbourne exit ramp	Acknowledged. Expected low volume of motorists will be entering the Gardiner at this location from the LSB-FGE on ramp to exit at Sherbourne. Alternatives 2 and 3 place the heavier N-W ramp to Sherbourne exit ramp on the right side to minimize this weave.	34

ID #	AECOM Comment	Dillon Response
PART B: Potential Mitigation Comment/Responses by Alternative		
Alternative #1		
Road Element #1 - Mitigation		
23.	Weaving and speed differential issue: • Appropriate advance signage • Lower FGE speed limit on approach to weaving section (augmented with visual clues - e.g. narrower lanes) • Crash attenuators at the fork • Relocating the LSB off-ramp to left of FGE-DVP ramp (similar to Alternatives #2A and #3).	General agreement the proposed mitigation in the first three bullet points– to be assessed further in the design phase. Relocating the LSB off-ramp to the left would be inconsistent with the intent of this alternative which is to maintain the existing FGE-DVP ramps.
Road Element #2 - Mitigation		
24.	Potential sightline issue (many factors): • Installation of end-of-queue detection systems to warn of potential queues downstream. • Provision of illumination. • Provision of a wider shoulder on the left side of the off-ramp. • Provision of transverse rumble strips along the straight section of the off-ramp. • Removal / relocation of two to three bridge piers located along the north side of the off-ramp approximately between STA.0+300 and STA.0+400.	General agreement with proposed mitigation– to be assessed further in the design phase.
Road Element #3 - Mitigation		
25.	Narrower-than-standard shoulder: • Provision of wider structure for eastbound FGE-DVP ramp.	Widening of this ramp would be inconsistent with the intent of this alternative which is to maintain the existing FGE-DVP ramps.
Road Element #8 - Mitigation		
26.	Potential weaving / speed differential issue between uphill LSB on-ramp and Sherbourne off-ramp: • Relocating the proposed LSB on-ramp to the east such that the on-ramp starts being elevated from the first intersection along the realigned LSB to the west of the LSB / Don Roadway intersection.	Not recommended. Shifting this ramp to the east would conflict with the proposed Munition Street intersection.
Alternative #2		
Road Element #1 - Mitigation		
27.	Potential sightline issue, violation of drivers' expectations and speed differential: • Provision of appropriate signage	

ID #	AECOM Comment	Dillon Response
	• Lowering posted speed on approach mainline (with visual clues) • Implementation of crash attenuators • Relocating the exit fork to the west • Minimize ramp curvature east of bullnose • Provision of rumble strips	General agreement with proposed mitigation– to be assessed further in the design phase. Relocating exit fork to the left is at conflict with desire to minimize deck width over the Cherry Street corridor.
Road Element #2 - Mitigation		
28.	Potential sightline issues: • Provision of appropriate signage • Lowering posted speed on approach mainline (with visual clues) • Implementation of crash attenuators • Relocating the exit fork to the west • Minimize ramp curvature east of bullnose • Provision of rumble strips	General agreement with proposed mitigation– to be assessed further in the design phase. Relocating exit fork to the west is at conflict with desire to minimize deck width over the Cherry Street corridor.
Road Element #3 - Mitigation		
29.	Potential violation of drivers' expectations on eastbound FGE-DVP ramp: • Provision of appropriate signage • Lowering posted speed on approach mainline (with visual clues) • Implementation of crash attenuators • Relocating the exit fork to the west • Minimize ramp curvature east of bullnose • Provision of rumble strips	General agreement with proposed mitigation– to be assessed further in the design phase. Relocating exit fork to the west is at conflict with desire to minimize deck width over the Cherry Street corridor.
30.	Potential sightline issues: • provision of a flatter crest vertical curve • Installation of end-of-queue detection systems • Lowering posted speed limit even further through provision of "reduced speed zone" for motorists travelling eastbound on approach to the curved section	Flatter crest vertical curve achieved with design revision. General agreement with the remainder of the proposed mitigation– to be assessed further in the design phase.
Road Element #7 - Mitigation		
31.	Potential sightline issue for southbound Don Roadway off-ramp: • Provision of a flatter crest vertical curve (if possible, considering all other • Installation of end-of-queue detection systems	New road profile improvements have been made: K value has been increased from 4 to 10 at STA. 0+287 and road slope after vertical curve has been modified from 6% down to 3.9%. General agreement with proposed mitigation– to be assessed further in the design phase.
Road Element #8 - Mitigation		
32.	Potential sightline issue along the eastern portions of the westbound DVP-FGE ramp	

ID #	AECOM Comment	Dillon Response
	due to a combination of curved horizontal alignment and outside bridge parapets: • Installation of end-of-queue detection systems	General agreement with proposed mitigation– to be assessed further in the design phase.
Road Element #9 - Mitigation		
33.	Potential sightline issue for westbound motorists entering from LSB on-ramp due to presence of a crest vertical curve (with K-value equal to 6) at top of the on-ramp (STA.0+310): • Relocating the on-ramp and the associated bull nose at the entrance terminal to the west such that the crest vertical curve can be flattened.	Crest vertical curve increased form K=6 to K=13. . Relocating bull nose of the entrance terminal to the west is at conflict with desire to minimize deck width over the Cherry Street corridor.
Road Element #10 - Mitigation		
34.	Potential weaving / speed differential issue due to relatively high volume of weaving traffic within 420-m long FGE westbound mainline section between uphill LSB on-ramp and Sherbourne off-ramp: • Insufficient weaving traffic volumes to address	Expected low volume of motorists will be entering the Gardiner at this location from the LSB-FGE on ramp to exit at Sherbourne.
Alternative #3		
All Road Elements - Mitigation		
35.	All items listed under Alternatives 2 also apply to Alternative 3 (with exception of sightline issues with Don Roadway SB off-ramp)	See above responses
Road Element #6 - Mitigation		
36.	Potential for speed differentials on southbound DVP mainline section between Eastern off-ramp and Don-Roadway off-ramp due to shorter-than-standard speed-change lane at Don Roadway off-ramp exit terminal: • Provision of a longer speed change lane	General agreement with proposed mitigation– to be assessed further in the design phase.
Road Element #7 - Mitigation		
37.	Vertical clearance issue for motorists exiting DVP from Don Roadway off-ramp: • Revisiting the proposed alignment of Don Roadway off-ramp.	Adjustments to vertical alignment have been recommended. Refer to revised Sheet No. P3-1.
Road Element #8 - Mitigation		
38.	Potential for speed differentials on westbound DVP-FGE ramp; trucks may experience significant loss of speed (especially in icy road conditions) due to presence of a 6.9% upgrade along the	Grade reduced to 6.0%. This grade Is maintained for only approximately 120 m, truck speed differential not expected to be an issue.

ID #	AECOM Comment	Dillon Response
	curved portion of the ramp: • Revisiting the proposed alignment of westbound DVP-FGE ramp.	

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Memorandum

Subject	Waterfront Toronto – Gardiner-DVP Ramps Road Safety Audit
Date	January 5, 2016

This memorandum is intended to provide a summary of findings from the review of the "preliminary" design drawings of the three "Hybrid" Alternative Design Concepts (namely, Alternative #1, Alternative #2A, and Alternative #3) of Gardiner Expressway (FGE)-Don Valley Parkway (DVP) ramps including on-ramps and off-ramps from / to Lakeshore (LSB) Boulevard to / from FGE and those from / to Don Roadway to / from DVP. This memorandum, where possible, also provides a list of potential treatments to mitigate the identified potential safety issues. The study area limits are Cherry Street to the west and Don Roadway to the east. Note that mid-block sections and intersections along LSB as well as non-elevated portions of FGE-DVP ramps are outside of study scope. The review process included a detailed review of the "preliminary" plan and profile drawings provided by Waterfront Toronto, and also considers the observations made during a site visit (on Thursday, November 19, 2015) of the study area, with a focus on the potential safety performance of various road elements within the study area. These road elements include mainline freeway weaving sections, mainline freeway non-weaving sections, and ramps locates within the above-noted study area boundaries. Figure 1 shows a schematic map of the study area and its study road elements.

Note that this memorandum is a revised copy of the memorandum under a similar name that was submitted to Waterfront Toronto project team on December 3, 2015. This revision to the previous memorandum was requested following development of a new version of Alternative #3 by the Gardiner Expressway East EA Consultant team and the Waterfront Toronto's subsequent request to update the road safety audit findings.

The following "preliminary" design drawings were reviewed:

- ALTERNATIVE DESIGN 1 HYBRID[1] – Sheet no. 1 - October 22, 2015;
- ALTERNATIVE DESIGN 1 HYBRID PROFILES[2] – Sheet no. P1-1 - October 9, 2015;
- ALTERNATIVE DESIGN 2A HYBRID[3] – MORE NORTHERN ALIGNMENT - Sheet no. 2A - October 23, 2015;
- ALTERNATIVE DESIGN 2A HYBRID[4] – MORE NORTHERN ALIGNMENT PROFILES (1 OF 2) – Sheet no. P2A-1 - October 9, 2015;
- ALTERNATIVE DESIGN 2A HYBRID[5] – MORE NORTHERN ALIGNMENT PROFILES (2 OF 2) – Sheet no. P2A-2 - October 9, 2015;
- ALTERNATIVE DESIGN 3 HYBRID[6] – NORTHERN ALIGNMENT WITH RAIL BRIDGE WIDENING - Sheet no. 3 - October 23, 2015;

[1] *FILENAME: G:\CAD\091405\2015 PHASE\02-CIVIL\02-DESIGN\2015-09-21 HYBRID OPTION\OPTION 1 VERSION 10.DWG*

[2] *FILENAME: G:\CAD\091405\2015 PHASE\02-CIVIL\02-DESIGN\DESIGN PROFILES\OPTION 1 VERSION 8_ALIGNMENT AND PROFILE.DWG*

[3] *FILENAME: G:\CAD\091405\2015 PHASE\02-CIVIL\02-DESIGN\2015-09-21 HYBRID OPTION\HYBRID OPTION H60A VERSION 6 (OPTION 2A).DWG*

[4] *FILENAME: G:\CAD\091405\2015 PHASE\02-CIVIL\02-DESIGN\DESIGN PROFILES\ HYBRID OPTION H60A VERSION 3_ALIGNMENT AND PROFILE.DWG*

[5] *FILENAME: G:\CAD\091405\2015 PHASE\02-CIVIL\02-DESIGN\DESIGN PROFILES\ HYBRID OPTION H60A VERSION 3_ALIGNMENT AND PROFILE.DWG*

- ALTERNATIVE DESIGN 3 HYBRID[7] – NORTHERN ALIGNMENT WITH RAIL BRIDGE WIDENING PROFILES (1 OF 2) – Sheet no. P3-1 - October 9, 2015;
- ALTERNATIVE DESIGN 3 HYBRID[8] – NORTHERN ALIGNMENT WITH RAIL BRIDGE WIDENING PROFILES (2 OF 2) – Sheet no. P3-2 - October 9, 2015; and
- A marked-up version of ALTERNATIVE DESIGN # HYBRID – NORTHERN ALIGNMENT WITH RAIL BRIDGE WIDENING - Sheet no. 3 - October 23, 2015 with hand written notes to illustrate the proposed changes to the original design of Alternative #3.

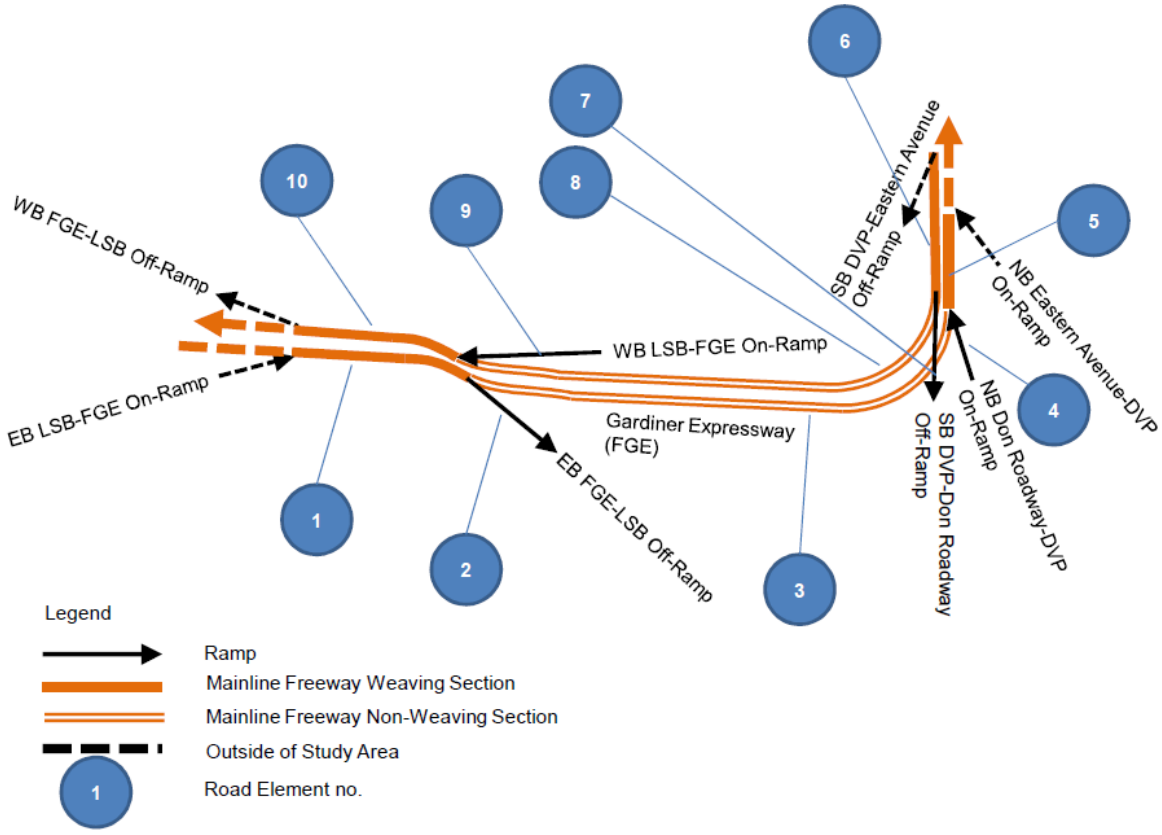

Figure 1 – Study Area Map

Potential Road Safety Issues

The review process included a detailed review of the physical aspects including mainline sections and ramps vertical and horizontal alignments, lane configuration / continuity, as well as relevant environmental considerations. Note that only a high-level review of cross-sectional elements was conducted as at the time of preparation of this memorandum, design drawings illustrating cross sections of road elements were not available. In addition, the safety review considers human factors

[6] *FILENAME: G:\CAD\091405\2015 PHASE\02-CIVIL\02-DESIGN\2015-09-21 HYBRID OPTION\HYBRID NORTHERN OPTION H60 VERSION 6 (OPTION 3).DWG*

[7] *FILENAME: G:\CAD\091405\2015 PHASE\02-CIVIL\02-DESIGN\DESIGN PROFILES\ HYBRID NORTHERN H60 OPTION 3 VERSION 5_ALIGNMENT AND PROFILE.DWG*

[8] *FILENAME: G:\CAD\091405\2015 PHASE\02-CIVIL\02-DESIGN\DESIGN PROFILES\ HYBRID OPTION H60A VERSION 3_ALIGNMENT AND PROFILE.DWG*

and road user safety in the context of the design. The identified potential safety issues for each study road element and "Hybrid" Alternative Design Concept are provided in Table 1.

Note that in conducting the road safety audits, the following assumptions were made:

- Design Speed for FGE for Section to the West of Study Area = 110 km/h;
- Design Speed for DVP for Section to the North of Study Area = 110 km/h;
- Minimum Ramp Design Speed within Study Area (as per information provided in Table F5-1 of the MTO's Geometric Design Standards for Ontario Highways) = 60 km/h;
- Super-elevation along Curved Portions of FGE-DVP ramps = 6%; and
- Design Speed for FGE-DVP Connecting Roadways = 60 km/h in Alternatives #2A, and #3.

Table 2 presents a summary of identified potential safety issues for each of the three "Hybrid" Alternative Design Concepts.

Table 1 – Road Safety Audit Findings

Road Element no.	Road Element Description	Alternative #1	Alternative #2A	Alternative #3
1	Eastbound FGE Mainline Section between Tip of Painted Gore Area of Eastbound LSB-FGE On-Ramp (i.e., Lower Jarvis On-Ramp) and Tip of Painted Gore Area of Eastbound FGE-LSB Off-Ramp (i.e., the "fork")	<u>Potential One-Sided Weaving / Speed Differential Issue</u>: Relatively high volume of motorists (estimated at maximum of 1'130 vehicles during the PM peak hour[9]) entering FGE from the uphill LSB-FGE on-ramp (i.e., Lower Jarvis on-Ramp) and destined to DVP northbound direction are to accelerate to the "assumed" speed and make two lane changes to the left through relatively high volume of motorists (estimated at maximum of 1'846 vehicles during the PM peak hour[10]) on FGE and heading to LSB off-ramp (as well as a portion of motorists on FGE and heading to DVP north) within a 450-m long weaving area. Even if proper signage is provided, for some drivers, the distance travelled during a summation of vehicle acceleration time, "reading time" (i.e., time to read, detect, and understand the to-be-provided overhead / side-mounted signs), "decision time", "manoeuvre time" could be longer than the available weaving distance. <u>Potential Sightline Issue</u>: Due to lane discontinuity at the "fork", some drivers may not initiate lane changing manoeuvres until they see the exit bull nose of the downstream off-ramp (i.e.,	<u>Potential Sightline Issue</u>: Due to lane discontinuity at the "fork", some drivers may not initiate lane changing manoeuvres until they see the physical bull nose of the "fork". **To lesser extent in comparison to that of Alternative #1**, sightline of some motorists on the two inside lanes to the exit bull nose could be blocked by the parapet walls and due to presence of a horizontal curve ahead of the "fork". <u>Potential for Violation of Drivers' Expectations</u>: Considering the existing lay-out with exit ramp to LSB on the right side, a left exit to LSB may violate drivers' expectations; locating the off-ramp on the left side may violate drivers' expectations in the short run (i.e., during initial period after opening to public). In addition, the expected speed differential between the accelerating traffic destined to DVP and decelerating traffic exiting FGE onto LSE off ramp on the inner lanes could create a potential for rear-end collisions.	<u>Potential Sightline Issue</u>: Due to lane discontinuity at the "fork", some drivers may not initiate lane changing manoeuvres until they see the physical bull nose of the "fork". **To lesser extent in comparison to that of Alternative #1**, sightline of some motorists on the two inside lanes to the exit bull nose could be blocked by the parapet walls and due to presence of a horizontal curve ahead of the "fork". <u>Potential for Violation of Drivers' Expectations</u>: Considering the existing lay-out with exit ramp to LSB on the right side, a left exit to LSB may violate drivers' expectations; locating the off-ramp on the left side may violate drivers' expectations in the short run (i.e., during initial period after opening to public). In addition, the expected speed differential between the accelerating traffic destined to DVP and decelerating traffic exiting FGE onto LSE off ramp on the inner lanes could create a potential for rear-end collisions.

[9] *Estimated based on information provided by the EA Consultant team in an email on Friday, November 20, 2015. It was assumed that entering eastbound traffic from Lower Jarvis on-ramp would be destined to DVP (and not LSB).*

[10] *Estimated based on information provided by the EA Consultant team in an email on Friday, November 20, 2015.*

Road Element no.	Road Element Description	Alternative #1	Alternative #2A	Alternative #3
		the "fork"). Sightline of some motorists on the outside lane and the adjacent lane to the exit bull nose could be blocked by the parapet walls and due to presence of a horizontal curve ahead of the "fork".		
2	Eastbound FGE-LSB Off-Ramp	Potential Sightline Issue: The to-be-retained existing bridge piers (of the elevated eastbound FGE mainline section) and inside parapet walls of the off-ramp may obstruct sightlines for exiting motorists on approach to the intersection of Munition Street; approaching motorists' sightlines to end of eastbound vehicles queue may be blocked by the bridge piers and inside parapet walls. This can be of a greater issue in the absence of appropriate lighting for the underpass section of the off-ramp. The proposed design of the ramp with a 5%-downgrade slope followed by a horizontal curve would likely not provide unobstructed sightlines for motorists to make necessary collision avoidance manoeuvers, if needed.	Potential Sightline Issue: Stopping sight distance appears not to be available at the western end due to presence of a crest vertical curve with K-value of 9 on top of the ramp (at STA.0+300). The proposed vertical arrangement would likely not provide unobstructed sightlines for motorists exiting FGE from the ramp to make necessary collision avoidance manoeuvres, if needed.	Potential Sightline Issue: Stopping sight distance appears not to be available at the western end due to presence of a crest vertical curve with K-value of 9 on top of the ramp (at STA.0+300). The proposed vertical arrangement would likely not provide unobstructed sightlines for motorists exiting FGE from the ramp to make necessary collision avoidance manoeuvres, if needed.
3	Eastbound FGE-DVP Ramp[11]	Based on field observations, there is a narrower-than-standard shoulder width for emergency purposes along the curved eastern portion. No further comment - Profile drawing and design speed are needed for further review, if available.	Potential for Violation of Drivers' Expectations: FGE's tangential (straight) and fairly level alignment on approach to the horizontally curved portion of the ramp (with design speed of 60 km/h) is perceived by some drivers as a notion that they can operate safely at speed of 90 km/h or even higher. Hence, drivers' expectations could be violated.	Potential for Violation of Drivers' Expectations: FGE's tangential (straight) and fairly level alignment on approach to the horizontally curved portion of the ramp (with design speed of 60 km/h) is perceived by some drivers as a notion that they can operate safely at speed of 90 km/h or even higher. Hence, drivers' expectations could be violated.

[11] *Eastbound FGE mainline section between tip of painted gore area of FGE-LSB off-ramp and tip of painted gore area of Don Roadway-DVP on-ramp*

Road Element no.	Road Element Description	Alternative #1	Alternative #2A	Alternative #3
			Potential Sightline / Increased Driver Workload / Vehicle Instability Issues: Along the curved eastern portion of the ramp, motorists sightline could be blocked by the inside parapet walls. This is coupled with presence of a crest vertical curve with K-value of 8 followed by a 6.5% downgrade along the curved portion of the ramp at STA.1+040; this creates a potential for sightline obstruction for motorists negotiating the curved portion of the ramp in an environment with heavy workload for drivers to adjust their vehicles' lane positioning and a potential for vehicle instability. Proposed geometry would likely not provide necessary unobstructed sight lines for collision avoidance manoeuvering.	Potential Sightline / Increased Driver Workload / Vehicle Instability Issues: **For a shorter distance in comparison to that of Alternative #2**, along the curved eastern portion of the ramp, motorists sightline could be blocked by the inside parapet walls. This is coupled with presence of a crest vertical curve with K-value of 6 followed by a 6.9% downgrade along the curved portion of the ramp at STA.1+000; this creates a potential for sightline obstruction for motorists negotiating the curved portion of the ramp in an environment with heavy workload for drivers to adjust their vehicles' lane positioning and a potential for vehicle instability. Proposed geometry would likely not provide necessary unobstructed sight lines for collision avoidance manoeuvering.
4	Northbound Don Roadway-DVP On-Ramp	No issues identified.	No issues identified.	No issues identified.
5	Northbound DVP Mainline Section between Tip of Painted Gore Area of Don Roadway-DVP On-Ramp and Tip of Painted Gore Area of Eastern Avenue-DVP On-Ramp	No issues identified.	No issues identified.	No issues identified.

Road Element no.	Road Element Description	Alternative #1	Alternative #2A	Alternative #3
6	Southbound DVP Mainline Section between Tip of Painted Gore Area of DVP-Eastern Avenue Off-Ramp and Tip of Painted Gore Area of DVP-LSB Off-Ramp	No issues identified.	No issues identified.	Potential for Speed Differentials: Shorter than standard speed-change lane at exit terminal.
7	Southbound DVP-Don Roadway Off-Ramp	Not reviewed - Profile drawing is needed for further review, if available.	Potential Sightline Issue: Stopping sight distance appears not to be available for motorists exiting DVP from the ramp due to presence of a crest vertical curve with K-value equal to 4 at STA.0+300.	Vertical Clearance Issue: Elevated westbound DVP-FGE ramp located above would create vertical clearance issue for motorists exiting DVP from Don Roadway off-ramp.
8	Westbound DVP-FGE Ramp[12]	Based on field observations, there is a narrower than standard shoulder width for emergency purposes along the curved eastern portion. No further comment - Profile drawing and design speed are needed for further review, if available.	Potential Sightline / Increased Driver Workload: Along the curved eastern portion of the ramp, motorists' sightlines could be blocked by the outside parapet walls in an environment creating heavy workload for drivers to adjust their vehicles' lane positioning. Proposed geometry would likely not provide necessary unobstructed sight lines for collision avoidance manoeuvering.	Potential Sightline Issue / Increased Driver Workload Issue: **For a shorter distance in comparison to that of Alternative #2A**, along the curved eastern portion of the ramp, motorists' sightlines could be blocked by the outside parapet walls in an environment with heavy workload for drivers to adjust their vehicles' lane positioning. Proposed geometry would likely not provide necessary unobstructed sight lines for collision avoidance manoeuvering. Potential for Speed Differentials: Trucks may experience significant loss of speed (especially in icy road conditions) due to presence of a 6.9% upgrade along the curved portion of the ramp.

[12] *Westbound FGE mainline section between tip of painted gore area of DVP-Don Roadway off-ramp and tip of painted gore area of LSB-FGE on-ramp*

Road Element no.	Road Element Description	Alternative #1	Alternative #2A	Alternative #3
9	Westbound LSB-FGE On-Ramp	No issues identified.	Potential Sightline Issue: Stopping sight distance appears not to be available for entering motorists from the ramp to FGE due to presence of a crest vertical curve with K-value of 6 at the top of the ramp (STA.0+310).	Potential Sightline Issue: Stopping sight distance appears not to be available for entering motorists from the ramp to FGE due to presence of a crest vertical curve with K-value of 6 at the top of the ramp (STA.0+310).
10	Westbound FGE Mainline Section between Tip of Painted Gore Area of Westbound LSB-FGE On-Ramp and Tip of Painted Gore Area of Westbound FGE-LSB Off-Ramp (i.e., Sherbourne Off-Ramp)	Potential One-Sided Weaving Issue: Relatively low volume (estimated at maximum of 389 vehicles during the AM peak hour[13]) of motorists entering FGE from the westbound DVP-FGE ramp and destined to Sherbourne Street off-ramp are to accelerate to the "assumed" speed and make two lane changes to the right through relatively high volume (estimated at maximum of 2,284 vehicles during the AM peak hour[14]) of motorists entering from LSB on-ramp and intended to continue travelling west along FGE within a 420-m long weaving area.	Potential Two-Sided Weaving Issue: Relatively low volume (estimated at maximum of 389 vehicles during the AM peak hour[15]) of motorists entering FGE from the westbound DVP-FGE ramp and destined to Sherbourne Street off-ramp are to accelerate to the "assumed" speed and make two lane changes to the right through relatively high volume (estimated at maximum of 2'587 vehicles during the AM peak hour[16]) of motorists entering from LSB on-ramp and intended to continue travelling west along FGE within a 420-m long weaving area.	Potential Two-Sided Weaving Issue: Relatively low volume (estimated at maximum of 389 vehicles during the AM peak hour[17]) of motorists entering FGE from the westbound DVP-FGE ramp and destined to Sherbourne Street off-ramp are to accelerate to the "assumed" speed and make two lane changes to the right through relatively high volume (estimated at maximum of 2'587 vehicles during the AM peak hour[18]) of motorists entering from LSB on-ramp and intended to continue travelling west along FGE within a 420-m long weaving area.

[13] *Estimated based on information provided by the EA Consultant team in an email on Friday, November 20, 2015. It was conservatively assumed that all traffic exiting FGE from Sherbourne off-ramp are originated from DVP SB.*

[14] *Estimated based on information provided by the EA Consultant team in an email on Friday, November 20, 2015.*

[15] *Estimated based on information provided by the EA Consultant team in an email on Friday, November 20, 2015. It was conservatively assumed that all traffic exiting FGE from Sherbourne off-ramp are originated from LSB.*

[16] *Estimated based on information provided by the EA Consultant team in an email on Friday, November 20, 2015.*

[17] *Estimated based on information provided by the EA Consultant team in an email on Friday, November 20, 2015. It was conservatively assumed that all traffic exiting FGE from Sherbourne off-ramp are originated from LSB.*

[18] *Estimated based on information provided by the EA Consultant team in an email on Friday, November 20, 2015.*

Table 2 – Summary of Road Safety Audit Findings

Alternative #1	Alternative #2A	Alternative #3
• Potential weaving / speed differential issue due to relatively high volume of weaving traffic within 450-m long FGE eastbound mainline section between uphill Lower Jarvis on-ramp and LSB off-ramp (i.e., the "fork"). This is coupled with potential sightline issue for eastbound motorist on approach to the "fork" due to a combination of curved horizontal alignment, outside bridge parapets, and lane discontinuity at the "fork". • Potential sightline issue for motorists exiting from eastbound LSB off-ramp on approach to Munition Street intersection due to a combination of potential sightline obstructions by bridge piers, inside parapet walls, 5% steep downgrade, and curved horizontal alignment along the ramp. • Narrower than standard shoulder width for emergency purposes along the curved eastern portions of eastbound FGE-DVP ramp and westbound DVP-FGE ramp (i.e., N-W ramp). • Potential weaving / speed differential issue due to relatively high volume of weaving traffic within 420-m long FGE westbound mainline section between uphill LSB on-ramp and Sherbourne off-ramp. • Note that the eastbound FGE-DVP ramp has not been fully reviewed yet as profile drawing was not available at the time of preparation of this memorandum. • Note that the westbound DVP-FGE ramp has not been fully reviewed yet as profile drawing was not available at the time of preparation of this memorandum. • Note that the southbound DVP-Don Roadway	• Potential sightline issue for eastbound motorist on approach to the "fork", **to lesser extent in comparison to that of Alternative #1**, due to a combination of curved horizontal alignment, outside bridge parapets, and lane discontinuity at the "fork". • Potential for violation of drivers' expectations for eastbound motorists on approach to the "fork"; considering the existing lay-out with eastbound LSB off-ramp on the right side, locating the off-ramp on the left side may violate drivers' expectations in the short run (i.e., during initial period after opening to public). In addition, the expected speed differential between the accelerating traffic destined to DVP and decelerating traffic exiting FGE onto LSE off ramp on the inner lanes could create a potential for rear-end collisions. • Potential sightline issue for eastbound motorists on approach to LSB off-ramp due to presence of a crest vertical curve (with K-value equal to 9) at top of the off-ramp (STA. 0+300). • Potential for violation of drivers' expectations on eastbound FGE-DVP ramp and vehicle instability; the ramp's straight and fairly level alignment on approach to a horizontally curved portion of the ramp (with design speed of 60 km/h and radius of 130 m) may be perceived by some drivers as a notion that they can operate safely at speed of 90 km/h or even higher. • Potential sightline / increased driver workload / vehicle instability issue on approach to eastern portion of eastbound FGE-DVP ramp due to a combination of curved horizontal alignment, inside bridge parapet walls, and presence of a	• Similar to Alternative #2A - Potential sightline issue for eastbound motorist on approach to the "fork", **to lesser extent in comparison to that of Alternative #1**, due to a combination of curved horizontal alignment, outside bridge parapets, and lane discontinuity at the "fork". • Similar to Alternative #2A - Potential for violation of drivers' expectations for eastbound motorists on approach to the "fork"; considering the existing lay-out with eastbound LSB off-ramp on the right side, locating the off-ramp on the left side may violate drivers' expectations in the short run (i.e., during initial period after opening to public). In addition, the expected speed differential between the accelerating traffic destined to DVP and decelerating traffic exiting FGE onto LSE off ramp on the inner lanes could create a potential for rear-end collisions. • Similar to Alternative #2A - Potential sightline issue for eastbound motorists on approach to LSB off-ramp due to presence of a crest vertical curve (with K-value equal to 9) at top of the off-ramp (STA. 0+300). • Similar to Alternative #2A - Potential for violation of drivers' expectations on eastbound FGE-DVP ramp and vehicle instability; the ramp's straight and fairly level alignment on approach to a horizontally curved portion of the ramp (with design speed of 60 km/h and radius of 130 m) may be perceived by some drivers as a notion that they can operate safely at speed of 90 km/h or even higher. • Potential sightline / increased driver workload / vehicle instability issue on approach to eastern portion of eastbound FGE-DVP ramp due to a combination of curved horizontal alignment, inside

Alternative #1	Alternative #2A	Alternative #3
off-ramp has not been reviewed yet as profile drawing was not available at the time of preparation of this memorandum.	crest vertical curve with K-value of 8 followed by a 6.5% downgrade along the horizontal curve at STA.1+040. • Potential sightline issue for southbound Don Roadway off-ramp due to presence of a crest vertical curve with K-value equal to 4. • Potential sightline / increased driver workload issue along the eastern portions of the westbound DVP-FGE ramp due to a combination of curved horizontal alignment and outside bridge parapets. • Potential sightline issue for westbound motorists entering from LSB on-ramp due to presence of a crest vertical curve (with K-value equal to 6) at top of the on-ramp (STA. 0+310). • Potential weaving / speed differential issue due to relatively high volume of weaving traffic within 420-m long FGE westbound mainline section between uphill LSB on-ramp and Sherbourne off-ramp.	bridge parapets (**for a shorter distance in comparison to that of Alternative #2A**), and presence of a crest vertical curve with K-value of 6 followed by a 6.9% downgrade along the horizontal curve STA.1+000. • Potential for speed differentials on southbound DVP mainline section between Eastern off-ramp and Don-Roadway off-ramp due to shorter-than-standard speed-change lane at Don Roadway off-ramp exit terminal. • Vertical clearance issue for motorists exiting DVP from Don Roadway off-ramp. • Potential sightline / increased driver workload issue **for a shorter distance in comparison to that of Alternative #2A**, along the eastern portion of the westbound DVP-FGE ramp due to a combination of curved horizontal alignment, outside bridge parapets, and presence of a crest vertical curve with K-value of 13 along the horizontal curve. • Potential for speed differentials on westbound DVP-FGE ramp; trucks may experience significant loss of speed (especially in icy road conditions) due to presence of a 6.9% upgrade along the curved portion of the ramp. • Similar to Alternative #2A - Potential sightline issue for westbound motorists entering from LSB on-ramp due to presence of a crest vertical curve (with K-value equal to 6) at top of the on-ramp (STA. 0+310). • Similar to Alternative #2A - Potential weaving / speed differential issue due to relatively high volume of weaving traffic within 420-m long FGE westbound mainline section between uphill LSB on-ramp and Sherbourne off-ramp.

Potential Treatments

Table 3 presents potential treatment options to address the identified road safety issues for the three "Hybrid" Alternative Design Concepts.

Note that this section is not intended to prescribe specific types of treatments to be implemented within the study area. It only provides potential "engineering" treatment options. However, the implementation of the listed potential treatments does not ensure that the subject road elements would be "safe". "Safety" is a relative term and a design can only be either more or less safe, and not "safe" or "unsafe". Including these potential treatments has a potential to improve the overall safety performance of the facility. Finally, it should be noted that the scope and focus of this memorandum is road safety. Other factors (cost, structural and geotechnical adequacy / considerations, aesthetics, and others) pertinent to planning and engineering decision-making for the evaluations of the three alternatives are out of the "road safety" scope of work.

Alternative no.	Identified Safety Issues	Potential Treatments
1	• Road Element no. 1 - Potential weaving / speed differential issue due to relatively high volume of weaving traffic within 450-m long FGE eastbound mainline section between uphill Lower Jarvis on-ramp and LSB off-ramp (i.e., the "fork"). This is coupled with potential sightline issue for eastbound motorist on approach to the "fork" due to a combination of curved horizontal alignment, outside bridge parapets, and lane discontinuity at the "fork".	• Provision of appropriate overhead "advance" and "turn-off" guide signs for entering motorists from the Lower Jarvis on-ramp as well as those travelling on the eastbound FGE mainline section. • Lowering posted speed limits for motorists travelling eastbound on FGE mainline section on approach to the weaving section. This should be accompanied with provision of visual clues (e.g., narrower travel lanes) to motorists that road environment requires lower travel speed. • Provision of crash attenuators at the "fork". • Relocating the LSB off-ramp to left of FGE-DVP ramp (similar to Alternatives #2A and #3).
	• Road Element no. 2 - Potential sightline issue for motorists exiting from eastbound LSB off-ramp on approach to Munition Street intersection due to a combination of potential sightline obstructions by bridge piers, inside parapet walls, 5% steep downgrade, and curved horizontal alignment along the ramp.	• Installation of end-of-queue detection systems along the off-ramp to warn the exiting motorists from FGE on the straight section of the off-ramp about potential queues downstream. • Provision of illumination. • Provision of a wider shoulder on the left side of the off-ramp. • Provision of transverse rumble strips along the straight section of the off-ramp. • Removal / relocation of two to three bridge piers located along the north side of the off-ramp approximately between STA.0+300 and STA.0+400.

Alternative no.	Identified Safety Issues	Potential Treatments
1	• Road Element no. 3 – Narrower-than-standard shoulder width for emergency purposes along the curved eastern portions of eastbound FGE-DVP ramp and westbound DVP-FGE ramp (i.e., N-W ramp).	• Provision of wider structure for eastbound FGE-DVP ramp. Note that even in the existing design the shoulder widths along this curved section is narrower than standard.
	• Road Element no. 8 - Potential weaving / speed differential issue due to relatively high volume of weaving traffic within 420-m long FGE westbound mainline section between uphill LSB on-ramp and Sherbourne off-ramp.	• Relocating the proposed LSB on-ramp to the east such that the on-ramp starts being elevated from the first intersection along the realigned LSB to the west of the LSB / Don Roadway intersection.
2	• Road Element no. 1 - Potential sightline issue for eastbound motorist on approach to the "fork" due to a combination of curved horizontal alignment, outside bridge parapets, and lane discontinuity at the "fork".	• Provision of appropriate overhead "advance" (e.g., diagrammatic) and "turn-off" guide signs for entering motorists from the Lower Jarvis on-ramp as well as those travelling on the eastbound FGE mainline section. • Lowering posted speed limits for motorists travelling eastbound on FGE mainline section on approach to the weaving section. This should be accompanied with provision of visual clues to motorists that road environment requires lower travel speed. • Provision of crash attenuators at the "fork". • Relocating the "fork" and the associated bull nose to the west such that the bull nose can be seen from longer distances (than decision sight distance) on eastbound mainline section ahead of the "fork". Moreover, this way the crest vertical curve on top of the off-ramp can be slightly flattened. In addition, with relocation of the bull nose to the west, the off-ramp could have a straight and flat alignment for some distance downstream of the bull nose before its downhill slope starts; there would be a
	• Road Element no. 1 - Potential for violation of drivers' expectations on approach to the "fork"; considering the existing lay-out with eastbound LSB off-ramp on the right side, locating the off-ramp on the left side may violate drivers' expectations in the short run (i.e., during initial period after opening to public). In addition, the expected speed differential between the accelerating traffic destined to DVP and decelerating traffic exiting FGE onto LSE off ramp on the inner lanes could create a potential for rear-end collisions.	
	• Road Element no. 2 - Potential sightline issue for eastbound motorists on approach to LSB off-ramp due to presence of a crest vertical curve (with K-value equal to 9) at top of the off-ramp (STA.0+300).	

Alternative no.	Identified Safety Issues	Potential Treatments
2	• Road Element no. 3 - Potential violation of drivers' expectations on eastbound FGE-DVP ramp; the ramp's straight and fairly level alignment on approach to a horizontally curved portion of the ramp (with design speed of 60 km/h and radius of 130 m) may be perceived by some drivers as a notion that they can operate safely at speed of 90 km/h or even higher.	lower number of motorists (as compared to how it is proposed in Alternative #2A with the downhill slope starts immediately downstream of the bull-nose location) given an impression that the eastbound FGE-DVP ramp is a mainline freeway with a left-side exit ramp. • Provision of transverse rumble strips along the straight section of the eastbound FGE-DVP ramp on approach to the horizontally curved portion on the east end.
	• Road Element no. 3 - Potential sightline / increased driver workload issue on approach to eastern portion of eastbound FGE-DVP ramp due to a combination of curved horizontal alignment, inside bridge parapets, and presence of a crest vertical curve with K-value of 8 along the horizontal curve at STA.1+040.	• In addition to the above, provision of a flatter crest vertical curve (if possible, considering all other constraints) • Installation of end-of-queue detection systems along the curved portion of the ramp to warn the eastbound motorists about potential queues downstream. • Lowering posted speed limit even further through provision of "reduced speed zone" for motorists travelling eastbound on approach to the curved section.
	• Road Element no. 7 - Potential sightline issue for southbound Don Roadway off-ramp due to presence of a crest vertical curve with K-value equal to 4.	• Provision of a flatter crest vertical curve (if possible, considering all other constraints). • Installation of end-of-queue detection systems along the off-ramp to warn the exiting motorists from DVP on the speed change lane of the off-ramp about potential queues downstream.
	• Road Element no. 8 - Potential sightline issue along the eastern portions of the westbound DVP-FGE ramp due to a combination of curved horizontal alignment and outside bridge parapets.	• Installation of end-of-queue detection systems along the curved portion of the ramp to warn the entering motorists from DVP about potential queues downstream.
	• Road Element no. 9 - Potential sightline issue for westbound motorists entering from LSB on-ramp due to presence of a crest vertical curve (with K-value equal to 6) at top of the on-ramp (STA.0+310).	• Relocating the on-ramp and the associated bull nose at the entrance terminal to the west such that the crest vertical curve can be flattened.

Alternative no.	Identified Safety Issues	Potential Treatments
2	• Road Element no. 10 - Potential weaving / speed differential issue due to relatively high volume of weaving traffic within 420-m long FGE westbound mainline section between uphill LSB on-ramp and Sherbourne off-ramp.	Note that development of potential treatments for this issue requires traffic volumes information within this weaving section (i.e., traffic volumes from DVP to FGE, from LSB on-ramp to FGE, from DVP to Sherbourne Street off-ramp, and from LSB to Sherbourne Street off-ramp) which were not available at the time of preparation of this memorandum.
3	Note that with the exception of the three below issues, all the issues identified for Alternative #3 is the same as those for Alternative #2A. In addition, the noted potential sightline issue for southbound Don Roadway off-ramp due to presence of a crest vertical curve with Alternative #2A would not be a concern with Alternative #3.	Note that the potential treatments are similar to those noted above for Alternative #2A.
	• Road Element no. 6 - Potential for speed differentials on southbound DVP mainline section between Eastern off-ramp and Don-Roadway off-ramp due to shorter-than-standard speed-change lane at Don Roadway off-ramp exit terminal.	• Provision of a longer speed change lane (if possible, considering all other constraints).
	• Road Element no. 7 - Vertical clearance issue for motorists exiting DVP from Don Roadway off-ramp.	• Revisiting the proposed alignment of Don Roadway off-ramp.
	• Road Element no. 8 - Potential for speed differentials on westbound DVP-FGE ramp; trucks may experience significant loss of speed (especially in icy road conditions) due to presence of a 6.9% upgrade along the curved portion of the ramp.	• Revisiting the proposed alignment of westbound DVP-FGE ramp.

APPENDIX C

CONSTRUCTABILITY PHASING REPORT

Hybrid Alternative 1 – Constructability Review

Key Features

Generally, the existing elevated F.G. Gardiner (FGE) will undergo life cycle rehabilitation as per the City's Maintain Scheme from Yonge Street to Cherry Street; this section of the FGE will remain at its longitudinal and vertical alignment. For the section east of Cherry Street, a number of major structural work items will be carried out as follows:

a) **Logan Ramps** - the FGE Logan ramps will be demolished.
b) **Don River Bridge** - the existing Don River Bridge will be removed and replaced with a wider bridge carrying 7 lanes and 1 track. The new bridge will be longer to accommodate for the new widened Don River layout.
c) **Don Roadway** - the existing Don Roadway between the Metrolinx RailBridge and LSB will be widened and realigned to carry 4 lanes (2 NBL + 2 SBL) of traffic during construction staging.
d) **On/Off Ramps** - LSB traffic east of the Don Roadway will access the FGE via new on and off ramps that will be constructed near Cherry Street. These two ramps will start from ground level approximately 250 m east of Cherry Street.
e) **Lake Shore Blvd.** - a new 4 lane (2 EBL + 2 WBL) LSB roadway will be constructed north of the existing FGE to carry WB/EB traffic at ground level.
   A pedestrian sidewalk and a multi-use lane will be provided outside of the new LSB curbs.
   The following new roadways will intersect with the new 6 lane LSB:
   i. A new 2 lane (1 EBL + 1 WBL) Queen's Quay roadway will be constructed extending southward from the new LSB roadway and swinging west connecting to Cherry Street.
   ii. A new 5 lane (2 SBL + 2 NBL + 1 NBLRL) Munition Street will be constructed extending southward from the new LSB roadway crossing the existing LSB.
f) **F.G. Gardiner** - the bridge deck will be narrowed down from 6 lanes to 4 lanes for an approximate 300 m long segment between Cherry Street and Munition Street.

In addition to the work items listed above, additional work will be required to further develop the area south of the Keating Channel and to construct two new structures crossing the Keating Channel (Munition Street-Keating Channel Crossing and New Street-Keating Channel Crossing). At this time, consideration of this work is premature; therefore, the associated structural items are excluded in this constructability review and cost study.

Constructability Review and Recommendation – Hybrid Alternative 1:

1. For this alternative, a portion of the elevated structures east of Cherry Street will be removed and replaced with structures on an altered alignment. The new LSB roadway will be located north of the existing FGE. Complete demolition of the Logan Ramps and structural modification to the FGE will be carried out to allow the new LSB roadway to pass beneath. The total number of lanes in the FGE/LSB corridor will be reduced during construction due to the need to provide sufficient working areas for the new construction work, contractor access, as well as laydown

areas and prefabrication yards. Additionally, safety considerations will preclude the removal of major deck panels and substructure components over live traffic or public / inhabited areas due to the inherent danger / hazard associated with such significant operations.

2. Described below is a possible scheme for how the removal and new construction work can be staged to allow for this corridor to remain partially operational during construction; there may be costs associated with temporary strengthening of structures.

3. Traffic management under this alternative will consider the following:
    - Utilizing Commissioners Street and Villiers Street to detour LSB traffic around the Gardiner East Ramp structures and the Don Roadway/LSB Intersection to facilitate the construction of this major intersection.

4. Potential Staging:

    - <u>Pre-Stage</u>

        Construction

        - Widen the existing Don Roadway to two lanes in both the NB and SB directions and realign to fit the future final alignment.
        - Construct a new 6 lane EB/WB detour. The detour will begin at the Don Roadway and LSB intersection, continue south to Villiers Street, across Villiers Street, and then back north of Keating Channel before finally connecting to
        - existing LSB west of Cherry Street. The work will include construction of a temporary timber deck bridge across Keating Channel (approximately 80 m east of Cherry Street), widening of Villiers Street, and adding temporary roadways to swing the traffic back to the existing LSB.
        - The existing Jarvis Ramp will be widened and the pavement remarked to carry two lanes with reduced speed. Widening of the ramp will assist in balancing the traffic capacity and carrying LSB traffic onto the FGE.
        - Begin construction of the FGE-Cherry Ramp Bridges that are not in conflict with the existing structure or the existing LSB (i.e. all except the west ends of both ramp bridges and the east end of EBL ramp bridge).
        - Construct portions of the new LSB roadway that are not in conflict with the existing structure or the existing LSB.

    - <u>Stage 1</u>

        Demolition

        - Shut down the N/W DVP ramp and FGE WBL.

- Shut down the WBL of the old LSB, Don River Bridge, and Logan Ramp. Demolish WBL of Logan Ramp and Don River Bridge.
- The above ground demolition work shall be carried out over the weekend and during night time with protection to avoid fallen objects to the north side of the existing LSB. Also one lane of the north side of the existing LSB may be shut down to provide additional clearance.

Construction

- Construct the north half of the Don River Bridge.
- Construct the west end of the FGE WBL on ramp at Cherry Street.
- Carry out structural modifications to the N/W DVP Ramp [bent 324 to PS3 for Ps ramp] by shifting the bent locations to provide horizontal clearance for the new LSB.
- Continue construction of the new LSB WBL where not in conflict with the existing W/N DVP Ramp.
- The WB/EB traffic will be shared with the new 6 lane detour.

- Stage 2

Demolition

- Shut down the W/N DVP Ramp and FGE EBL.
- Shut down EBL of the old LSB, Don River Bridge, and Logan Ramp. Demolish EBL of Logan Ramp and Don River Bridge.
- The above ground demolition work shall be carried out over the weekend and night time with protection to avoid fallen objects to the south side of the existing LSB. Also one lane of the south side of the existing LSB may be shut down to provide additional clearance.

Construction

- Construct the south half of the Don River Bridge.
- Construct the east and west ends of the FGE EBL off ramp at Cherry Street.
- Carry out structural modifications to the W/N DVP Ramp [bent 327 to 330 for Pn ramp] by shifting the bent locations to provide horizontal clearance for the new LSB.
- Complete construction of the new LSB.

- The WB/EB traffic will be shared among the new 6 lane detour.

- Final

Demolition

- Remove the temporary timber deck bridge over Keating Channel.

Construction

- Finish the new Queens Quay, Munition Street, and other road work as required to be in alignment with the final configuration.

Sketches