The City of Barrie

TRANSPORTATION MASTER PLAN

Appendix H – Roadway and Transit Costing Technical Memorandum

June 2019

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TRANSPORTATION MASTER PLAN

ROADWAY AND TRANSIT COSTING TECHNICAL MEMORANDUM

CITY OF BARRIE

TECHNICAL MEMORANDUM

PROJECT NO.: 171-08853-00
DATE: JUNE 12, 2019

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TABLES

FIGURES

APPENDICES

1 INTRODUCTION

The right-of-way (ROW) is the width of land owned by the City that accommodates the roadway's infrastructure facilities, such as vehicle travel lanes, sidewalks, cycling facilities, and boulevards for landscaping, utilities, and other facilities. Right-of-way protection is essential for the development of the City's transportation network and ensuring sufficient land for future roadway work. As part of the City of Barrie's Transportation Master Plan (TMP), numerous roadway projects have been recommended to support the future population and employment demands of the City to the horizon year 2041. To understand future ROW needs and costs that arise from these recommendations, this memorandum was prepared to determine the future ROW and estimated costs of the proposed roadway and transit projects.

2 DESIGN CRITERIA AND STANDARD CROSS-SECTIONS

The City of Barrie's Transportation Design Manual, which was last updated on October 2017, provides guidance on the design and installation of road infrastructure systems within the city. The design criteria outlined in the manual is based on current industry standards and specifications, including standards from the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (2017), Ontario Provincial Standard (OPS) and the Ontario Traffic Manual (OTM).

Standard cross-section designs for various road classifications and ROWs are documented in the manual. Table 2-1 summarizes the details of the standard cross-sections used to determine the ROW for the city's collector and arterial future 2041 road network.

Table 2-1 City of Barrie's Standard Cross-Section Details

Standard Drawing Code	Road Classification	Number of Lanes	Cycling facility illustrated in drawing	ROW width
BSD-303	Minor Collector	2 GPL + 1 Parking lane	Bike lane	24m
BSD-305	Major Collector	2 GPL + 1 TWLTL + 1 Parking lane	Bike lane	27m
BSD-307	Arterial	2 GPL + 1 TWLTL	Buffered bike lane	27m
BSD-308	Arterial	4 GPL	Buffered bike lane	29m
BSD-309	Arterial	4 GPL + 1 TWLTL	Buffered bike lane	34m
BSD-310	Arterial	6 GPL + 1 TWLTL	Buffered bike lane	41m

Note: GPL – General purpose lane, TWLTL – Two-Way Left Turn Lane

As shown in Table 2-1, the standard cross-section designs only provide design widths for two types of cycling facilities: bike lanes and buffered bike lanes. Since the 2019 TMP recommends other variations of cycling facilities such as in-boulevard trails and cycle tracks in addition to bike lanes and cycle tracks, the city should consider updating their Design Manual to incorporate new on- and off-road active transportation facilities, and develop complete street cross-sections and guidelines. The Ontario Traffic Manual (OTM) Book 18 should be reference when updating the standard cross-section designs. Table 2-2 provides the ROW widths requirements of the cycling facilities proposed in the 2019 TMP. Further details of these cycling facility designs are provided in Appendix B – Active Transportation Strategy of the 2019 TMP report.

Table 2-2 Cycling Facilities Cross-section Widths

Cycle Facility	Required width for both sides of the roadway	Notes
In-Boulevard Trail	3.0m	In-boulevard trails are implemented only on one side of the roadway. For an existing roadway, the in-boulevard trail replaces the sidewalk on one side of the roadway.
Cycle Track	4.2m	One side requires 1.5m cycle lane + 0.6m buffer from edge of curb. The facility is in the boulevard.
Buffered Bicycle Lane	4.0m	One side requires 1.5m bike lane + 0.5m buffer.
Bike Boulevard /Signed Route	0m	Does not require additional ROW as signs are posted on the boulevard.
Bicycle Lane	3.0m	A bike lane on one side of the roadway requires 1.5m measured from edge of adjacent vehicle lane to curb and gutter.
Urban Shoulder	3.0m	One side requires 1m of shoulder and an additional 0.5m shoulder rounding measured from edge of adjacent vehicle lane to curb and gutter.

Following a review of the standard cross-section and the proposed cycling network with City staff, it was determined that the ROW of the standard cross-sections can accommodate the various cycling facilities within the given ROWs by reconfiguring the pavement and boulevard width. Note that all arterial standard cross-sections are

designed with buffered bike lanes on both sides which indicate that at least 4 metres of ROW in the cross-section can be allocated to cycling facilities. The ROW requirements of all other proposed cycling facilities require less than 4 metres of ROW except from cycle tracks. Cycle tracks need an additional 0.2 metre ROW compared to buffered bike lanes which can be taken from the landscape boulevard width in order to maintain the ROW standard width.

Standard cross-sections for collector roads are designed with bike lanes and a 2.5 metre parking lane. Given that the parking lane is removed, a maximum of 5.5 metres of ROW can be allocated for cycling facilities. Measures other than taking ROW width from parking lanes can be taken such as reducing vehicle lane widths to the minimum width of 3.3 metres, or reducing the boulevard width and designing for constrained cross-sections. Note when designing constrained cross-sections, the ROW needs of utilities must be considered.

3 FUTURE 2041 RIGHT-OF-WAY (ROW)

The required roadway right-of-way (ROW) should consider the needs of future roadway improvements and ensure that sufficient property is available to accommodate all roadway components as per the City's design standards. The entire width of these publicly-owned lands are designated as "highway" under the provisions of the Highway Traffic Act, Ontario, and are subject to the regulations under this Act. The future 2041 ROWs are based on the City's standard collector and arterial cross-section ROW widths and the proposed number of vehicle lanes. As discussed in the previous section of the memorandum, it was determined with the City that standard ROWs can accommodate the various cycling facility types. The specific rearrangements can be determined through individual EA studies, if required, or during detailed design of the roadway.

Table 3-1 summarizes the standard ROW widths based on road classification and number of vehicle lanes and Figure 3-1 illustrates the future ROW based on the proposed 2041 roadway network.

Table 3-1 Right-of-Ways by Road Classification and Proposed Number of Vehicle Lanes

Road Classification	Number of Vehicle Lanes	Right-of-way Width
Minor Collector	2	24m
Minor Collector	3	27m
Major Collector	3	27m
Major Collector	5	34m
Arterial	3	27m
Arterial	4	29m
Arterial	5	34m
Arterial	6	41m
Arterial	7	41m

ROWs in the Secondary Plan Area are maintained as per the Salem & Hewitts Secondary Plan Mid Block Right of Way Plan (2017).

ROW requirements are defined in Schedule E of the City's Official Plan. To protect ROW and maintain the City's standard cross-section designs, the Official Plan should be amended to reflect the ROW needs of the recommended road projects in this 2019 TMP.

Note that constrained ROWs due to property limitations were not considered. Mitigation needs for constrained corridors will be considered as part of the EA study, if required, or during detailed design. Furthermore, ROW property requirements within specific corridors may need to be taken from one side depending on local constraints.

Additional ROW may be needed at intersections and grade separated crossings. The City may require additional lands at intersections to provide for exclusive turn lanes, bus queue jump lanes, transit stop amenities, and other special treatments including the construction of bridges, overpasses and underpasses, and possible parking bays. These would be determined through individual EA studies, if required, or during detailed design of the roadway.

3.1 PROTECTION FOR FUTURE RIGHT-OF-WAY BEYOND 2041

The previous sections outline the roadway lane requirements and the future ROW for horizon year 2041; however, there are some locations that may require further widening to accommodate future growth beyond 2041 or increased levels of development in some corridors not yet determined. This development intensification could impact the required number of traffic lanes, increase the demand for transit and High Occupancy Vehicle lanes, cycling facilities both on-road and in boulevard, pedestrian facilities as well as above and below ground municipal services and public utilities. For these reasons some roadways are recognized for additional right-of-way protection which

are listed in Table 3-2. However, note that the costs presented in this memo do not reflect the additional right-of-way protection proposed. Costs were calculated based on the 2041 future ROW, as shown in Figure 3-1.

Table 3-2 Future Roadway ROW Protection

Road	From	To	Future Protected ROW (m)
Anne Street	Tiffin Street	Essa Road	34
Big Bay Point Road	Bayview Drive	Huronia Road	41
Dunlop Street	Anne Street	Toronto Street	34
Essa Road	Mapleview Drive	CR-27	34
Innisfil Street	Tiffin Street	Essa Road	34
Mapleview Drive	CR-27	Essa Road	34
McKay Road	CR-27	West of Veterans Road	34
McKay Road	West of Veterans Road	Huronia Road	41
Salem Road	CR-27	Reid Drive	34
Wellington Street	Anne Street	Sunnidale Road	34

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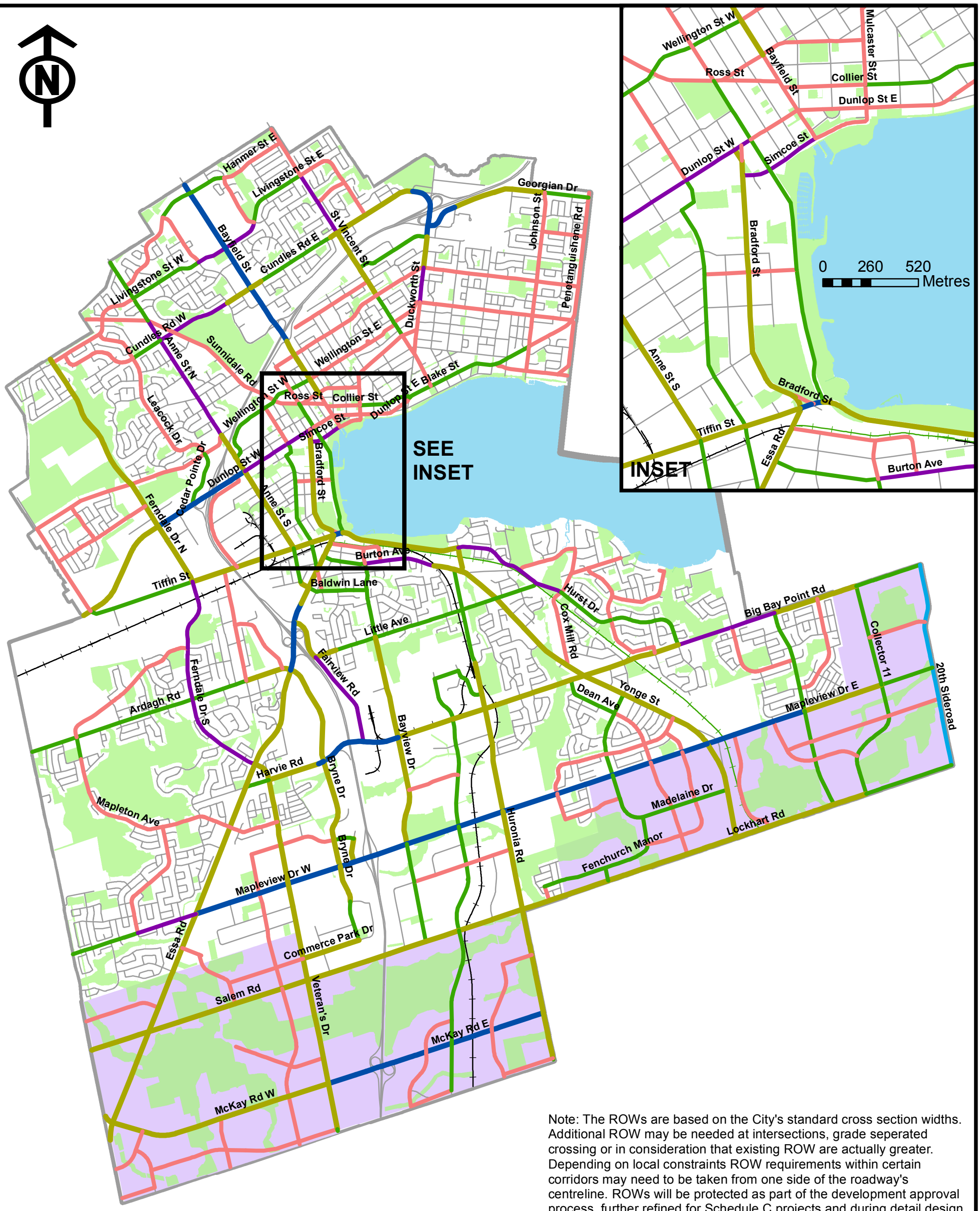

Note: The ROWs are based on the City's standard cross section widths. Additional ROW may be needed at intersections, grade seperated crossing or in consideration that existing ROW are actually greater. Depending on local constraints ROW requirements within certain corridors may need to be taken from one side of the roadway's centreline. ROWs will be protected as part of the development approval process, further refined for Schedule C projects and during detail design. Refer to Schedule E of the City's Official Plan for ROW requirements.

Right-of-Way Width (m)

- 24
- 27
- 29
- 30
- 34
- 41

Transportation Features

- GO Transit Railway
- BCRY Railway
- Roads

Natural Features

- Park / Open Space

Other Features

- Secondary Plan Areas

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Map Created By: WSP Thornhill

0 500 1,000 2,000 3,000 4,000 Metres

Figure 3-1
Future 2041 Right-of-Way
City of Barrie Transportation Master Plan

4 COST ESTIMATES

Estimated project costs of the TMP are evaluated at $2.04 billion (2019 dollars) based on a high-level assessment of the transportation infrastructure requirements identified in this plan. The total cost can be categorized into the following projects: roadway (new construction, widening, reconstruct to urban standard, streetscaping), transit, and active transportation. The details of the road widening and transit projects costings are discussed in this memorandum. Note that a detailed breakdown of the active transportation infrastructure costing is provided separately in the Appendix B - Active Transportation Strategy of the 2019 TMP Final Report.

A summary of the costs by type of roadway improvement and phase is provided in Table 4-1. The total cost of the 2041 full build road network is $1.66 billion (2019 dollars). As shown in Table 4-1, several projects have started as per the City's records. Many of these projects that have started are currently in the design stage and the cost shown does not necessarily reflect the amount currently spent by the City.

Note that collector roads within the Secondary Plan Area are not included in the costs as it is assumed they are financed by the developers. Furthermore, road diet projects have been excluded from the summary as they are costed and discussed in the Appendix B - Active Transportation Strategy of the 2019 TMP Final Report.

The road costs were estimated on a project by project basis and the following categories of items were costed for each roadway project where applicable:

- Construction for new/widened roadways,
- Land acquisition,
- Culverts,
- Structures,
- Intersection,
- Rail crossings, and
- Streetscape improvements in primary intensification corridors.

Similarly, a summary of the transit costs is provided in Table 4-2. The total estimated costs of the transit projects until the horizon year 2041 is approximately $230 million (2019 dollars). The following transit projects were costed separately:

- Fleet (new additions and replacements),
- Proposed garage and maintenance facility construction and expansion costs,
- New terminals and bus bays,
- New and replacement bus stops and shelters,
- High occupancy vehicle (HOV) lanes,
- Intelligent Transportation Systems (ITS).

Detailed cost calculations for each road and transit project is presented in Appendix H-1. The costs presented are subject to change based on the grouping and phasing of projects as well as changes in unit costs during the detailed design process. All costs presented are planning level estimates and are reasonable for scope at a master plan level. Though the preliminary costing is meant to inform future budgeting / decision making, the phasing and costing is not meant to be prescriptive.

Where applicable, the following factors were assumed and has been coded as global variables in the costing spreadsheet:

- Contingency (30%),
- Design/engineering allowance (15%),
- City project management (5%),
- Contract administration and site inspection (10%), and
- HST (1.76%).

Various construction costs are difficult to predict at this preliminary stage of the project, such as geotechnical risks, potential of archeological findings, and land acquisition cost variation by location. Furthermore, there is potential for

added costs related to traffic staging and phasing of projects. Therefore, a contingency percentage of 30% is applied to the cost estimates. As confirmed with the WSP's municipal engineering group, the application of a 30% contingency is common during the preliminary planning stages of road widening projects and is generally sufficient for estimating these additional and unpredictable costs.

Table 4-1 Road Projects Cost Estimate and Breakdown by Phase

		Projects Started (2019)			2019-2023			2024-2041			Full Build 2019 - 2041		
		Length (km)	(%)	Estimated Cost	Length (km)	(%)	Estimated Cost	Length (km)	(%)	Estimated Cost	Length (km)	(%)	Estimated Cost
Former Barrie	New Roads	3	24%	$ 105,690,000	1	20%	$ 8,810,000	0	0%	$ 4,960,000	**4**	**5%**	**$ 119,460,000**
	Interchanges	N/A	N/A	$ 14,200,000	N/A	N/A	$ -	N/A	N/A	$ 14,150,000	**N/A**	**N/A**	**$ 28,350,000**
	Roads Widened	8	76%	$ 121,320,000	6	80%	$ 94,060,000	46	74%	$ 645,630,000	**60**	**75%**	**$ 861,010,000**
	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	0	0%	$ -	0	0%	$ -	7	11%	$ 55,280,000	**7**	**8%**	**$ 55,280,000**
	Streetscape Improvements in Primary Intensification Corridors	0	0%	$ -	0	0%	$ -	9	15%	$ 27,930,000	**9**	**12%**	**$ 27,930,000**
	Total	**11 km**		**$ 241,210,000**	**7 km**		**$ 102,870,000**	**62 km**		**$ 747,950,000**	**81 km**		**$ 1,092,030,000**
Secondary Plan Area	New Roads	0	0%	$ -	0	0%	$ -	1	4%	$ 46,180,000	**1**	**2%**	**$ 46,180,000**
	Interchanges	N/A	N/A	$ 64,700,000	N/A	N/A	$ -	N/A	N/A	$ -	**N/A**	**N/A**	**$ 64,700,000**
	Roads Widened	12	100%	$ 113,550,000	7	96%	$ 152,860,000	19	78%	$ 168,330,000	**37**	**87%**	**$ 434,740,000**
	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	0	0%	$ -	0	4%	$ 1,570,000	4	19%	$ 24,490,000	**5**	**11%**	**$ 26,060,000**
	Total	**12 km**		**$ 178,250,000**	**7 km**		**$ 154,430,000**	**24 km**		**$ 239,000,000**	**43 km**		**$ 571,680,000**

Projects Started (2019)		2019-2023		2024-2041		Full Road Network Totals	
23 km	**$419,460,000**	**15 km**	**$257,300,000**	**86 km**	**$986,950,000**	**124 km**	**$1,663,710,000**

Table 4-2 Transit Cost Estimate and Breakdown by Phase

		2019-2023	2024-2028	2029-2041	Full Build 2019 - 2041
		Estimated Cost	Estimated Cost	Estimated Cost	Estimated Cost
Former Barrie	Fleet - New Conventional Buses	$ 6,560,000	$ 8,360,000	$ 37,370,000	**$ 52,290,000**
	Fleet - Conventional Bus Replacement	$ 8,350,000	$ 11,710,000	$ 43,240,000	**$ 63,300,000**
	Fleet - New Specialized Buses	$ 340,000	$ 950,000	$ 1,220,000	**$ 2,510,000**
	Fleet - Specialized Buses Replacement	$ 1,870,000	$ 1,750,000	$ 6,990,000	**$ 10,610,000**
	Garage and Maintenance Facility	$ -	$ 10,950,000	$ 36,550,000	**$ 47,500,000**
	Terminal Facilities	$ 9,570,000	$ -	$ -	**$ 9,570,000**
	Bus Stops	$ 1,420,000	$ 970,000	$ 790,000	**$ 3,180,000**
	ITS	$ 620,000	$ 270,000	$ 330,000	**$ 1,220,000**
	HOV Master arms	$ -	$ -	$ 60,000	**$ 60,000**
	Total	**$ 28,730,000**	**$ 34,960,000**	**$ 126,550,000**	$ 190,240,000
Secondary Plan Area	Fleet - New Conventional Buses	$ 720,000	$ 1,560,000	$ 8,930,000	**$ 11,210,000**
	Fleet - Conventional Bus Replacement	$ 910,000	$ 2,180,000	$ 10,330,000	**$ 13,420,000**
	Fleet - New Specialized Buses	$ 40,000	$ 180,000	$ 290,000	**$ 510,000**
	Fleet - Specialized Buses Replacement	$ 200,000	$ 320,000	$ 1,670,000	**$ 2,190,000**
	Garage and Maintenance Facility	$ -	$ 2,040,000	$ 8,730,000	**$ 10,770,000**
	Terminal Facilities	$ 40,000	$ -	$ 620,000	**$ 660,000**
	Bus Stops	$ 370,000	$ 410,000	$ 260,000	**$ 1,040,000**
	ITS	$ 70,000	$ 50,000	$ 80,000	**$ 200,000**
	HOV Master arms	$ -	$ -	$ 10,000	**$ 10,000**
	Total	**$ 2,350,000**	**$ 6,740,000**	**$ 30,920,000**	$ 40,010,000

2019-2023	2024-2028	2029-2041	Total
$ 31,080,000	$ 41,700,000	$ 157,470,000	$ 230,250,000

4.1 PROJECT PHASING

Figure 4-1 illustrates the phasing and location of the road projects. As shown, the roadway projects are phased into the following two brackets: [2019-2023], and [2024-2041]. The phasing brackets were determined for development charge purposes to provide estimated costing of infrastructure anticipated to be undertaken during the five-year term of the development charges by-law. Phasing of the road projects was determined in consultation with City staff. Note that active transportation project phases are also aligned with the phases of corresponding road widening projects as active transportation facilities are to be constructed in conjunction with the road construction.

Transit projects are phased into three brackets: [2019-2023], [2024-2028], and [2029-2041]. The phasing brackets were determined for development charge purposes as the Development Charges Act limits the inclusion of transit works and associated costs to a 10-year planning horizon. Phasing of the transit projects was determined in consultation with Dillon Consulting based on the forecasted increase in transit mode share and resulting ridership forecast.

The proposed phasing is intended to reflect need but is subject to future adjustments.

It is recommended that the timing of each of the projects be spread out based on the ability to finance and available City staff resources to carry out these projects. The specific timing of these projects/improvements should be based on the TMP and continued assessment of an annual traffic count program with projected timing of growth.

The implementation of the recommended road improvements of the TMP will be dependent on the timing of necessary approvals, the identification of available funding, and the prioritization of these initiatives relative to other departmental and corporate needs. In some cases, additional approvals may be required from the County or the Province if the proposed improvements could affect their infrastructure and operations. Communication with the various agencies should be initiated early in the planning stages and continued throughout design and construction.

Future planning and design, including environmental assessments, for any infrastructure projects (e.g. Highway 400 interchanges/crossing or railway grade separations) will need to address requirements as outlined by the approval agencies, such as MOE, MTO, Rail Authorities, for specific environmental studies (e.g. hydrological investigations, storm water management plans, corridor control) and mitigation strategies.

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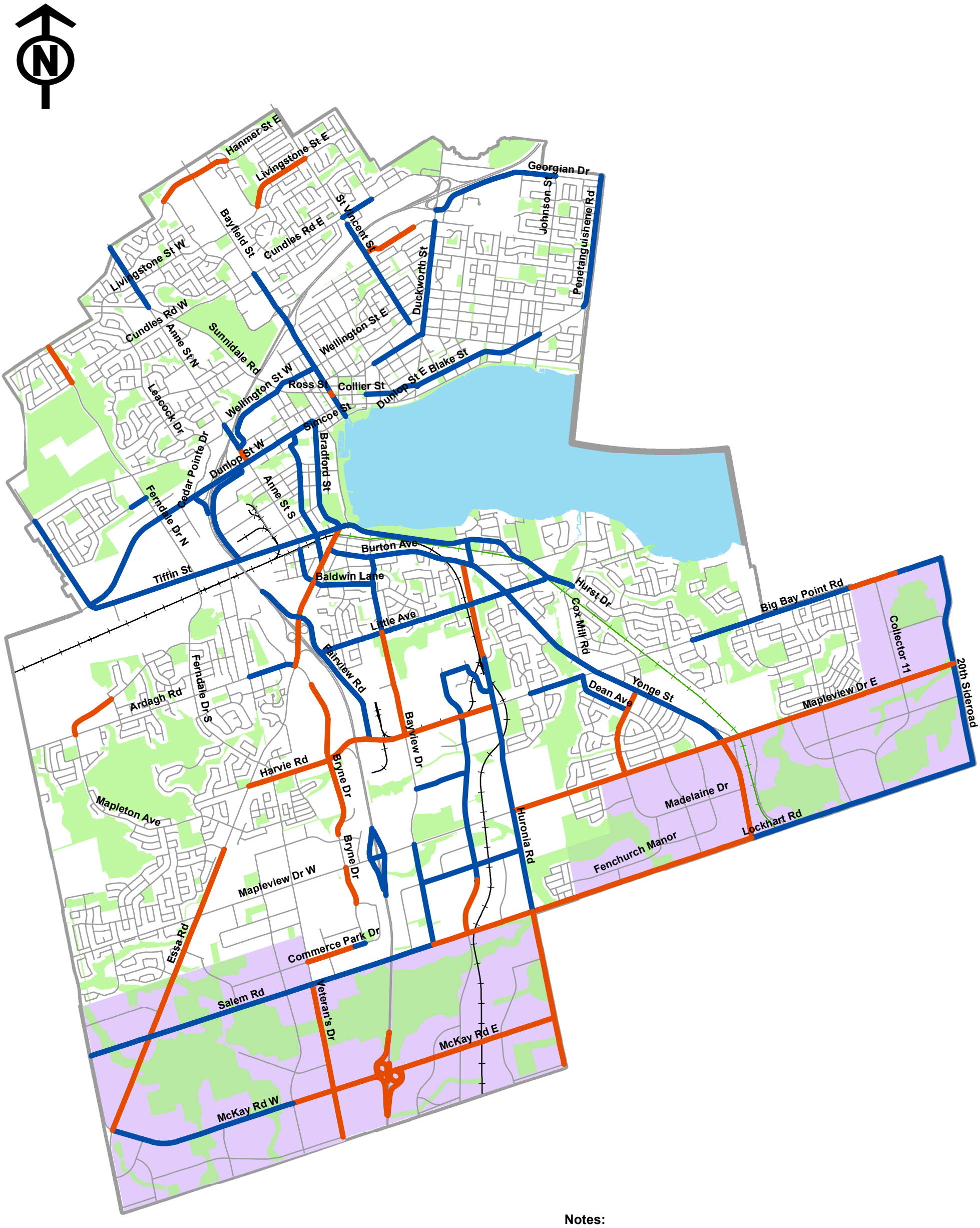

Notes:
The phasing is intended to relect need but is subject to future adjustment.

Phase

- 2019-2023
- 2024-2041

Transportation Features

- GO Transit Railway
- BCRY Railway
- Roads

Natural Features

- Park / Open Space

Other Features

- Secondary Plan Areas

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Map Created By: WSP Thornhill

0 500 1,000 2,000 3,000 4,000 Metres

Figure 4-1
Roadway Project Phasing Plan
City of Barrie Transportation Master Plan

4.2 UNIT COSTS

In the interest of consistency and comparability between the current costs and the 2014 DC costs, the costing approach and assumptions used were largely carried over from the 2014 MMATMP costing. For roadway construction related unit costs that were directly inherited from 2014 MMATMP, they were inflated by 15% to reflect 2019 dollars. The inflation factor is based on the non-residential construction price index (CPI) that is prescribed in the Development Charges Act. For transit related unit costs that were directly inherited from 2014 MMATMP, they were inflated 12.6% as per the City's recommendation to apply a 2% compound annual growth on the cost from 2014 to 2019. The inflated values were compared with cost records available to ensure estimates were within a reasonable range. If more reliable unit cost estimates were available, unit costs were chosen over the inflated 2014 MMATMP costs.

Unit costs and assumptions are detailed in the costing spreadsheet presented in Appendix H-1. The following section provides further details on the unit costs applied in the estimation.

4.2.1 ROADWAY CONSTRUCTION

Benchmark roadway construction unit costs for new and reconstructed roads, as presented in Table 4-3, were adopted and modified from the 2014 MMATMP linear metre roadway costs. Linear metre roadway costs were estimated based on the road classification, number of lanes, ROW, and whether the project is a new construction or a road widening. The calculations of the benchmark linear metre unit costs are provided in Appendix H-2.

A summary of the items included in the linear metre roadway cost estimates are provided in Table 4-4. The inflated unit costs (2019 dollars) of each item in Table 4-4 were crosschecked against unit costs from recent projects in southern Ontario from WSP's road design engineering group. It was confirmed that the costs were reflective of cost records currently available.

These costs do not include the cost of active transportation infrastructure as they were provided separately as incremental costs in the active transportation costing; refer to Appendix B - Active Transportation Strategy of the 2019 TMP Final Report. For example, pavement construction costs embedded in the linear metre road construction costs only include costs for the pavement width of the vehicle lanes. For road construction projects with proposed active transportation facilities, the active transportation is costed as an incremental cost and covers the additional pavement costs of the AT facility. Therefore, total costs of a project can be determined by summing the road construction costs of the project and the active transportation costs.

Note that the cost for the construction of sidewalks on both sides of the roads is included in the unit costs. Where in-boulevard trails are proposed, the sidewalk on one side of the roadway is replaced by an in-boulevard trail. For these locations, the cost of constructing one side sidewalk is removed from the project cost. The cost of the in-boulevard trails is accounted for in the active transportation costing. Furthermore, to avoid double counting costs, all road diet projects were only costed in the active transportation costing.

Low Impact Development (LID) cost was also applied to each roadway widening project. A ballpark unit cost of $50 (2014 dollars) per square metre of impervious area was used based on estimates provided in the Toronto and Region Conservation's report on "Assessment of Life Cycle Costs for Low Impact Development Storm Water Management Practices" (2013). The unit cost was inflated to 2019 dollars by applying the CPI of 15%. Note, the LID cost was applied to the pavement area of the roadway.

It is understood that the linear metre roadway costs do not capture all possible costs such as but not limited to:

- Watermains and sanitary sewers,
- Construction mobilization and de-mobilization costs,
- Guide rails and retaining walls,
- Removal of regulatory signs and provisions for new regulatory signs,
- Removal of bus stops and shelters during construction,
- Cut and fill costs,
- Borrow soil costs,
- Surveying,
- Geo-technical investigation,

- Archeological assessment,
- Erosion and sediment control,
- Landscaping – hardscaping and softscaping (except tree removal and planting),
- Environmental Assessments (EA),
- Operations and maintenance costs (snow clearing, temporary streetlights, repairing pavement).

As discussed, a 30% contingency was applied in attempt to capture any variations in the costs estimates attributed by the items listed above (excluding watermains and sanitary sewer costs).

Table 4-3 Roadway New Construction and Widening Unit Costs

ROADWAY DESCRIPTION	UNIT	2019 VALUE						2014 MMATMP VALUE					
[Road Classification] [No. of Lanes]-[ROW]		New Unit Cost ($/m)	Replace 2-Lane Road Unit Cost ($/m) - Keep Existing Road base	Incremental Widening from Existing 3-Lane Road Unit Cost ($/m)	Incremental Widening from 4-Lane Road Unit Cost ($/m)	Incremental Widening from 5-Lane Road Unit Cost ($/m)	Incremental Widening from 6-Lane Road Unit Cost ($/m)	New Unit Cost ($/m)	Replace 2-Lane Road Unit Cost ($/m) - Keep Existing Road base	Incremental Widening from Existing 3-Lane Road Unit Cost ($/m)	Incremental Widening from 4-Lane Road Unit Cost ($/m)	Incremental Widening from 5-Lane Road Unit Cost ($/m)	Incremental Widening from 6-Lane Road Unit Cost ($/m)
MIN2-24	linear m	$2,581	$2,876					$2,244	$2,501				
MIN3-27	linear m	$2,750	$3,056					$2,391	$2,657				
MAJ3-27	linear m	$2,750	$3,056					$2,391	$2,657				
MAJ5-34	linear m	$3,552	$3,860	$3,846				$3,089	$3,356	$3,345			
ART3-27	linear m	$2,772	$3,078					$2,410	$2,677				
ART4-29	linear m	$3,089	$3,395	$3,395				$2,686	$2,952	$2,952			
ART5-34	linear m	$3,552	$3,860	$3,846	$3,856			$3,089	$3,356	$3,345	$3,353		
ART6-41	linear m	$4,180	$4,488		$4,442			$3,634	$3,903		$3,863		
ART7-41	linear m	$4,506	$4,814		$4,823	$4,836	$4,845	$3,918	$4,186		$4,194	$4,205	$4,213
Road Widening (Rural to Urban Standard)													
ARP2-30	linear m		$2,420						$2,104				
ARP2-27	linear m		$2,642						$2,297				
MIN2-24	linear m		$2,645						$2,300				
MAJ3-27	linear m		$2,817						$2,450				
ART3-27	linear m		$2,835						$2,465				
ART5-34	linear m		$3,616						$3,145				
ART7-41	linear m		$4,571						$3,975				

Roadway improvement unit costs are categorized by Classification (MIN, MAJ or ART), total number of lanes, and ROW width

MIN - Minor Collector, MAJ - Major Collector, ART – Arterial

Examples: ART5-34 = 5-Lane Arterial, 34m ROW; MIN3-27= 3-Lane Minor Collector, 27m ROW

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Table 4-4 Benchmark Linear Roadway Construction Unit Cost Items

	New Construction	Reconstruction
Removals:		
Earth Excavation	✓	✓
Remove Existing Asphalt		✓
Remove Concrete Curb and Gutter		✓
Remove Existing Storm Man Hole (MH) (1 storm MH every 90 metres)		✓
Remove Existing Catch basin (CB) (2 CB every 90 metres)		✓
Remove Existing Storm Sewer (85% of section has storm sewer)		✓
Remove Existing Concrete Sidewalk (1.5-metre-wide sidewalk, both sides of the road)		✓
Tree Removal (1 tree every 15 metres both sides)		✓
Stripping of Topsoil (150 mm stripped)	✓	✓
Construction:		
Granular A - 150 mm	✓	✓
Granular B - 600 mm	✓	✓
Concrete Curb and Gutter	✓	✓
Concrete Barrier Curb	✓*	✓*
Concrete Centre Median	✓*	✓*
100 mm Diameter PE Subdrain	✓	✓
HL 1 Asphalt - 40mm	✓	✓
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	✓	✓
Tack Coat	✓	✓
Concrete Sidewalk (2.0-metre-wide sideway, both sides of the road)	✓	✓
Fine Grading, Topsoil and Sod (width of boulevard = ROW – asphalt width - curb width - sidewalk both sides)	✓	✓
Mechanical Water Quality Device (1 device for every 13000sq. M. of asphalt)	✓	✓
Storm Sewer (85% of section requires storm sewer) - Assume 450 mm diameter for roads with 3 or fewer lanes, 600mm diameter for roads with 4 to 5 lanes, and 750mm for roads with 6 to 7 lanes	✓	✓
1200 mm Diameter Precast Maintenance Hole (MH) (1 MH every 90 metres)	✓	✓
Precast Catch Basin (CB) - Single (2 catch basins every 90 metres)	✓	✓
Miscellaneous:		
Bonds	✓	✓
Insurance	✓	✓
Garbage and Recyclable Collection	✓	✓
Traffic Control and Signing	✓	✓
Field Office	✓	✓
Schedule of Work	✓	✓
Street Lights	✓	✓
Street Light Duct Work	✓	✓
Asphalt Driveway Removal and Restoration	✓	✓

✓* (only for arterial 6 and 7 vehicle lane cross-sections)

4.2.2 RIGHT-OF-WAY ACQUISITION COSTS

Right-of-way acquisition costs were estimated based on land-use in the area and land acquisition unit costs provided by the City. Land acquisition area for new road project were estimated using the future ROW and the length of the roadway. For road widening projects, the difference was taken between the existing ROW and the future ROW. Note the future ROW is based on the City's standard cross section design. No consideration was given in implementing a "constrained" version of the cross section to reduce land acquisition costs.

As shown in Table 4-5, the land acquisition unit costs were differentiated by location (former Barrie vs. Salem and Hewitts Secondary Area) and land use (commercial, residential, industrial). Note that land acquisition costs are difficult to estimate and generalize, thus the costs may vary significantly at the time of construction.

Table 4-5 Land Acquisition Unit Costs

DESCRIPTION	2019 VALUE (per sq. metre)
Former Barrie - Commercial	$418.72
Former Barrie - Residential	$324.48
Former Barrie - Industrial	$239.27
Secondary Plan Area - Commercial	$216.63
Secondary Plan Area - Residential	$251.81
Secondary Plan Area - Industrial	$210.44

4.2.3 CULVERTS

Culvert costs were obtained from the City's Drainage Master Plan (DMP). Culvert improvement projects on proposed road projects were identified and the costs were added to the road project costs estimates. Location and cost estimates of culvert lengthening projects resulting from road widening were provided by the City.

4.2.4 STRUCTURES

Crossing structures which required widening were identified and costed. Table 4-7 provides the unit costs for structures categorized by deck area size, based on MTO's Parametric Estimation Guide (2016) and adjusted for inflation.

Table 4-6 Structure Unit Costs

Min Size (m^2)	Max Size (m^2)	2019 VALUE	2016 VALUE
0	250	$10,044	$9,300
250	500	$5,832	$5,400
500	750	$4,752	$4,400
750	1,000	$4,212	$3,900
1,000	3,000	$3,780	$3,500
3,000	25,000	$2,484	$2,300

4.2.5 INTERSECTION

For road widening projects, it is assumed the intersection along the roadway will require traffic signals reconstruction and reconstruction of right turn lanes. Table 4-7 provides the unit costs of right turn lanes and signal installation at intersections. Intersections with arterials are assumed to be controlled by traffic signals. No additional turning bays or traffic signals are assumed for road segments that are being urbanized. The unit costs were carried over from the 2014 MMATMP and inflated to 2019 dollars. The unit cost of a right turn lane was determined by applying the roadway construction unit prices discussed in Section 4.2.1 and assuming a standard 50 metre length and 50 metre taper. Calculations are provided in Appendix H-1.

Table 4-7 Intersection Unit Costs

DESCRIPTION	2019 VALUE	2014 VALUE
Right Turn / Queue Jump Lane as part of New or Widened Road	$24,962	$21,706
Standard Signal	$287,500	$250,000
Arterial-Arterial Signal	$287,500	$250,000
Ramp Terminal Signal	$287,500	$250,000

4.2.6 RAIL CROSSINGS

At road project locations that warrant flashing lights, bells and gates at rail crossings were costed at $200,000 per location as per a prior rail crossing quote provided by the City. The cost assumes the installation of the gate and cantilever and includes materials, labour, engineering and equipment costs. However, the cost estimate does not include any work or supplies of insulated joints, rock or frost ground excavations.

Cost estimates for the rail grade separation crossings at Mapleview Drive East and Lockhart Road were acquired from the "Hewitts Secondary Plan Class Environmental Assessment (Phase 3 and 4) Study" (2017). It was assumed the Mapleview Drive East crossing will be an overpass costing approximately $40.3M prior to contingency and taxes, and the Lockhart Road crossing will be an underpass structure costing approximately $15M prior to contingency and taxes. A 50% to 50% cost sharing agreement with the City and Metrolinx is assumed.

4.2.7 INTERCHANGE

Table 4-8 provides the cost estimates of the Highway 400 interchange improvements identified in the TMP to be funded by the City. As a conservative measure, no cost sharing between MTO and the City is assumed for those as details have not been determined.

Table 4-8 Interchange Unit Costs

DESCRIPTION	2019 VALUE	COMMENTS/ASSUMPTIONS
McKay Interchange	$40,000,00	Duckworth Street = $43M in 2012 dollars. Inflated to 2019 = $50M, less $10M invested by MTO in current Structure = $40M
Mapleview Diverging Diamond Interchange (DDI) Cost	$4,945,904	City provided a cost estimate of approximately $8M. The estimate is based on the PDR and has been inflated for additional costs (widening of roadway) and contingencies. As a conservative measure, no cost sharing is assumed with MTO. Cost shown here removes contingency and soft cost factors to ensure the final total cost of the project adds to $8M.
Salem and Lockhart Road Widening and Crossing over Hwy 400	$20,000,000	Based on Construction Tender for Harvie/Big Bay Road Highway Crossing plus allowance for Highway Staging
Dunlop Interchange Southbound On-Ramp (addition of one lane)	$3,800,000	Construction costs were estimated using the construction unit costs prices discussed in Section 4.2.1 of the memorandum. Cost includes utilities and land acquisition. Calculations are provided in Appendix H-2.
Essa Interchange Northbound On-Ramp (addition of one lane)	$8,780,000	Construction costs were estimated using the construction unit costs prices discussed in Section 4.2.1 of the memorandum. Cost includes utilities, land acquisition, and a cost estimate for watercourse reallocation. Calculations are provided in Appendix H-2.

4.2.8 TRANSIT

Table 4-9 presents the unit costs applied to the costing of transit projects. To establish the cost breakdown between the Salem and Hewitts Secondary Area and pre-2010 Barrie, transit fleet and maintenance facility costs are divided according to projected population and employment. Transit projects (shelters, terminals) are divided according to their location (former Barrie vs. Secondary Plan Area). Further details on the assumptions and transit projects are provided in Appendix H-1.

Table 4-9 Transit Facilities Costs

DESCRIPTION	UNIT	2019 VALUE	2014 VALUE	COMMENTS/ASSUMPTIONS
Conventional Bus		$650,000		Cost estimate conducted by Dillon Consulting in Fleet Estimation Study as part of the 2019 TMP.
Specialized Bus		$185,000		Cost estimate conducted by Dillon Consulting in Fleet Estimation Study as part of the 2019 TMP.
Terminal Cost per bay		$39,727	$34,545	Includes Terminal Platforms, Bays, Pedestrian Pads, Shelters, Lighting, Storm water Servicing. Roadway inflation factor was used given this is a construction related item. Engineering and contingency costs were excluded. Cost from the 2014 MMATMP was inflated to 2019 dollars using the roadway inflation factor (15%) given this a construction related item. Cost for Allandale Hub and the Downtown mini-hub were acquired from EA report estimates.
Terminal Variable Message Signs	per sign	$11,262	$10,000	Cost from 2014 MMATMP - inflated to 2019 dollars.
Terminal Building Cost	per sq. metre	$3,600		Provided by the City as per a feasibility study. Property acquisition cost is not included
Bus Stop - Shelter		$6,000		Provided by the City.
Bus Stop - Pole		$225	$200	Cost from 2014 MMATMP - inflated to 2019 dollars.
Bus Stop - Concrete Pad per Unit Area	per sq. metre	$113	$100	Cost from 2014 MMATMP - inflated to 2019 dollars.
Bus Stop - Bike Racks (Two Ring Posts)		$338	$300	Cost from 2014 MMATMP - inflated to 2019 dollars.
Bus Shelter Replacement Cost		$6,000		Provided by the City.
ITS Equipment and Installation at Signals	per intersection	$4,505	$4,000	Cost from 2014 MMATMP - inflated to 2019 dollars.
ITS On-Board Equipment	per bus	$5,631	$5,000	Cost from 2014 MMATMP - inflated to 2019 dollars.
ITS Control Centre		$337,849	$300,000	Cost from 2014 MMATMP - inflated to 2019 dollars.
HOV Lane Mast arms	linear m	$282	$250	Cost from 2014 MMATMP - inflated to 2019 dollars. HOV lanes are converted from existing curb lanes.

5 OPERATIONS AND MAINTENANCE

The City will need to plan for funds to maintain existing and new transportation infrastructure. Costs, shown in Table 5-1, were estimated based on the City of Barrie operation and maintenance costs of $10,400 per lane-km per year (2014 dollars), which was inflated to 2019 dollars ($11,981 per lane-km per year). The total vehicle lane-kilometer assumes the entire City's road network (local, collector, and arterial roads), excluding the Hwy 400. The cost includes maintenance of roadway, sidewalks, storm sewers, sanitary sewers, markings and street lights.

Table 5-1 Operations and Maintenance Costs

	Total Vehicle Lane-kilometers in City Network (excluding Highway 400)	Total Maintenance Costs per year
Existing (2016)	611	$ 7,320,000
2019-2023	654	$ 7,830,000
2024-2041	722	$ 8,640,000

6 FINANCIAL INVESTMENT

The cost estimate is significant and it is not realistic or possible for the costs to be the sole responsibility of the City. Potential external funding opportunities should be explored regularly and pursued wherever feasible to offset local costs. In addition to the general tax base to fund this infrastructure, other sources could include development charges, contributions from developers and other private sector partners, federal and provincial funds, programs and contributions. Details on the development charge percentage allocation to the projects is provided in Appendix H-3, as prepared by Watson and Associates Economists Ltd.

7 CONCLUSIONS

In summary, right-of-way requirements and the costing of the proposed 2041 roadway network have been determined for the TMP. In terms of next steps, the final costs can be used to assess development charge and financial impacts of the master plan. Furthermore, the future 2041 ROW and ROW protection recommendations can be used by the City to inform the next Official Plan update.

APPENDIX

H-1 ROAD AND TRANSIT COSTING

1.0 Unit Prices

Roadway Inflation Factor (2013 to 2019):	15%
Roadway Inflation Factor (2016 to 2019):	8%
Transit Inflation Factor (2013 to 2019):	13%

1.0 GENERAL ROADWAY COSTS

ITEM	DESCRIPTION	UNIT	2019 VALUE						2014 VALUE					
	[Road Classification][No. of Lanes]-[ROW]		New Unit Cost ($/m)	Replace 2-Lane Road Unit Cost ($/m) - Keep Existing Roadbase	Incremental Widening from Existing 3-Lane Road Unit Cost ($/m)	Incremental Widening from 4-Lane Road Unit Cost ($/m)	Incremental Widening from 5-Lane Road Unit Cost ($/m)	Incremental Widening from 6-Lane Road Unit Cost ($/m)	New Unit Cost ($/m)	Replace 2-Lane Road Unit Cost ($/m) - Keep Existing Roadbase	Incremental Widening from Existing 3-Lane Road Unit Cost ($/m)	Incremental Widening from 4-Lane Road Unit Cost ($/m)	Incremental Widening from 5-Lane Road Unit Cost ($/m)	Incremental Widening from 6-Lane Road Unit Cost ($/m)
1.1	MIN2-24	linear m	$2,581	$2,876					$2,244	$2,501				
1.2	MIN3-27	linear m	$2,750	$3,056					$2,391	$2,657				
1.3	MAJ3-27	linear m	$2,750	$3,056					$2,391	$2,657				
1.4	MAJ5-34	linear m	$3,552	$3,860	$3,846				$3,089	$3,356	$3,345			
1.5	ART3-27	linear m	$2,772	$3,078					$2,410	$2,677				
1.6	ART4-29	linear m	$3,089	$3,395	$3,395				$2,686	$2,952	$2,952			
1.7	ART5-34	linear m	$3,552	$3,860	$3,846	$3,856			$3,089	$3,356	$3,345	$3,353		
1.8	ART6-41	linear m	$4,180	$4,488		$4,442			$3,634	$3,903		$3,863		
1.9	ART7-41	linear m	$4,506	$4,814		$4,823	$4,836	$4,845	$3,918	$4,186		$4,194	$4,205	$4,213
Road Widening Rural to Urban Standard:														
1.10	ARP2-30	linear m		$2,420						$2,104				
1.11	ARP2-27	linear m		$2,642						$2,297				
1.12	MIN2-24	linear m		$2,645						$2,300				
1.13	MAJ3-27	linear m		$2,817						$2,450				
1.14	ART3-27	linear m		$2,835						$2,465				
1.15	ART5-34	linear m		$3,616						$3,145				
1.16	ART7-41	linear m		$4,571						$3,975				

2.0 CULVERT UNIT COST

Please refer to the Barrie Drainage Master Plan for cost breakdown and assumptions. Culvert project costs within the former Barrie area were provided by C.C. Tatum. Culvert project costs within the secondary plan area was provided by the City (AMEC study).

3.0 INTERSECTION UNIT COST

ITEM	DESCRIPTION	UNIT	2019 VALUE	2014 VALUE	COMMENTS/ASSUMPTIONS
3.1	Right Turn / Queue Jump Lane as part of New or Widened Road		$24,962	$21,706	Assumed 50m length and 50m taper.
3.2	Standard Signal		$287,500	$250,000	Cost from 2014 TMP - inflated to 2019 dollars.
3.3	Arterial-Arterial Signal		$287,500	$250,000	Cost from 2014 TMP - inflated to 2019 dollars.
3.4	Ramp Terminal Signal		$287,500	$250,000	Cost from 2014 TMP - inflated to 2019 dollars.

4.0 STRUCTURE UNIT COST

ITEM	Min Size (m2)	Max Size (m2)	2019 VALUE	2016 VALUE	COMMENTS/ASSUMPTIONS
4.1	0	250	$10,044	$9,300	Cost from 2016 Parametric Estimation guide; inflated to 2019 dollars.
4.2	250	500	$5,832	$5,400	Cost from 2016 Parametric Estimation guide; inflated to 2019 dollars.
4.3	500	750	$4,752	$4,400	Cost from 2016 Parametric Estimation guide; inflated to 2019 dollars.
4.4	750	1,000	$4,212	$3,900	Cost from 2016 Parametric Estimation guide; inflated to 2019 dollars.
4.5	1,000	3,000	$3,780	$3,500	Cost from 2016 Parametric Estimation guide; inflated to 2019 dollars.
4.6	3,000	25,000	$2,484	$2,300	Cost from 2016 Parametric Estimation guide; inflated to 2019 dollars.

5.0 INTERCHANGE COST

ITEM	DESCRIPTION	UNIT	2019 VALUE		COMMENTS/ASSUMPTIONS
5.1	McKay Interchange		$40,000,000		Duckworth Street = $43M in 2012 dollars. Inflated to 2019 = $50M, less $10M invested by MTO in current Structure = $40M
5.2	Mapleview Diverging Diamond Interchange (DDI) Cost		$4,945,904		City provided a cost estimate of approx. $8M. Estimate is based on the PDR and has been conservatively inflated for additional costs (widening of roadway) and all contingencies. As a conservative measure, no cost sharing is assumed with MTO. Cost shown here removes contingency factors to ensure the final total cost of the project adds to $8M.
5.3	Salem and Lockhart Road Widening and Crossing over Hwy 400		$20,000,000		Based on Construction Tender for Harvie/Big Bay Road Highway Crossing plus allowance for Highway Staging

6.0 UTILITY RELOCATION COST

ITEM	DESCRIPTION	UNIT	2019 VALUE	2014 MMATMP VALUE	COMMENTS/ASSUMPTIONS
6.1	Former Barrie ($/m)	linear m	$1,150	$1,000	Hydro, cable and other utilities relocation
6.2	Secondary Plan Area ($/m)	linear m	$288	$250	Hydro, cable and other utilities relocation

1.0 Unit Prices

7.0 TRANSIT FACILITIES COSTS					
ITEM	**DESCRIPTION**	**UNIT**	**2019 VALUE**	**2014 MMATMP VALUE**	**COMMENTS/ASSUMPTIONS**
7.1	Conventional Bus		$650,000		Cost estimate conducted by Dillon Consulting in Fleet Estimation Study.
7.2	Specialized Bus		$185,000		Cost estimate conducted by Dillon Consulting in Fleet Estimation Study.
7.4	Terminal Cost per bay		$39,727	$34,545	Includes Terminal Platforms, Bays, Pedestrian Pads, Shelters, Lighting, Stormwater Servicing. Roadway inflation factor used given this is a construction related item. Exludes engineering and contingency costs. Cost from 2014 TMP - inflated to 2019 dollars using the roadway inflation factor (15.2%) given this a roadway construction related item.
7.5	Terminal Variable Message Signs	per sign	$11,262	$10,000	Cost from 2014 TMP - inflated to 2019 dollars.
7.6	Terminal Building Cost	per sq. metre	$3,600		Provided by the City as per a feasibility study. Property acquisition cost is not included
7.7	Bus Stop - Shelter		$6,000		Provided by the City.
7.8	Bus Stop - Pole		$225	$200	Cost from 2014 TMP - inflated to 2019 dollars.
7.9	Bus Stop - Concrete Pad per Unit Area	per sq. metre	$113	$100	Cost from 2014 TMP - inflated to 2019 dollars.
7.11	Bus Stop - Bike Racks (Two Ring Posts)		$338	$300	Cost from 2014 TMP - inflated to 2019 dollars.
7.12	Bus Shelter Replacement Cost		$6,000		Provided by the City.
7.13	ITS Equipment and Installation at Signals	per intersection	$4,505	$4,000	Cost from 2014 TMP - inflated to 2019 dollars.
7.14	ITS On-Board Equipment	per bus	$5,631	$5,000	Cost from 2014 TMP - inflated to 2019 dollars.
7.15	ITS Control Centre		$337,849	$300,000	Cost from 2014 TMP - inflated to 2019 dollars.
7.16	HOV Lane Mastarms	linear m	$282	$250	Cost from 2014 TMP - inflated to 2019 dollars.
8.0 Stormwater Management - LID					
ITEM	**DESCRIPTION**	**UNIT**	**2019 VALUE**	**2014 VALUE**	**COMMENTS/ASSUMPTIONS**
8.1	Low Impact Development (LID) Cost	per sq. metre	$46		Based on "Assessment of Life Cycle Costs for Low Impact Development Management Practices" by the Toronto and Region Conservation and University of Toronto. Applied only to pavement area (impervious area). 2019 - $58, reduced by 25% = $46.40.
9.0 Land Costs					
ITEM	**DESCRIPTION**	**UNIT**	**2019 VALUE**	**2014 MMATMP VALUE**	**COMMENTS/ASSUMPTIONS**
9.2	Former Barrie - Commercial	per sq. metre	$418.72	$301.39	Provided by the city.
9.3	Former Barrie - Residential	per sq. metre	$324.48	$215.28	
9.4	Former Barrie - Industrial	per sq. metre	$239.27	$172.22	
9.5	Secondary Plan Area - Commercial	per sq. metre	$216.63	$150.69	
9.6	Secondary Plan Area - Residential	per sq. metre	$251.81	$161.46	
9.7	Secondary Plan Area - Industrial	per sq. metre	$210.44	$146.39	
10.0 RAIL COSTS					
ITEM	**DESCRIPTION**	**UNIT**	**2019 VALUE**	**2014 MMATMP VALUE**	**COMMENTS/ASSUMPTIONS**
10.1	Flashing Lights, Bells and Gates		$200,000		Estimates provided by the city. Assumes the installation of gate and cateliver. Includes materials, labour, engineering and equipment. Excludes any work or supplies of insulated joints, rock or frost ground excavation.
11.0 ROAD REPAINTING					
ITEM	**DESCRIPTION**	**UNIT**	**2019 VALUE**	**2014 MMATMP VALUE**	**COMMENTS/ASSUMPTIONS**
11.1	Road Repainting from 3 to 4 lanes (Ferndale Drive)	linear m	$22		Assumptions: - $8 per linear metre for lane line removal (soda blasting) - $2 per meter of line paint Check: 2014 TMP assumed $25 per meter for road diet for 4-to-3 lane conversion; removal of 3 stirpes and repainting of 2 stripes.
11.2	Road Widening on Lakeshore Drive from Tiffin to Minet's Point Road; assuming incremental widening only	linear m	$1,808		Assumptions: - existing median/curbs will remain - existing granular base remaining - incremental widening costs only - assume 50% of ART5-34 unit cost
11.3	Road Repainting from 3 to 4 lanes and removal of buffered bike lane. (Specific to Hurst Street from Bay Lane to Cox Mill; reverse road diet).	linear m	$38		Assumptions: - $8 per linear metre for lane line removal (soda blasting) - shoulder pavement markings - $2 per meter of line paint Check: 2014 TMP assumed $25 per meter for road diet for 4-to-3 lane conversion; removal of 3 stirpes and repainting of 2 stripes.
12.0 STREETSCAPE COSTS FOR PRIMARY INTENSIFICATION CORRIDORS					
ITEM	**DESCRIPTION**	**UNIT**	**2019 VALUE**	**2014 MMATMP VALUE**	**COMMENTS/ASSUMPTIONS**
12.1	Streetscape improvements in primary intensification corridors	linear m	$1,840	$1,600	Cost estimate based on City of Vaughan ($1550 per linear meter in 2014 dollars). Cost includes capital costs for continuity strip zone, amenity zone, pedestrian clearway zone, frontage zone, and illunation elements.

1.0 Unit Prices

1. Roadway improvement unit costs are categorized by Classification (MIN, MAJ or ART), total number of lanes, and ROW width
   MIN -> Minor Collector, MAJ -> Major Collector, ART -> Arterial
   Examples: ART5-34 = 5-Lane Arterial, 34m ROW; MIN3-27= 3-Lane Minor Collector, 27m ROW
   Cross-section are based on the City of Barrie's standard cross-sections as detailed in the City's Transportation Design Guide.
2. New construction and reconstruction roadway unit cost estimates includes the items summarized in the table below. Please refer to the "171-08853-00_BenchmarkRoadCost.xls" spreadsheets for further details.

	New Construction Cost	Reconstruction Cost
Removals:		
Earth Excavation	✓	✓
Remove Existing Asphalt		✓
Remove Concrete Curb and Gutter		✓
Remove Existing Storm Man Hole (MH) (1 storm MH every 90 metres)		✓
Remove Existing Catch basin (CB) (2 CB every 90 metres)		✓
Remove Existing Storm Sewer (85% of section has storm sewer)		✓
Remove Existing Concrete Sidewalk (1.5 metre wide sidewalk, both sides of the road)		✓
Tree Removal (1 tree every 15 metres both sides)		✓
Stripping of Topsoil (150 mm stripped)	✓	✓
Construction:		
Granular A - 150 mm	✓	✓
Granular B - 600 mm	✓	✓
Concrete Curb and Gutter	✓	✓
Concrete Barrier Curb	✓ (only for 6-7 vehicle lane cross-section)	✓ (only for 6-7 vehicle lane cross-section)
Concrete Centre Median	✓ (only for 6-7 vehicle lane cross-section)	✓ (only for 6-7 vehicle lane cross-section)
100 mm Diameter PE Subdrain	✓	✓
HL 1 Asphalt - 40mm	✓	✓
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	✓	✓
Tack Coat	✓	✓
Concrete Sidewalk (2.0 metre wide sideway, both sides of the road)	✓	✓
Fine Grading, Topsoil and Sod (width of blvd = ROW - asphalt width - curb width - sidewalk both sides	✓	✓
Mechanical Water Quality Device (1 device for every 13000sq. M. of asphalt)	✓	✓
Storm Sewer (85% of section requires storm sewer) - Assume 450 mm diameter for roads with 3 or fewer lanes, 600mm diameter for roads with 4 to 6 lanes, and 750mm for roads with 7 anes	✓	✓
1200 mm Diameter Precast Maintenance Hole (MH) (1 MH every 90 metres)	✓	✓
Precast Catch Basin (CB) - Single (2 catchbasins every 90 metres)	✓	✓
250 mm Diameter Catch Basin Lead, Flexible (1 MH, 2 CBs every 90 metres; only 1 MH for reconstruction)	✓	✓
Trees (1 tree every 15 m both sides)	✓	✓
Miscellaneous:		
Bonds	✓	✓
Insurance	✓	✓
Garbage and Recyclable Collection		✓
Traffic Control and Signing	✓	✓
Field Office	✓	✓
Schedule of Work	✓	✓
Street Lights	✓	✓
Street Light Duct Work	✓	✓
Asphalt Driveway Removal and Restoration	✓	✓

Linear meter cost of Sidewalk Construction (one-side)

$ 115.76

Note: Sidewalk on both sides of the road is assumed and is costed for all roadway projects. For road projects where in-boulevard trails, the cost of one sidewalk is removed from the roadway costing. In-boulevard trails are costed seperately in the Active Transportation Costing spreadsheet.

Note, the following key items are not included in the roadway unit cost estimates:

Items excluded from roadway unit cost estimates
Watermain
Sanitary sewer
Construction mobilization & de-mobilization
Guide rails
Retaining wall
Removal of regulatory signs
Provision for new regulatory signs
Removal of bus stop and shelters during construction
Surveying
Geo-technical investigation
Archeological Assessment
Erosion and sediment control
Landscaping - hardscaping, softscaping (except tree removal and planting are included in the cost estimation)
Environmental Assessment (EA)
Engineering design, contract adminstration, approval costs
Cut and fill costs
Borrow soil
Reconstruction cost assumes the existing base is not replaced.
Operations and maintenace costs (snow clearing, temporary streetlights, repairing pavement markings, etc.)
Active transportation (AT) facilities (provided in a separate costing spreadsheet). Road diet costs are included in the AT costing spreadsheet.

**Contingency, Soft Costs, and HST (1.76%) is applied to the total costs of all projects (See Tab 3.1)

3. Future ROW is the required ROW included in the standard cross section for the given type of road. No consideration was given in implementing a "constrained" version of the cross section to reduce land acquisition costs

2.0 Cost Summary

Table 1. Road Projects Cost Estimate and Breakdown by Phase

		Projects Started (2019)			2019-2023			2024-2041			Full Build 2019 - 2041		
		Length (km)	(%)	Estimated Cost	Length (km)	(%)	Estimated Cost	Length (km)	(%)	Estimated Cost	Length (km)	(%)	Estimated Cost
Former Barrie	New Roads	3	24%	$ 105,690,000	1	20%	$ 8,810,000	0	0%	$ 4,960,000	4	5%	$ 119,460,000
	Interchanges	N/A	N/A	$ 14,200,000	N/A	N/A	$ -	N/A	N/A	$ 14,150,000	N/A	N/A	$ 28,350,000
	Roads Widened	8	76%	$ 121,320,000	6	80%	$ 94,060,000	46	74%	$ 645,630,000	60	75%	$ 861,010,000
	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	0	0%	$ -	0	0%	$ -	7	11%	$ 55,280,000	7	8%	$ 55,280,000
	Streetscape Improvements in Primary Intensification Corridors	0	0%	$ -	0	0%	$ -	9	15%	$ 27,930,000	9	12%	$ 27,930,000
	Total	**11 km**		**$ 241,210,000**	**7 km**		**$ 102,870,000**	**62 km**		**$ 747,950,000**	**81 km**		**$ 1,092,030,000**
Secondary Plan Area	New Roads	0	0%	$ -	0	0%	$ -	1	4%	$ 46,180,000	1	2%	$ 46,180,000
	Interchanges	N/A	N/A	$ 64,700,000	N/A	N/A	$ -	N/A	N/A	$ -	N/A	N/A	$ 64,700,000
	Roads Widened	12	100%	$ 113,550,000	7	96%	$ 152,860,000	19	78%	$ 168,330,000	37	87%	$ 434,740,000
	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	0	0%	$ -	0	4%	$ 1,570,000	4	19%	$ 24,490,000	5	11%	$ 26,060,000
	Total	**12 km**		**$ 178,250,000**	**7 km**		**$ 154,430,000**	**24 km**		**$ 239,000,000**	**43 km**		**$ 571,680,000**

Projects Started (2019)		2019-2023		2024-2041		Full Road Network Totals	
23 km	$419,460,000	15 km	$257,300,000	86 km	$986,950,000	124 km	$1,663,710,000

Table 2. Transit Cost Estimate and Breakdown by Phase

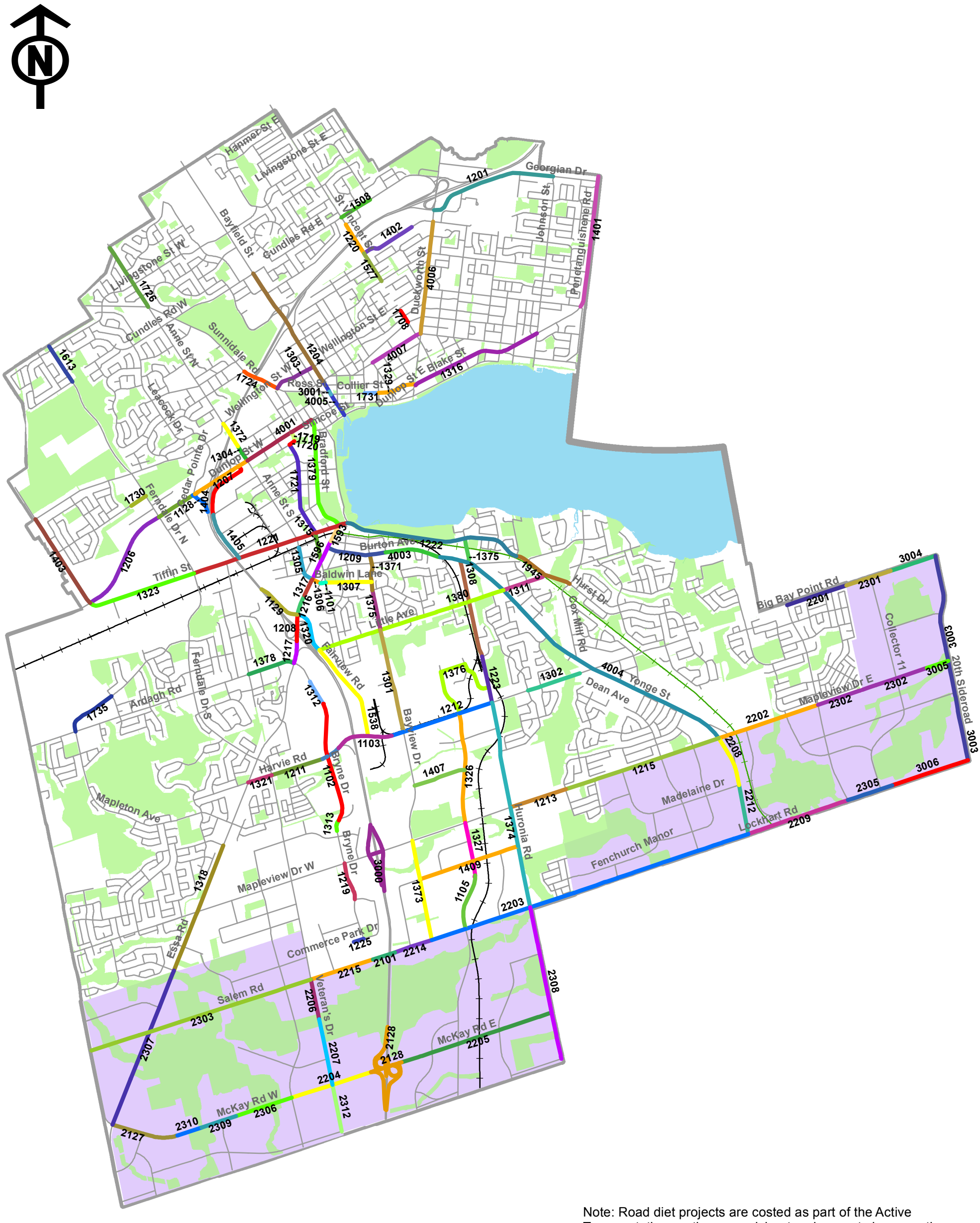
		2019-2023	2024-2028	2029-2041	Full Build 2019 - 2041
		Estimated Cost	Estimated Cost	Estimated Cost	Estimated Cost
Former Barrie	Fleet - New Conventional Buses	$ 6,560,000	$ 8,360,000	$ 37,370,000	$ 52,290,000
	Fleet - Conventional Bus Replacement	$ 8,350,000	$ 11,710,000	$ 43,240,000	$ 63,300,000
	Fleet - New Specialized Buses	$ 340,000	$ 950,000	$ 1,220,000	$ 2,510,000
	Fleet - Specialized Buses Replacement	$ 1,870,000	$ 1,750,000	$ 6,990,000	$ 10,610,000
	Garage and Maintenance Facility	$ -	$ 10,950,000	$ 36,550,000	$ 47,500,000
	Terminal Facilities	$ 9,570,000	$ -	$ -	$ 9,570,000
	Bus Stops	$ 1,420,000	$ 970,000	$ 790,000	$ 3,180,000
	ITS	$ 620,000	$ 270,000	$ 330,000	$ 1,220,000
	HOV Master arms	$ -	$ -	$ 60,000	$ 60,000
	Total	**$ 28,730,000**	**$ 34,960,000**	**$ 126,550,000**	$ 190,240,000
Secondary Plan Area	Fleet - New Conventional Buses	$ 720,000	$ 1,560,000	$ 8,930,000	$ 11,210,000
	Fleet - Conventional Bus Replacement	$ 910,000	$ 2,180,000	$ 10,330,000	$ 13,420,000
	Fleet - New Specialized Buses	$ 40,000	$ 180,000	$ 290,000	$ 510,000
	Fleet - Specialized Buses Replacement	$ 200,000	$ 320,000	$ 1,670,000	$ 2,190,000
	Garage and Maintenance Facility	$ -	$ 2,040,000	$ 8,730,000	$ 10,770,000
	Terminal Facilities	$ 40,000	$ -	$ 620,000	$ 660,000
	Bus Stops	$ 370,000	$ 410,000	$ 260,000	$ 1,040,000
	ITS	$ 70,000	$ 50,000	$ 80,000	$ 200,000
	HOV Master arms	$ -	$ -	$ 10,000	$ 10,000
	Total	**$ 2,350,000**	**$ 6,740,000**	**$ 30,920,000**	$ 40,010,000

2019-2023	2024-2028	2029-2041	Total
$ 31,080,000	$ 41,700,000	$ 157,470,000	$ 230,250,000

Table 3. Operations and Maintenance Cost Estimates

	Existing		2019-2023		2024-2041	
	Total Vehicle lane kilometers (km)	Annual Estimated Cost	Total Vehicle lane kilometers (km)	Annual Estimated Cost	Total Vehicle lane kilometers (km)	Annual Estimated Cost
Operations and Maintenance (Roads)	611	**$ 7,303,917**	648	**$ 7,752,924**	734	**$ 8,784,416**

-Maintenance costs include:
Snow clearing, streetlights, maintenance, markings, sanitary sewers, storm sewers, sidewalks, etc.



Note: Road diet projects are costed as part of the Active Transportation costing spreadsheet and are not shown on the map.

Transportation Features

- GO Transit Railway
- BCRY Railway
- Roads

Natural Features

- Park / Open Space

Other Features

- Secondary Plan Areas

Date Updated: April 4, 2019
Project: 171-08853-00
Map Created By: WSP Thornhill

0 500 1,000 2,000 3,000 4,000 Metres

Figure 1
Road Projects - Project IDs
City of Barrie Transportation Master Plan

3.0 Road Project Details

Construction Contingency	30%
Design/Engineering Allowance	15%
City Project Management	5%
Contract Administration and Site	10%
HST	1.75%

Note: Construction contingency, design/engineering allowance, city project management, contract administration and site inspection factors are not applied to land acquisition costs. Construction contingency, design/engineering allowance, city project management, contract administration and site inspection factors, and HST are not applied to culvert costs as the cost estimates obtained from the drainage master plan includes these costs.

								COST ESTIMATE												
ProjectID	**Category**	**Road**	**From**	**To**	**Roadwork Description**	**Phase**	**Length (m)**	**Road Cost**	**Land Acquistion Cost**	**Culvert Cost**	**Structure Cost**	**Intersection Cost**	**Rail Cost**	**Interchange Cost**	**Streetscape Improvement**	**Contingency ($)**	**Design/Engineering Allowance ($)**	**City Project Management ($)**	**Contract Administration and Site Inspection ($)**	**HST ($)**	**Total Project Cost (Rounded to nearest $10k)**
1101	Former Barrie - New Roads	Anne-Baldwin Connector	Adelaide Street	Innisfil Street	Addition of New Road, 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	73	$ 238,360	$ 1,562,500	$ -	$ -	$ -	$ -	$ -	$ -	$ 71,508	$ 35,754	$ 11,918	$ 23,836	$ 31,515	**$ 1,980,000**
1102	Former Barrie - New Roads	Bryne Drive	Existing North Cul-de-Sac	Existing South Cul-de-Sac	Addition of New Road, 5 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	1598	$ 13,200,000	$ 14,500,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,960,000	$ 1,980,000	$ 660,000	$ 1,320,000	$ 484,750	**$ 36,100,000**
1103	Former Barrie - New Roads	Big Bay Point Road	Bryne Drive	150m west of Bayview Drive	Addition New Road, 7 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	767	$ 35,463,256	$ 7,528,280	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,638,977	$ 5,319,488	$ 1,773,163	$ 3,546,326	$ 752,352	**$ 65,020,000**
1104	Former Barrie - New Roads	Harvie Road	250m west of Bryne Drive	Bryne Drive	New road - Addition of 5 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	258	$ 1,505,146	$ 2,094,957	$ -	$ -	$ -	$ -	$ -	$ -	$ 451,544	$ 225,772	$ 75,257	$ 150,515	$ 63,002	**$ 4,570,000**
1105	Former Barrie - New Roads	Welham Road	South Cul-de-Sac	Lockhart Road	Addition of New Road, 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	745	$ 2,428,053	$ -	$ 867,645	$ -	$ -	$ -	$ -	$ -	$ 728,416	$ 364,208	$ 121,403	$ 242,805	$ 42,491	**$ 4,800,000**
1128	Former Barrie - Interchanges	Dunlop SB On Ramp			Addition of 1 Lane	2024-2041	0	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,800,000	$ -	$ 1,140,000	$ 570,000	$ 190,000	$ 380,000	$ 66,500	**$ 6,150,000**
1129	Former Barrie - Interchanges	Essa Interchange NB On Ramp			Addition of 1 Lane	2024-2041	0	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,780,000	$ -	$ 2,634,000	$ 1,317,000	$ 439,000	$ 878,000	$ 153,650	**$ 14,200,000**
1201	Former Barrie - Roads Widened	Georgian Drive	Duckworth Street	Johnson Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1741	$ 10,510,703	$ 6,632,559	$ -	$ -	$ 1,274,810	$ -	$ -	$ -	$ 3,535,654	$ 1,767,827	$ 589,276	$ 1,178,551	$ 322,316	**$ 25,810,000**
1204	Former Barrie - Roads Widened	Bayfield Street	Cundles Road East	Sophia Street	Addition of 1 Two Way Left Turn Lane or Median along Bayfield Street from Sophia Street to Grove Street, Addition of 1 Lane along Bayfield Street from Grove Street to Rose Street, Addition of 2 Lanes along Bayfield Street from Rose Street to Cundles Road East	2024-2041	1703	$ 11,086,258	$ 9,759,129	$ -	$ 8,048,160	$ 1,774,924	$ -	$ -	$ 1,573,200	$ 6,744,762	$ 3,372,381	$ 1,124,127	$ 2,248,254	$ 564,229	**$ 46,300,000**
1206	Former Barrie - Roads Widened	Dunlop Street West	Ferndale Drive North	Tiffin Street	Addition of 3 Lanes (1 Two Way Left Turn Lane or Median)	2024-2041	1621	$ 9,476,577	$ -	$ 978,965	$ -	$ 312,462	$ -	$ -	$ -	$ 2,936,712	$ 1,468,356	$ 489,452	$ 978,904	$ 171,308	**$ 16,810,000**
1207	Former Barrie - Roads Widened	Dunlop Street West	Anne Street	Cedar Pointe Drive	Widen to 7 lanes by 2041	2024-2041	827	$ 5,897,091	$ 4,358,005	$ -	$ 14,754,960	$ 1,062,196	$ -	$ -	$ -	$ 6,514,274	$ 3,257,137	$ 1,085,712	$ 2,171,425	$ 456,264	**$ 39,560,000**
1208	Former Barrie - Roads Widened	Essa Road	Fairview Road	Highway 400 N-E/W Ramp	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	349	$ 2,488,600	$ -	$ 1,459,202	$ 7,601,040	$ 287,500	$ -	$ -	$ -	$ 3,113,142	$ 1,556,571	$ 518,857	$ 1,037,714	$ 181,600	**$ 18,240,000**
1209	Former Barrie - Roads Widened	Burton Avenue	Essa Road	Milburn Street	Addition of 2 Lanes along Burton Avenue from Bayview Drive to Milburn Street, Addition of 1 Two Way Left Turn Lane or Median along Burton Avenue from Bayview Drive to Essa Road	2024-2041	905	$ 4,442,068	$ 1,792,916	$ -	$ -	$ 575,000	$ -	$ -	$ 1,665,200	$ 2,004,680	$ 1,002,340	$ 334,113	$ 668,227	$ 148,316	**$ 12,630,000**
1211	Former Barrie - Roads Widened	Harvie Road	250m west of Bryne Drive	Veterans Drive	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	709	$ 4,146,312	$ 2,760,400	$ 916,477	$ -	$ 387,348	$ -	$ -	$ -	$ 1,360,098	$ 680,049	$ 226,683	$ 453,366	$ 127,646	**$ 11,060,000**
1212	Former Barrie - Roads Widened	Big Bay Point Road	150m west of Bayview Drive	Huronia Road	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) along Big Bay Point Road from Bayview Drive to Huronia Road, Addition of 5 Lanes (including 1 Two Way Left Turn Lane or Median) along Big Bay Point Road from 150m west of Bayview Drive to Bayview Drive	2019-2023	1405	$ 9,015,178	$ 3,584,465	$ -	$ -	$ 287,500	$ -	$ -	$ -	$ 2,790,803	$ 1,395,402	$ 465,134	$ 930,268	$ 225,525	**$ 18,690,000**
1213	Former Barrie - Roads Widened	Mapleview Drive	Country Lane	Huronia Road	Addition of 2 lanes	2019-2023	775	$ 5,535,017	$ 3,892,125	$ 3,165,861	$ -	$ 287,500	$ -	$ -	$ -	$ 1,746,755	$ 873,378	$ 291,126	$ 582,252	$ 170,006	**$ 16,540,000**
1215	Former Barrie - Roads Widened	Mapleview Drive	Country Lane	Yonge Street	Phase 1: Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median); assume 70% of ultimate project cost	2019-2023	2143	$ 10,514,698	$ 9,655,429	$ -	$ -	$ 813,431	$ -	$ -	$ -	$ 3,398,439	$ 1,699,219	$ 566,406	$ 1,132,813	$ 367,212	**$ 28,150,000**
1215	Former Barrie - Roads Widened	Mapleview Drive	Country Lane	Yonge Street	Phase 2: Addition of 2 Lanes by 2041; assumed 50% of ultimate project cost	2024-2041	2143	$ 7,510,498	$ 6,896,735	$ -	$ -	$ 581,022	$ -	$ -	$ -	$ 2,427,456	$ 1,213,728	$ 404,576	$ 809,152	$ 262,294	**$ 20,110,000**
1216	Former Barrie - Roads Widened	Essa Road	Osmington Entrance	Fairview Road	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	277	$ 1,973,306	$ 2,432,434	$ -	$ -	$ 575,000	$ -	$ -	$ 506,000	$ 916,292	$ 458,146	$ 152,715	$ 305,431	$ 96,018	**$ 7,420,000**
1217	Former Barrie - Roads Widened	Essa Road	Highway 400 N-E/W Ramp	Ardagh Road / Bryne Drive	Addition of 2 Lanes	2019-2023	298	$ 2,131,333	$ 61,426	$ -	$ -	$ 575,000	$ -	$ -	$ -	$ 811,900	$ 405,950	$ 135,317	$ 270,633	$ 48,436	**$ 4,440,000**
1219	Former Barrie - Roads Widened	Bryne Drive	Mapleview Drive	Northern Commerce Park Drive	Addition of 2 Lanes	2019-2023	502	$ 2,869,781	$ 1,681,805	$ -	$ -	$ 337,424	$ -	$ -	$ -	$ 962,162	$ 481,081	$ 160,360	$ 320,721	$ 85,558	**$ 6,900,000**
1220	Former Barrie - Roads Widened	St. Vincent	Sperling	Bell Farm	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	455	$ 2,657,264	$ 567,528	$ -	$ 20,000,000	$ 362,386	$ -	$ -	$ -	$ 6,905,895	$ 3,452,948	$ 1,150,983	$ 2,301,965	$ 412,776	**$ 37,810,000**
1221	Former Barrie - Roads Widened	Tiffin Street	Lakeshore	Ferndale Drive	Addition of 5 Lanes (including 1 Two Way Left Turn Lane or Median) along Tiffin Street from Lakeshore Drive to Bradford Street, Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) along Tiffin Street from Bradford Street to Ferndale Drive	2024-2041	2147	$ 12,550,700	$ 7,095,342	$ 2,286,009	$ 7,125,300	$ 1,811,930	$ 200,000	$ -	$ -	$ 6,506,379	$ 3,253,190	$ 1,084,397	$ 2,168,793	$ 503,707	**$ 44,590,000**

3.0 Road Project Details

								COST ESTIMATE												
ProjectID	Category	Road	From	To	Roadwork Description	Phase	Length (m)	Road Cost	Land Acquistion Cost	Culvert Cost	Structure Cost	Intersection Cost	Rail Cost	Interchange Cost	Streetscape Improvement	Contingency ($)	Design/Engineering Allowance ($)	City Project Management ($)	Contract Administration and Site Inspection ($)	HST ($)	Total Project Cost (Rounded to nearest $10k)
1222	Former Barrie - Roads Widened	Lakeshore / Hurst	Tiffin	Bay Lane	Addition of 2 Lanes	2024-2041	2368	$ 8,164,894	$ 604,947	$ 2,505,394	$ -	$ 387,348	$ -	$ -	$ -	$ 2,565,673	$ 1,282,836	$ 427,612	$ 855,224	$ 160,251	**$ 16,950,000**
1223	Former Barrie - Roads Widened	Huronia Road	Herrell Avenue	Big Bay Point Road	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	631	$ 3,686,352	$ 1,606,628	$ -	$ -	$ 337,424	$ 200,000	$ -	$ -	$ 1,267,133	$ 633,566	$ 211,189	$ 422,378	$ 102,032	**$ 8,470,000**
1225	Former Barrie - Roads Widened	Commerce Park Drive	Bryne Drive	140m west of Bryne Drive	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	138	$ 808,999	$ 331,181	$ -	$ -	$ -	$ -	$ -	$ -	$ 242,700	$ 121,350	$ 40,450	$ 80,900	$ 19,953	**$ 1,650,000**
1301	Former Barrie - Roads Widened	Bayview Drive	Little Avenue	Big Bay Point Road	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	1391	$ 8,129,972	$ 2,662,544	$ 1,091,402	$ -	$ 624,924	$ 200,000	$ -	$ -	$ 2,686,469	$ 1,343,234	$ 447,745	$ 895,490	$ 203,305	**$ 18,290,000**
1302	Former Barrie - Roads Widened	Big Bay Point Road	Loon Avenue	Dean Avenue	Addition of 1 Two Way Left Turn Lane or Median along Big Bay Point Road from Loon Avenue to Dean Avenue	2024-2041	728	$ 4,249,983	$ 2,303,629	$ -	$ 6,029,100	$ 599,962	$ -	$ -	$ -	$ 3,263,714	$ 1,631,857	$ 543,952	$ 1,087,905	$ 230,697	**$ 19,940,000**
1303	Former Barrie - Roads Widened	Wellington Street West	Bayfield Street	Sunnidale Road	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	574	$ 2,721,573	$ 947,715	$ 181,486	$ -	$ 862,500	$ -	$ -	$ -	$ 1,075,222	$ 537,611	$ 179,204	$ 358,407	$ 79,306	**$ 6,940,000**
1304	Former Barrie - Roads Widened	Anne Street North	Dunlop Street West	Wellington Street	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	227	$ 1,324,729	$ 1,241,127	$ -	$ -	$ 312,462	$ -	$ -	$ -	$ 491,157	$ 245,579	$ 81,860	$ 163,719	$ 50,371	**$ 3,910,000**
1305	Former Barrie - Roads Widened	Anne Street South	Jacob Terrace	Essa Road	Addition of 1 Two Way Left Turn or Median	2024-2041	488	$ 2,466,417	$ 1,550,780	$ -	$ -	$ 312,462	$ 200,000	$ -	$ -	$ 893,664	$ 446,832	$ 148,944	$ 297,888	$ 79,269	**$ 6,400,000**
1306	Former Barrie - Roads Widened	Anne Street South	Essa Road	Adelaide Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	118	$ 557,729	$ 230,230	$ -	$ -	$ -	$ -	$ -	$ -	$ 167,319	$ 83,659	$ 27,886	$ 55,773	$ 13,789	**$ 1,140,000**
1307	Former Barrie - Roads Widened	Baldwin Lane	Innisfil Street	Bayview Drive	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	608	$ 2,869,616	$ 845,429	$ -	$ -	$ 575,000	$ -	$ -	$ -	$ 1,033,385	$ 516,692	$ 172,231	$ 344,462	$ 75,076	**$ 6,430,000**
1308	Former Barrie - Roads Widened	Huronia Road	Yonge Street	Herrell Avenue	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	1309	$ 6,203,315	$ 2,244,170	$ 2,974,559	$ -	$ 724,772	$ -	$ -	$ -	$ 2,078,426	$ 1,039,213	$ 346,404	$ 692,809	$ 160,514	**$ 16,460,000**
1311	Former Barrie - Roads Widened	Little Avenue	Yonge Street	Hurst Drive	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	586	$ 2,778,186	$ 341,111	$ -	$ -	$ 312,462	$ 300,000	$ -	$ -	$ 1,017,194	$ 508,597	$ 169,532	$ 339,065	$ 65,306	**$ 5,830,000**
1312	Former Barrie - Roads Widened	Bryne Drive	South of Essa Road	North Cul-de-sac	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	344	$ 2,010,245	$ 1,152,105	$ -	$ -	$ -	$ -	$ -	$ -	$ 603,074	$ 301,537	$ 100,512	$ 201,025	$ 55,341	**$ 4,420,000**
1313	Former Barrie - Roads Widened	Bryne Drive	South Cul-de-sac	North of Caplan Avenue	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	148	$ 862,698	$ 494,427	$ -	$ -	$ -	$ -	$ -	$ -	$ 258,810	$ 129,405	$ 43,135	$ 86,270	$ 23,750	**$ 1,900,000**
1315	Former Barrie - Roads Widened	Innisfil Street	Tiffin Street	Essa Road	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	379	$ 1,786,565	$ 765,825	$ -	$ -	$ 674,848	$ 200,000	$ -	$ -	$ 798,424	$ 399,212	$ 133,071	$ 266,141	$ 59,977	**$ 5,080,000**
1316	Former Barrie - Roads Widened	Blake Street	Collier Street	Johnson Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1787	$ 8,466,615	$ 555,447	$ -	$ -	$ 887,462	$ -	$ -	$ -	$ 2,806,223	$ 1,403,112	$ 467,704	$ 935,408	$ 173,417	**$ 15,700,000**
1317	Former Barrie - Roads Widened	Essa Road	Anne Street South	Osmington Entrance	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	237	$ 1,384,287	$ 1,389,318	$ -	$ -	$ -	$ -	$ -	$ 432,400	$ 545,006	$ 272,503	$ 90,834	$ 181,669	$ 56,105	**$ 4,350,000**
1318	Former Barrie - Roads Widened	Essa Road	Dunn Street	Coughlin Avenue	Addition of 1 Two Way Left Turn Lane or Median along Essa Road from Dunn Street to Mapleview Drive West, Addition of 3 lanes (including 1 Two Way Left Turn Lane or Median) along Essa Road from Mapleview Drive West to Coughline Avenue	2019-2023	1793	$ 9,337,091	$ 3,508,435	$ -	$ -	$ 962,348	$ -	$ -	$ -	$ 3,089,832	$ 1,544,916	$ 514,972	$ 1,029,944	$ 241,638	**$ 20,230,000**
1320	Former Barrie - Roads Widened	Fairview Road	Essa Road	Little Avenue	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	597	$ 3,486,136	$ 1,249,574	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,045,841	$ 522,920	$ 174,307	$ 348,614	$ 82,875	**$ 6,910,000**
1321	Former Barrie - Roads Widened	Harvie Road	Veterans Drive	Essa Road	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	328	$ 1,552,689	$ 353,709	$ -	$ -	$ 774,696	$ -	$ -	$ -	$ 698,215	$ 349,108	$ 116,369	$ 232,738	$ 46,919	**$ 4,120,000**
1323	Former Barrie - Roads Widened	Tiffin Street	Ferndale Drive	Dunlop Street West	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1459	$ 7,180,358	$ 4,293,197	$ -	$ -	$ 362,386	$ -	$ -	$ -	$ 2,262,823	$ 1,131,412	$ 377,137	$ 754,274	$ 207,129	**$ 16,570,000**
1325	Former Barrie - Roads Widened	Minet's Point Road	Lakeshore Drive / Hurst Drive	Yonge Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	329	$ 1,923,755	$ 1,930,746	$ -	$ -	$ 312,462	$ 300,000	$ -	$ -	$ 760,865	$ 380,432	$ 126,811	$ 253,622	$ 78,172	**$ 6,070,000**
1326	Former Barrie - Roads Widened	Welham Road	Big Bay Point Road	Mapleview Drive East	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1468	$ 6,921,167	$ 266,289	$ 1,331,361	$ -	$ -	$ -	$ -	$ -	$ 2,076,350	$ 1,038,175	$ 346,058	$ 692,117	$ 125,780	**$ 12,800,000**
1327	Former Barrie - Roads Widened	Welham Road	Mapleview Drive East	South Cul-de-sac	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	731	$ 3,447,443	$ 174,898	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,034,233	$ 517,116	$ 172,372	$ 344,744	$ 63,391	**$ 5,750,000**
1329	Former Barrie - Roads Widened	Collier Street	Poyntz Street	Blake Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	518	$ 2,442,858	$ 501,956	$ -	$ -	$ -	$ -	$ -	$ -	$ 732,857	$ 366,429	$ 122,143	$ 244,286	$ 51,534	**$ 4,460,000**
1371	Former Barrie - Roads Widened	Bayview Drive	Burton Avenue	Springhome Road	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	484	$ 2,281,492	$ 1,025,678	$ -	$ -	$ 287,500	$ -	$ -	$ -	$ 770,698	$ 385,349	$ 128,450	$ 256,899	$ 62,907	**$ 5,200,000**
1372	Former Barrie - Roads Widened	Anne Street North	Wellington Street	Edgehill Drive	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	356	$ 2,077,950	$ 406,704	$ -	$ 9,865,800	$ 287,500	$ -	$ -	$ -	$ 3,669,375	$ 1,834,688	$ 611,563	$ 1,223,125	$ 221,164	**$ 20,200,000**
1373	Former Barrie - Roads Widened	Bayview Drive	Salem Road	Mapleview Drive East	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1345	$ 6,371,464	$ 437,981	$ -	$ -	$ 674,848	$ -	$ -	$ -	$ 2,113,894	$ 1,056,947	$ 352,316	$ 704,631	$ 130,975	**$ 11,840,000**
1374	Former Barrie - Roads Widened	Huronia Road	Big Bay Point Road	Lockhart Road	Phase 1: Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) ; assumed 70% of ultimate project cost	2024-2041	2770	$ 11,332,140	$ 3,956,884	$ 2,572,657	$ -	$ 656,170	$ 140,000	$ -	$ -	$ 3,638,493	$ 1,819,246	$ 606,415	$ 1,212,831	$ 281,491	**$ 26,220,000**
1374	Former Barrie - Roads Widened	Huronia Road	Big Bay Point Road	Lockhart Road	Phase 2: Addition of 2 Lanes by 2041; assumed 50% of ultimate project cost	2024-2041	2770	$ 8,094,385	$ 2,826,345	$ 1,837,612	$ -	$ 468,693	$ 100,000	$ -	$ -	$ 2,598,924	$ 1,299,462	$ 433,154	$ 866,308	$ 201,065	**$ 18,730,000**
1375	Former Barrie - Roads Widened	Bayview Drive	Springhome Road	Little Avenue	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	539	$ 2,540,542	$ 1,337,547	$ -	$ -	$ -	$ -	$ -	$ -	$ 762,163	$ 381,081	$ 127,027	$ 254,054	$ 67,867	**$ 5,470,000**
1376	Former Barrie - Roads Widened	Welham Road, Truman, Hamilton	Huronia	Big Bay Point Road	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1467	$ 6,920,565	$ -	$ -	$ -	$ -	$ 400,000	$ -	$ -	$ 2,196,169	$ 1,098,085	$ 366,028	$ 732,056	$ 128,110	**$ 11,840,000**
1378	Former Barrie - Roads Widened	Ardagh Road	Patterson	Essa	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	631	$ 3,614,304	$ 1,904,692	$ 307,285	$ -	$ 287,500	$ -	$ -	$ -	$ 1,170,541	$ 585,271	$ 195,090	$ 390,180	$ 101,614	**$ 8,560,000**
1379	Former Barrie - Roads Widened	Bradford Street	Dunlop Street West	Tiffin Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1540	$ 8,992,548	$ 7,079,470	$ 10,594,264	$ -	$ 887,462	$ -	$ -	$ -	$ 2,964,003	$ 1,482,001	$ 494,000	$ 988,001	$ 296,791	**$ 33,780,000**
1380	Former Barrie - Roads Widened	Little Avenue	Fairview Road	Yonge	Addition of 3 Lanes (1 Two Way Left Turn Lane or Median) along Little Avenue from Marshall Street to Fairview Road, Addition of 1 Two Way Left Turn Lane or Median along Little Avenue from Marshall Street to Yonge Street	2024-2041	2577	$ 12,534,006	$ 3,365,964	$ 4,326,677	$ -	$ 1,274,810	$ 200,000	$ -	$ -	$ 4,202,645	$ 2,101,322	$ 700,441	$ 1,400,882	$ 304,059	**$ 30,410,000**
1401	Former Barrie - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Penetanguishene Road	Steel Street	Barrie City Limits	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	1749	$ 7,205,826	$ 1,296,443	$ 623,484	$ -	$ -	$ -	$ -	$ -	$ 2,161,748	$ 1,080,874	$ 360,291	$ 720,583	$ 148,790	**$ 13,600,000**
1402	Former Barrie - Roads Widened	Bell Farm Road	St Vincent Street	West of Duckworth Street	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	738	$ 3,481,631	$ 330,419	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,044,489	$ 522,245	$ 174,082	$ 348,163	$ 66,711	**$ 5,970,000**

3.0 Road Project Details

								COST ESTIMATE												
ProjectID	**Category**	**Road**	**From**	**To**	**Roadwork Description**	**Phase**	**Length (m)**	**Road Cost**	**Land Acquistion Cost**	**Culvert Cost**	**Structure Cost**	**Intersection Cost**	**Rail Cost**	**Interchange Cost**	**Streetscape Improvement**	**Contingency ($)**	**Design/Engineering Allowance ($)**	**City Project Management ($)**	**Contract Administration and Site Inspection ($)**	**HST ($)**	**Total Project Cost (Rounded to nearest $10k)**
1403	Former Barrie - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Miller Drive	Dunlop Street West	Edgehill Drive	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	1330	$ 5,634,946	$ 1,575,049	$ 821,145	$ -	$ -	$ -	$ -	$ -	$ 1,690,484	$ 845,242	$ 281,747	$ 563,495	$ 126,175	**$ 11,540,000**
1404	Former Barrie - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Hart Drive	Dunlop Street West	Vespra Street	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	838	$ 3,549,408	$ 701,784	$ 2,338,970	$ -	$ -	$ -	$ -	$ -	$ 1,064,822	$ 532,411	$ 177,470	$ 354,941	$ 74,396	**$ 8,790,000**
1405	Former Barrie - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Dyment Road	Vespra Street	Tiffin Street	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	682	$ 2,889,195	$ 979,288	$ 988,593	$ -	$ -	$ -	$ -	$ -	$ 866,758	$ 433,379	$ 144,460	$ 288,919	$ 67,698	**$ 6,660,000**
1407	Former Barrie - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Churchill Drive	Bayview Drive	Welham Road	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	701	$ 2,969,743	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 890,923	$ 445,461	$ 148,487	$ 296,974	$ 51,971	**$ 4,800,000**
1409	Former Barrie - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Saunders Road	Bayview Drive	Huronia Road	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	1376	$ 5,827,127	$ -	$ -	$ -	$ 287,500	$ -	$ -	$ -	$ 1,834,388	$ 917,194	$ 305,731	$ 611,463	$ 107,006	**$ 9,890,000**
1508	Former Barrie - Roads Widened	Cundles Road East	Livingstone Street East	St Vincent Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	452	$ 2,590,292	$ 3,031,167	$ -	$ -	$ 287,500	$ -	$ -	$ -	$ 863,337	$ 431,669	$ 143,890	$ 287,779	$ 103,407	**$ 7,740,000**
1538	Former Barrie - Roads Widened	Fairview Road	Big Bay Point Road	Little Avenue	Addition of 2 Lanes	2024-2041	1356	$ 7,044,155	$ 2,920,198	$ 2,121,018	$ -	$ -	$ -	$ -	$ -	$ 2,113,247	$ 1,056,623	$ 352,208	$ 704,416	$ 174,376	**$ 16,490,000**
1549	Former Barrie - Roads Widened	Dunlop Street West	Cedar Pointe Drive	Ferndale Drive	Addition of 2 Lanes	2024-2041	565	$ 4,038,255	$ 2,740,603	$ -	$ -	$ 287,500	$ -	$ -	$ -	$ 1,297,726	$ 648,863	$ 216,288	$ 432,575	$ 123,661	**$ 9,790,000**
1577	Former Barrie - Roads Widened	St. Vincent	Bell Farm Road	Grove Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	440	$ 2,570,034	$ 1,327,805	$ 393,115	$ -	$ 575,000	$ -	$ -	$ -	$ 943,510	$ 471,755	$ 157,252	$ 314,503	$ 78,275	**$ 6,830,000**
1593	Former Barrie - Roads Widened	Essa Road	Burton Avenue	Bradford Street	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	225	$ 1,302,142	$ 1,364,760	$ -	$ -	$ 287,500	$ 200,000	$ -	$ 414,000	$ 661,092	$ 330,546	$ 110,182	$ 220,364	$ 62,447	**$ 4,950,000**
1596	Former Barrie - Roads Widened	Essa Road	Anne Street South	Burton Avenue	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	564	$ 3,295,132	$ 2,989,996	$ -	$ -	$ -	$ -	$ -	$ 1,039,600	$ 1,300,420	$ 650,210	$ 216,737	$ 433,473	$ 128,183	**$ 10,050,000**
1613	Former Barrie - Roads Widened	Ferndale Drive	Benson Drive	City Northwest Limits	Addition of 1 Lane	2019-2023	563	$ 377,847	$ 730,219	$ -	$ -	$ 287,500	$ -	$ -	$ -	$ 199,604	$ 99,802	$ 33,267	$ 66,535	$ 24,422	**$ 1,820,000**
1708	Former Barrie - Roads Widened	St. Vincent	Wellington Street	Penetang Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	180	$ 854,431	$ 409,575	$ -	$ -	$ 287,500	$ -	$ -	$ -	$ 342,579	$ 171,290	$ 57,097	$ 114,193	$ 27,151	**$ 2,260,000**
1719	Former Barrie - Roads Widened	Eccles Street South	Dunlop Street West	Perry Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	127	$ 600,111	$ 289,013	$ -	$ -	$ 312,462	$ -	$ -	$ -	$ 273,772	$ 136,886	$ 45,629	$ 91,257	$ 21,028	**$ 1,770,000**
1720	Former Barrie - Roads Widened	Perry Street	Eccles Street South	Innisfil Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	79	$ 374,595	$ 180,405	$ -	$ -	$ -	$ -	$ -	$ -	$ 112,379	$ 56,189	$ 18,730	$ 37,460	$ 9,713	**$ 790,000**
1721	Former Barrie - Roads Widened	Innisfil Street	Tiffin Street	Perry Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1262	$ 5,950,787	$ 3,773,553	$ 7,879,602	$ -	$ 287,500	$ -	$ -	$ -	$ 1,871,486	$ 935,743	$ 311,914	$ 623,829	$ 175,207	**$ 21,810,000**
1724	Former Barrie - Roads Widened	Sunnidale Road	Wellington Street	Shirley Avenue	Highway 400 crossing replaced with 2 lanes, bicycle lanes and sidewalks on both sides (costing for only structure widening)	2019-2023	0	$ -	$ -	$ -	$ 2,799,360	$ -	$ -	$ -	$ -	$ 839,808	$ 419,904	$ 139,968	$ 279,936	$ 48,989	**$ 4,530,000**
1726	Former Barrie - Roads Widened	Anne Street North	Sunnidale Road	Barrie City Limits	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	936	$ 4,435,256	$ 911,167	$ -	$ -	$ 624,924	$ -	$ -	$ -	$ 1,518,054	$ 759,027	$ 253,009	$ 506,018	$ 104,499	**$ 9,110,000**
1730	Former Barrie - New Roads	Sproule Drive	West cul-de-sac	Ferndale Drive	Addition of New Road, 2 lanes	2024-2041	233	$ 702,552	$ 1,810,820	$ -	$ -	$ -	$ -	$ -	$ -	$ 210,766	$ 105,383	$ 35,128	$ 70,255	$ 43,984	**$ 2,980,000**
1731	Former Barrie - Roads Widened	Collier Street	Mulcaster Street	Poyntz Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	187	$ 883,985	$ -	$ -	$ -	$ 287,500	$ -	$ -	$ -	$ 351,445	$ 175,723	$ 58,574	$ 117,148	$ 20,501	**$ 1,890,000**
1735	Former Barrie - New Roads	Sommerset Drive	Ardagh Road	Wright Drive	Addition of New Road, 2 lanes	2019-2023	726	$ 2,193,468	$ -	$ -	$ -	$ 287,500	$ -	$ -	$ -	$ 744,290	$ 372,145	$ 124,048	$ 248,097	$ 43,417	**$ 4,010,000**
1945	Former Barrie - Roads Widened	Hurst Drive	Bay Lane	Cox Mill Road	Addition of 1 lane	2024-2041	813	$ 558,755	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 167,626	$ 83,813	$ 27,938	$ 55,875	$ 9,778	**$ 900,000**
2101	Secondary Plan Area - New Roads	Salem Road	East of Highway 400	West of Highway 400	Addition of 5 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	0	$ -	$ -	$ -	$ -	$ -	$ -	$ 20,000,000	$ -	$ 6,000,000	$ 3,000,000	$ 1,000,000	$ 2,000,000	$ 350,000	**$ 32,350,000**

3.0 Road Project Details

								COST ESTIMATE												
ProjectID	**Category**	**Road**	**From**	**To**	**Roadwork Description**	**Phase**	**Length (m)**	**Road Cost**	**Land Acquistion Cost**	**Culvert Cost**	**Structure Cost**	**Intersection Cost**	**Rail Cost**	**Interchange Cost**	**Streetscape Improvement**	**Contingency ($)**	**Design/Engineering Allowance ($)**	**City Project Management ($)**	**Contract Administration and Site Inspection ($)**	**HST ($)**	**Total Project Cost (Rounded to nearest $10k)**
2127	Secondary Plan Area - New Roads	McKay Road West	630m west of Collector 4	Country Road 27	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	890	$ 3,232,690	$ 7,618,970	$ 848,414	$ -	$ -	$ -	$ -	$ -	$ 969,807	$ 484,903	$ 161,634	$ 323,269	$ 189,904	**$ 13,830,000**
2128	Secondary Plan Area - Interchanges	McKay Interchange				2019-2023	0	$ -	$ -	$ -	$ -	$ -	$ -	$ 40,000,000	$ -	$ 12,000,000	$ 6,000,000	$ 2,000,000	$ 4,000,000	$ 700,000	**$ 64,700,000**
2201	Secondary Plan Area - Roads Widened	Big Bay Point Road	Prince William Way	230m west of Collector 11	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	829	$ 4,131,423	$ 182,507	$ -	$ -	$ 287,500	$ -	$ -	$ -	$ 1,325,677	$ 662,838	$ 220,946	$ 441,892	$ 80,525	**$ 7,330,000**
2202	Secondary Plan Area - Roads Widened	Mapleview Drive East	Yonge Street	Prince William Way	Addition of 5 Lanes (including 1 Two Way Left Turn Lane or Median) along Mapleview Drive East from Yonge Street to Collector 8, Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) along Mapleview Drive East from Collector 8 to Prince William Way	2019-2023	1393	$ 8,560,229	$ 6,477,469	$ 2,015,349	$ -	$ -	$ 20,217,697	$ -	$ -	$ 8,633,378	$ 4,316,689	$ 1,438,896	$ 2,877,793	$ 616,969	**$ 55,150,000**
2203	Secondary Plan Area - Roads Widened	Lockhart Road	Bayview Drive	Yonge Street	Phase 1 Interim Improvements: 4 lanes, turning lanes at intersections, semi-urban; assumed 70% of ultimate project cost	2019-2023	4434	$ 14,708,443	$ 7,949,470	$ 7,798,782	$ -	$ 1,093,617	$ 28,000,000	$ -	$ -	$ 13,140,618	$ 6,570,309	$ 2,190,103	$ 4,380,206	$ 905,652	**$ 86,740,000**
2203	Secondary Plan Area - Roads Widened	Lockhart Road	Bayview Drive	Yonge Street	Phase 2 Ultimate Improvements: full urbanization and two-way left turn lane; assumed 50% of ultimate project cost	2024-2041	4434	$ 10,506,031	$ 5,678,193	$ 5,570,558	$ -	$ 781,155	$ -	$ -	$ -	$ 3,386,156	$ 1,693,078	$ 564,359	$ 1,128,719	$ 296,894	**$ 29,610,000**
2204	Secondary Plan Area - Roads Widened	McKay Road West	West Boundary of Interchange	Reid Drive	Phase 1 Interim Improvements: 5 lanes - West Bndry of Interchange to Veterans Drive 3 lanes - Veternas Drive to Reid Drive Assumed 70% of ultimate project cost (100% of grade separation costs)	2019-2023	1103	$ 4,140,172	$ 2,862,777	$ -	$ -	$ 201,250	$ -	$ -	$ -	$ 1,302,427	$ 651,213	$ 217,071	$ 434,142	$ 126,073	**$ 9,940,000**
2204	Secondary Plan Area - Roads Widened	McKay Road West	West Boundary of Interchange	Reid Drive	Phase 2 Ultimate Improvements: 7 lanes - West Bndry of Interchange to Veterans Drive 5 lanes - Veternas Drive to Reid Drive Assumed 50% of ultimate project cost (0% of grade separation costs)	2024-2041	1103	$ 2,957,266	$ 2,044,841	$ -	$ -	$ 143,750	$ -	$ -	$ -	$ 930,305	$ 465,152	$ 155,051	$ 310,102	$ 90,052	**$ 7,100,000**
2205	Secondary Plan Area - Roads Widened	McKay Road East	East Boundary of Interchange	Huronia Road	Phase 1 Interim Improvements: 5 lanes - East Bndry of Interchange to Rawson Drive 3 lanes - Rawson Drive to Huronia Road Assumed 70% of ultimate project cost	2019-2023	2102	$ 7,684,136	$ 6,502,930	$ -	$ -	$ -	$ 140,000	$ -	$ -	$ 2,347,241	$ 1,173,620	$ 391,207	$ 782,414	$ 250,724	**$ 19,270,000**
2205	Secondary Plan Area - Roads Widened	McKay Road East	East Boundary of Interchange	Huronia Road	Phase 2 Ultimate Improvements: 7 lanes - East Bndry of Interchange to Rawson Drive 5 lanes - Rawson Drive to Huronia Road Assumed 50% of ultimate project cost	2024-2041	2102	$ 5,488,669	$ 4,644,950	$ -	$ -	$ -	$ 100,000	$ -	$ -	$ 1,676,601	$ 838,300	$ 279,433	$ 558,867	$ 179,088	**$ 13,770,000**
2206	Secondary Plan Area - Roads Widened	Veterans Drive	Salem Road	540m south of Salem Road	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	543	$ 2,703,197	$ 1,598,465	$ -	$ -	$ -	$ -	$ -	$ -	$ 810,959	$ 405,480	$ 135,160	$ 270,320	$ 75,279	**$ 6,000,000**
2207	Secondary Plan Area - Roads Widened	Veterans Drive	540m south of Salem Road	McKay Road West	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	886	$ 4,200,395	$ 3,124,638	$ 615,451	$ -	$ 387,348	$ -	$ -	$ -	$ 1,376,323	$ 688,161	$ 229,387	$ 458,774	$ 134,967	**$ 11,220,000**
2208	Secondary Plan Area - Roads Widened	Yonge Street	Mapleview Drive East	(Southern) Madelaine Drive	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	686	$ 3,251,382	$ 756,971	$ -	$ -	$ 387,348	$ -	$ -	$ -	$ 1,091,619	$ 545,810	$ 181,937	$ 363,873	$ 76,925	**$ 6,660,000**
2209	Secondary Plan Area - Roads Widened	Lockhart Road	Yonge Street	Prince William Way	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	1400	$ 6,634,615	$ 3,744,230	$ 2,055,091	$ -	$ -	$ 8,312,363	$ -	$ -	$ 4,484,093	$ 2,242,047	$ 747,349	$ 1,494,698	$ 327,096	**$ 30,040,000**
2212	Secondary Plan Area - Roads Widened	Yonge Street	(Southern) Madelaine Drive	Lockhart Road	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	662	$ 3,135,637	$ 286,670	$ -	$ -	$ -	$ -	$ -	$ -	$ 940,691	$ 470,346	$ 156,782	$ 313,564	$ 59,890	**$ 5,360,000**
2214	Secondary Plan Area - Roads Widened	Lockhart Road	East of Highway 400	Bayview Drive	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	519	$ 2,461,266	$ 1,156,111	$ -	$ -	$ -	$ -	$ -	$ -	$ 738,380	$ 369,190	$ 123,063	$ 246,127	$ 63,304	**$ 5,160,000**
2215	Secondary Plan Area - Roads Widened	Salem Road	West of Highway 400	Veterans Drive	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	866	$ 4,104,639	$ 2,640,522	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,231,392	$ 615,696	$ 205,232	$ 410,464	$ 118,040	**$ 9,330,000**
2301	Secondary Plan Area - Roads Widened	Big Bay Point Road	230m west of Collector 11	200m east of Collector 11	Addition of 3 lanes (including 1 Two Way Left Turn Lane or Median) on Big Bay Point from 230m west of Collector 11 to Collector 11, Addition of 1 Two Way Left Turn Lane or Median on Big Bay Point from Collector 11 to 200m east of Collector 11	2019-2023	620	$ 2,625,372	$ 426,229	$ -	$ -	$ 575,000	$ -	$ -	$ -	$ 960,112	$ 480,056	$ 160,019	$ 320,037	$ 63,466	**$ 5,610,000**
2302	Secondary Plan Area - Roads Widened	Mapleview Drive	Prince William Way	300 m west of 20th Sideroad	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) along Mapleview Drive East from Prince William Way to Collector 11, Addition of 1 Two Way Left Turn Lane or Median along Mapleview Drive East from Collector 11 to 200m west of 20th Sideroad	2019-2023	1505	$ 6,486,592	$ 3,440,186	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,945,977	$ 972,989	$ 324,330	$ 648,659	$ 173,719	**$ 13,990,000**

3.0 Road Project Details

								COST ESTIMATE												
ProjectID	**Category**	**Road**	**From**	**To**	**Roadwork Description**	**Phase**	**Length (m)**	**Road Cost**	**Land Acquistion Cost**	**Culvert Cost**	**Structure Cost**	**Intersection Cost**	**Rail Cost**	**Interchange Cost**	**Streetscape Improvement**	**Contingency ($)**	**Design/Engineering Allowance ($)**	**City Project Management ($)**	**Contract Administration and Site Inspection ($)**	**HST ($)**	**Total Project Cost (Rounded to nearest $10k)**
2303	Secondary Plan Area - Roads Widened	Salem Road	Veterans Drive	County Road 27	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) along Salem Road from Veterans Drive to Reid Drive, Addition of 1 Two Way Left Turn Lane or Median along Salem Road from Barrie City Limits to Reid Drive	2024-2041	3067	$ 11,539,523	$ 10,337,899	$ 909,317	$ -	$ 699,810	$ -	$ -	$ -	$ 3,671,800	$ 1,835,900	$ 611,967	$ 1,223,933	$ 395,102	**$ 31,230,000**
2305	Secondary Plan Area - Roads Widened	Lockhart Road	Prince William Way	160m east of Collector 11	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) along Lockhart Road from Prince William Way to Collector 11, Addition of 1 Two Way Left Turn Lane or Median along Lockhart Road from Collector 11 to 160m east of Collector 11	2024-2041	620	$ 2,528,276	$ 1,412,950	$ -	$ -	$ -	$ -	$ -	$ -	$ 758,483	$ 379,241	$ 126,414	$ 252,828	$ 68,971	**$ 5,530,000**
2306	Secondary Plan Area - Roads Widened	McKay Road	Reid Drive	190m east of Collector 4	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	781	$ 2,835,547	$ 2,367,358	$ 792,943	$ -	$ -	$ -	$ -	$ -	$ 850,664	$ 425,332	$ 141,777	$ 283,555	$ 91,051	**$ 7,790,000**
2307	Secondary Plan Area - Roads Widened	Essa Road	Former City Limits	CR27	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	2203	$ 7,749,271	$ 4,184,852	$ 1,506,064	$ -	$ 1,000,000	$ -	$ -	$ -	$ 2,624,781	$ 1,312,391	$ 437,464	$ 874,927	$ 226,347	**$ 19,920,000**
2308	Secondary Plan Area - Roads Widened	Huronia Road	Lockhart Road	Barrie City Limits	Phase 1 Interim Improvements: 3 lane cross-section; assume 70% of ultimate project cost	2019-2023	2059	$ 6,830,580	$ 3,874,691	$ 3,600,867	$ -	$ 542,287	$ -	$ -	$ -	$ 2,211,860	$ 1,105,930	$ 368,643	$ 737,287	$ 196,832	**$ 19,470,000**
2308	Secondary Plan Area - Roads Widened	Huronia Road	Lockhart Road	Barrie City Limits	Phase 2 Ultimate Improvements: 5 lane cross-section; assume 50% of ultimate project cost	2024-2041	2059	$ 4,878,986	$ 2,767,636	$ 2,572,048	$ -	$ 387,348	$ -	$ -	$ -	$ 1,579,900	$ 789,950	$ 263,317	$ 526,633	$ 140,594	**$ 13,910,000**
2309	Secondary Plan Area - Roads Widened	McKay Road	190m east of Collector 4	290m west of Collector 4	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	485	$ 1,760,537	$ 1,469,847	$ -	$ -	$ -	$ -	$ -	$ -	$ 528,161	$ 264,081	$ 88,027	$ 176,054	$ 56,532	**$ 4,340,000**
2310	Secondary Plan Area - Roads Widened	McKay Road	290m west of Collector 4	630m west of Collector 4	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	337	$ 1,223,393	$ 1,187,264	$ -	$ -	$ -	$ -	$ -	$ -	$ 367,018	$ 183,509	$ 61,170	$ 122,339	$ 42,186	**$ 3,190,000**
2312	Secondary Plan Area - Roads Widened	Veterans Drive	McKay Road West	Barrie City Limits	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	629	$ 2,982,521	$ 2,218,672	$ -	$ -	$ -	$ -	$ -	$ -	$ 894,756	$ 447,378	$ 149,126	$ 298,252	$ 91,021	**$ 7,080,000**
3000	Former Barrie - Interchanges	Mapleview DDI				2024-2041	0	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,945,904	$ -	$ 1,483,771	$ 741,886	$ 247,295	$ 494,590	$ 86,553	**$ 8,000,000**
3001	Former Barrie - Roads Widened	Ross Street Roundabout - Interim				2019-2023	0	$ -	$ 220,833	$ -	$ -	$ 1,679,400	$ -	$ -	$ -	$ 503,820	$ 251,910	$ 83,970	$ 167,940	$ 33,254	**$ 2,940,000**
3002	Former Barrie - Roads Widened	Ross Street Roundabout - Ultimate				2024-2041	0	$ -	$ 371,237	$ -	$ -	$ 1,798,200	$ -	$ -	$ -	$ 539,460	$ 269,730	$ 89,910	$ 179,820	$ 37,965	**$ 3,290,000**
3003	Secondary Plan Area - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	20th Side Road	Big Bay Point Road	Lockhart Road	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	2765	$ 8,642,211	$ -	$ 1,364,949	$ -	$ -	$ -	$ -	$ -	$ 2,592,663	$ 1,296,332	$ 432,111	$ 864,221	$ 151,239	**$ 15,340,000**
3004	Secondary Plan Area - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Big Bay Point Road	200m east of Collector 11	20th Sideroad	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	627	$ 2,099,477	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 629,843	$ 314,921	$ 104,974	$ 209,948	$ 36,741	**$ 3,400,000**
3005	Secondary Plan Area - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Mapleview Drive East	300m west of 20th Sideroad	20th Sideroad	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2019-2023	300	$ 967,968	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 290,390	$ 145,195	$ 48,398	$ 96,797	$ 16,939	**$ 1,570,000**
3006	Secondary Plan Area - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Lockhart Road	160m east of Collector 11	20th Sideroad	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	1062	$ 3,553,266	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,065,980	$ 532,990	$ 177,663	$ 355,327	$ 62,182	**$ 5,750,000**
4001	Former Barrie - Streetscape Improvements in Primary Intensification Corridors	Dunlop Street	Anne Street	High Street	Streetscape improvements in primary intensification corridors	2024-2041	1500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,760,000	$ 828,000	$ 414,000	$ 138,000	$ 276,000	$ 48,300	**$ 4,460,000**
4003	Former Barrie - Streetscape Improvements in Primary Intensification Corridors	Burton Avenue	Essa Road	Garden Drive	Streetscape improvements in primary intensification corridors	2024-2041	595	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,094,800	$ 328,440	$ 164,220	$ 54,740	$ 109,480	$ 19,159	**$ 1,770,000**
4004	Former Barrie - Streetscape Improvements in Primary Intensification Corridors	Yonge Street	Garden Drive	Mapleview Drive East	Streetscape improvements in primary intensification corridors	2024-2041	4500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,280,000	$ 2,484,000	$ 1,242,000	$ 414,000	$ 828,000	$ 144,900	**$ 13,390,000**
4005	Former Barrie - Streetscape Improvements in Primary Intensification Corridors	Bayfield Street	Rose Street	Simcoe Street	Streetscape improvements in primary intensification corridors	2024-2041	545	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,002,800	$ 300,840	$ 150,420	$ 50,140	$ 100,280	$ 17,549	**$ 1,620,000**
4006	Former Barrie - Streetscape Improvements in Primary Intensification Corridors	Duckworth Street	Bell Farm Road	Codrington Street	Streetscape improvements in primary intensification corridors	2024-2041	1500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,760,000	$ 828,000	$ 414,000	$ 138,000	$ 276,000	$ 48,300	**$ 4,460,000**
4007	Former Barrie - Streetscape Improvements in Primary Intensification Corridors	Codrington Street	Duckworth Street	Berczy Street	Streetscape improvements in primary intensification corridors	2024-2041	750	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,380,000	$ 414,000	$ 207,000	$ 69,000	$ 138,000	$ 24,150	**$ 2,230,000**
					Construction cost:			$ 523,322,316	$ 249,710,867	$ 78,220,529	$ 76,223,720	$ 38,272,545	$ 59,330,059	$ 77,525,904	$ 22,908,000						
					Phased implementation additional costs:																
					(see red text in roadwork description)			$ 15,774,334	$ 9,943,480	$ 3,992,087	$ -	$ 944,787	$ 80,000	$ -	$ -						
					TOTALS:			**$ 539,096,650**	**$ 259,654,347**	**$ 82,212,616**	**$ 76,223,720**	**$ 39,217,332**	**$ 59,410,059**	**$ 77,525,904**	**$ 22,908,000**	**$ 244,314,500**	**$ 122,157,250**	**$ 40,719,083**	**$ 81,438,167**	**$ 18,795,630**	**$ 1,663,710,000**

3.0 Road Project Details

	Existing Benefit %	Growth %
Former Barrie	35%	65%
Secondary Plan Area	15%	85%

									DEVELOPMENT CHARGE FUNDING					
ProjectID	Category	Road	From	To	Roadwork Description	Phase	Length (m)	Total Project Cost (Rounded to nearest $10k)	Existing Benefit %	Growth %	Post Period Benefit %	Growth	Existing Benefit	Post Period Benefit
1101	Former Barrie - New Roads	Anne-Baldwin Connector	Adelaide Street	Innisfil Street	Addition of New Road, 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	73	$ 1,980,000	35%	65%		$ 1,287,000.00	$ 693,000.00	$ -
1102	Former Barrie - New Roads	Bryne Drive	Existing North Cul-de-Sac	Existing South Cul-de-Sac	Addition of New Road, 5 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	1598	$ 36,100,000	35%	65%		$ 23,465,000.00	$ 12,635,000.00	$ -
1103	Former Barrie - New Roads	Big Bay Point Road	Bryne Drive	150m west of Bayview Drive	Addition New Road, 7 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	767	$ 65,020,000	35%	65%		$ 42,263,000.00	$ 22,757,000.00	$ -
1104	Former Barrie - New Roads	Harvie Road	250m west of Bryne Drive	Bryne Drive	New road - Addition of 5 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	258	$ 4,570,000	35%	65%		$ 2,970,500.00	$ 1,599,500.00	$ -
1105	Former Barrie - New Roads	Welham Road	South Cul-de-Sac	Lockhart Road	Addition of New Road, 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	745	$ 4,800,000	35%	65%		$ 3,120,000.00	$ 1,680,000.00	$ -
1128	Former Barrie - Interchanges	Dunlop SB On Ramp			Addition of 1 Lane	2024-2041	0	$ 6,150,000	35%	65%		$ 3,997,500.00	$ 2,152,500.00	$ -
1129	Former Barrie - Interchanges	Essa Interchange NB On Ramp			Addition of 1 Lane	2024-2041	0	$ 14,200,000	35%	65%		$ 9,230,000.00	$ 4,970,000.00	$ -
1201	Former Barrie - Roads Widened	Georgian Drive	Duckworth Street	Johnson Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1741	$ 25,810,000	35%	65%		$ 16,776,500.00	$ 9,033,500.00	$ -
1204	Former Barrie - Roads Widened	Bayfield Street	Cundles Road East	Sophia Street	Addition of 1 Two Way Left Turn Lane or Median along Bayfield Street from Sophia Street to Grove Street, Addition of 1 Lane along Bayfield Street from Grove Street to Rose Street, Addition of 2 Lanes along Bayfield Street from Rose Street to Cundles Road East	2024-2041	1703	$ 46,300,000	35%	65%		$ 30,095,000.00	$ 16,205,000.00	$ -
1206	Former Barrie - Roads Widened	Dunlop Street West	Ferndale Drive North	Tiffin Street	Addition of 3 Lanes (1 Two Way Left Turn Lane or Median)	2024-2041	1621	$ 16,810,000	35%	65%		$ 10,926,500.00	$ 5,883,500.00	$ -
1207	Former Barrie - Roads Widened	Dunlop Street West	Anne Street	Cedar Pointe Drive	Widen to 7 lanes by 2041	2024-2041	827	$ 39,560,000	35%	65%		$ 25,714,000.00	$ 13,846,000.00	$ -
1208	Former Barrie - Roads Widened	Essa Road	Fairview Road	Highway 400 N-E/W Ramp	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	349	$ 18,240,000	35%	65%		$ 11,856,000.00	$ 6,384,000.00	$ -

3.0 Road Project Details

									DEVELOPMENT CHARGE FUNDING					
ProjectID	Category	Road	From	To	Roadwork Description	Phase	Length (m)	Total Project Cost (Rounded to nearest $10k)	Existing Benefit %	Growth %	Post Period Benefit %	Growth	Existing Benefit	Post Period Benefit
1209	Former Barrie - Roads Widened	Burton Avenue	Essa Road	Milburn Street	Addition of 2 Lanes along Burton Avenue from Bayview Drive to Milburn Street, Addition of 1 Two Way Left Turn Lane or Median along Burton Avenue from Bayview Drive to Essa Road	2024-2041	905	$ 12,630,000	35%	65%		$ 8,209,500.00	$ 4,420,500.00	$ -
1211	Former Barrie - Roads Widened	Harvie Road	250m west of Bryne Drive	Veterans Drive	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	709	$ 11,060,000	35%	65%		$ 7,189,000.00	$ 3,871,000.00	$ -
1212	Former Barrie - Roads Widened	Big Bay Point Road	150m west of Bayview Drive	Huronia Road	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) along Big Bay Point Road from Bayview Drive to Huronia Road, Addition of 5 Lanes (including 1 Two Way Left Turn Lane or Median) along Big Bay Point Road from 150m west of Bayview Drive to Bayview Drive	2019-2023	1405	$ 18,690,000	35%	65%		$ 12,148,500.00	$ 6,541,500.00	$ -
1213	Former Barrie - Roads Widened	Mapleview Drive	Country Lane	Huronia Road	Addition of 2 lanes	2019-2023	775	$ 16,540,000	35%	65%		$ 10,751,000.00	$ 5,789,000.00	$ -
1215	Former Barrie - Roads Widened	Mapleview Drive	Country Lane	Yonge Street	Phase 1: Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median); assume 70% of ultimate project cost	2019-2023	2143	$ 28,150,000	35%	65%		$ 18,297,500.00	$ 9,852,500.00	$ -
1215	Former Barrie - Roads Widened	Mapleview Drive	Country Lane	Yonge Street	Phase 2: Addition of 2 Lanes by 2041; assumed 50% of ultimate project cost	2024-2041	2143	$ 20,110,000	35%	65%		$ 13,071,500.00	$ 7,038,500.00	$ -
1216	Former Barrie - Roads Widened	Essa Road	Osmington Entrance	Fairview Road	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	277	$ 7,420,000	35%	65%		$ 4,823,000.00	$ 2,597,000.00	$ -
1217	Former Barrie - Roads Widened	Essa Road	Highway 400 N-E/W Ramp	Ardagh Road / Bryne Drive	Addition of 2 Lanes	2019-2023	298	$ 4,440,000	35%	65%		$ 2,886,000.00	$ 1,554,000.00	$ -
1219	Former Barrie - Roads Widened	Bryne Drive	Mapleview Drive	Northern Commerce Park Drive	Addition of 2 Lanes	2019-2023	502	$ 6,900,000	35%	65%		$ 4,485,000.00	$ 2,415,000.00	$ -
1220	Former Barrie - Roads Widened	St. Vincent	Sperling	Bell Farm	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	455	$ 37,810,000	35%	65%		$ 24,576,500.00	$ 13,233,500.00	$ -
1221	Former Barrie - Roads Widened	Tiffin Street	Lakeshore	Ferndale Drive	Addition of 5 Lanes (including 1 Two Way Left Turn Lane or Median) along Tiffin Street from Lakeshore Drive to Bradford Street, Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) along Tiffin Street from Bradford Street to Ferndale Drive	2024-2041	2147	$ 44,590,000	35%	65%		$ 28,983,500.00	$ 15,606,500.00	$ -
1222	Former Barrie - Roads Widened	Lakeshore / Hurst	Tiffin	Bay Lane	Addition of 2 Lanes	2024-2041	2368	$ 16,950,000	35%	65%		$ 11,017,500.00	$ 5,932,500.00	$ -
1223	Former Barrie - Roads Widened	Huronia Road	Herrell Avenue	Big Bay Point Road	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	631	$ 8,470,000	35%	65%		$ 5,505,500.00	$ 2,964,500.00	$ -
1225	Former Barrie - Roads Widened	Commerce Park Drive	Bryne Drive	140m west of Bryne Drive	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	138	$ 1,650,000	35%	65%		$ 1,072,500.00	$ 577,500.00	$ -
1301	Former Barrie - Roads Widened	Bayview Drive	Little Avenue	Big Bay Point Road	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	1391	$ 18,290,000	35%	65%		$ 11,888,500.00	$ 6,401,500.00	$ -
1302	Former Barrie - Roads Widened	Big Bay Point Road	Loon Avenue	Dean Avenue	Addition of 1 Two Way Left Turn Lane or Median along Big Bay Point Road from Loon Avenue to Dean Avenue	2024-2041	728	$ 19,940,000	35%	65%		$ 12,961,000.00	$ 6,979,000.00	$ -
1303	Former Barrie - Roads Widened	Wellington Street West	Bayfield Street	Sunnidale Road	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	574	$ 6,940,000	35%	65%		$ 4,511,000.00	$ 2,429,000.00	$ -
1304	Former Barrie - Roads Widened	Anne Street North	Dunlop Street West	Wellington Street	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	227	$ 3,910,000	35%	65%		$ 2,541,500.00	$ 1,368,500.00	$ -
1305	Former Barrie - Roads Widened	Anne Street South	Jacob Terrace	Essa Road	Addition of 1 Two Way Left Turn or Median	2024-2041	488	$ 6,400,000	35%	65%		$ 4,160,000.00	$ 2,240,000.00	$ -
1306	Former Barrie - Roads Widened	Anne Street South	Essa Road	Adelaide Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	118	$ 1,140,000	35%	65%		$ 741,000.00	$ 399,000.00	$ -
1307	Former Barrie - Roads Widened	Baldwin Lane	Innisfil Street	Bayview Drive	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	608	$ 6,430,000	35%	65%		$ 4,179,500.00	$ 2,250,500.00	$ -

3.0 Road Project Details

									DEVELOPMENT CHARGE FUNDING					
ProjectID	Category	Road	From	To	Roadwork Description	Phase	Length (m)	Total Project Cost (Rounded to nearest $10k)	Existing Benefit %	Growth %	Post Period Benefit %	Growth	Existing Benefit	Post Period Benefit
1308	Former Barrie - Roads Widened	Huronia Road	Yonge Street	Herrell Avenue	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	1309	$ 16,460,000	35%	65%		$ 10,699,000.00	$ 5,761,000.00	$ -
1311	Former Barrie - Roads Widened	Little Avenue	Yonge Street	Hurst Drive	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	586	$ 5,830,000	35%	65%		$ 3,789,500.00	$ 2,040,500.00	$ -
1312	Former Barrie - Roads Widened	Bryne Drive	South of Essa Road	North Cul-de-sac	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	344	$ 4,420,000	35%	65%		$ 2,873,000.00	$ 1,547,000.00	$ -
1313	Former Barrie - Roads Widened	Bryne Drive	South Cul-de-sac	North of Caplan Avenue	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	148	$ 1,900,000	35%	65%		$ 1,235,000.00	$ 665,000.00	$ -
1315	Former Barrie - Roads Widened	Innisfil Street	Tiffin Street	Essa Road	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	379	$ 5,080,000	35%	65%		$ 3,302,000.00	$ 1,778,000.00	$ -
1316	Former Barrie - Roads Widened	Blake Street	Collier Street	Johnson Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1787	$ 15,700,000	35%	65%		$ 10,205,000.00	$ 5,495,000.00	$ -
1317	Former Barrie - Roads Widened	Essa Road	Anne Street South	Osmington Entrance	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	237	$ 4,350,000	35%	65%		$ 2,827,500.00	$ 1,522,500.00	$ -
1318	Former Barrie - Roads Widened	Essa Road	Dunn Street	Coughlin Avenue	Addition of 1 Two Way Left Turn Lane or Median along Essa Road from Dunn Street to Mapleview Drive West, Addition of 3 lanes (including 1 Two Way Left Turn Lane or Median) along Essa Road from Mapleview Drive West to Coughline Avenue	2019-2023	1793	$ 20,230,000	35%	65%		$ 13,149,500.00	$ 7,080,500.00	$ -
1320	Former Barrie - Roads Widened	Fairview Road	Essa Road	Little Avenue	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	597	$ 6,910,000	35%	65%		$ 4,491,500.00	$ 2,418,500.00	$ -
1321	Former Barrie - Roads Widened	Harvie Road	Veterans Drive	Essa Road	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	328	$ 4,120,000	35%	65%		$ 2,678,000.00	$ 1,442,000.00	$ -
1323	Former Barrie - Roads Widened	Tiffin Street	Ferndale Drive	Dunlop Street West	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1459	$ 16,570,000	35%	65%		$ 10,770,500.00	$ 5,799,500.00	$ -
1325	Former Barrie - Roads Widened	Minet's Point Road	Lakeshore Drive / Hurst Drive	Yonge Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	329	$ 6,070,000	35%	65%		$ 3,945,500.00	$ 2,124,500.00	$ -
1326	Former Barrie - Roads Widened	Welham Road	Big Bay Point Road	Mapleview Drive East	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1468	$ 12,800,000	35%	65%		$ 8,320,000.00	$ 4,480,000.00	$ -
1327	Former Barrie - Roads Widened	Welham Road	Mapleview Drive East	South Cul-de-sac	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	731	$ 5,750,000	35%	65%		$ 3,737,500.00	$ 2,012,500.00	$ -
1329	Former Barrie - Roads Widened	Collier Street	Poyntz Street	Blake Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	518	$ 4,460,000	35%	65%		$ 2,899,000.00	$ 1,561,000.00	$ -
1371	Former Barrie - Roads Widened	Bayview Drive	Burton Avenue	Springhome Road	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	484	$ 5,200,000	35%	65%		$ 3,380,000.00	$ 1,820,000.00	$ -
1372	Former Barrie - Roads Widened	Anne Street North	Wellington Street	Edgehill Drive	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	356	$ 20,200,000	35%	65%		$ 13,130,000.00	$ 7,070,000.00	$ -
1373	Former Barrie - Roads Widened	Bayview Drive	Salem Road	Mapleview Drive East	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1345	$ 11,840,000	35%	65%		$ 7,696,000.00	$ 4,144,000.00	$ -
1374	Former Barrie - Roads Widened	Huronia Road	Big Bay Point Road	Lockhart Road	Phase 1: Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) ; assumed 70% of ultimate project cost	2024-2041	2770	$ 26,220,000	35%	65%		$ 17,043,000.00	$ 9,177,000.00	$ -
1374	Former Barrie - Roads Widened	Huronia Road	Big Bay Point Road	Lockhart Road	Phase 2: Addition of 2 Lanes by 2041; assumed 50% of ultimate project cost	2024-2041	2770	$ 18,730,000	35%	65%		$ 12,174,500.00	$ 6,555,500.00	$ -
1375	Former Barrie - Roads Widened	Bayview Drive	Springhome Road	Little Avenue	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	539	$ 5,470,000	35%	65%		$ 3,555,500.00	$ 1,914,500.00	$ -
1376	Former Barrie - Roads Widened	Welham Road, Truman, Hamilton	Huronia	Big Bay Point Road	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1467	$ 11,840,000	35%	65%		$ 7,696,000.00	$ 4,144,000.00	$ -
1378	Former Barrie - Roads Widened	Ardagh Road	Patterson	Essa	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	631	$ 8,560,000	35%	65%		$ 5,564,000.00	$ 2,996,000.00	$ -
1379	Former Barrie - Roads Widened	Bradford Street	Dunlop Street West	Tiffin Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1540	$ 33,780,000	35%	65%		$ 21,957,000.00	$ 11,823,000.00	$ -

3.0 Road Project Details

									DEVELOPMENT CHARGE FUNDING					
ProjectID	Category	Road	From	To	Roadwork Description	Phase	Length (m)	Total Project Cost (Rounded to nearest $10k)	Existing Benefit %	Growth %	Post Period Benefit %	Growth	Existing Benefit	Post Period Benefit
1380	Former Barrie - Roads Widened	Little Avenue	Fairview Road	Yonge	Addition of 3 Lanes (1 Two Way Left Turn Lane or Median) along Little Avenue from Marshall Street to Fairview Road, Addition of 1 Two Way Left Turn Lane or Median along Little Avenue from Marshall Street to Yonge Street	2024-2041	2577	$ 30,410,000	35%	65%		$ 19,766,500.00	$ 10,643,500.00	$ -
1401	Former Barrie - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Penetanguishene Road	Steel Street	Barrie City Limits	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	1749	$ 13,600,000	35%	65%		$ 8,840,000.00	$ 4,760,000.00	$ -
1402	Former Barrie - Roads Widened	Bell Farm Road	St Vincent Street	West of Duckworth Street	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	738	$ 5,970,000	35%	65%		$ 3,880,500.00	$ 2,089,500.00	$ -
1403	Former Barrie - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Miller Drive	Dunlop Street West	Edgehill Drive	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	1330	$ 11,540,000	35%	65%		$ 7,501,000.00	$ 4,039,000.00	$ -
1404	Former Barrie - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Hart Drive	Dunlop Street West	Vespra Street	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	838	$ 8,790,000	35%	65%		$ 5,713,500.00	$ 3,076,500.00	$ -
1405	Former Barrie - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Dyment Road	Vespra Street	Tiffin Street	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	682	$ 6,660,000	35%	65%		$ 4,329,000.00	$ 2,331,000.00	$ -
1407	Former Barrie - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Churchill Drive	Bayview Drive	Welham Road	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	701	$ 4,800,000	35%	65%		$ 3,120,000.00	$ 1,680,000.00	$ -
1409	Former Barrie - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Saunders Road	Bayview Drive	Huronia Road	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	1376	$ 9,890,000	35%	65%		$ 6,428,500.00	$ 3,461,500.00	$ -
1508	Former Barrie - Roads Widened	Cundles Road East	Livingstone Street East	St Vincent Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	452	$ 7,740,000	35%	65%		$ 5,031,000.00	$ 2,709,000.00	$ -
1538	Former Barrie - Roads Widened	Fairview Road	Big Bay Point Road	Little Avenue	Addition of 2 Lanes	2024-2041	1356	$ 16,490,000	35%	65%		$ 10,718,500.00	$ 5,771,500.00	$ -
1549	Former Barrie - Roads Widened	Dunlop Street West	Cedar Pointe Drive	Ferndale Drive	Addition of 2 Lanes	2024-2041	565	$ 9,790,000	35%	65%		$ 6,363,500.00	$ 3,426,500.00	$ -
1577	Former Barrie - Roads Widened	St. Vincent	Bell Farm Road	Grove Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	440	$ 6,830,000	35%	65%		$ 4,439,500.00	$ 2,390,500.00	$ -
1593	Former Barrie - Roads Widened	Essa Road	Burton Avenue	Bradford Street	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	225	$ 4,950,000	35%	65%		$ 3,217,500.00	$ 1,732,500.00	$ -
1596	Former Barrie - Roads Widened	Essa Road	Anne Street South	Burton Avenue	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	564	$ 10,050,000	35%	65%		$ 6,532,500.00	$ 3,517,500.00	$ -
1613	Former Barrie - Roads Widened	Ferndale Drive	Benson Drive	City Northwest Limits	Addition of 1 Lane	2019-2023	563	$ 1,820,000	35%	65%		$ 1,183,000.00	$ 637,000.00	$ -

3.0 Road Project Details

									DEVELOPMENT CHARGE FUNDING					
ProjectID	Category	Road	From	To	Roadwork Description	Phase	Length (m)	Total Project Cost (Rounded to nearest $10k)	Existing Benefit %	Growth %	Post Period Benefit %	Growth	Existing Benefit	Post Period Benefit
1708	Former Barrie - Roads Widened	St. Vincent	Wellington Street	Penetang Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	180	**$ 2,260,000**	35%	65%		**$ 1,469,000.00**	**$ 791,000.00**	**$ -**
1719	Former Barrie - Roads Widened	Eccles Street South	Dunlop Street West	Perry Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	127	**$ 1,770,000**	35%	65%		**$ 1,150,500.00**	**$ 619,500.00**	**$ -**
1720	Former Barrie - Roads Widened	Perry Street	Eccles Street South	Innisfil Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	79	**$ 790,000**	35%	65%		**$ 513,500.00**	**$ 276,500.00**	**$ -**
1721	Former Barrie - Roads Widened	Innisfil Street	Tiffin Street	Perry Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	1262	**$ 21,810,000**	35%	65%		**$ 14,176,500.00**	**$ 7,633,500.00**	**$ -**
1724	Former Barrie - Roads Widened	Sunnidale Road	Wellington Street	Shirley Avenue	Highway 400 crossing replaced with 2 lanes, bicycle lanes and sidewalks on both sides (costing for only structure widening)	2019-2023	0	**$ 4,530,000**	35%	65%		**$ 2,944,500.00**	**$ 1,585,500.00**	**$ -**
1726	Former Barrie - Roads Widened	Anne Street North	Sunnidale Road	Barrie City Limits	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	936	**$ 9,110,000**	35%	65%		**$ 5,921,500.00**	**$ 3,188,500.00**	**$ -**
1730	Former Barrie - New Roads	Sproule Drive	West cul-de-sac	Ferndale Drive	Addition of New Road, 2 lanes	2024-2041	233	**$ 2,980,000**	35%	65%		**$ 1,937,000.00**	**$ 1,043,000.00**	**$ -**
1731	Former Barrie - Roads Widened	Collier Street	Mulcaster Street	Poyntz Street	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	187	**$ 1,890,000**	35%	65%		**$ 1,228,500.00**	**$ 661,500.00**	**$ -**
1735	Former Barrie - New Roads	Sommerset Drive	Ardagh Road	Wright Drive	Addition of New Road, 2 lanes	2019-2023	726	**$ 4,010,000**	35%	65%		**$ 2,606,500.00**	**$ 1,403,500.00**	**$ -**
1945	Former Barrie - Roads Widened	Hurst Drive	Bay Lane	Cox Mill Road	Addition of 1 lane	2024-2041	813	**$ 900,000**	35%	65%		**$ 585,000.00**	**$ 315,000.00**	**$ -**
2101	Secondary Plan Area - New Roads	Salem Road	East of Highway 400	West of Highway 400	Addition of 5 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	0	**$ 32,350,000**	15%	85%		**$ 27,497,500.00**	**$ 4,852,500.00**	**$ -**
2127	Secondary Plan Area - New Roads	McKay Road West	630m west of Collector 4	Country Road 27	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	890	**$ 13,830,000**	15%	85%	20%	**$ 11,755,500.00**	**$ 2,074,500.00**	**$ 2,800,798.99**
2128	Secondary Plan Area - Interchanges	McKay Interchange				2019-2023	0	**$ 64,700,000**	15%	85%		**$ 54,995,000.00**	**$ 9,705,000.00**	**$ -**
2201	Secondary Plan Area - Roads Widened	Big Bay Point Road	Prince William Way	230m west of Collector 11	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	829	**$ 7,330,000**	15%	85%		**$ 6,230,500.00**	**$ 1,099,500.00**	**$ -**
2202	Secondary Plan Area - Roads Widened	Mapleview Drive East	Yonge Street	Prince William Way	Addition of 5 Lanes (including 1 Two Way Left Turn Lane or Median) along Mapleview Drive East from Yonge Street to Collector 8, Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) along Mapleview Drive East from Collector 8 to Prince William Way	2019-2023	1393	**$ 55,150,000**	15%	85%	14%	**$ 46,877,500.00**	**$ 8,272,500.00**	**$ 7,655,031.17**
2203	Secondary Plan Area - Roads Widened	Lockhart Road	Bayview Drive	Yonge Street	Phase 1 Interim Improvements: 4 lanes, turning lanes at intersections, semi-urban; assumed 70% of ultimate project cost	2019-2023	4434	**$ 86,740,000**	15%	85%		**$ 73,729,000.00**	**$ 13,011,000.00**	**$ -**

3.0 Road Project Details

									DEVELOPMENT CHARGE FUNDING					
ProjectID	Category	Road	From	To	Roadwork Description	Phase	Length (m)	Total Project Cost (Rounded to nearest $10k)	Existing Benefit %	Growth %	Post Period Benefit %	Growth	Existing Benefit	Post Period Benefit
2203	Secondary Plan Area - Roads Widened	Lockhart Road	Bayview Drive	Yonge Street	Phase 2 Ultimate Improvements: full urbanization and two-way left turn lane; assumed 50% of ultimate project cost	2024-2041	4434	$ 29,610,000	15%	85%		$ 25,168,500.00	$ 4,441,500.00	$ -
2204	Secondary Plan Area - Roads Widened	McKay Road West	West Boundary of Interchange	Reid Drive	Phase 1 Interim Improvements: 5 lanes - West Bndry of Interchange to Veterans Drive 3 lanes - Veternas Drive to Reid Drive Assumed 70% of ultimate project cost (100% of grade separation costs)	2019-2023	1103	$ 9,940,000	15%	85%		$ 8,449,000.00	$ 1,491,000.00	$ -
2204	Secondary Plan Area - Roads Widened	McKay Road West	West Boundary of Interchange	Reid Drive	Phase 2 Utlimate Improvements: 7 lanes - West Bndry of Interchange to Veterans Drive 5 lanes - Veternas Drive to Reid Drive Assumed 50% of ultimate project cost (0% of grade separation costs)	2024-2041	1103	$ 7,100,000	15%	85%		$ 6,035,000.00	$ 1,065,000.00	$ -
2205	Secondary Plan Area - Roads Widened	McKay Road East	East Boundary of Interchange	Huronia Road	Phase 1 Interim Improvements: 5 lanes - East Bndry of Interchange to Rawson Drive 3 lanes - Rawson Drive to Huronia Road Assumed 70% of ultimate project cost	2019-2023	2102	$ 19,270,000	15%	85%	12%	$ 16,379,500.00	$ 2,890,500.00	$ 2,292,642.67
2205	Secondary Plan Area - Roads Widened	McKay Road East	East Boundary of Interchange	Huronia Road	Phase 2 Ultimate Improvements: 7 lanes - East Bndry of Interchange to Rawson Drive 5 lanes - Rawson Drive to Huronia Road Assumed 50% of ultimate project cost	2024-2041	2102	$ 13,770,000	15%	85%		$ 11,704,500.00	$ 2,065,500.00	$ -
2206	Secondary Plan Area - Roads Widened	Veterans Drive	Salem Road	540m south of Salem Road	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	543	$ 6,000,000	15%	85%		$ 5,100,000.00	$ 900,000.00	$ -
2207	Secondary Plan Area - Roads Widened	Veterans Drive	540m south of Salem Road	McKay Road West	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	886	$ 11,220,000	15%	85%		$ 9,537,000.00	$ 1,683,000.00	$ -
2208	Secondary Plan Area - Roads Widened	Yonge Street	Mapleview Drive East	(Southern) Madelaine Drive	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	686	$ 6,660,000	15%	85%		$ 5,661,000.00	$ 999,000.00	$ -
2209	Secondary Plan Area - Roads Widened	Lockhart Road	Yonge Street	Prince William Way	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	1400	$ 30,040,000	15%	85%		$ 25,534,000.00	$ 4,506,000.00	$ -
2212	Secondary Plan Area - Roads Widened	Yonge Street	(Southern) Madelaine Drive	Lockhart Road	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	662	$ 5,360,000	15%	85%		$ 4,556,000.00	$ 804,000.00	$ -
2214	Secondary Plan Area - Roads Widened	Lockhart Road	East of Highway 400	Bayview Drive	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	519	$ 5,160,000	15%	85%		$ 4,386,000.00	$ 774,000.00	$ -
2215	Secondary Plan Area - Roads Widened	Salem Road	West of Highway 400	Veterans Drive	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2024-2041	866	$ 9,330,000	15%	85%		$ 7,930,500.00	$ 1,399,500.00	$ -
2301	Secondary Plan Area - Roads Widened	Big Bay Point Road	230m west of Collector 11	200m east of Collector 11	Addition of 3 lanes (including 1 Two Way Left Turn Lane or Median) on Big Bay Point from 230m west of Collector 11 to Collector 11, Addition of 1 Two Way Left Turn Lane or Median on Big Bay Point from Collector 11 to 200m east of Collector 11	2019-2023	620	$ 5,610,000	15%	85%		$ 4,768,500.00	$ 841,500.00	$ -

3.0 Road Project Details

									DEVELOPMENT CHARGE FUNDING					
ProjectID	Category	Road	From	To	Roadwork Description	Phase	Length (m)	Total Project Cost (Rounded to nearest $10k)	Existing Benefit %	Growth %	Post Period Benefit %	Growth	Existing Benefit	Post Period Benefit
2302	Secondary Plan Area - Roads Widened	Mapleview Drive	Prince William Way	300 m west of 20th Sideroad	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) along Mapleview Drive East from Prince William Way to Collector 11, Addition of 1 Two Way Left Turn Lane or Median along Mapleview Drive East from Collector 11 to 200m west of 20th Sideroad	2019-2023	1505	**$ 13,990,000**	15%	85%		**$ 11,891,500.00**	**$ 2,098,500.00**	**$ -**
2303	Secondary Plan Area - Roads Widened	Salem Road	Veterans Drive	County Road 27	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) along Salem Road from Veterans Drive to Reid Drive, Addition of 1 Two Way Left Turn Lane or Median along Salem Road from Barrie City Limits to Reid Drive	2024-2041	3067	**$ 31,230,000**	15%	85%	20%	**$ 26,545,500.00**	**$ 4,684,500.00**	**$ 6,324,580.80**
2305	Secondary Plan Area - Roads Widened	Lockhart Road	Prince William Way	160m east of Collector 11	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median) along Lockhart Road from Prince William Way to Collector 11, Addition of 1 Two Way Left Turn Lane or Median along Lockhart Road from Collector 11 to 160m east of Collector 11	2024-2041	620	**$ 5,530,000**	15%	85%		**$ 4,700,500.00**	**$ 829,500.00**	**$ -**
2306	Secondary Plan Area - Roads Widened	McKay Road	Reid Drive	190m east of Collector 4	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	781	**$ 7,790,000**	15%	85%	20%	**$ 6,621,500.00**	**$ 1,168,500.00**	**$ 1,577,601.17**
2307	Secondary Plan Area - Roads Widened	Essa Road	Former City Limits	CR27	Addition of 1 Two Way Left Turn Lane or Median	2019-2023	2203	**$ 19,920,000**	15%	85%	20%	**$ 16,932,000.00**	**$ 2,988,000.00**	**$ 4,034,122.62**
2308	Secondary Plan Area - Roads Widened	Huronia Road	Lockhart Road	Barrie City Limits	Phase 1 Interim Improvements: 3 lane cross-section; assume 70% of ultimate project cost	2019-2023	2059	**$ 19,470,000**	15%	85%		**$ 16,549,500.00**	**$ 2,920,500.00**	**$ -**
2308	Secondary Plan Area - Roads Widened	Huronia Road	Lockhart Road	Barrie City Limits	Phase 2 Ultimate Improvements: 5 lane cross-section; assume 50% of ultimate project cost	2024-2041	2059	**$ 13,910,000**	15%	85%		**$ 11,823,500.00**	**$ 2,086,500.00**	**$ -**
2309	Secondary Plan Area - Roads Widened	McKay Road	190m east of Collector 4	290m west of Collector 4	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	485	**$ 4,340,000**	15%	85%	20%	**$ 3,689,000.00**	**$ 651,000.00**	**$ 878,920.29**
2310	Secondary Plan Area - Roads Widened	McKay Road	290m west of Collector 4	630m west of Collector 4	Addition of 1 Two Way Left Turn Lane or Median	2024-2041	337	**$ 3,190,000**	15%	85%	20%	**$ 2,711,500.00**	**$ 478,500.00**	**$ 646,026.66**
2312	Secondary Plan Area - Roads Widened	Veterans Drive	McKay Road West	Barrie City Limits	Addition of 3 Lanes (including 1 Two Way Left Turn Lane or Median)	2019-2023	629	**$ 7,080,000**	15%	85%		**$ 6,018,000.00**	**$ 1,062,000.00**	**$ -**
3000	Former Barrie - Interchanges	Mapleview DDI				2024-2041	0	**$ 8,000,000**	35%	65%		**$ 5,200,000.00**	**$ 2,800,000.00**	**$ -**
3001	Former Barrie - Roads Widened	Ross Street Roundabout - Interim				2019-2023	0	**$ 2,940,000**	35%	65%		**$ 1,911,000.00**	**$ 1,029,000.00**	**$ -**
3002	Former Barrie - Roads Widened	Ross Street Roundabout - Ultimate				2024-2041	0	**$ 3,290,000**	35%	65%		**$ 2,138,500.00**	**$ 1,151,500.00**	**$ -**
3003	Secondary Plan Area - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	20th Side Road	Big Bay Point Road	Lockhart Road	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	2765	**$ 15,340,000**	15%	85%		**$ 13,039,000.00**	**$ 2,301,000.00**	**$ -**
3004	Secondary Plan Area - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Big Bay Point Road	200m east of Collector 11	20th Sideroad	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	627	**$ 3,400,000**	15%	85%		**$ 2,890,000.00**	**$ 510,000.00**	**$ -**

3.0 Road Project Details

									DEVELOPMENT CHARGE FUNDING					
ProjectID	Category	Road	From	To	Roadwork Description	Phase	Length (m)	Total Project Cost (Rounded to nearest $10k)	Existing Benefit %	Growth %	Post Period Benefit %	Growth	Existing Benefit	Post Period Benefit
3005	Secondary Plan Area - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Mapleview Drive East	300m west of 20th Sideroad	20th Sideroad	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2019-2023	300	$ 1,570,000	15%	85%		$ 1,334,500.00	$ 235,500.00	$ -
3006	Secondary Plan Area - Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	Lockhart Road	160m east of Collector 11	20th Sideroad	Roads Reconstructed to Urban Standard (No Additional Vehicle Lanes)	2024-2041	1062	$ 5,750,000	15%	85%		$ 4,887,500.00	$ 862,500.00	$ -
4001	Former Barrie - Streetscape Improvements in Primary Intensification Corridors	Dunlop Street	Anne Street	High Street	Streetscape improvements in primary intensification corridors	2024-2041	1500	$ 4,460,000	35%	65%		$ 2,899,000.00	$ 1,561,000.00	$ -
4003	Former Barrie - Streetscape Improvements in Primary Intensification Corridors	Burton Avenue	Essa Road	Garden Drive	Streetscape improvements in primary intensification corridors	2024-2041	595	$ 1,770,000	35%	65%		$ 1,150,500.00	$ 619,500.00	$ -
4004	Former Barrie - Streetscape Improvements in Primary Intensification Corridors	Yonge Street	Garden Drive	Mapleview Drive East	Streetscape improvements in primary intensification corridors	2024-2041	4500	$ 13,390,000	35%	65%		$ 8,703,500.00	$ 4,686,500.00	$ -
4005	Former Barrie - Streetscape Improvements in Primary Intensification Corridors	Bayfield Street	Rose Street	Simcoe Street	Streetscape improvements in primary intensification corridors	2024-2041	545	$ 1,620,000	35%	65%		$ 1,053,000.00	$ 567,000.00	$ -
4006	Former Barrie - Streetscape Improvements in Primary Intensification Corridors	Duckworth Street	Bell Farm Road	Codrington Street	Streetscape improvements in primary intensification corridors	2024-2041	1500	$ 4,460,000	35%	65%		$ 2,899,000.00	$ 1,561,000.00	$ -
4007	Former Barrie - Streetscape Improvements in Primary Intensification Corridors	Codrington Street	Duckworth Street	Berczy Street	Streetscape improvements in primary intensification corridors	2024-2041	750	$ 2,230,000	35%	65%		$ 1,449,500.00	$ 780,500.00	$ -
						TOTALS:		$ 1,663,710,000				$ 1,195,747,500	$ 467,962,500	$ 26,209,724

3.1 Road Construction Land Acquisition Costs

Road	ProjectID	Project Segment	Existing Lanes	Future Number of Lanes	Cross Section Type	New, Replace, Repaint?	Utility Relocation Cost ($/m)	Remove unit construction of one sidewalk as a result of in-boulevard trail ($/m)	Rural to Urban Roadway?	Road widening cost ($/m)	Unit Cost ($/m)	Segment Length (m)	Asphalt Width - Vehicle lanes only (m)	Low Impact Development (LID) Cost ($)	Road Construction Cost	Existing ROW (m)	Proposed ROW (m)	Land Requirements (m^2)	Property Type - Full Description	Unit Land Cost ($/$m^2$)	Land Acquisition Cost	Comments
Anne-Baldwin Connector	**1101**	110112	0	3	MAJ3-27	New	$ -	$ -		$ 2,750	$ 2,750	73	11	$ 37,315	**$ 238,360**	0	27	1974	Former Barrie - Residential	$ 324	**$ 1,562,500**	Increase land costs as houses may need to be acquired.
Bryne Drive	**1102**	11022	0	5	ART5-34	New	$ -	$ -		$ 3,552	$ 3,552	707	18	$ 590,799	**$ 13,200,000**	0	34	24051	Former Barrie - Commercial	$ 419	**$ 14,500,000**	Cost for entire segment was provided by the City from the detailed design project contracts. Cost is for entire segment of the project (Byrne from south cul de sac to Lowes North entrance. Includes utility relocation and active tranportation facility costs.
Bryne Drive	**1102**	11023	0	5	MAJ5-34	New	$ -	$ -		$ 3,552	$ 3,552	1	18	$ 874	**$ -**	0	34	36	Former Barrie - Commercial	$ 419	**$ -**	Lump sum costs provided in Project Segment11022
Bryne Drive	**1102**	11024	0	5	ART5-34	New	$ -	$ -		$ 3,552	$ 3,552	889	18	$ 742,582	**$ -**	0	34	30230	Former Barrie - Commercial	$ 419	**$ -**	Lump sum costs provided in Project Segment11022
Big Bay Point Road	**1103**	11035	0	7	ART7-41	New	$ 1,000	$ -		$ 4,506		144			**$ 34,840,313.79**	0	41	5923	Former Barrie - Industrial	$ 239	**$ 1,417,172**	$41.9M construction cost estimate provided by the City as per detailed design contract. The cost is for Harvie/Big Bay Point from Essa to Fairview Road (includes Project IDs 1312, 1211, 1104, 1103). Total construction cost estimates for projects 1312, 1211 and 1104 is subtracted from the $41.9M to determine costs for project 1103. Cost excludes utility recolocation costs and land costs. Added land acquisition and utility relocation costs (excluded in City cost estimate).
Big Bay Point Road	**1103**	11037	0	7	ART7-41	New	$ 1,000	$ -		$ 4,506		315			**$ 314,595**	0	41	12898	Former Barrie - Industrial	$ 239	**$ 3,086,199**	Lump sum costs provided in Project Segment 11035. Added land acquisition and utility relocation costs (excluded in City cost estimate).
Big Bay Point Road	**1103**	11031	0	7	ART7-41	New	$ 1,000	$ -		$ 4,506		19			**$ 18,874**	0	41	774	Former Barrie - Industrial	$ 239	**$ 185,153**	Lump sum costs provided in Project Segment 11035. Added land acquisition and utility relocation costs (excluded in City cost estimate).
Big Bay Point Road	**1103**	11032	0	7	ART7-41	New	$ 1,000	$ -		$ 4,506		94			**$ 93,846**	0	41	3848	Former Barrie - Industrial	$ 239	**$ 920,638**	Lump sum costs provided in Project Segment 11035. Added land acquisition and utility relocation costs (excluded in City cost estimate).
Big Bay Point Road	**1103**	11033	0	7	ART7-41	New	$ 1,000	$ -		$ 4,506		77			**$ 77,078**	0	41	3160	Former Barrie - Industrial	$ 239	**$ 756,141**	Lump sum costs provided in Project Segment 11035. Added land acquisition and utility relocation costs (excluded in City cost estimate).
Big Bay Point Road	**1103**	11034	0	7	ART7-41	New	$ 1,000	$ -		$ 4,506		52			**$ 52,063**	0	41	2135	Former Barrie - Industrial	$ 239	**$ 510,738**	Lump sum costs provided in Project Segment 11035. Added land acquisition and utility relocation costs (excluded in City cost estimate).
Big Bay Point Road	**1103**	11036	0	7	ART7-41	New	$ 1,000	$ -		$ 4,506		66			**$ 66,487**	0	41	2726	Former Barrie - Industrial	$ 239	**$ 652,239**	Lump sum costs provided in Project Segment 11035. Added land acquisition and utility relocation costs (excluded in City cost estimate).
Harvie Road	**1104**	11041	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	258	18	$ 215,079	**$ 1,505,146**	0	34	8756	Former Barrie - Industrial	$ 239	**$ 2,094,957**	
Welham Road	**1105**	110510	0	3	MIN3-27	New	$ -	$ -		$ 2,750	$ 2,750	745	11	$ 380,109	**$ 2,428,053**	0	27	20108	Former Barrie - Industrial	$ 239	**$ -**	Assume land is transferred from developers to City.
Georgian Drive	**1201**	12012	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	580	18	$ 484,038	**$ 3,385,048**	20	34	8114	Former Barrie - Residential	$ 324	**$ 2,632,720**	
Georgian Drive	**1201**	12011	4	6	ART6-41	Replace	$ 1,150	$ -		$ 4,442	$ 5,592	469	21	$ 457,192	**$ 3,081,029**	26	41	7038	Former Barrie - Residential	$ 324	**$ 2,283,707**	
Georgian Drive	**1201**	12013	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	251	18	$ 209,556	**$ 1,465,502**	27	34	1756	Former Barrie - Residential	$ 324	**$ 569,897**	
Georgian Drive	**1201**	12014	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	442	18	$ 368,796	**$ 2,579,124**	26	34	3533	Former Barrie - Residential	$ 324	**$ 1,146,236**	
Bayfield Street	**1204**	120413	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	48	25	$ 55,338	**$ 340,881**	20	41	1002	Former Barrie - Commercial	$ 419	**$ 419,475**	
Bayfield Street	**1204**	120417	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	241	25	$ 279,239	**$ 1,720,113**	28	41	3129	Former Barrie - Commercial	$ 419	**$ 1,310,341**	
Bayfield Street	**1204**	120416	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	83	25	$ 96,091	**$ 591,921**	25	41	1325	Former Barrie - Commercial	$ 419	**$ 554,968**	
Bayfield Street	**1204**	120415	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	250	25	$ 289,849	**$ 1,785,474**	29	41	2998	Former Barrie - Commercial	$ 419	**$ 1,255,506**	
Bayfield Street	**1204**	120414	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	96	25	$ 111,369	**$ 686,034**	29	41	1152	Former Barrie - Commercial	$ 419	**$ 482,404**	
Bayfield Street	**1204**	120412	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	50	25	$ 58,509	**$ 360,417**	20	41	1059	Former Barrie - Commercial	$ 419	**$ 443,515**	
Bayfield Street	**1204**	120411	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	106	25	$ 122,465	**$ 754,384**	10	41	3273	Former Barrie - Residential	$ 324	**$ 1,061,946**	
Bayfield Street	**1204**	120410	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	214	18	$ 178,589	**$ 1,248,933**	20	34	2994	Former Barrie - Residential	$ 324	**$ 971,357**	deleted additional property costs - MTO to purchase property
Bayfield Street	**1204**	12049	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	156	18	$ 130,431	**$ 912,150**	21	34	2030	Former Barrie - Commercial	$ 419	**$ 850,075**	
Bayfield Street	**1204**	12048	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	236	18	$ 197,333	**$ 1,380,023**	21	34	3072	Former Barrie - Commercial	$ 419	**$ 1,286,108**	
Bayfield Street	**1204**	12047	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	224	18	$ 186,738	**$ 1,305,925**	22	34	2683	Former Barrie - Commercial	$ 419	**$ 1,123,433**	
Dunlop Street West	**1206**	120624	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	1509	18	$ 1,260,164	**$ 8,818,752**	57	34	0		$ -	**$ -**	
Dunlop Street West	**1206**	120625	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	113	18	$ 94,001	**$ 657,826**	70	34	0		$ -	**$ -**	
Dunlop Street West	**1207**	120718	2	7	ART7-41	Replace	$ 1,150	$ -		$ 4,814	$ 5,964	107	25	$ 123,870	**$ 760,756**	28	41	1388	Former Barrie - Commercial	$ 419	**$ 581,266**	
Dunlop Street West	**1207**	120716	2	7	ART7-41	Replace	$ 1,150	$ -		$ 4,814	$ 5,964	130	25	$ 150,631	**$ 925,112**	30	41	1428	Former Barrie - Commercial	$ 419	**$ 598,098**	
Dunlop Street West	**1207**	120711	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	133	25	$ 154,072	**$ 947,460**	22	41	2524	Former Barrie - Commercial	$ 419	**$ 1,056,676**	
Dunlop Street West	**1207**	120715	2	7	ART7-41	Replace	$ 1,150	$ -		$ 4,814	$ 5,964	133	25	$ 153,836	**$ 944,794**	32	41	1194	Former Barrie - Commercial	$ 419	**$ 499,764**	
Dunlop Street West	**1207**	120714	2	7	ART7-41	Replace	$ 1,150	$ -		$ 4,814	$ 5,964	33	25	$ 37,735	**$ 231,753**	22	41	618	Former Barrie - Commercial	$ 419	**$ 258,800**	
Dunlop Street West	**1207**	120713	2	7	ART7-41	Replace	$ 1,150	$ -		$ 4,814	$ 5,964	21	25	$ 24,295	**$ 149,208**	20	41	440	Former Barrie - Commercial	$ 419	**$ 184,160**	
Dunlop Street West	**1207**	120712	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	84	25	$ 97,041	**$ 596,750**	25	41	1338	Former Barrie - Commercial	$ 419	**$ 560,454**	
Dunlop Street West	**1207**	120717	2	7	ART7-41	Replace	$ 1,150	$ -		$ 4,814	$ 5,964	152	25	$ 176,570	**$ 1,084,418**	32	41	1370	Former Barrie - Commercial	$ 419	**$ 573,621**	

3.1 Road Construction Land Acquisition Costs

Road	ProjectID	Project Segment	Existing Lanes	Future Number of Lanes	Cross Section Type	New, Replace, Repaint?	Utility Relocation Cost ($/m)	Remove unit construction of one sidewalk as a result of in-boulevard trail ($/m)	Rural to Urban Roadway?	Road widening cost ($/m)	Unit Cost ($/m)	Segment Length (m)	Asphalt Width - Vehicle lanes only (m)	Low Impact Development (LID) Cost ($)	Road Construction Cost	Existing ROW (m)	Proposed ROW (m)	Land Requirements (m^2)	Property Type - Full Description	Unit Land Cost ($/$m^2$)	Land Acquisition Cost	Comments
Dunlop Street West	**1207**	120719	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	7	25	$ 7,706	**$ 47,385**	38	41	20	Former Barrie - Commercial	$ 419	**$ 8,344**	
Dunlop Street West	**1207**	120720	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	29	25	$ 34,002	**$ 209,455**	38	41	88	Former Barrie - Commercial	$ 419	**$ 36,821**	
Essa Road	**1208**	120814	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	90	25	$ 104,128	**$ 640,332**	46	41	0		$ -	**$ -**	
Essa Road	**1208**	120812	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	31	25	$ 35,795	**$ 220,118**	46	41	0		$ -	**$ -**	
Essa Road	**1208**	12088	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	86	25	$ 100,076	**$ 615,415**	46	41	0		$ -	**$ -**	
Essa Road	**1208**	120811	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	39	25	$ 45,539	**$ 280,039**	46	41	0		$ -	**$ -**	
Essa Road	**1208**	120815	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	11	25	$ 12,660	**$ 77,852**	46	41	0		$ -	**$ -**	
Essa Road	**1208**	120813	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	38	25	$ 44,563	**$ 274,042**	46	41	0		$ -	**$ -**	
Essa Road	**1208**	120810	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	37	25	$ 43,487	**$ 267,420**	46	41	0		$ -	**$ -**	
Essa Road	**1208**	12089	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	16	25	$ 18,438	**$ 113,383**	46	41	0		$ -	**$ -**	
Burton Avenue	**1209**	12091	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	121	11	$ 61,574	**$ 571,630**	22	27	603	Former Barrie - Residential	$ 324	**$ 195,724**	
Burton Avenue	**1209**	12092	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	111	11	$ 56,466	**$ 524,209**	22	27	553	Former Barrie - Residential	$ 324	**$ 179,487**	
Burton Avenue	**1209**	12093	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	341	11	$ 174,236	**$ 1,617,547**	22	27	1707	Former Barrie - Residential	$ 324	**$ 553,841**	
Burton Avenue	**1209**	12094	2	4	ART4-29	Replace	$ 1,150	$ -		$ 3,395	$ 4,545	213	14	$ 138,336	**$ 1,106,209**	21	29	1704	Former Barrie - Residential	$ 324	**$ 552,799**	
Burton Avenue	**1209**	12095	2	4	ART4-29	Replace	$ 1,150	$ -		$ 3,395	$ 4,545	120	14	$ 77,843	**$ 622,473**	21	29	959	Former Barrie - Residential	$ 324	**$ 311,065**	
Harvie Road	**1211**	12113	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	322	18	$ 268,891	**$ 1,881,723**	20	34	4507	Former Barrie - Residential	$ 324	**$ 1,462,518**	
Harvie Road	**1211**	12112	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	387	18	$ 323,601	**$ 2,264,589**	20	34	5424	Former Barrie - Industrial	$ 239	**$ 1,297,882**	
Big Bay Point Road	**1212**	12129	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	784	18	$ 655,036	**$ 8,301,929**	29	34	3921	Former Barrie - Industrial	$ 239	**$ 938,281**	$7,400,000 construction cost estimate provided by the City as per the detailed design contract. Cost is for the entire project segment; Big Bay Point from east of Fairview to Huronia Road. Cost includes active transportation facilities. Utilities and land acquisition are costed here for it was not included in the lump sum estimate.
Big Bay Point Road	**1212**	121210	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	458	18	$ 382,719	**$ 526,971**	21	34	5957	Former Barrie - Industrial	$ 239	**$ 1,425,348**	For lump sum construction costs (as per detailed design estimates), see Project Segment 12129. Utilities and land acquisition is costed here for it was not included in the lump sum estimate.
Big Bay Point Road	**1212**	12128	2	7	ART7-41	Replace	$ 1,150	$ -		$ 4,814	$ 5,964	162	25	$ 187,897	**$ 186,277**	23	41	2916	Former Barrie - Commercial	$ 419	**$ 1,220,837**	For lump sum construction costs (as per detailed design estimates), see Project Segment 12129. Utilities and land acquisition is costed here for it was not included in the lump sum estimate.
Mapleview Drive	**1213**	12135	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	775	25	$ 898,540	**$ 5,535,017**	20	41	16267	Former Barrie - Industrial	$ 239	**$ 3,892,125**	
Mapleview Drive	**1215**	12156	2	7	ART7-41	Replace	$ 1,150	$ 116		$ 4,814	$ 5,848	402	25	$ 466,641	**$ 2,819,344**	25	41	6436	Former Barrie - Residential	$ 324	**$ 2,088,491**	Widen to 5 lanes by 2031, then widen to 7 lanes by 2041
Mapleview Drive	**1215**	12158	2	7	ART7-41	Replace	$ 1,150	$ 116		$ 4,814	$ 5,848	545	25	$ 632,141	**$ 3,819,263**	25	41	8719	Former Barrie - Residential	$ 324	**$ 2,829,203**	Widen to 5 lanes by 2031, then widen to 7 lanes by 2041
Mapleview Drive	**1215**	12159	2	7	ART7-41	Replace	$ 1,150	$ 116		$ 4,814	$ 5,848	449	25	$ 520,558	**$ 3,145,103**	19	41	9873	Former Barrie - Residential	$ 324	**$ 3,203,481**	Widen to 5 lanes by 2031, then widen to 7 lanes by 2041
Mapleview Drive	**1215**	121510	2	7	ART7-41	Replace	$ 1,150	$ 116		$ 4,814	$ 5,848	357	25	$ 414,319	**$ 2,503,228**	20	41	7501	Former Barrie - Commercial	$ 419	**$ 3,140,653**	Widen to 5 lanes by 2031, then widen to 7 lanes by 2041
Mapleview Drive	**1215**	12157	2	7	ART7-41	Replace	$ 1,150	$ 116		$ 4,814	$ 5,848	390	25	$ 452,525	**$ 2,734,059**	21	41	7802	Former Barrie - Residential	$ 324	**$ 2,531,643**	Widen to 5 lanes by 2031, then widen to 7 lanes by 2041
Essa Road	**1216**	12167	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	277	25	$ 320,890	**$ 1,973,306**	20	41	5809	Former Barrie - Commercial	$ 419	**$ 2,432,434**	
Essa Road	**1217**	121716	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	269	25	$ 312,019	**$ 1,922,039**	48	41	0		$ -	**$ -**	
Essa Road	**1217**	121717	4	7	ART7-41	Replace	$ 1,150	$ -		$ 4,823	$ 5,973	29	25	$ 34,035	**$ 209,295**	36	41	147	Former Barrie - Commercial	$ 419	**$ 61,426**	
Bryne Drive	**1219**	121910	3	5	MAJ5-34	Replace	$ 1,150	$ 116		$ 3,846	$ 4,881	326	18	$ 272,388	**$ 1,864,167**	26	34	2609	Former Barrie - Commercial	$ 419	**$ 1,092,476**	
Bryne Drive	**1219**	12199	3	5	MAJ5-34	Replace	$ 1,150	$ 116		$ 3,846	$ 4,881	176	18	$ 146,938	**$ 1,005,614**	26	34	1407	Former Barrie - Commercial	$ 419	**$ 589,330**	
St. Vincent	**1220**	122020	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	142	18	$ 118,564	**$ 829,725**	28	34	852	Former Barrie - Industrial	$ 239	**$ 203,799**	
St. Vincent	**1220**	122017	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	169	18	$ 141,071	**$ 987,226**	25	34	1520	Former Barrie - Industrial	$ 239	**$ 363,728**	
St. Vincent	**1220**	122018	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	64	18	$ 53,520	**$ 374,536**	50	34	0		$ -	**$ -**	
St. Vincent	**1220**	122019	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	80	18	$ 66,558	**$ 465,777**	50	34	0		$ -	**$ -**	
Tiffin Street	**1221**	12215	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	259	18	$ 216,045	**$ 1,511,905**	19	34	3880	Former Barrie - Industrial	$ 239	**$ 928,396**	
Tiffin Street	**1221**	12214	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	196	18	$ 163,442	**$ 1,143,786**	22	34	2348	Former Barrie - Residential	$ 324	**$ 761,980**	
Tiffin Street	**1221**	12213	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	115	18	$ 96,033	**$ 672,048**	20	34	1610	Former Barrie - Commercial	$ 419	**$ 674,033**	
Tiffin Street	**1221**	12212	2	7	ART7-41	Replace	$ 1,150	$ -		$ 4,814	$ 5,964	66	25	$ 76,435	**$ 469,432**	27	41	922	Former Barrie - Commercial	$ 419	**$ 386,266**	
Tiffin Street	**1221**	12211	2	7	ART7-41	Replace	$ 1,150	$ -		$ 4,814	$ 5,964	66	25	$ 76,094	**$ 467,336**	18	41	1509	Former Barrie - Commercial	$ 419	**$ 631,747**	
Tiffin Street	**1221**	12219	2	5	ART5-34	Replace	$ 1,150	$ 116		$ 3,860	$ 4,894	458	18	$ 382,136	**$ 2,621,259**	29	34	2288	Former Barrie - Industrial	$ 239	**$ 547,375**	
Tiffin Street	**1221**	12218	2	5	ART5-34	Replace	$ 1,150	$ 116		$ 3,860	$ 4,894	123	18	$ 102,446	**$ 702,731**	25	34	1104	Former Barrie - Industrial	$ 239	**$ 264,142**	

3.1 Road Construction Land Acquisition Costs

Road	ProjectID	Project Segment	Existing Lanes	Future Number of Lanes	Cross Section Type	New, Replace, Repaint?	Utility Relocation Cost ($/m)	Remove unit construction of one sidewalk as a result of in-boulevard trail ($/m)	Rural to Urban Roadway?	Road widening cost ($/m)	Unit Cost ($/m)	Segment Length (m)	Asphalt Width - Vehicle lanes only (m)	Low Impact Development (LID) Cost ($)	Road Construction Cost	Existing ROW (m)	Proposed ROW (m)	Land Requirements (m^2)	Property Type - Full Description	Unit Land Cost ($/$m^2$)	Land Acquisition Cost	Comments
Tiffin Street	**1221**	12217	2	5	ART5-34	Replace	$ 1,150	$ 116		$ 3,860	$ 4,894	57	18	$ 47,534	**$ 326,057**	20	34	797	Former Barrie - Industrial	$ 239	**$ 190,645**	
Tiffin Street	**1221**	12216	2	5	ART5-34	Replace	$ 1,150	$ 116		$ 3,860	$ 4,894	809	18	$ 675,873	**$ 4,636,147**	20	34	11329	Former Barrie - Industrial	$ 239	**$ 2,710,757**	
Lakeshore / Hurst	**1222**	12222	2	4	ART4-29	Replace	$ 1,150	$ 116		$ 3,395	$ 4,429	216	14	$ 140,145	**$ 1,095,696**	25	29	863	Former Barrie - Residential	$ 324	**$ 280,013**	
Lakeshore / Hurst	**1222**	12223	2	4	ART4-29	Replace	$ 1,150	$ -		$ 3,395	$ 4,545	326	14	$ 212,027	**$ 1,695,479**	28	29	326	Former Barrie - Residential	$ 324	**$ 105,909**	
Lakeshore / Hurst	**1222**	12224	3	5	ART5-34	Replace	$ 1,150	$ -		$ 3,846	$ 1,808	1601	18	$ 1,336,821	**$ 4,230,986**	40	34	0		$ -	**$ -**	North half of segment needs repainting; enough pavement width for 2 lanes. South half needs to be ugraded to urban standards. Costed at 50% of unit rate for an ART5-34 as it is hopefully only an incremental widening
Lakeshore / Hurst	**1222**	12221	2	4	ART4-29	Replace	$ 1,150	$ 116		$ 3,395	$ 4,429	225	14	$ 146,161	**$ 1,142,733**	26	29	675	Former Barrie - Residential	$ 324	**$ 219,025**	
Huronia Road	**1223**	12235	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	208	18	$ 173,448	**$ 1,213,805**	20	34	2907	Former Barrie - Industrial	$ 239	**$ 695,656**	
Huronia Road	**1223**	12234	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	423	18	$ 353,317	**$ 2,472,546**	25	34	3807	Former Barrie - Industrial	$ 239	**$ 910,971**	
Commerce Park Drive	**1225**	12252	2	5	MAJ5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	138	18	$ 115,603	**$ 808,999**	24	34	1384	Former Barrie - Industrial	$ 239	**$ 331,181**	
Bayview Drive	**1301**	130111	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	693	18	$ 578,896	**$ 4,051,172**	26	34	5545	Former Barrie - Industrial	$ 239	**$ 1,326,748**	$6500,000 construction cost estimate provided by the City as per the detailed design contract. Cost is for the entire project segment; Bayview from Little Avenue to Big Bay Point. Utilities and land acquisition is costed here for it was not included in the lump sum estimate.
Bayview Drive	**1301**	130110	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	698	18	$ 582,844	**$ 4,078,800**	26	34	5583	Former Barrie - Industrial	$ 239	**$ 1,335,796**	For lump sum construction costs (as per detailed design estimates), see Project Segment 130111. Cost includes active transportation facilities construction. Utilities and land acquisition is costed here for it was not included in the lump sum estimate.
Big Bay Point Road	**1302**	130212	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	181	18	$ 151,461	**$ 1,059,219**	31	34	544	Former Barrie - Residential	$ 324	**$ 176,530**	
Big Bay Point Road	**1302**	130213	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	546	18	$ 456,257	**$ 3,190,765**	22	34	6555	Former Barrie - Residential	$ 324	**$ 2,127,099**	
Wellington Street West	**1303**	13033	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	102	11	$ 52,156	**$ 484,196**	21	27	613	Former Barrie - Residential	$ 324	**$ 198,944**	
Wellington Street West	**1303**	13034	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	270	11	$ 137,785	**$ 1,279,150**	23	27	1080	Former Barrie - Residential	$ 324	**$ 350,380**	
Wellington Street West	**1303**	13031	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	102	11	$ 52,144	**$ 484,091**	23	27	409	Former Barrie - Commercial	$ 419	**$ 171,112**	
Wellington Street West	**1303**	13032	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	100	11	$ 51,072	**$ 474,136**	20	27	700	Former Barrie - Residential	$ 324	**$ 227,279**	
Anne Street North	**1304**	13042	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	106	18	$ 88,180	**$ 616,675**	22	34	1267	Former Barrie - Commercial	$ 419	**$ 530,499**	
Anne Street North	**1304**	13041	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	121	18	$ 101,247	**$ 708,054**	20	34	1697	Former Barrie - Commercial	$ 419	**$ 710,627**	
Anne Street South	**1305**	130510	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	139	18	$ 115,698	**$ 809,667**	19	34	2078	Former Barrie - Commercial	$ 419	**$ 870,063**	
Anne Street South	**1305**	13058	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	149	11	$ 76,301	**$ 708,357**	21	27	897	Former Barrie - Residential	$ 324	**$ 291,046**	
Anne Street South	**1305**	13059	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	200	11	$ 102,157	**$ 948,393**	21	27	1201	Former Barrie - Residential	$ 324	**$ 389,671**	
Anne Street South	**1306**	130611	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	118	11	$ 60,358	**$ 557,729**	21	27	710	Former Barrie - Residential	$ 324	**$ 230,230**	
Baldwin Lane	**1307**	13073	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	103	11	$ 52,332	**$ 483,567**	22	27	513	Former Barrie - Residential	$ 324	**$ 166,347**	
Baldwin Lane	**1307**	13071	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	207	11	$ 105,623	**$ 975,993**	27	27	0		$ -	**$ -**	
Baldwin Lane	**1307**	13072	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	124	11	$ 63,085	**$ 582,925**	20	27	865	Former Barrie - Residential	$ 324	**$ 280,736**	
Baldwin Lane	**1307**	13074	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	175	11	$ 89,513	**$ 827,131**	20	27	1228	Former Barrie - Residential	$ 324	**$ 398,346**	
Huronia Road	**1308**	13082	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	496	11	$ 253,055	**$ 2,349,274**	23	27	1983	Former Barrie - Residential	$ 324	**$ 643,505**	
Huronia Road	**1308**	13081	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	560	11	$ 285,747	**$ 2,652,777**	20	27	3919	Former Barrie - Residential	$ 324	**$ 1,271,619**	
Huronia Road	**1308**	13083	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	254	11	$ 129,396	**$ 1,201,264**	23	27	1014	Former Barrie - Residential	$ 324	**$ 329,046**	
Little Avenue	**1311**	131119	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	86	11	$ 43,773	**$ 406,378**	22	27	429	Former Barrie - Commercial	$ 419	**$ 179,554**	
Little Avenue	**1311**	131121	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	252	11	$ 128,419	**$ 1,192,194**	29	27	0		$ -	**$ -**	
Little Avenue	**1311**	131120	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	249	11	$ 127,064	**$ 1,179,614**	25	27	498	Former Barrie - Residential	$ 324	**$ 161,558**	
Bryne Drive	**1312**	13122	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	344	18	$ 287,256	**$ 2,010,245**	26	34	2751	Former Barrie - Commercial	$ 419	**$ 1,152,105**	
Bryne Drive	**1313**	13136	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	148	18	$ 123,276	**$ 862,698**	26	34	1181	Former Barrie - Commercial	$ 419	**$ 494,427**	
Innisfil Street	**1315**	131511	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	87	11	$ 44,312	**$ 409,463**	20	27	608	Former Barrie - Commercial	$ 419	**$ 254,470**	
Innisfil Street	**1315**	131510	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	199	11	$ 101,449	**$ 937,430**	20	27	1391	Former Barrie - Industrial	$ 239	**$ 332,909**	
Innisfil Street	**1315**	13159	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	93	11	$ 47,582	**$ 439,672**	19	27	746	Former Barrie - Industrial	$ 239	**$ 178,446**	
Blake Street	**1316**	13164	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	185	11	$ 94,398	**$ 876,362**	29	27	0		$ -	**$ -**	
Blake Street	**1316**	131611	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	71	11	$ 36,228	**$ 336,328**	30	27	0		$ -	**$ -**	
Blake Street	**1316**	13168	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	58	11	$ 29,541	**$ 274,248**	35	27	0		$ -	**$ -**	
Blake Street	**1316**	13162	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	42	11	$ 21,278	**$ 197,536**	29	27	0		$ -	**$ -**	
Blake Street	**1316**	13169	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	154	11	$ 78,642	**$ 730,084**	23	27	616	Former Barrie - Residential	$ 324	**$ 199,982**	

3.1 Road Construction Land Acquisition Costs

Road	ProjectID	Project Segment	Existing Lanes	Future Number of Lanes	Cross Section Type	New, Replace, Repaint?	Utility Relocation Cost ($/m)	Remove unit construction of one sidewalk as a result of in-boulevard trail ($/m)	Rural to Urban Roadway?	Road widening cost ($/m)	Unit Cost ($/m)	Segment Length (m)	Asphalt Width - Vehicle lanes only (m)	Low Impact Development (LID) Cost ($)	Road Construction Cost	Existing ROW (m)	Proposed ROW (m)	Land Requirements (m^2)	Property Type - Full Description	Unit Land Cost ($/$m^2$)	Land Acquisition Cost	Comments
Blake Street	**1316**	13163	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	184	11	$ 93,823	**$ 871,019**	29	27	0		$ -	**$ -**	
Blake Street	**1316**	13161	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	325	11	$ 165,992	**$ 1,541,011**	31	27	0		$ -	**$ -**	
Blake Street	**1316**	13167	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	185	11	$ 94,528	**$ 877,562**	31	27	0		$ -	**$ -**	
Blake Street	**1316**	13165	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	213	11	$ 108,906	**$ 1,011,049**	27	27	0		$ -	**$ -**	
Blake Street	**1316**	13166	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	96	11	$ 48,871	**$ 453,702**	28	27	0		$ -	**$ -**	
Blake Street	**1316**	131610	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	274	11	$ 139,785	**$ 1,297,714**	23	27	1095	Former Barrie - Residential	$ 324	**$ 355,465**	
Essa Road	**1317**	13176	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	237	18	$ 197,943	**$ 1,384,287**	20	34	3318	Former Barrie - Commercial	$ 419	**$ 1,389,318**	
Essa Road	**1318**	131824	2	5	ART5-34	Replace	$ 1,150	$ 116		$ 3,860	$ 4,894	948	18	$ 791,650	**$ 5,430,323**	29	34	4739	Former Barrie - Residential	$ 324	**$ 1,537,803**	
Essa Road	**1318**	131825	2	3	ART3-27	Replace	$ 1,150	$ 116		$ 3,078	$ 4,112	501	11	$ 255,800	**$ 2,316,742**	26	27	4009	Former Barrie - Residential	$ 324	**$ 1,300,971**	34m ROW protection
Essa Road	**1318**	131826	2	3	ART3-27	Replace	$ 1,150	$ 116		$ 3,078	$ 4,112	344	11	$ 175,560	**$ 1,590,026**	28	27	2064	Former Barrie - Residential	$ 324	**$ 669,661**	34m ROW protection
Fairview Road	**1320**	13201	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	597	18	$ 498,493	**$ 3,486,136**	29	34	2984	Former Barrie - Commercial	$ 419	**$ 1,249,574**	
Harvie Road	**1321**	13216	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	115	11	$ 58,585	**$ 543,880**	20	27	803	Former Barrie - Residential	$ 324	**$ 260,711**	
Harvie Road	**1321**	13215	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	70	11	$ 35,523	**$ 329,786**	40	27	0		$ -	**$ -**	
Harvie Road	**1321**	13214	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	143	11	$ 73,142	**$ 679,023**	25	27	287	Former Barrie - Residential	$ 324	**$ 92,998**	
Tiffin Street	**1323**	132312	2	3	ART3-27	Replace	$ 1,150	$ 116		$ 3,078	$ 4,412	328	11	$ 167,159	**$ 1,612,188**	15	27	3930	Former Barrie - Commercial	$ 419	**$ 1,645,600**	Added $300/m due to high groundwater
Tiffin Street	**1323**	132311	2	3	ART3-27	Replace	$ 1,150	$ 116		$ 3,078	$ 4,412	880	11	$ 449,307	**$ 4,333,397**	15	27	10564	Former Barrie - Industrial	$ 239	**$ 2,527,562**	Added $300/m due to high groundwater
Tiffin Street	**1323**	132310	2	3	ART3-27	Replace	$ 1,150	$ 116		$ 3,078	$ 4,412	251	11	$ 128,027	**$ 1,234,773**	25	27	502	Former Barrie - Industrial	$ 239	**$ 120,035**	Added $300/m due to high groundwater
Minet's Point Road	**1325**	13251	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	329	18	$ 275,083	**$ 1,923,755**	20	34	4611	Former Barrie - Commercial	$ 419	**$ 1,930,746**	
Welham Road	**1326**	13266	2	3	MIN3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	704	11	$ 359,321	**$ 3,320,261**	26	27	704	Former Barrie - Industrial	$ 239	**$ 168,446**	
Welham Road	**1326**	13264	2	3	MIN3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	355	11	$ 180,978	**$ 1,672,306**	28	27	0		$ -	**$ -**	
Welham Road	**1326**	13265	2	3	MIN3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	409	11	$ 208,715	**$ 1,928,600**	26	27	409	Former Barrie - Industrial	$ 239	**$ 97,843**	
Welham Road	**1327**	13278	2	3	MIN3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	273	11	$ 139,512	**$ 1,289,141**	26	27	273	Former Barrie - Industrial	$ 239	**$ 65,402**	
Welham Road	**1327**	13277	2	3	MIN3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	247	11	$ 126,100	**$ 1,165,209**	26	27	247	Former Barrie - Industrial	$ 239	**$ 59,114**	
Welham Road	**1327**	13279	2	3	MIN3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	211	11	$ 107,473	**$ 993,094**	26	27	211	Former Barrie - Industrial	$ 239	**$ 50,382**	
Collier Street	**1329**	13296	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	158	11	$ 80,519	**$ 744,021**	22	27	789	Former Barrie - Residential	$ 324	**$ 255,943**	
Collier Street	**1329**	13297	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	190	11	$ 96,743	**$ 893,945**	23	27	758	Former Barrie - Residential	$ 324	**$ 246,013**	
Collier Street	**1329**	13295	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	171	11	$ 87,106	**$ 804,893**	31	27	0		$ -	**$ -**	
Bayview Drive	**1371**	13713	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	119	11	$ 60,891	**$ 562,657**	20	27	835	Former Barrie - Residential	$ 324	**$ 270,975**	
Bayview Drive	**1371**	13715	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	96	11	$ 48,884	**$ 451,710**	20	27	670	Former Barrie - Residential	$ 324	**$ 217,543**	
Bayview Drive	**1371**	13714	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	156	11	$ 79,647	**$ 735,966**	20	27	1092	Former Barrie - Residential	$ 324	**$ 354,441**	
Bayview Drive	**1371**	13716	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	113	11	$ 57,483	**$ 531,160**	22	27	563	Former Barrie - Residential	$ 324	**$ 182,719**	
Anne Street North	**1372**	13723	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	194	18	$ 162,247	**$ 1,134,648**	29	34	971	Former Barrie - Commercial	$ 419	**$ 406,704**	
Anne Street North	**1372**	13724	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	162	18	$ 134,886	**$ 943,303**	48	34	0		$ -	**$ -**	
Bayview Drive	**1373**	137314	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	523	11	$ 266,939	**$ 2,478,170**	25	27	1046	Former Barrie - Commercial	$ 419	**$ 437,981**	
Bayview Drive	**1373**	137315	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	822	11	$ 419,371	**$ 3,893,294**	27	27	0		$ -	**$ -**	
Huronia Road	**1374**	13748	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	760	18	$ 634,401	**$ 4,439,599**	23	34	8355	Former Barrie - Industrial	$ 239	**$ 1,999,190**	
Huronia Road	**1374**	13747	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	311	18	$ 259,966	**$ 1,819,268**	26	34	2490	Former Barrie - Residential	$ 324	**$ 807,986**	
Huronia Road	**1374**	13746	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	346	18	$ 289,298	**$ 2,024,539**	27	34	2425	Former Barrie - Industrial	$ 239	**$ 580,152**	
Huronia Road	**1374**	137410	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	829	18	$ 692,224	**$ 4,844,255**	27	34	5802	Former Barrie - Industrial	$ 239	**$ 1,388,170**	
Huronia Road	**1374**	13749	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	524	18	$ 437,420	**$ 3,061,110**	27	34	3666	Former Barrie - Industrial	$ 239	**$ 877,192**	
Bayview Drive	**1375**	13758	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	290	11	$ 148,115	**$ 1,368,636**	19	27	2322	Former Barrie - Residential	$ 324	**$ 753,296**	
Bayview Drive	**1375**	13757	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	61	11	$ 31,241	**$ 288,677**	19	27	490	Former Barrie - Residential	$ 324	**$ 158,888**	
Bayview Drive	**1375**	13759	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	187	11	$ 95,584	**$ 883,229**	20	27	1311	Former Barrie - Residential	$ 324	**$ 425,363**	
Welham Road, Truman, Hamilton	**1376**	13763	2	3	MIN3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	623	11	$ 317,854	**$ 2,937,088**	27	27	0		$ -	**$ -**	
Welham Road, Truman, Hamilton	**1376**	137611	2	3	MIN3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	411	11	$ 209,992	**$ 1,940,400**	27	27	0		$ -	**$ -**	
Welham Road, Truman, Hamilton	**1376**	137612	2	3	MIN3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	95	11	$ 48,254	**$ 445,884**	27	27	0		$ -	**$ -**	

3.1 Road Construction Land Acquisition Costs

Road	ProjectID	Project Segment	Existing Lanes	Future Number of Lanes	Cross Section Type	New, Replace, Repaint?	Utility Relocation Cost ($/m)	Remove unit construction of one sidewalk as a result of in-boulevard trail ($/m)	Rural to Urban Roadway?	Road widening cost ($/m)	Unit Cost ($/m)	Segment Length (m)	Asphalt Width - Vehicle lanes only (m)	Low Impact Development (LID) Cost ($)	Road Construction Cost	Existing ROW (m)	Proposed ROW (m)	Land Requirements (m^2)	Property Type - Full Description	Unit Land Cost ($/$m^2$)	Land Acquisition Cost	Comments
Welham Road, Truman, Hamilton	**1376**	137613	2	3	MIN3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	339	11	$ 172,849	**$ 1,597,192**	27	27	0		$ -	**$ -**	
Ardagh Road	**1378**	13784	4	5	ART5-34	Replace	$ 1,150	$ 116		$ 3,856	$ 4,890	155	18	$ 129,644	**$ 888,680**	24	34	1552	Former Barrie - Residential	$ 324	**$ 503,675**	
Ardagh Road	**1378**	13781	4	5	ART5-34	Replace	$ 1,150	$ 116		$ 3,856	$ 4,890	115	18	$ 95,957	**$ 657,758**	34	34	0		$ -	**$ -**	
Ardagh Road	**1378**	13783	4	5	ART5-34	Replace	$ 1,150	$ 116		$ 3,856	$ 4,890	251	18	$ 209,244	**$ 1,434,314**	21	34	3257	Former Barrie - Residential	$ 324	**$ 1,056,801**	
Ardagh Road	**1378**	13782	4	5	ART5-34	Replace	$ 1,150	$ 116		$ 3,856	$ 4,890	111	18	$ 92,425	**$ 633,552**	21	34	1439	Former Barrie - Industrial	$ 239	**$ 344,216**	
Bradford Street	**1379**	13791	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	71	18	$ 59,265	**$ 414,459**	27	34	497	Former Barrie - Commercial	$ 419	**$ 207,982**	
Bradford Street	**1379**	13792	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	81	18	$ 67,806	**$ 474,190**	19	34	1218	Former Barrie - Commercial	$ 419	**$ 509,907**	
Bradford Street	**1379**	13793	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	429	18	$ 358,290	**$ 2,505,649**	19	34	6435	Former Barrie - Commercial	$ 419	**$ 2,694,381**	
Bradford Street	**1379**	13794	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	100	18	$ 83,290	**$ 582,479**	20	34	1396	Former Barrie - Commercial	$ 419	**$ 584,596**	
Bradford Street	**1379**	13795	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	182	18	$ 152,146	**$ 1,064,011**	20	34	2550	Former Barrie - Commercial	$ 419	**$ 1,067,878**	
Bradford Street	**1379**	13796	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	253	18	$ 211,223	**$ 1,477,157**	20	34	3541	Former Barrie - Commercial	$ 419	**$ 1,482,526**	
Bradford Street	**1379**	13797	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	356	18	$ 297,276	**$ 2,078,957**	31	34	1068	Former Barrie - Commercial	$ 419	**$ 447,110**	
Bradford Street	**1379**	13798	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	68	18	$ 56,575	**$ 395,647**	31	34	203	Former Barrie - Commercial	$ 419	**$ 85,090**	
Little Avenue	**1380**	138014	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	148	11	$ 75,409	**$ 700,074**	24	27	443	Former Barrie - Residential	$ 324	**$ 143,821**	
Little Avenue	**1380**	138012	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	388	11	$ 198,124	**$ 1,839,314**	23	27	1553	Former Barrie - Residential	$ 324	**$ 503,819**	
Little Avenue	**1380**	13803	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	216	11	$ 110,487	**$ 1,025,719**	27	27	0		$ -	**$ -**	
Little Avenue	**1380**	138010	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	111	11	$ 56,567	**$ 525,144**	25	27	222	Former Barrie - Residential	$ 324	**$ 71,923**	
Little Avenue	**1380**	138017	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	141	11	$ 71,871	**$ 667,228**	21	27	845	Former Barrie - Residential	$ 324	**$ 274,147**	
Little Avenue	**1380**	13802	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	96	18	$ 80,231	**$ 561,467**	27	34	672	Former Barrie - Residential	$ 324	**$ 218,192**	
Little Avenue	**1380**	13801	2	5	ART5-34	Replace	$ 1,150	$ -		$ 3,860	$ 5,010	198	18	$ 165,244	**$ 1,156,394**	25	34	1781	Former Barrie - Commercial	$ 419	**$ 745,592**	
Little Avenue	**1380**	13807	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	54	11	$ 27,553	**$ 255,793**	25	27	108	Former Barrie - Residential	$ 324	**$ 35,033**	
Little Avenue	**1380**	138018	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	157	11	$ 79,992	**$ 742,615**	20	27	1097	Former Barrie - Commercial	$ 419	**$ 459,363**	
Little Avenue	**1380**	13805	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	266	11	$ 135,693	**$ 1,259,731**	24	27	798	Former Barrie - Residential	$ 324	**$ 258,796**	
Little Avenue	**1380**	13804	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	79	11	$ 40,142	**$ 372,663**	26	27	79	Former Barrie - Residential	$ 324	**$ 25,520**	
Little Avenue	**1380**	13808	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	88	11	$ 44,992	**$ 417,687**	25	27	176	Former Barrie - Residential	$ 324	**$ 57,206**	
Little Avenue	**1380**	13806	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	122	11	$ 62,416	**$ 579,446**	28	27	0		$ -	**$ -**	
Little Avenue	**1380**	13809	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	146	11	$ 74,267	**$ 689,467**	25	27	291	Former Barrie - Residential	$ 324	**$ 94,428**	
Little Avenue	**1380**	138011	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	92	11	$ 47,113	**$ 437,383**	25	27	185	Former Barrie - Residential	$ 324	**$ 59,903**	
Little Avenue	**1380**	138013	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	91	11	$ 46,470	**$ 431,413**	27	27	0		$ -	**$ -**	
Little Avenue	**1380**	138015	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	94	11	$ 47,847	**$ 444,196**	20	27	656	Former Barrie - Residential	$ 324	**$ 212,927**	
Little Avenue	**1380**	138016	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	90	11	$ 46,132	**$ 428,273**	20	27	633	Former Barrie - Residential	$ 324	**$ 205,294**	
Penetanguishene Road	**1401**	14015	2	2	MIN2-24	Replace	$ 1,150	$ 116	TRUE	$ 2,645	$ 3,679	467	10	$ 205,774	**$ 1,923,179**	20	24	1867	Former Barrie - Residential	$ 324	**$ 605,894**	
Penetanguishene Road	**1401**	14016	2	2	MIN2-24	Replace	$ 1,150	$ 116	TRUE	$ 2,645	$ 3,679	683	10	$ 301,205	**$ 2,815,085**	24	24	0		$ -	**$ -**	
Penetanguishene Road	**1401**	14017	2	2	MIN2-24	Replace	$ 1,150	$ 116	TRUE	$ 2,645	$ 3,679	532	10	$ 234,524	**$ 2,191,885**	20	24	2128	Former Barrie - Residential	$ 324	**$ 690,549**	
Penetanguishene Road	**1401**	14018	2	2	MIN2-24	Replace	$ 1,150	$ 116	TRUE	$ 2,645	$ 3,679	67	10	$ 29,497	**$ 275,677**	28	24	0		$ -	**$ -**	
Bell Farm Road	**1402**	14021	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	95	11	$ 48,734	**$ 450,319**	26	27	95	Former Barrie - Industrial	$ 239	**$ 22,846**	
Bell Farm Road	**1402**	14022	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	447	11	$ 228,369	**$ 2,110,215**	25	27	895	Former Barrie - Industrial	$ 239	**$ 214,114**	
Bell Farm Road	**1402**	14023	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	195	11	$ 99,682	**$ 921,096**	25	27	391	Former Barrie - Industrial	$ 239	**$ 93,459**	
Miller Drive	**1403**	14032	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	206	10	$ 90,836	**$ 872,814**	20	24	824	Former Barrie - Residential	$ 324	**$ 267,463**	
Miller Drive	**1403**	14031	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	796	10	$ 350,851	**$ 3,371,220**	21	24	2388	Former Barrie - Residential	$ 324	**$ 774,801**	
Miller Drive	**1403**	14033	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	328	10	$ 144,756	**$ 1,390,913**	19	24	1642	Former Barrie - Residential	$ 324	**$ 532,785**	
Hart Drive	**1404**	14041	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	838	10	$ 369,395	**$ 3,549,408**	22	24	1676	Former Barrie - Commercial	$ 419	**$ 701,784**	
Dyment Road	**1405**	14052	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	346	10	$ 152,534	**$ 1,465,656**	18	24	2076	Former Barrie - Industrial	$ 239	**$ 496,782**	
Dyment Road	**1405**	14051	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	282	10	$ 124,194	**$ 1,193,341**	18	24	1690	Former Barrie - Industrial	$ 239	**$ 404,481**	
Dyment Road	**1405**	14053	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	54	10	$ 23,957	**$ 230,198**	18	24	326	Former Barrie - Industrial	$ 239	**$ 78,025**	
Churchill Drive	**1407**	14071	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	701	10	$ 309,068	**$ 2,969,743**	25	24	0		$ -	**$ -**	
Saunders Road	**1409**	14092	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	302	10	$ 133,332	**$ 1,281,147**	27	24	0		$ -	**$ -**	
Saunders Road	**1409**	14096	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	251	10	$ 110,510	**$ 1,061,861**	26	24	0		$ -	**$ -**	

3.1 Road Construction Land Acquisition Costs

Road	ProjectID	Project Segment	Existing Lanes	Future Number of Lanes	Cross Section Type	New, Replace, Repaint?	Utility Relocation Cost ($/m)	Remove unit construction of one sidewalk as a result of in-boulevard trail ($/m)	Rural to Urban Roadway?	Road widening cost ($/m)	Unit Cost ($/m)	Segment Length (m)	Asphalt Width - Vehicle lanes only (m)	Low Impact Development (LID) Cost ($)	Road Construction Cost	Existing ROW (m)	Proposed ROW (m)	Land Requirements (m^2)	Property Type - Full Description	Unit Land Cost ($/$m^2$)	Land Acquisition Cost	Comments
Saunders Road	**1409**	14095	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	192	10	$ 84,627	**$ 813,152**	26	24	0		$ -	**$ -**	
Saunders Road	**1409**	14093	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	443	10	$ 195,389	**$ 1,877,432**	26	24	0		$ -	**$ -**	
Saunders Road	**1409**	14094	2	2	MIN2-24	Replace	$ 1,150	$ -	TRUE	$ 2,645	$ 3,795	187	10	$ 82,585	**$ 793,536**	26	24	0		$ -	**$ -**	
Cundles Road East	**1508**	150811	4	5	ART5-34	Replace	$ 1,150	$ 116		$ 3,856	$ 4,890	228	18	$ 190,043	**$ 1,302,700**	18	34	3641	Former Barrie - Commercial	$ 419	**$ 1,524,423**	
Cundles Road East	**1508**	150812	4	5	ART5-34	Replace	$ 1,150	$ 116		$ 3,856	$ 4,890	225	18	$ 187,839	**$ 1,287,592**	18	34	3598	Former Barrie - Commercial	$ 419	**$ 1,506,744**	
Fairview Road	**1538**	15382	2	4	ART4-29	Replace	$ 1,150	$ -		$ 3,395	$ 4,545	1356	14	$ 880,902	**$ 7,044,155**	20	29	12205	Former Barrie - Industrial	$ 239	**$ 2,920,198**	
McKay Road West	**2127**	212712	0	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	469	11	$ 239,567	**$ 1,705,047**	0	34	15959	Secondary Plan Area - Residential	$ 252	**$ 4,018,544**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
McKay Road West	**2127**	212713	0	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	421	11	$ 214,641	**$ 1,527,642**	0	34	14298	Secondary Plan Area - Residential	$ 252	**$ 3,600,426**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Big Bay Point Road	**2201**	220122	2	5	ART5-34	Replace	$ 288	$ -		$ 3,860	$ 4,147	181	18	$ 151,335	**$ 902,773**	30	34	725	Secondary Plan Area - Residential	$ 252	**$ 182,507**	
Dunlop Street West	**1549**	154921	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	32	25	$ 36,928	**$ 227,478**	40	41	32	Former Barrie - Commercial	$ 419	**$ 13,330**	
Dunlop Street West	**1549**	154922	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	210	25	$ 243,355	**$ 1,499,069**	30	41	2308	Former Barrie - Commercial	$ 419	**$ 966,269**	
Dunlop Street West	**1549**	154923	5	7	ART7-41	Replace	$ 1,150	$ -		$ 4,836	$ 5,986	324	25	$ 375,276	**$ 2,311,708**	28	41	4206	Former Barrie - Commercial	$ 419	**$ 1,761,004**	
St. Vincent	**1577**	157713	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	117	18	$ 97,586	**$ 682,452**	26	34	935	Former Barrie - Residential	$ 324	**$ 303,301**	
St. Vincent	**1577**	157714	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	108	18	$ 90,183	**$ 630,683**	27	34	756	Former Barrie - Residential	$ 324	**$ 245,257**	
St. Vincent	**1577**	157715	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	102	18	$ 85,072	**$ 594,938**	26	34	815	Former Barrie - Residential	$ 324	**$ 264,407**	
St. Vincent	**1577**	157716	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	113	18	$ 94,656	**$ 661,961**	20	34	1587	Former Barrie - Residential	$ 324	**$ 514,840**	
Essa Road	**1593**	15931	4	5	ART5-34	Replace	$ 1,150	$ 116		$ 3,856	$ 4,890	121	18	$ 100,658	**$ 689,989**	20	34	1687	Former Barrie - Commercial	$ 419	**$ 706,498**	
Essa Road	**1593**	15932	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	105	18	$ 87,533	**$ 612,153**	19	34	1572	Former Barrie - Commercial	$ 419	**$ 658,262**	
Essa Road	**1596**	15963	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	93	18	$ 77,941	**$ 545,067**	19	34	1400	Former Barrie - Commercial	$ 419	**$ 586,123**	
Essa Road	**1596**	15964	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	201	18	$ 167,761	**$ 1,173,213**	20	34	2812	Former Barrie - Commercial	$ 419	**$ 1,177,477**	
Essa Road	**1596**	15965	4	5	ART5-34	Replace	$ 1,150	$ -		$ 3,856	$ 5,006	270	18	$ 225,478	**$ 1,576,851**	20	34	3780	Former Barrie - Residential	$ 324	**$ 1,226,396**	
Ferndale Drive	**1613**	161310	3	4	ART4-29	Repaint	$ -	$ 116		FALSE	$ 22	91	14	$ 59,003	**$ 61,001**	25	29	363	Former Barrie - Residential	$ 324	**$ 117,890**	
Ferndale Drive	**1613**	161311	3	4	ART4-29	Repaint	$ -	$ 116		FALSE	$ 22	69	14	$ 44,709	**$ 46,223**	25	29	275	Former Barrie - Residential	$ 324	**$ 89,330**	
Ferndale Drive	**1613**	161312	3	4	ART4-29	Repaint	$ -	$ 116		FALSE	$ 22	347	14	$ 225,348	**$ 232,980**	25	29	1388	Former Barrie - Residential	$ 324	**$ 450,253**	
Ferndale Drive	**1613**	161313	2	4	ART4-29	Repaint	$ -	$ -		FALSE	$ 22	56	14	$ 36,409	**$ 37,642**	25	29	224	Former Barrie - Residential	$ 324	**$ 72,745**	
St. Vincent	**1708**	17085	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	96	11	$ 48,788	**$ 452,936**	20	27	669	Former Barrie - Residential	$ 324	**$ 217,116**	
St. Vincent	**1708**	17086	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	85	11	$ 43,248	**$ 401,495**	20	27	593	Former Barrie - Residential	$ 324	**$ 192,458**	
Eccles Street South	**1719**	17191	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	127	11	$ 64,944	**$ 600,111**	20	27	891	Former Barrie - Residential	$ 324	**$ 289,013**	
Perry Street	**1720**	17201	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	79	11	$ 40,539	**$ 374,595**	20	27	556	Former Barrie - Residential	$ 324	**$ 180,405**	
Innisfil Street	**1721**	17211	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	249	11	$ 127,134	**$ 1,174,762**	20	27	1744	Former Barrie - Residential	$ 324	**$ 565,765**	
Innisfil Street	**1721**	17212	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	88	11	$ 44,877	**$ 414,683**	20	27	615	Former Barrie - Residential	$ 324	**$ 199,711**	
Innisfil Street	**1721**	17213	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	41	11	$ 20,841	**$ 192,581**	20	27	286	Former Barrie - Residential	$ 324	**$ 92,747**	
Innisfil Street	**1721**	17214	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	68	11	$ 34,666	**$ 320,322**	20	27	475	Former Barrie - Residential	$ 324	**$ 154,267**	
Innisfil Street	**1721**	17215	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	113	11	$ 57,656	**$ 532,765**	19	27	904	Former Barrie - Residential	$ 324	**$ 293,234**	
Innisfil Street	**1721**	17216	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	74	11	$ 37,679	**$ 348,172**	18	27	664	Former Barrie - Residential	$ 324	**$ 215,588**	
Innisfil Street	**1721**	17217	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	311	11	$ 158,885	**$ 1,468,154**	19	27	2490	Former Barrie - Residential	$ 324	**$ 808,071**	
Innisfil Street	**1721**	17218	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	318	11	$ 162,261	**$ 1,499,348**	13	27	4451	Former Barrie - Residential	$ 324	**$ 1,444,171**	
Anne Street North	**1726**	172614	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	165	11	$ 84,029	**$ 780,092**	24	27	494	Former Barrie - Residential	$ 324	**$ 160,260**	
Anne Street North	**1726**	172615	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	99	11	$ 50,406	**$ 467,949**	24	27	296	Former Barrie - Residential	$ 324	**$ 96,134**	
Anne Street North	**1726**	172616	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	94	11	$ 47,796	**$ 443,725**	24	27	281	Former Barrie - Residential	$ 324	**$ 91,158**	
Anne Street North	**1726**	172617	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	93	11	$ 47,540	**$ 441,349**	24	27	279	Former Barrie - Residential	$ 324	**$ 90,670**	
Anne Street North	**1726**	172618	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	110	11	$ 56,127	**$ 521,062**	24	27	330	Former Barrie - Residential	$ 324	**$ 107,046**	
Anne Street North	**1726**	172619	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	199	11	$ 101,763	**$ 944,737**	24	27	598	Former Barrie - Residential	$ 324	**$ 194,084**	
Anne Street North	**1726**	172620	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	79	11	$ 40,200	**$ 373,202**	24	27	236	Former Barrie - Residential	$ 324	**$ 76,670**	

3.1 Road Construction Land Acquisition Costs

Road	ProjectID	Project Segment	Existing Lanes	Future Number of Lanes	Cross Section Type	New, Replace, Repaint?	Utility Relocation Cost ($/m)	Remove unit construction of one sidewalk as a result of in-boulevard trail ($/m)	Rural to Urban Roadway?	Road widening cost ($/m)	Unit Cost ($/m)	Segment Length (m)	Asphalt Width - Vehicle lanes only (m)	Low Impact Development (LID) Cost ($)	Road Construction Cost	Existing ROW (m)	Proposed ROW (m)	Land Requirements (m^2)	Property Type - Full Description	Unit Land Cost ($/$m^2$)	Land Acquisition Cost	Comments
Anne Street North	**1726**	172621	2	3	ART3-27	Replace	$ 1,150	$ -		$ 3,078	$ 4,228	98	11	$ 49,888	**$ 463,139**	24	27	293	Former Barrie - Residential	$ 324	**$ 95,146**	
Sproule Drive	**1730**	17301	0	2	MIN2-24	New	$ -	$ -		$ 2,581	$ 2,581	233	10	$ 102,499	**$ 702,552**	0	24	5581	Former Barrie - Residential	$ 324	**$ 1,810,820**	
Collier Street	**1731**	17314	2	3	MAJ3-27	Replace	$ 1,150	$ -		$ 3,056	$ 4,206	187	11	$ 95,666	**$ 883,985**	30	27	0		$ -	**$ -**	
Sommerset Drive	**1735**	17357	0	2	MIN2-24	New	$ -	$ -		$ 2,581	$ 2,581	726	10	$ 320,015	**$ 2,193,468**	24	24	0		$ -	**$ -**	
Hurst Drive	**1945**	19454	3	4	ART4-29	Repaint	$ -	$ -		FALSE	$ 38	163	14	$ 106,201	**$ 112,413**	30	29	0		$ -	**$ -**	
Hurst Drive	**1945**	194513	3	4	ART4-29	Repaint	$ -	$ -		FALSE	$ 38	361	14	$ 234,673	**$ 248,401**	30	29	0		$ -	**$ -**	
Hurst Drive	**1945**	194514	3	4	ART4-29	Repaint	$ -	$ -		FALSE	$ 38	288	14	$ 187,001	**$ 197,940**	30	29	0		$ -	**$ -**	
Big Bay Point Road	**2201**	220123	2	5	ART5-34	Replace	$ 288	$ -		$ 3,860	$ 4,147	428	18	$ 357,735	**$ 2,134,036**	34	34	0		$ -	**$ -**	
Big Bay Point Road	**2201**	220124	2	5	ART5-34	Replace	$ 288	$ -		$ 3,860	$ 4,147	220	18	$ 183,493	**$ 1,094,614**	34	34	0		$ -	**$ -**	
Mapleview Drive East	**2202**	220216	2	5	ART7-41	Replace	$ 288	$ 116		$ 4,814	$ 4,986	444	25	$ 515,221	**$ 2,729,773**	24	41	7551	Secondary Plan Area - Residential	$ 252	**$ 1,901,331**	Cost for 41m ROW as it is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 5 lane, 34m ROW. Post period benefit is calculated for the project.
Mapleview Drive East	**2202**	220211	2	7	ART7-41	Replace	$ 288	$ 116		$ 4,814	$ 4,986	138	25	$ 159,738	**$ 846,333**	21	41	2754	Secondary Plan Area - Commercial	$ 217	**$ 596,622**	
Mapleview Drive East	**2202**	220213	2	7	ART7-41	Replace	$ 288	$ 116		$ 4,814	$ 4,986	155	25	$ 179,325	**$ 950,109**	21	41	3092	Secondary Plan Area - Residential	$ 252	**$ 778,548**	
Mapleview Drive East	**2202**	220214	2	5	ART7-41	Replace	$ 288	$ 116		$ 4,814	$ 4,986	512	25	$ 593,474	**$ 3,144,374**	21	41	10232	Secondary Plan Area - Residential	$ 252	**$ 2,576,597**	Cost for 41m ROW as it is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 5 lane, 34m ROW. Post period benefit is calculated for the project.
Mapleview Drive East	**2202**	220215	2	5	ART7-41	Replace	$ 288	$ 116		$ 4,814	$ 4,986	54	25	$ 62,237	**$ 329,748**	24	41	912	Secondary Plan Area - Residential	$ 252	**$ 229,675**	Cost for 41m ROW as it is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 5 lane, 34m ROW. Post period benefit is calculated for the project.
Mapleview Drive East	**2202**	220212	2	7	ART7-41	Replace	$ 288	$ 116		$ 4,814	$ 4,986	91	25	$ 105,675	**$ 559,893**	21	41	1822	Secondary Plan Area - Commercial	$ 217	**$ 394,696**	
Lockhart Road	**2203**	22036	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	385	18	$ 321,693	**$ 1,825,334**	27	34	2696	Secondary Plan Area - Residential	$ 252	**$ 678,925**	
Lockhart Road	**2203**	22035	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	423	18	$ 352,909	**$ 2,002,459**	19	34	6338	Secondary Plan Area - Industrial	$ 210	**$ 1,333,803**	
Lockhart Road	**2203**	22034	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	482	18	$ 402,899	**$ 2,286,110**	22	34	5789	Secondary Plan Area - Industrial	$ 210	**$ 1,218,191**	
Lockhart Road	**2203**	22037	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	231	18	$ 192,546	**$ 1,092,536**	28	34	1383	Secondary Plan Area - Residential	$ 252	**$ 348,312**	
Lockhart Road	**2203**	22033	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	471	18	$ 393,067	**$ 2,230,324**	23	34	5177	Secondary Plan Area - Industrial	$ 210	**$ 1,089,425**	
Lockhart Road	**2203**	22039	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	1132	18	$ 945,488	**$ 5,364,844**	23	34	12453	Secondary Plan Area - Residential	$ 252	**$ 3,135,677**	
Lockhart Road	**2203**	22038	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	613	18	$ 511,868	**$ 2,904,419**	23	34	6742	Secondary Plan Area - Residential	$ 252	**$ 1,697,593**	
Lockhart Road	**2203**	220310	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	496	18	$ 414,577	**$ 2,352,375**	23	34	5460	Secondary Plan Area - Residential	$ 252	**$ 1,374,930**	
Lockhart Road	**2203**	220311	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	201	18	$ 168,071	**$ 953,660**	23	34	2214	Secondary Plan Area - Commercial	$ 217	**$ 479,528**	
McKay Road West	**2204**	22045	2	7	ART7-41	Replace	$ 288	$ -	TRUE	$ 4,571	$ 4,858	388	25	$ 450,540	**$ 2,337,552**	20	41	8156	Secondary Plan Area - Industrial	$ 210	**$ 1,716,417**	
McKay Road West	**2204**	22046	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	567	18	$ 473,197	**$ 2,684,993**	20	34	7932	Secondary Plan Area - Commercial	$ 217	**$ 1,718,297**	
McKay Road West	**2204**	22048	2	7	ART7-41	Replace	$ 288	$ -	TRUE	$ 4,571	$ 4,858	148	25	$ 171,922	**$ 891,987**	20	41	3112	Secondary Plan Area - Industrial	$ 210	**$ 654,968**	
McKay Road East	**2205**	22057	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	734	18	$ 613,073	**$ 3,478,667**	20	41	15415	Secondary Plan Area - Industrial	$ 210	**$ 3,243,912**	Cost for 41m ROW as it is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 5 lane, 34m ROW. Post period benefit is calculated for the project.
McKay Road East	**2205**	22054	2	7	ART7-41	Replace	$ 288	$ -	TRUE	$ 4,571	$ 4,858	428	25	$ 496,956	**$ 2,578,374**	20	41	8997	Secondary Plan Area - Industrial	$ 210	**$ 1,893,247**	
McKay Road East	**2205**	22055	2	7	ART7-41	Replace	$ 288	$ -	TRUE	$ 4,571	$ 4,858	365	25	$ 423,439	**$ 2,196,944**	20	41	7666	Secondary Plan Area - Industrial	$ 210	**$ 1,613,171**	
McKay Road East	**2205**	22056	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	575	18	$ 479,958	**$ 2,723,352**	20	41	12068	Secondary Plan Area - Industrial	$ 210	**$ 2,539,569**	Cost for 41m ROW as it is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 5 lane, 34m ROW. Post period benefit is calculated for the project.
Veterans Drive	**2206**	220612	2	5	ART5-34	Replace	$ 288	$ -		$ 3,860	$ 4,147	543	18	$ 453,145	**$ 2,703,197**	20	34	7596	Secondary Plan Area - Industrial	$ 210	**$ 1,598,465**	
Veterans Drive	**2207**	220714	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	352	18	$ 293,930	**$ 1,667,803**	20	34	4927	Secondary Plan Area - Residential	$ 252	**$ 1,240,665**	
Veterans Drive	**2207**	220713	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	534	18	$ 446,338	**$ 2,532,592**	20	34	7482	Secondary Plan Area - Residential	$ 252	**$ 1,883,973**	
Yonge Street	**2208**	220818	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	444	18	$ 370,845	**$ 2,104,228**	30	34	1776	Secondary Plan Area - Commercial	$ 217	**$ 384,751**	
Yonge Street	**2208**	220820	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	169	18	$ 141,402	**$ 802,337**	26	34	1354	Secondary Plan Area - Commercial	$ 217	**$ 293,409**	
Yonge Street	**2208**	220819	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	73	18	$ 60,770	**$ 344,818**	29	34	364	Secondary Plan Area - Commercial	$ 217	**$ 78,811**	
Lockhart Road	**2209**	220914	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	936	18	$ 782,053	**$ 4,437,486**	23	34	10300	Secondary Plan Area - Residential	$ 252	**$ 2,593,649**	
Lockhart Road	**2209**	220912	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	345	18	$ 288,365	**$ 1,636,226**	23	34	3798	Secondary Plan Area - Commercial	$ 217	**$ 822,741**	
Lockhart Road	**2209**	220913	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	118	18	$ 98,852	**$ 560,902**	23	34	1302	Secondary Plan Area - Residential	$ 252	**$ 327,839**	
Yonge Street	**2212**	221221	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	662	18	$ 552,618	**$ 3,135,637**	32	34	1323	Secondary Plan Area - Commercial	$ 217	**$ 286,670**	
Lockhart Road	**2214**	22141	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	219	18	$ 183,044	**$ 1,038,617**	24	34	2192	Secondary Plan Area - Industrial	$ 210	**$ 461,203**	
Lockhart Road	**2214**	22142	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	300	18	$ 250,725	**$ 1,422,649**	23	34	3302	Secondary Plan Area - Industrial	$ 210	**$ 694,908**	

3.1 Road Construction Land Acquisition Costs

Road	ProjectID	Project Segment	Existing Lanes	Future Number of Lanes	Cross Section Type	New, Replace, Repaint?	Utility Relocation Cost ($/m)	Remove unit construction of one sidewalk as a result of in-boulevard trail ($/m)	Rural to Urban Roadway?	Road widening cost ($/m)	Unit Cost ($/m)	Segment Length (m)	Asphalt Width - Vehicle lanes only (m)	Low Impact Development (LID) Cost ($)	Road Construction Cost	Existing ROW (m)	Proposed ROW (m)	Land Requirements (m^2)	Property Type - Full Description	Unit Land Cost ($/$m^2$)	Land Acquisition Cost	Comments
Salem Road	**2215**	22152	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	539	18	$ 449,766	**$ 2,552,040**	18	34	8616	Secondary Plan Area - Industrial	$ 210	**$ 1,813,194**	
Salem Road	**2215**	22153	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	328	18	$ 273,627	**$ 1,552,599**	22	34	3931	Secondary Plan Area - Industrial	$ 210	**$ 827,327**	
Big Bay Point Road	**2301**	230125	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	115	18	$ 96,140	**$ 545,512**	29	34	576	Secondary Plan Area - Residential	$ 252	**$ 144,929**	
Big Bay Point Road	**2301**	230126	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	223	18	$ 186,602	**$ 1,058,808**	29	34	1117	Secondary Plan Area - Residential	$ 252	**$ 281,299**	
Big Bay Point Road	**2301**	230127	2	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	281	11	$ 143,463	**$ 1,021,052**	29	27	0		$ -	**$ -**	
Mapleview Drive	**2302**	230217	2	5	ART5-34	Replace	$ 288	$ 116	TRUE	$ 3,616	$ 3,788	597	18	$ 498,452	**$ 2,759,209**	25	34	5371	Secondary Plan Area - Residential	$ 252	**$ 1,352,536**	
Mapleview Drive	**2302**	230220	2	3	ART3-27	Replace	$ 288	$ 116	TRUE	$ 2,835	$ 3,006	428	11	$ 218,490	**$ 1,505,486**	21	27	2568	Secondary Plan Area - Residential	$ 252	**$ 646,764**	
Mapleview Drive	**2302**	230219	2	5	ART5-34	Replace	$ 288	$ 116	TRUE	$ 3,616	$ 3,788	289	18	$ 241,667	**$ 1,337,759**	21	34	3762	Secondary Plan Area - Commercial	$ 217	**$ 814,870**	
Mapleview Drive	**2302**	230218	2	5	ART5-34	Replace	$ 288	$ 116	TRUE	$ 3,616	$ 3,788	191	18	$ 159,720	**$ 884,138**	21	34	2486	Secondary Plan Area - Residential	$ 252	**$ 626,015**	
Salem Road	**2303**	23036	2	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	815	11	$ 415,949	**$ 2,960,390**	20	34	11409	Secondary Plan Area - Residential	$ 252	**$ 2,872,965**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Salem Road	**2303**	23039	2	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	662	11	$ 337,768	**$ 2,403,959**	18	34	10588	Secondary Plan Area - Residential	$ 252	**$ 2,666,247**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Salem Road	**2303**	23035	2	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	666	11	$ 339,683	**$ 2,417,592**	20	34	9317	Secondary Plan Area - Industrial	$ 210	**$ 1,960,739**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Salem Road	**2303**	23034	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	359	18	$ 300,094	**$ 1,702,778**	20	34	5030	Secondary Plan Area - Industrial	$ 210	**$ 1,058,578**	
Salem Road	**2303**	23037	2	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	418	11	$ 213,500	**$ 1,519,518**	20	34	5856	Secondary Plan Area - Commercial	$ 217	**$ 1,268,624**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Salem Road	**2303**	23038	2	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	147	11	$ 75,210	**$ 535,287**	18	34	2358	Secondary Plan Area - Commercial	$ 217	**$ 510,746**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Lockhart Road	**2305**	230514	2	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	160	11	$ 81,871	**$ 582,695**	23	27	642	Secondary Plan Area - Commercial	$ 217	**$ 138,995**	
Lockhart Road	**2305**	230513	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,395	460	18	$ 384,130	**$ 1,945,580**	23	34	5059	Secondary Plan Area - Residential	$ 252	**$ 1,273,954**	
McKay Road	**2306**	23068	2	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	590	11	$ 301,384	**$ 2,145,011**	20	34	8267	Secondary Plan Area - Commercial	$ 217	**$ 1,790,839**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
McKay Road	**2306**	23067	2	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	190	11	$ 97,024	**$ 690,536**	20	34	2661	Secondary Plan Area - Commercial	$ 217	**$ 576,519**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Essa Road	**2307**	230729	2	3	ART3-27	Replace	$ 288	$ 116	TRUE	$ 2,835	$ 3,006	436	11	$ 222,463	**$ 1,532,858**	24	34	4359	Secondary Plan Area - Commercial	$ 217	**$ 944,204**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Essa Road	**2307**	230727	2	3	ART3-27	Replace	$ 288	$ 116	TRUE	$ 2,835	$ 3,006	526	11	$ 268,439	**$ 1,849,652**	28	34	3156	Secondary Plan Area - Residential	$ 252	**$ 794,620**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Essa Road	**2307**	230728	2	3	ART3-27	Replace	$ 288	$ 116	TRUE	$ 2,835	$ 3,006	350	11	$ 178,785	**$ 1,231,897**	27	34	2452	Secondary Plan Area - Commercial	$ 217	**$ 531,173**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Essa Road	**2307**	230730	2	3	ART3-27	Replace	$ 288	$ 116	TRUE	$ 2,835	$ 3,006	237	11	$ 120,788	**$ 832,280**	24	34	2367	Secondary Plan Area - Residential	$ 252	**$ 595,919**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Essa Road	**2307**	230731	2	3	ART3-27	Replace	$ 288	$ 116	TRUE	$ 2,835	$ 3,006	655	11	$ 334,173	**$ 2,302,585**	26	34	5238	Secondary Plan Area - Residential	$ 252	**$ 1,318,936**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Huronia Road	**2308**	230813	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	630	18	$ 525,890	**$ 2,983,978**	20	34	8815	Secondary Plan Area - Industrial	$ 210	**$ 1,855,071**	
Huronia Road	**2308**	230812	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	799	18	$ 666,936	**$ 3,784,297**	20	34	11179	Secondary Plan Area - Industrial	$ 210	**$ 2,352,611**	
Huronia Road	**2308**	230811	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	631	18	$ 526,898	**$ 2,989,697**	24	34	6309	Secondary Plan Area - Industrial	$ 210	**$ 1,327,590**	
McKay Road	**2309**	230910	2	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	292	11	$ 148,839	**$ 1,059,318**	20	34	4083	Secondary Plan Area - Commercial	$ 217	**$ 884,409**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
McKay Road	**2309**	23099	2	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	193	11	$ 98,525	**$ 701,219**	20	34	2702	Secondary Plan Area - Commercial	$ 217	**$ 585,438**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.

3.1 Road Construction Land Acquisition Costs

Road	ProjectID	Project Segment	Existing Lanes	Future Number of Lanes	Cross Section Type	New, Replace, Repaint?	Utility Relocation Cost ($/m)	Remove unit construction of one sidewalk as a result of in-boulevard trail ($/m)	Rural to Urban Roadway?	Road widening cost ($/m)	Unit Cost ($/m)	Segment Length (m)	Asphalt Width - Vehicle lanes only (m)	Low Impact Development (LID) Cost ($)	Road Construction Cost	Existing ROW (m)	Proposed ROW (m)	Land Requirements (m^2)	Property Type - Full Description	Unit Land Cost ($/$m^2$)	Land Acquisition Cost	Comments
McKay Road	**2310**	231011	2	3	ART3-27	Replace	$ 288	$ -	TRUE	$ 2,835	$ 3,122	337	11	$ 171,892	**$ 1,223,393**	20	34	4715	Secondary Plan Area - Residential	$ 252	**$ 1,187,264**	Cost for 34m ROW as iit is defined in the Salem & Hewitt's Secondary Plan (Mid Block Right of Way Plan). Should be an arterial 3 lane, 27m ROW. Post period benefit is calculated for the project.
Veterans Drive	**2312**	231215	2	5	ART5-34	Replace	$ 288	$ -	TRUE	$ 3,616	$ 3,904	629	18	$ 525,633	**$ 2,982,521**	20	34	8811	Secondary Plan Area - Residential	$ 252	**$ 2,218,672**	
Ross Street Roundabout - Interim	**3001**								FALSE	$ -				$ -	**$ -**			527	Former Barrie - Commercial	$ 419	**$ 220,833**	Land acquisition costs estimated from Figure 45 in EA report.
Ross Street Roundabout - Ultimate	**3002**								FALSE	$ -				$ -	**$ -**			887	Former Barrie - Commercial	$ 419	**$ 371,237**	Land acquisition costs estimated from Figure 45 in EA report.
20th Side Road	**3003**	30031	2	2	ARP2-30	Replace	287.5	$ -	TRUE	$ 2,420	$ 2,708	914	9	$ 381,595	**$ 2,855,752**	30	30	0		$ -	**$ -**	
20th Side Road	**3003**	30032	2	2	ARP2-30	Replace	287.5	$ -	TRUE	$ 2,420	$ 2,708	787	9	$ 328,608	**$ 2,459,212**	30	30	0		$ -	**$ -**	
20th Side Road	**3003**	30033	2	2	ARP2-30	Replace	287.5	$ -	TRUE	$ 2,420	$ 2,708	633	9	$ 264,441	**$ 1,979,002**	30	30	0		$ -	**$ -**	
20th Side Road	**3003**	30034	2	2	ARP2-30	Replace	287.5	$ -	TRUE	$ 2,420	$ 2,708	431	9	$ 180,157	**$ 1,348,245**	30	30	0		$ -	**$ -**	
Big Bay Point Road	**3004**	300428	2	2	ARP2-27	Replace	287.5	$ -	TRUE	$ 2,642	$ 2,929	627	9	$ 261,975	**$ 2,099,477**	27	27	0		$ -	**$ -**	
Mapleview Drive East	**3005**	300521	2	2	ARP2-27	Replace	287.5	$ 116	TRUE	$ 2,642	$ 2,813	300	9	$ 125,112	**$ 967,968**	27	27	0		$ -	**$ -**	
Lockhart Road	**3006**	300615	2	2	ARP2-27	Replace	287.5	$ -	TRUE	$ 2,642	$ 2,929	615	9	$ 256,659	**$ 2,056,874**	27	27	0		$ -	**$ -**	
Lockhart Road	**3006**	300616	2	2	ARP2-27	Replace	287.5	$ -	TRUE	$ 2,642	$ 2,929	447	9	$ 186,721	**$ 1,496,391**	27	27	0		$ -	**$ -**	
														TOTALS:	**$ 523,322,316**						**$ 249,710,867**	

3.2 Culvert Costs

Note: Please refer to the Barrie Drainage Master Plan for cost breakdown and assumptions. Culvert project costs within the former Barrie area were provided by C.C. Tatum. Culvert project costs within the secondary plan area was provided by the City (AMEC study).
Construction costs includes construction costs, contingency, engineering design, CA/CI, utility relocation, EA, and HST. Property costs calculated in the DMP were excluded as it is already costed as part of the road's ROW.

ProjectID	Watershed	Drainage Opportunity ID	Project ID	Location	Description	Construction Costs
2303	Bear Creek Watershed	Culvert Improvement	S10	Salem Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 454,659**
2303	Bear Creek Watershed	Culvert Improvement	S3	Salem Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 454,659**
2307	Bear Creek Watershed	Culvert Improvement	S4	Essa Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 564,621**
2307	Bear Creek Watershed	Culvert Improvement	S5	Essa Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 941,443**
1721	Bunkers Creek Watershed	Culvert Improvement No. 22	43	Innisfil Street	Culvert upgrades to satisfy 100 Year design flood frequency criteria (as per the recommendations of the Bunkers Creek MDP).	**$ 2,640,578**
1379	Bunkers Creek Watershed	Culvert Improvement No. 24	45	Bradford Street	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 5,000,558**
1404	Dyments Creek Watershed	Culvert Improvement	55	Hart Drive	Extend Proposed Hwy 400 Culvert under Hart Drive	**$ 2,338,970**
1721	Dyments Creek Watershed	Culvert Improvement No. 37	60	Innisfil Street	Culvert upgrades to satisfy 100 Year design flood frequency criteria (as per the recommendations of the Dyments Creek MDP).	**$ 4,149,088**
1379	Dyments Creek Watershed	Culvert Improvement No. 39	62	Bradford Street	Culvert upgrades to satisfy Regulatory flood frequency criteria (as per the recommendations of the Dyments Creek MDP).	**$ 5,593,706**
1206	Dyments Creek Watershed	Culvert Improvement No. 28	182	Dunlop Street W.	Relocate and upgrade culvert to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 978,965**
1403	Dyments Creek Watershed	Culvert Improvement		Miller Drive	Culvert crossing required for urbanization.	**$ 821,145**

3.2 Culvert Costs

ProjectID	Watershed	Drainage Opportunity ID	Project ID	Location	Description	Construction Costs
1401	Georgian Creek Watershed	Culvert Improvement No. 82	139	Penetanguishene Road	DMP Conveyance Improvement	**$ 623,484**
2202	Hewitts Creek Watershed	Culvert Improvement No. 83	125	Mapleview Drive E.	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 2,015,349**
2209	Hewitts Creek Watershed	Culvert Improvement	H32	Lockhart Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 949,656**
2209	Hewitts Creek Watershed	Culvert Improvement	H33	Lockhart Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 1,105,435**
1378	Hotchkiss Creek Watershed	Culvert Improvement No. 42	13	Ardagh Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 307,285**
1208	Hotchkiss Creek Watershed	Culvert Improvement No. 44	16	Essa Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 1,321,039**
1221	Hotchkiss Creek Watershed	Culvert Improvement No. 48	22	Tiffin St.	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 2,286,009**
1721	Hotchkiss Creek Watershed	Culvert Improvement No. 50	27	Innisfil St.	Culvert upgrades to satisfy 100 Year flood frequency criteria (as per the recommendations of the Hotchkiss Creek MDP).	**$ 1,089,936**
1405	Hotchkiss Creek Watershed	Culvert Improvement		Dynment Road	Hotchkiss Creek tributary storm sewer required for urbanization	**$ 988,593**
1303	Kidd's Creek Watershed	Culvert Improvement		Wellington Street	Culvert extension as part of road widening.	**$ 181,486**
2203	Lovers Creek Watershed	Culvert Improvement No. 98	98	Lockhart Road	DMP Conveyance Improvement (BCRY Railway Crossing at Lockhart)	**$ 1,608,745**
2203	Lovers Creek Watershed	Culvert Improvement No. 89	99	Lockhart Rd.	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 3,183,556**
2203	Lovers Creek Watershed	Culvert Improvement No. 91	101	Lockhart Rd.	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 3,666,069**
1374	Lovers Creek Watershed	Culvert Improvement No. 92	107	Huronia Rd.	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 985,793**
1326	Lovers Creek Watershed	Culvert Improvement No. 98	110	Welham Rd.	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Collector Road - 50 Year design flood frequency).	**$ 1,127,629**
1374	Lovers Creek Watershed	Culvert Improvement No. 97	113	Huronia Rd.	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 722,056**
1374	Lovers Creek Watershed	Culvert Improvements		Huronia Road	Culvert extensions for multiple culverts.	**$ 1,967,375**

3.2 Culvert Costs

ProjectID	Watershed	Drainage Opportunity ID	Project ID	Location	Description	Construction Costs
2203	Lovers Creek Watershed	Culvert Improvement	H29	Lockhart Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 1,697,525**
2207	Lovers Creek Watershed	Culvert Improvement	S12	Veternan's Drive	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 615,451**
2308	Lovers Creek Watershed	Culvert Improvement	S21	Huronia Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 2,563,257**
2308	Lovers Creek Watershed	Culvert Improvement	S23	Huronia Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 953,111**
2308	Lovers Creek Watershed	Culvert Improvement	S27	Huronia Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 1,627,728**
1213	Lovers Creek Watershed	Culvert Improvement		Mapleview Dr. E.	Culvert extension as part of road widening.	**$ 3,165,861**
2203	Lovers Creek Watershed	Culvert Improvement		Lockhart Road	Culvert extension as part of road widening.	**$ 985,222**
1326	Lovers Creek Watershed	Culvert Improvement		Welham Rd.	Culvert extension as part of road widening.	**$ 203,732**
1208	Hotchkiss Creek Watershed	Culvert Improvement		Essa Road	Culvert extension as part of road widening.	**$ 138,163**
3003	Sandy Cove Creek Watershed	Culvert Improvement	H36	20th Sideroad	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 717,373**
3003	Sandy Cove Creek Watershed	Culvert Improvement	H37	20th Sideroad	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 647,576**
1577	Sophia Creek Watershed	Culvert Improvement		St. Vincent Street	Culvert extension as part of road widening.	**$ 393,115**
2306	Thornton Creek Watershed	Culvert Improvement	S13	McKay Road West	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 792,943**
2127	Thornton Creek Watershed	Culvert Improvement	S48	McKay Road West	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 848,414**
1211	Whiskey Creek Watershed	Culvert Improvement No. 53	68	Harvie Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 916,477**
1105	Lovers Creek Watershed	Not Identified	No ID	Welham Rd.	Culvert required for the Welham Road extension from the South Cul-de-Sac to Lockhart Road	**$ 867,645**
1538	Whiskey Creek Watershed	Culvert Improvement No. 56	71	Fairview Road	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	**$ 1,794,391**

3.2 Culvert Costs

ProjectID	Watershed	Drainage Opportunity ID	Project ID	Location	Description	Construction Costs
1301	Whiskey Creek Watershed	Culvert Improvement No. 57	72	Bayview Drive	Culvert upgrades to satisfy 100 Year design flood frequency criteria (as per the recommendations of the Whiskey Creek MDP).	$ 830,427
1308	Whiskey Creek Watershed	Culvert Improvement No. 60	80	Huronia Rd.	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	$ 2,974,559
1380	Whiskey Creek Watershed	Culvert Improvement No. 62	84	Little Ave.	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	$ 4,326,677
1222	Whiskey Creek Watershed	Culvert Improvement No. 64	88	Hurst Drive	Culvert upgrades to satisfy City of Barrie Flow Design Guidelines for Road Crossings (Arterial Road - 100 Year design flood frequency).	$ 2,102,238
1538	Whiskey Creek Watershed	Culvert Improvement		Fairview Road	Culvert extension as part of road widening.	$ 326,628
1301	Whiskey Creek Watershed	Culvert Improvement		Bayview Drive	Culvert extension as part of road widening.	$ 260,974
1222	Whiskey Creek Watershed	Culvert Improvement		Tollendale Road	Culvert extension as part of road widening.	$ 403,156

TOTAL: $ 78,220,529

3.3 Structures Cost

ProjectID	Project Segment	Structure ID	Road	From	To	Cross Section Type	Structure Length (m)	Structure Width (m)	Structure Area (sq. m)	Unit Cost of Structure	Structure Cost	Comments
2202	220212	41	Mapleview Drive	Yonge Street	Collector 8	ART7-41	400	36	14400	$ 3,726.00	**$ -**	Metrolinx Crossing; grade seperated rail crossing. See tab "3.5 Rail Costs" for costs.
2209	220913	44	Lockhart Road	Yonge Street	Collector 8	ART5-34	400	29	11600	$ 2,484.00	**$ -**	Metrolinx Crossing; grade seperated rail crossing. See tab "3.5 Rail Costs" for costs.
2205	22056	46	McKay Road	Welham Road	Rawson Avenue	ART5-34	400	29	11600	$ 2,484.00	**$ -**	BCRY Crossing. Rail warrant protection - flashing lights, bells and gates.
1103	11031	51	Big Bay Point Road	West of Highway 400	East of Highway 400	ART7-41	120	36	4320	$ 2,484.00	**$ -**	Harvie/Big Bay Crossing Construction cost (see Project Segment 11035 in tab '3.1 Road and Land Costs') includes the structure cost.
1204	120412	58	Bayfield Street	South of Highway 400	North of Highway 400	ART7-41	90	36	3240	$ 2,484.00	**$ 8,048,160**	Maintaining 2014 costing approach which inherently includes cost sharing as unit rate deck costs to not capture significant ancillary costs for approach grading, traffic staging, etc. Costs to be revised subject to signed cost share agreement with MTO.
1372	13724	59	Anne Street North	South of Highway 400	North of Highway 400	ART5-34	90	29	2610	$ 3,780.00	**$ 9,865,800**	Maintaining 2014 costing approach which inherently includes cost sharing as unit rate deck costs to not capture significant ancillary costs for approach grading, traffic staging, etc. Costs to be revised subject to signed cost share agreement with MTO.
1207	120717	60	Dunlop Street West	East of Highway 400	West of Highway 400	ART7-41	165	36	5940	$ 2,484.00	**$ 14,754,960**	Maintaining 2014 costing approach which inherently includes cost sharing as unit rate deck costs to not capture significant ancillary costs for approach grading, traffic staging, etc. Costs to be revised subject to signed cost share agreement with MTO.
1221	12217	61	Tiffin Street	Dyment Road	Patterson Road	ART5-34	65	29	1885	$ 3,780.00	**$ 7,125,300**	Highway 400 Crossing; not paid for; show amount and apply cost share percentage, length = 65m
1208	120812	62	Essa Road	North of Highway 400	South of Highway 400	ART7-41	85	36	3060	$ 2,484.00	**$ 7,601,040**	Maintaining 2014 costing approach which inherently includes cost sharing as unit rate deck costs to not capture significant ancillary costs for approach grading, traffic staging, etc. Costs to be revised subject to signed cost share agreement with MTO.
1724	17241		Sunnidale Road	North of Highway 400	South of Highway 400		80	6	480	$ 5,832.00	**$ 2,799,360**	Costing only for the AT components of the structure (2m x 2 bike lanes + 2m x 1 sidewalk)
1220	122018	63	Saint Vincent	North of Highway 400	South of Highway 400	ART5-34	100	29	2900	$ 3,780.00	**$ 20,000,000**	Using construction tender costs for Harvie/Big Bay Point Crossing.
1302	130213	55	Big Bay Point Road	Ward Drive	Dean Avenue	ART5-34	55	29	1595	$ 3,780.00	**$ 6,029,100**	Assumed 5 lane x-section on structure

TOTAL: $ 76,223,720

3.4 Intersection Costs

ProjectID	Road	Intersecting Street	2041 Classification	Number of Right Turn Lanes	Right Turn Lane Cost	Signal Cost	Intersection Cost	Notes
1304	Anne Street North	Donald Street	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1372	Anne Street North	Edgehill Drive	ART	0	$ -	$ 287,500	**$ 287,500**	
1726	Anne Street North	Sunnidale Road	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1726	Anne Street North	Livingstone Street West	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1305	Anne Street South	Essa Road	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1378	Ardagh Road	Patterson Road	ART	0	$ -	$ 287,500	**$ 287,500**	
1307	Baldwin Lane	Innisfil Street	MAJ	0	$ -	$ 287,500	**$ 287,500**	
1307	Baldwin Lane	Bayview Drive	MAJ	0	$ -	$ 287,500	**$ 287,500**	
1204	Bayfield Street	Grove Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1204	Bayfield Street	Highway 400 N-E/W Ramp	ART	0	$ -	$ 287,500	**$ 287,500**	
1204	Bayfield Street	Highway 400 S-E/W Ramp / Coulter Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1204	Bayfield Street	Ferris Lane	ART	0	$ -	$ 287,500	**$ 287,500**	
1204	Bayfield Street	Cundle Road	ART	2	$ 49,924	$ 287,500	**$ 337,424**	
1204	Bayfield Street	Sophia Street West	ART	0	$ -	$ 287,500	**$ 287,500**	
1301	Bayview Drive	Little Avenue	ART	2	$ 49,924	$ 287,500	**$ 337,424**	
1301	Bayview Drive	Big Bay Point Road	ART	0	$ -	$ 287,500	**$ 287,500**	
1371	Bayview Drive	Burton Avenue	MAJ	0	$ -	$ 287,500	**$ 287,500**	
1373	Bayview Drive	Mapleview Drive East	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1373	Bayview Drive	Saunders Road	ART	0	$ -	$ 287,500	**$ 287,500**	
1212	Big Bay Point Road	Welham Road	ART	0	$ -	$ 287,500	**$ 287,500**	
1302	Big Bay Point Road	Leggot Avenue / Loon Avenue	ART	0	$ -	$ 287,500	**$ 287,500**	
1302	Big Bay Point Road	Dean Avenue	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
2301	Big Bay Point Road	The Queensway	ART	0	$ -	$ 287,500	**$ 287,500**	
2301	Big Bay Point Road	Collector 11	ART	0	$ -	$ 287,500	**$ 287,500**	
2201	Big Bay Point Road	Prince William Way	ART	0	$ -	$ 287,500	**$ 287,500**	
1316	Blake Street	Collier Street / Dunlop Street East	ART	0	$ -	$ 287,500	**$ 287,500**	
1316	Blake Street	St. Vincent Street	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1316	Blake Street	Johnson Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1379	Bradford Street	Simcoe Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1379	Bradford Street	Victoria Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1379	Bradford Street	Dunlop Street West	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1219	Bryne Drive	Mapleview Drive East	ART	2	$ 49,924	$ 287,500	**$ 337,424**	Should have signals due to widening for RTL at intersection
1209	Burton Avenue	Milburn Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1209	Burton Avenue	Essa Road	ART	0	$ -	$ 287,500	**$ 287,500**	
1731	Collier Street	Mulcaster Street	MAJ	0	$ -	$ 287,500	**$ 287,500**	
1508	Cundles Road East	St. Vincent Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1206	Dunlop Street West	Ferndale Drive North	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1549	Dunlop Street West	Sarjeant Drive	ART	0	$ -	$ 287,500	**$ 287,500**	
1207	Dunlop Street West	Cedar Pointe Drive / Highway 400 SB Ramps	ART	2	$ 49,924	$ 287,500	**$ 337,424**	
1207	Dunlop Street West	Anne Street	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1207	Dunlop Street West	Hart Drive / Highway 400 E/W-N Ramp	ART	2	$ 49,924	$ 287,500	**$ 337,424**	
1719	Eccles Street South	Dunlop Street West	MAJ	1	$ 24,962	$ 287,500	**$ 312,462**	
1208	Essa Road	Highway 400 N-E/W Ramp	ART	0	$ -	$ 287,500	**$ 287,500**	
1216	Essa Road	Osmington Entrance	ART	0	$ -	$ 287,500	**$ 287,500**	
1216	Essa Road	Fairview Road / Highway 400 E/W-N Ramp	ART	0	$ -	$ 287,500	**$ 287,500**	
1217	Essa Road	Highway 400 S-E/W Ramp	ART	0	$ -	$ 287,500	**$ 287,500**	
1217	Essa Road	Ardagh Road / Bryne Drive	ART	0	$ -	$ 287,500	**$ 287,500**	
1593	Essa Road	Gowan Street	ART	0	$ -	$ 287,500	**$ 287,500**	

3.4 Intersection Costs

ProjectID	Road	Intersecting Street	2041 Classification	Number of Right Turn Lanes	Right Turn Lane Cost	Signal Cost	Intersection Cost	Notes
2307	Essa Road	Salem Road (Roundabout)			$ -	$ -	**$ 500,000**	Cost provided by the City. Cost estimate considers the fact that the roundabout may requiring additional property beyond standard requirements plus may need to be built to the ultimate condition.
2307	Essa Road	McKay Road (Roundabout)			$ -	$ -	**$ 500,000**	Cost provided by the City. Cost estimate considers the fact that the roundabout may requiring additional property beyond standard requirements plus may need to be built to the ultimate condition.
1318	Essa Road	Coughlin	ART	0	$ -	$ 287,500	**$ 287,500**	
1318	Essa Road	Mapleview Drive West	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1318	Essa Road	Dunn Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1613	Ferndale Drive	Livingstone Street West	ART	0	$ -	$ 287,500	**$ 287,500**	
1201	Georgian Drive	Duckworth Street / Highway 400 NB Ramps	ART	3	$ 74,886	$ 287,500	**$ 362,386**	
1201	Georgian Drive	Governors Drive	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1201	Georgian Drive	Gallie Court	ART	0	$ -	$ 287,500	**$ 287,500**	
1201	Georgian Drive	Johnson Street	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1211	Harvie Road	Veterans Drive	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1321	Harvie Road	Veterans Drive	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1321	Harvie Road	Essa Road	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1223	Huronia Road	Big Bay Point Road	ART	2	$ 49,924	$ 287,500	**$ 337,424**	
1308	Huronia Road	Yonge Street	ART	2	$ 49,924	$ 287,500	**$ 337,424**	
1308	Huronia Road	Little Street	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1374	Huronia Road	Loon Avenue	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1374	Huronia Road	Mapleview Drive East	ART	2	$ 49,924	$ 287,500	**$ 337,424**	
1374	Huronia Road	Saunders Road	ART	0	$ -	$ 287,500	**$ 287,500**	
2308	Huronia Road	Lockhart Road	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
2308	Huronia Road	McKay Road East	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1315	Innisfil Street	Tiffin Street	MAJ	2	$ 49,924	$ 287,500	**$ 337,424**	
1315	Innisfil Street	Essa Road	MAJ	2	$ 49,924	$ 287,500	**$ 337,424**	
1721	Innisfil Street	John Street	MAJ	0	$ -	$ 287,500	**$ 287,500**	
1222	Lakeshore / Hurst	Minet's Point Road	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1311	Little Avenue	Hurst Drive	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1380	Little Avenue	Fairview Road	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1380	Little Avenue	Carol Road	ART	0	$ -	$ 287,500	**$ 287,500**	
1380	Little Avenue	McConkey Place	ART	0	$ -	$ 287,500	**$ 287,500**	
1380	Little Avenue	Yonge Street	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
2203	Lockhart Road	Bayview Drive	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
2203	Lockhart Road	Welham Road	ART	0	$ -	$ 287,500	**$ 287,500**	
2203	Lockhart Road	Rawson Avenue	ART	0	$ -	$ 287,500	**$ 287,500**	
2203	Lockhart Road	Finsbury Street	ART	0	$ -	$ 287,500	**$ 287,500**	
2203	Lockhart Road	Yonge Street	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1213	Mapleview Drive	Country Lane / Stunden Lane	ART	0	$ -	$ 287,500	**$ 287,500**	
1215	Mapleview Drive	Madelaine Drive	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1215	Mapleview Drive	Dean Avenue	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1215	Mapleview Drive	Collector 6	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
2204	McKay Road West	Reid Drive	ART	0	$ -	$ 287,500	**$ 287,500**	
1325	Minet's Point Road	Yonge	ART	1	$ 24,962	$ 287,500	**$ 312,462**	

3.4 Intersection Costs

ProjectID	Road	Intersecting Street	2041 Classification	Number of Right Turn Lanes	Right Turn Lane Cost	Signal Cost	Intersection Cost	Notes
3001	Ross Street Roundabout - Interim	Ross/Collier/Bayfield Street			$ -	$ -	**$ 1,679,400**	Cost estimate from Ross/Collier/Bayfield Street EA Study. The following contingency factors included in the EA's cost estimate are not included in the cost shown in order to avoid double costing these items: contingency (road 25%, rounabout 35%) and engineering cost factors (10%), contract administration (10%), and HST (1.76%).
3002	Ross Street Roundabout - Ultimate	Ross/Collier/Bayfield Street			$ -	$ -	**$ 1,798,200**	Cost estimate from Ross/Collier/Bayfield Street EA Study. The following contingency factors included in the EA's cost estimate are not included in the cost shown in order to avoid double costing these items: contingency (road 25%, rounabout 35%) and engineering cost factors (10%), contract administration (10%), and HST (1.76%).
2303	Salem Road	Veterans Drive	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
2303	Salem Road	County Road 27	ART	1	$ 24,962	$ 287,500	**$ 312,462**	
1409	Saunders Road	Welham Road	MIN	0	$ -	$ 287,500	**$ 287,500**	
1735	Sommerset Drive	Ardagh Road / Bryne Drive	MIN	0	$ -	$ 287,500	**$ 287,500**	
1220	St. Vincent	Bell Farm	ART	3	$ 74,886	$ 287,500	**$ 362,386**	
1577	St. Vincent	Grove Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1577	St. Vincent	Rose Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1708	St. Vincent	Penetang Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1221	Tiffin Street	Anne Street South	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1221	Tiffin Street	Patterson Road	ART	0	$ -	$ 287,500	**$ 287,500**	
1221	Tiffin Street	Ferndale Drive North	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1221	Tiffin Street	Lakeshore	ART	3	$ 74,886	$ 287,500	**$ 362,386**	
1221	Tiffin Street	Essa / Bradford	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1323	Tiffin Street	Dunlop Street West	ART	3	$ 74,886	$ 287,500	**$ 362,386**	Added 3 RTL per 2014 DC
2207	Veterans Drive	McKay Road West	ART	4	$ 99,848	$ 287,500	**$ 387,348**	
1303	Wellington Street West	Bayfield Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1303	Wellington Street West	Toronto Street	ART	0	$ -	$ 287,500	**$ 287,500**	
1303	Wellington Street West	Ross Street / Sunnidale	ART	0	$ -	$ 287,500	**$ 287,500**	
2208	Yonge Street	Mapleview Drive East	ART	4	$ 99,848	$ 287,500	**$ 387,348**	

TOTAL: $ 38,272,545

3.5 Rail Costs

ProjectID	Road Name	Railway Operator (Subdivision)	Warranted Protection	Rail Crossing Cost	Notes
1325	Minet Point Road	GO Transit (Newmarket Subdivision)	Grade Seperation	$ 300,000	$200,000 included for new FBGs for widened road and $100,000 included for grade separation feasibility study
1311	Little Avenue	GO Transit (Newmarket Subdivision)	Flashing Lights, Bells and Gates	$ 300,000	$200,000 included for new FBGs for widened road and $100,000 included for grade separation feasibility study
2202	Mapleview Drive East	GO Transit (Newmarket Subdivision)	Grade Seperation	$ 20,217,697	Underpass structure costs ($40.3M before contingency) from Class EA https://www.barrie.ca/City%20Hall/environmental-assessment-studies/Documents/Hewitt%20Secondary%20Plan/Appendix%20M%20-%20Railway%20Crossing%20Assessment.pdf. Assume 50% cost sharing with Metrolinx. Property acquisition cost estimated assumed depressed length of 250m and 2.5m per side for grading (to accomodate retaining walls for underpass) in addition to ROW; assume secondary plan commercial land unit cost.
2209	Lockhart Road	GO Transit (Newmarket Subdivision)	Grade Seperation	$ 8,312,363	Overpass structure costs ($15M before contingency) from Class EA https://www.barrie.ca/City%20Hall/environmental-assessment-studies/Documents/Hewitt%20Secondary%20Plan/Appendix%20M%20-%20Railway%20Crossing%20Assessment.pdf. Assume 50% cost sharing with Metrolinx. Property acquisition cost estimated assumed elevated length of 250m and 15m per side for grading) in addition to ROW; assume secondary plan commercial land unit cost.
1305	Anne Street South	BCRY (Meaford Subdivision)	Flashing Lights, Bells and Gates	$ 200,000	
1315	Innisfil Street	BCRY (Meaford Subdivision)	Flashing Lights, Bells and Gates	$ 200,000	
1593	Essa Road	BCRY (Meaford Subdivision)	Flashing Lights, Bells and Gates	$ 200,000	
1380	Little Avenue	BCRY (Beeton Subdivision)	Flashing Lights, Bells and Gates	$ 200,000	
1223	Huronia (South of Herrell)	BCRY (Beeton Subdivision)	Flashing Lights, Bells and Gates	$ 200,000	
1374	Huronia (South of Ellis)	BCRY (Beeton Subdivision)	Flashing Lights, Bells and Gates	$ 200,000	
2203	Lockhart Road	BCRY (Beeton Subdivision)	Currently grade seperated	$ 28,000,000	Used estimate from Hatch for Lockhart Road Underpass Alternative as a surrogate ($35M with contingency in estimate, $28M with no contingency). Costs are 100% City.
2205	McKay Road	BCRY (Beeton Subdivision)	Flashing Lights, Bells and Gates	$ 200,000	
1301	Bayview Drive	BCRY (Beeton Sub., Bayview Spur)	Flashing Lights, Bells and Gates	$ 200,000	
1376	Welham Road	BCRY (Beeton Sub., Bayview Spur)	Flashing Lights, Bells and Gates	$ 200,000	
1376	Truman Road	BCRY (Beeton Sub., Bayview Spur)	Flashing Lights, Bells and Gates	$ 200,000	
1221	Tiffin Street	BCRY (Meaford Sub, Barrie Industrial Spur)	Flashing Lights, Bells and Gates	$ 200,000	

TOTAL: $ 59,330,059

3.6 Interchange Costs

Category	ProjectID	Road	Total Cost	Notes
Secondary Plan Area - Interchanges	**2128**	McKay Interchange	$ 40,000,000	Duckworth Street = $43M in 2012 dollars. Inflated to 2019 = $50M, less $10M invested by MTO in current Structure = $40M
Former Barrie - Interchanges	**3000**	Mapleview DDI	$ 4,945,904	City provided a cost estimate of approx. $8M. Estimate is based on the PDR and has been conservatively inflated for additional costs (widening of roadway) and all contingencies. As a conservative measure, no cost sharing is assumed with MTO. Cost shown here removes contingency factors to ensure the final total cost of the project adds to $8M.
Secondary Plan Area - New Roads	**2101**	Salem & Lockhart Road widening and crossing	$ 20,000,000	Based on Construction Tender for Harvie/Big Bay Road Highway Crossing plus allowance for Highway Staging
Former Barrie - Interchanges	**1128**	Dunlop SB On Ramp	$ 3,800,000	See Appendix H-2 for detail breakdown of estimate. Cost estimate are for an additional lane on the ramp. Cost includes construction, utilities and land acquisition.
Former Barrie - Interchanges	**1129**	Essa Interchange NB On Ramp	$ 8,780,000	See Appendix H-2 for detail breakdown of estimate. Cost estimate are for an additional lane on the ramp. Cost includes construction, utilities, land acquisition, and watercourse relocation.
		TOTAL:	**$ 77,525,904**	

3.7 Streetscape Improvement Costs

ProjectID	Primary Intensification Corridors	Unit cost (per meter)	Approx. Segment Length (m)	Total Streetscape Cost
4001	Dunlop Street - Anne Street to High Street	$ 1,840.00	1500	$ 2,760,000
1593	Essa Road - Burton Avenue to Bradford Street	$ 1,840.00	225	$ 414,000
1596	Essa Road- Burton Avenue to Anne Street South	$ 1,840.00	565	$ 1,039,600
1317	Essa Road - Anne Street South to Osmington Entrance	$ 1,840.00	235	$ 432,400
1216	Essa Road- Osmington Entrance to Fairview Road	$ 1,840.00	275	$ 506,000
1209	Burton Avenue- Essa Road to Milburn Street	$ 1,840.00	905	$ 1,665,200
4003	Burton Avenue - Milburn Street to Garden Drive	$ 1,840.00	595	$ 1,094,800
4004	Yonge Street - Garden Drive to Mapleview Drive	$ 1,840.00	4500	$ 8,280,000
1204	Bayfield Street - Rose Street to Sophia Street	$ 1,840.00	855	$ 1,573,200
4005	Bayfield Street - Sophia Street to Simcoe Street	$ 1,840.00	545	$ 1,002,800
4006	Duckworth Street - Bell Farm to Codrington Street	$ 1,840.00	1500	$ 2,760,000
4007	Codrington Street - Duckworth Street to Berczy Street	$ 1,840.00	750	$ 1,380,000
			Total:	**$ 22,908,000**

4.0 Transit Project Details

Construction Contingency	30%
Design/Engineering Allowance	15%
City Project Management	5%
Contract Administration and Site Inspection	10%
HST	1.76%

Note: The global factors above were applied to projects where applicable.

				COST ESTIMATES						
Transit ProjectID	Location	Category	Phasing	Project Cost	Contingency ($)	Design/Engineering Allowance	City Project Management	Administration & Site Inspection	HST ($)	Total Project Cost (rounded to nearest $10k)
1001	Former Barrie	Fleet - Conventional Bus Replacement	2019-2023	$ 8,201,997	$ -				$ 144,355	$ 8,350,000
1002	Former Barrie	Fleet - Conventional Bus Replacement	2024-2028	$ 11,507,932	$ -				$ 202,540	$ 11,710,000
1003	Former Barrie	Fleet - Conventional Bus Replacement	2029-2041	$ 42,496,314	$ -				$ 747,935	$ 43,240,000
1005	Former Barrie	Fleet - New Conventional Buses	2019-2023	$ 6,444,426	$ -				$ 113,422	$ 6,560,000
1006	Former Barrie	Fleet - New Conventional Buses	2024-2028	$ 8,219,951	$ -				$ 144,671	$ 8,360,000
1007	Former Barrie	Fleet - New Conventional Buses	2029-2041	$ 36,725,210	$ -				$ 646,364	$ 37,370,000
1011	Former Barrie	Garage and Maintenance Facility	2019-2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -
1012	Former Barrie	Garage and Maintenance Facility	2024-2028	$ 6,744,576	$ 2,023,373	$ 1,011,686	$ 337,229	$ 674,458	$ 154,316	$ 10,950,000
1013	Former Barrie	Garage and Maintenance Facility	2029-2041	$ 22,519,414	$ 6,755,824	$ 3,377,912	$ 1,125,971	$ 2,251,941	$ 515,244	$ 36,550,000
1021	Former Barrie	Terminal Facilities	2019-2023	$ 5,897,721	$ 1,769,316	$ 884,658	$ 294,886	$ 589,772	$ 134,940	$ 9,570,000
1022	Former Barrie	Terminal Facilities	2024-2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -
1023	Former Barrie	Terminal Facilities	2029-2041	$ -	$ -	$ -	$ -	$ -	$ -	$ -
1031	Former Barrie	Bus Stops	2019-2023	$ 1,270,662	$ -			$ 127,066	$ 22,364	$ 1,420,000
1032	Former Barrie	Bus Stops	2024-2028	$ 870,662	$ -			$ 87,066	$ 15,324	$ 970,000
1033	Former Barrie	Bus Stops	2029-2041	$ 703,722	$ -			$ 70,372	$ 12,386	$ 790,000
1053	Former Barrie	HOV Master arms	2029-2041	$ 37,973	$ 11,392	$ 5,696	$ 1,899	$ 3,797	$ 869	$ 60,000
1061	Former Barrie	ITS	2019-2023	$ 558,267	$ -			$ 55,827	$ 9,825	$ 620,000
1062	Former Barrie	ITS	2024-2028	$ 237,359	$ -			$ 23,736	$ 4,178	$ 270,000
1063	Former Barrie	ITS	2029-2041	$ 290,873	$ -			$ 29,087	$ 5,119	$ 330,000
1071	Former Barrie	Fleet - Specialized Buses Replacement	2019-2023	$ 1,834,183	$ -				$ 32,282	$ 1,870,000
1072	Former Barrie	Fleet - Specialized Buses Replacement	2024-2028	$ 1,715,651	$ -				$ 30,195	$ 1,750,000
1073	Former Barrie	Fleet - Specialized Buses Replacement	2029-2041	$ 6,868,825	$ -				$ 120,891	$ 6,990,000
1075	Former Barrie	Fleet - New Specialized Buses	2019-2023	$ 333,488	$ -				$ 5,869	$ 340,000
1076	Former Barrie	Fleet - New Specialized Buses	2024-2028	$ 935,810	$ -				$ 16,470	$ 950,000
1077	Former Barrie	Fleet - New Specialized Buses	2029-2041	$ 1,194,578	$ -				$ 21,025	$ 1,220,000
2001	Secondary Plan Area	Fleet - Conventional Bus Replacement	2019-2023	$ 898,003	$ -				$ 15,805	$ 910,000
2002	Secondary Plan Area	Fleet - Conventional Bus Replacement	2024-2028	$ 2,142,068	$ -				$ 37,700	$ 2,180,000
2003	Secondary Plan Area	Fleet - Conventional Bus Replacement	2029-2041	$ 10,153,686	$ -				$ 178,705	$ 10,330,000
2005	Secondary Plan Area	Fleet - New Conventional Buses	2019-2023	$ 705,574	$ -				$ 12,418	$ 720,000
2006	Secondary Plan Area	Fleet - New Conventional Buses	2024-2028	$ 1,530,049	$ -				$ 26,929	$ 1,560,000
2007	Secondary Plan Area	Fleet - New Conventional Buses	2029-2041	$ 8,774,790	$ -				$ 154,436	$ 8,930,000
2011	Secondary Plan Area	Garage and Maintenance Facility	2019-2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2012	Secondary Plan Area	Garage and Maintenance Facility	2024-2028	$ 1,255,424	$ 376,627	$ 188,314	$ 62,771	$ 125,542	$ 28,724	$ 2,040,000
2013	Secondary Plan Area	Garage and Maintenance Facility	2029-2041	$ 5,380,586	$ 1,614,176	$ 807,088	$ 269,029	$ 538,059	$ 123,108	$ 8,730,000
2021	Secondary Plan Area	Terminal Facilities	2019-2023	$ 22,523	$ 6,757	$ 3,378	$ 1,126	$ 2,252	$ 515	$ 40,000

4.0 Transit Project Details

				COST ESTIMATES						
Transit ProjectID	Location	Category	Phasing	Project Cost	Contingency ($)	Design/Engineering Allowance	City Project Management	Administration & Site Inspection	HST ($)	Total Project Cost (rounded to nearest $10k)
2022	Secondary Plan Area	Terminal Facilities	2024-2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	Secondary Plan Area	Terminal Facilities	2029-2041	$ 380,946	$ 114,284	$ 57,142	$ 19,047	$ 38,095	$ 8,716	$ 620,000
2031	Secondary Plan Area	Bus Stops	2019-2023	$ 332,032	$ -			$ 33,203	$ 5,844	$ 370,000
2032	Secondary Plan Area	Bus Stops	2024-2028	$ 365,817	$ -			$ 36,582	$ 6,438	$ 410,000
2033	Secondary Plan Area	Bus Stops	2029-2041	$ 228,924	$ -			$ 22,892	$ 4,029	$ 260,000
2053	Secondary Plan Area	HOV Master arms	2029-2041	$ 9,073	$ 2,722	$ 1,361	$ 454	$ 907	$ 208	$ 10,000
2061	Secondary Plan Area	ITS	2019-2023	$ 61,122	$ -			$ 6,112	$ 1,076	$ 70,000
2062	Secondary Plan Area	ITS	2024-2028	$ 44,182	$ -			$ 4,418	$ 778	$ 50,000
2063	Secondary Plan Area	ITS	2029-2041	$ 69,499	$ -			$ 6,950	$ 1,223	$ 80,000
2071	Secondary Plan Area	Fleet - Specialized Buses Replacement	2019-2023	$ 200,817	$ -				$ 3,534	$ 200,000
2072	Secondary Plan Area	Fleet - Specialized Buses Replacement	2024-2028	$ 319,349	$ -				$ 5,621	$ 320,000
2073	Secondary Plan Area	Fleet - Specialized Buses Replacement	2029-2041	$ 1,641,175	$ -				$ 28,885	$ 1,670,000
2075	Secondary Plan Area	Fleet - New Specialized Buses	2019-2023	$ 36,512	$ -				$ 643	$ 40,000
2076	Secondary Plan Area	Fleet - New Specialized Buses	2024-2028	$ 174,190	$ -				$ 3,066	$ 180,000
2077	Secondary Plan Area	Fleet - New Specialized Buses	2029-2041	$ 285,422	$ -				$ 5,023	$ 290,000

TOTALS: $ 230,250,000

4.0 Transit Project Details

Construction Contingency	30%
Design/Engineering Allowance	15%
City Project Management	5%
Contract Administration and Site Inspection	10%
HST	1.76%

Note: The global factors above were applied to projects where applicable.

				COST ESTIMATES						
Transit ProjectID	Location	Category	Phasing	Project Cost	Contingency ($)	Design/Engineering Allowance	City Project Management	Administration & Site Inspection	HST ($)	Total Project Cost (rounded to nearest $10k)
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1002	Former Barrie	Fleet - Conventional Bus Replacement	2024-2028	$ 11,507,932	$ -				$ 202,540	$ 11,710,000
1003	Former Barrie	Fleet - Conventional Bus Replacement	2029-2041	$ 42,496,314	$ -				$ 747,935	$ 43,240,000
1005	Former Barrie	Fleet - New Conventional Buses	2019-2023	$ 6,444,426	$ -				$ 113,422	$ 6,560,000
1006	Former Barrie	Fleet - New Conventional Buses	2024-2028	$ 8,219,951	$ -				$ 144,671	$ 8,360,000
1007	Former Barrie	Fleet - New Conventional Buses	2029-2041	$ 36,725,210	$ -				$ 646,364	$ 37,370,000
1011	Former Barrie	Garage and Maintenance Facility	2019-2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -
1012	Former Barrie	Garage and Maintenance Facility	2024-2028	$ 6,744,576	$ 2,023,373	$ 1,011,686	$ 337,229	$ 674,458	$ 154,316	$ 10,950,000
1013	Former Barrie	Garage and Maintenance Facility	2029-2041	$ 22,519,414	$ 6,755,824	$ 3,377,912	$ 1,125,971	$ 2,251,941	$ 515,244	$ 36,550,000
1021	Former Barrie	Terminal Facilities	2019-2023	$ 5,897,721	$ 1,769,316	$ 884,658	$ 294,886	$ 589,772	$ 134,940	$ 9,570,000
1022	Former Barrie	Terminal Facilities	2024-2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -
1023	Former Barrie	Terminal Facilities	2029-2041	$ -	$ -	$ -	$ -	$ -	$ -	$ -
1031	Former Barrie	Bus Stops	2019-2023	$ 1,270,662	$ -			$ 127,066	$ 22,364	$ 1,420,000
1032	Former Barrie	Bus Stops	2024-2028	$ 870,662	$ -			$ 87,066	$ 15,324	$ 970,000
1033	Former Barrie	Bus Stops	2029-2041	$ 703,722	$ -			$ 70,372	$ 12,386	$ 790,000
1053	Former Barrie	HOV Master arms	2029-2041	$ 37,973	$ 11,392	$ 5,696	$ 1,899	$ 3,797	$ 869	$ 60,000
1061	Former Barrie	ITS	2019-2023	$ 558,267	$ -			$ 55,827	$ 9,825	$ 620,000
1062	Former Barrie	ITS	2024-2028	$ 237,359	$ -			$ 23,736	$ 4,178	$ 270,000
1063	Former Barrie	ITS	2029-2041	$ 290,873	$ -			$ 29,087	$ 5,119	$ 330,000
1071	Former Barrie	Fleet - Specialized Buses Replacement	2019-2023	$ 1,834,183	$ -				$ 32,282	$ 1,870,000
1072	Former Barrie	Fleet - Specialized Buses Replacement	2024-2028	$ 1,715,651	$ -				$ 30,195	$ 1,750,000
1073	Former Barrie	Fleet - Specialized Buses Replacement	2029-2041	$ 6,868,825	$ -				$ 120,891	$ 6,990,000
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1076	Former Barrie	Fleet - New Specialized Buses	2024-2028	$ 935,810	$ -				$ 16,470	$ 950,000
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2001	Secondary Plan Area	Fleet - Conventional Bus Replacement	2019-2023	$ 898,003	$ -				$ 15,805	$ 910,000
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2003	Secondary Plan Area	Fleet - Conventional Bus Replacement	2029-2041	$ 10,153,686	$ -				$ 178,705	$ 10,330,000
2005	Secondary Plan Area	Fleet - New Conventional Buses	2019-2023	$ 705,574	$ -				$ 12,418	$ 720,000
2006	Secondary Plan Area	Fleet - New Conventional Buses	2024-2028	$ 1,530,049	$ -				$ 26,929	$ 1,560,000
2007	Secondary Plan Area	Fleet - New Conventional Buses	2029-2041	$ 8,774,790	$ -				$ 154,436	$ 8,930,000
2011	Secondary Plan Area	Garage and Maintenance Facility	2019-2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2012	Secondary Plan Area	Garage and Maintenance Facility	2024-2028	$ 1,255,424	$ 376,627	$ 188,314	$ 62,771	$ 125,542	$ 28,724	$ 2,040,000
2013	Secondary Plan Area	Garage and Maintenance Facility	2029-2041	$ 5,380,586	$ 1,614,176	$ 807,088	$ 269,029	$ 538,059	$ 123,108	$ 8,730,000
2021	Secondary Plan Area	Terminal Facilities	2019-2023	$ 22,523	$ 6,757	$ 3,378	$ 1,126	$ 2,252	$ 515	$ 40,000

4.0 Transit Project Details

				COST ESTIMATES						
Transit ProjectID	Location	Category	Phasing	Project Cost	Contingency ($)	Design/Engineering Allowance	City Project Management	Administration & Site Inspection	HST ($)	Total Project Cost (rounded to nearest $10k)
2022	Secondary Plan Area	Terminal Facilities	2024-2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	Secondary Plan Area	Terminal Facilities	2029-2041	$ 380,946	$ 114,284	$ 57,142	$ 19,047	$ 38,095	$ 8,716	$ 620,000
2031	Secondary Plan Area	Bus Stops	2019-2023	$ 332,032	$ -			$ 33,203	$ 5,844	$ 370,000
2032	Secondary Plan Area	Bus Stops	2024-2028	$ 365,817	$ -			$ 36,582	$ 6,438	$ 410,000
2033	Secondary Plan Area	Bus Stops	2029-2041	$ 228,924	$ -			$ 22,892	$ 4,029	$ 260,000
2053	Secondary Plan Area	HOV Master arms	2029-2041	$ 9,073	$ 2,722	$ 1,361	$ 454	$ 907	$ 208	$ 10,000
2061	Secondary Plan Area	ITS	2019-2023	$ 61,122	$ -			$ 6,112	$ 1,076	$ 70,000
2062	Secondary Plan Area	ITS	2024-2028	$ 44,182	$ -			$ 4,418	$ 778	$ 50,000
2063	Secondary Plan Area	ITS	2029-2041	$ 69,499	$ -			$ 6,950	$ 1,223	$ 80,000
2071	Secondary Plan Area	Fleet - Specialized Buses Replacement	2019-2023	$ 200,817	$ -				$ 3,534	$ 200,000
2072	Secondary Plan Area	Fleet - Specialized Buses Replacement	2024-2028	$ 319,349	$ -				$ 5,621	$ 320,000
2073	Secondary Plan Area	Fleet - Specialized Buses Replacement	2029-2041	$ 1,641,175	$ -				$ 28,885	$ 1,670,000
2075	Secondary Plan Area	Fleet - New Specialized Buses	2019-2023	$ 36,512	$ -				$ 643	$ 40,000
2076	Secondary Plan Area	Fleet - New Specialized Buses	2024-2028	$ 174,190	$ -				$ 3,066	$ 180,000
2077	Secondary Plan Area	Fleet - New Specialized Buses	2029-2041	$ 285,422	$ -				$ 5,023	$ 290,000

TOTALS: **$ 230,250,000**

4.2 Transit Assumptions

Vehicle Purchase Requirements

Conventional Bus	$ 650,000.00	per bus
Specialized Bus	$ 185,000.00	per bus

Source: Dillon Consulting, Fleet Planning Summary

Phase	New Conventional Buses	Conventional Bus Replacements
2019-2023	11	14
2024-2028	15	21
2029-2041	70	81
Total:	**96**	**116**

Source: Dillon Consulting, Fleet Planning Summary

Phase	New Specialized Buses	Specialized Bus Replacements
2019-2023	2	11
2024-2028	6	11
2029-2041	8	46
Total:	**16**	**68**

Source: Dillon Consulting, Fleet Planning Summary

Garage and Maintenance Facility

Barrie's Transit Garage Expansion (133 Welham Road)

Current Fleet Size:	63 buses
Current Capacity:	80 buses

Proposed Garage Expansion (2025)

Proposed Capacity:	120 buses
Estimated Cost:	$8,000,000

*No land acquisition cost is required; current garage was built with expansion in mind.

Source: City of Barrie, Transit and Parking Strategy Department

New Transit Garage (Location TBD)

To be constructed between 2024-2041

Proposed Capacity:	**80** buses
Estimated Cost:	$27,900,000

* planned for expansion in the far future.

* Cost are based on the constuction costs of 133 Welham Road garage (in 2015 dollars, inflated to 2019 dollars as per the DC construction index). Assumes land acquisition costs.

Source: City of Barrie, Transit and Parking Strategy Department

Terminals

Terminal Cost per Bay	$ 39,726.75	per bay
Terminal Building Cost	$ 3,600.00	per sq. metre

Source: 2014 TMP costs, inflated by 2% compounded annual growth factor (provided by City of Barrie, Transit and Parking Strategy Department)

	Bays	Terminal Amenities Costs	Property Acquisition (Industrial)	**Total Cost**	Phase
McKay and Veterans	4	$ 158,907		**$ 158,907**	2029-2041
Barrie South GO	4	$ 158,907	$ 63,132	**$ 222,039**	2029-2041

Source: 2014 TMP, City of Barrie, Transit and Parking Strategy Department

	Cost Estimates	Phase
Allandale HUB	$ 5,649,688	2019-2023
Downtown mini-hub	$ 169,202	2019-2023

Source: City of Barrie Allandale Mobility Hub & Downtown Mini Hub Class D Estimates by Hanscomb (May 29, 2018); cost estimates includes contingency, design, project management, admin and site inspection. Cost shown above were back caculated to remove the contingency factors to avoid double costing.

Variable Message Signs

Cost per Sign	$ 11,261.62	per sign

Source: 2014 TMP costs, inflated by 2% compounded annual growth factor (provided by City of Barrie, Transit and Parking Strategy Department)

Phase	No. of Signs	
2019-2023	7	(Allandale, Downtown, Georgian Mall, Georgian College, RVH, Park Place, Barrie South GO)
2019-2023	2	(Holly Community Centre, McKay/Veterans)
Total:	**9**	

Source: 2014 TMP

4.2 Transit Assumptions

Bus Stop

Bus Pad Reconstruction

Former Barrie

Budget/Expenditure Assumption:	$ 200,000.00 per year till 2027

Source: City of Barrie, Transit and Parking Strategy Department

Secondary Plan Area

Concrete Pad per Unit Area Cost:	$ 113 per sq. metre
Concrete Pad Area:	30 sq. metres
Cost per Concrete Pad Construction:	**$ 3,378.49** per concrete pad

Source: 2014 TMP - inflated to 2019 dollars

Phase	Stops Requiring Bus Pad Construction
2019-2023	40
2024-2028	50
2029-2041	50
Total:	**140**

Source: City of Barrie, Transit and Parking Strategy Department

Shelters

Former Barrie

Cost per bus shelter:	$ 6,000.00

Source: City of Barrie, Transit and Parking Strategy Department

Phase	New Bus Shelters	Replacement Bus Shelters
2019-2023	17	26
2024-2028	17	26
2029-2041	45	68
Total:	**80**	**120**

Source: City of Barrie, Transit and Parking Strategy Department.

Secondary Plan Area

Cost per bus shelter:	$ 6,000.00

Source: City of Barrie, Transit and Parking Strategy Department

Phase	New Bus Shelters	Replacement Bus Shelters
2019-2023	30	0
2024-2028	30	0
2029-2041	0	10
Total:	**60**	**10**

Source: City of Barrie, Transit and Parking Strategy Department.

Stop Poles

Former Barrie

Cost per stop pole:	$ 225.23

Source: 2014 TMP costs, inflated by 2% compounded annual growth factor (provided by City of Barrie, Transit and Parking Strategy Department)

Phase	New Stop Poles
2019-2023	17
2024-2028	17
2029-2041	45
Total:	**80**

Source: City of Barrie, Transit and Parking Strategy Department.

Secondary Plan Area

Cost per stop pole:	$ 225.23

Source: 2014 TMP costs, inflated by 2% compounded annual growth factor (provided by City of Barrie, Transit and Parking Strategy Department)

Phase	New Stop Poles
2019-2023	30
2024-2028	30
2029-2041	0
Total:	**60**

Source: City of Barrie, Transit and Parking Strategy Department.

4.2 Transit Assumptions

Bike Rack Infrastructure at Bus Stop

Former Barrie

Cost per bike rack (2 ring post):	$ 337.85

Source: 2014 TMP costs, inflated by 2% compounded annual growth factor (provided by City of Barrie, Transit and Parking Strategy Department)

Phase	New Bike Racks
2019-2023	17
2024-2028	17
2029-2041	45
Total:	**80**

Source: City of Barrie, Transit and Parking Strategy Department.

Secondary Plan Area

Cost per bike rack (2 ring post):	$ 337.85

Source: 2014 TMP costs, inflated by 2% compounded annual growth factor (provided by City of Barrie, Transit and Parking Strategy Department)

Phase	New Bike Racks
2019-2023	30
2024-2028	30
2029-2041	0
Total:	**60**

Source: City of Barrie, Transit and Parking Strategy Department.

Intelligent Transportation Systems

ITS Equipment and Installation at Signals:	$ 4,504.65	per intersection
ITS On-Board Equipment:	$ 5,630.81	per bus
ITS Control Centre:	$ 337,848.73	

Source: 2014 TMP costs, inflated by 2% compounded annual growth factor (provided by City of Barrie, Transit and Parking Strategy Department)

Phase	ITS Equipment and Installation at Signals	ITS On-Board Equipment	ITS Control Centre
2019-2023		50	1
2024-2028		50	0
2029-2041	20	48	0
Total:	20	148	1

Source: 2014 TMP; City of Barrie, Transit and Parking Strategy Department.

HOV Lanes

HOV Mastarms Spacing:	300	Metres
HOV Mastarms Cost:	$ 281.54	per linear metre

Road	Length of HOV lanes	Phase
Bayfield Street	8571 Metres (Two Sides of Road)	2029-2041
Bradford Street	3079 Metres (Two Sides of Road)	2029-2041
Mapleview Drive	14227 Metres (Two Sides of Road)	2029-2041
Yonge Street and Burton Avenue	14853 Metres (Two Sides of Road)	2029-2041
Essa Road	9399 Metres (Two Sides of Road)	2029-2041

4.2 Transit Assumptions

Former Barrie Vs. Annexation Area Transit Cost Distribution Assumption

Year	Former Barrie Population	Secondary Plan Area Population	Total	
2016	145526	318	145844	
2019	148440	10440	158880	*Interpolated
2021	150383	17188	167571	
2023	153604	22630	176234	*Interpolated
2026	158436	30792	189228	
2029	164991	36673	201664	*Interpolated
2031	169361	40594	209955	
2036	184230	45446	229676	
2041	201961	51003	252964	

Source: Population forecasts provided by the City

Phase	Cost allocation to Former Barrie	Cost allocation to Secondary Plan Area
2019-2023	90%	10%
2024-2028	84%	16%
2029-2041	81%	19%

5.0 Operation Maintenance Cost Estimate

Phase	Total Vehicle Lane-kilometers in City Network (excluding Highway 400)	Total Maintenance Costs
Existing (2016)	611	$ 7,303,917.09
2019-2023	648	$ 7,752,924.38
2024-2041	734	$ 8,784,415.82

Hypotheses:

-Existing maintenance costs were provided by the City of Barrie as per the 2014 TMP; inflated to 2019 dollars

$ 11,960 per lane-km (roads)

-Maintenance costs include:

Snow clearing, streetlights, maintenance, markings,
sanitary sewers, storm sewers, sidewalks, etc.

APPENDIX

H-2 BENCHMARK LINEAR METRE ROADWAY CONSTRUCTION COST

MIN2-24
2 Lane Minor Collector, 24m ROW

ROW	24	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	9.5	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	11	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre	Formula	Assumptions	
REMOVALS (From Scratch)			**Reconstruction**		**New Construction**	
Earth Excavation	cu. m.	$21.98	$189.57	(D7+2)*((L6+L7)/1000)*1*D14	$189.57	reconstruction (difference btn ex and prop asphalt width)
			$189.57		$189.57	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$66.33	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$31.36	(D6-D8-1-3)*1*D24	$40.07	150 mm stripped
			$284.55		$40.07	
CONSTRUCTION						
Granular A	sq. m.	$8.19	$94.19	(D7+1*2)*D31	$94.19	reconstruction (difference btn ex and prop asphalt width)
Granular B	sq. m.	$25.14	$289.11	(D7+1*2)*D32	$289.11	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	$92.30	1*2*D33	$92.30	
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D34	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$79.88	D7*1*D35	$79.88	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$161.52	D7*1*D36	$161.52	
Tack Coat	sq. m.	$0.29	$2.77	D7*1*D37	$2.77	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D38	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$82.28	(D6-D7-1-4)*1*D39	$82.28	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$29.41	D40/13000*D7	$29.41	1 device for every 13000sq. m. of asphalt
450mm Diameter Storm Sewer	m.	$414.66	$414.66	1*D41	$414.66	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$54.06	2/60*D44*D7/2	$54.06	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D46/15	$64.48	1 tree every 15 m both sides
			$1,762.17		$1,762.17	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$40.25		$35.13	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$22.36		$19.52	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$2.24		$1.95	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$27.73		$24.20	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$2.68		$2.34	
Schedule of Work	L. S.	0.10%	$2.24		$1.95	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$74.19		$74.19	45 ft (13.72m) lot, 20 ft (6.1m) driveway 44%of blvd is dwy.
						ROW - pavement width - curbs x 2 (0.5m x 2 = 1m) - sidewalk (2m x 2 = 4m) - Assumed AT (1.5m x 2) = boulvard width with asphalt (x 44%)
			$264.56		$252.15	
			$2,500.85		**$2,243.97**	
			Reconstruction per metre		**New construction per metre**	

MIN3-27
3 Lane Minor Collector, 27m ROW

ROW	27	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	11	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	11	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre	Formula		Assumptions
REMOVALS (From Scratch)			**Reconstruction**		**New Construction**	
Earth Excavation	cu. m.	$21.98	$214.30	(D7+2)*((L6+L7)/1000)*1*D14	$214.30	reconstruction (difference btn ex and prop asphalt width)
			$214.30		$214.30	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$66.33	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$41.81	(D6-D8-1-3)*1*D24	41.814	150 mm stripped
			$295.01		$41.81	
CONSTRUCTION						
Granular A	sq. m.	$8.19	$106.47	(D7+1*2)*D31	$106.47	reconstruction (difference btn ex and prop asphalt width)
Granular B	sq. m.	$25.14	$326.82	(D7+1*2)*D32	$326.82	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	$92.30	1*2*D33	$92.30	
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D34	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$92.50	D7*1*D35	$92.50	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$187.02	D7*1*D36	$187.02	
Tack Coat	sq. m.	$0.29	$3.21	D7*1*D37	$3.21	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D38	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$95.27	(D6-D7-1-4)*1*D39	$95.27	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$34.06	D40/13000*D7	$34.06	1 device for every 13000sq. m. of asphalt
450mm Diameter Storm Sewer	m.	$414.66	$414.66	1*D41	$414.66	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$62.60	2/60*D44*D7/2	$62.60	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D46/15	$64.48	1 tree every 15 m both sides
			$1,876.89		$1,876.89	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$42.95		$37.64	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$23.86		$20.91	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$2.39		$2.09	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$29.59		$25.93	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$2.86		$2.51	
Schedule of Work	L. S.	0.10%	$2.39		$2.09	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$74.19		$74.19	45 ft (13.72m) lot, 20 ft (6.1m) driveway 44%of blvd is dwy. depth of dwy = (blvd width - sidewalk) * both sides of road
			$271.10		$258.23	
			$2,657.29		**$2,391.23**	
			Reconstruction per metre		**New construction per metre**	

MAJ3-27
3 Lane Major Collector, 27m ROW

ROW	27	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	11	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	11	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre	Formula		Assumptions
REMOVALS (From Scratch)			**Reconstruction**		**New Construction**	
Earth Excavation	cu. m.	$21.98	$214.30	(D7+2)*((L6+L7)/1000)*1*D14	$214.30	reconstruction (difference btn ex and prop asphalt width)
			$214.30		$214.30	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$66.33	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$41.81	(D6-D8-1-3)*1*D24	41.814	150 mm stripped
			$295.01		$41.81	
CONSTRUCTION						
Granular A	sq. m.	$8.19	$106.47	(D7+1*2)*D31	$106.47	reconstruction (difference btn ex and prop asphalt width)
Granular B	sq. m.	$25.14	$326.82	(D7+1*2)*D32	$326.82	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	$92.30	1*2*D33	$92.30	
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D34	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$92.50	D7*1*D35	$92.50	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$187.02	D7*1*D36	$187.02	
Tack Coat	sq. m.	$0.29	$3.21	D7*1*D37	$3.21	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D38	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$95.27	(D6-D7-1-4)*1*D39	$95.27	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$34.06	D40/13000*D7	$34.06	1 device for every 13000sq. m. of asphalt
450mm Diameter Storm Sewer	m.	$414.66	$414.66	1*D41	$414.66	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$62.60	2/60*D44*D7/2	$62.60	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D46/15	$64.48	1 tree every 15 m both sides
			$1,876.89		$1,876.89	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$42.95		$37.64	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$23.86		$20.91	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$2.39		$2.09	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$29.59		$25.93	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$2.86		$2.51	
Schedule of Work	L. S.	0.10%	$2.39		$2.09	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$74.19		$74.19	45 ft (13.72m) lot, 20 ft (6.1m) driveway 44%of blvd is dwy. depth of dwy = (blvd width - sidewalk) * both sides of road
			$271.10		$258.23	
			$2,657.29		**$2,391.23**	
			Reconstruction per metre		**New construction per metre**	

MAJ5-34
5 Lane Major Collector, 34m ROW

ROW	34	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	18.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	11	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		Assumptions New Construction
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$332.98	(D7+2)*((L6+L7)/1000)*1*D13	$332.98	
			$332.98		$332.98	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$66.33	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$66.21	(D6-D8-1-3)*1*D25	66.2055	150 mm stripped
			$319.40		$66.21	
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$165.44	(D7+1*2)*D30	$165.44	
Granular B - 600 mm	sq. m.	$25.14	$507.83	(D7+1*2)*D31	$507.83	
Concrete Curb and Gutter	m.	$46.15	$92.30	1*2*D32	$92.30	
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D33	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$153.04	D7*1*D34	$153.04	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$309.44	D7*1*D35	$309.44	
Tack Coat	sq. m.	$0.29	$5.31	D7*1*D36	$5.31	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D37	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D38	$93.54	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$56.35	D39/13000*D7	$56.35	1 device for every 13000sq. m. of asphalt
600mm Diameter Storm Sewer	m.	$451.42	$451.42	1*D41	$451.42	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$103.57	2/60*D44*D7/2	$103.57	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D45/15	$64.48	1 tree every 15 m both sides
			$2,400.23		$2,400.23	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$54.95		$49.20	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$30.53		$27.33	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$3.05		$2.73	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$37.85		$33.89	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$3.66		$3.28	
Schedule of Work	L. S.	0.10%	$3.05		$2.73	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$77.61		$77.61	45 ft (13.72m) lot, 20 ft (6.1m) driveway 44%of blvd is dwy. depth of dwy = (blvd width - sidewalk) * both sides of road
			$303.58		$289.65	
			$3,356.18		**$3,089.07**	
			Reconstruction per metre		**New construction per metre**	

ART3-27
3 Lane Arterial, 27m ROW

ROW	27	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	11.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	11	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		Assumptions New Construction
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$217.59	(D7+2)*((L6+L7)/1000)*1'	$217.59	
			$217.59		$217.59	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$66.33	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$41.81	(D6-D8-1-3)*1*D25	41.814	150 mm stripped
			$295.01		$41.81	
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$108.11	(D7+1*2)*D30	$108.11	reconstruction (difference btn ex and prop asphalt width)
Granular B - 600 mm	sq. m.	$25.14	$331.85	(D7+1*2)*D31	$331.85	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32	$92.30	
Concrete Barrier Curb	m.	$56.15		(1*2)*D33		
Concrete Centre Median	sq. m.	$39.80		0.8*D34		1.2m raised median - 0.2m barrier curb on each side
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D35	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$94.18	(D7)*1*D36	$94.18	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$190.43	(D7)*1*D37	$190.43	
Tack Coat	sq. m.	$0.29	$3.27	(D7)*1*D38	$3.27	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D39	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D40	$93.54	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$34.68	D41/13000*D7	$34.68	1 device for every 13000sq. m. of asphalt
450mm Diameter Storm Sewer	m.	$414.66	$414.66	1*D41	$414.66	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin - Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$63.74	2/60*D44*D7/2	$63.74	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D47/15	$64.48	1 tree every 15 m both sides
			$1,888.72		$1,888.72	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$43.22		$37.91	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$24.01		$21.06	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$2.40		$2.11	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$29.78		$26.12	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$2.88		$2.53	
Schedule of Work	L. S.	0.10%	$2.40		$2.11	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$77.61		$77.61	45 ft (13.72m) lot, 20 ft (6.1m) driveway 44%of blvd is dwy. depth of dwy = (blvd width - sidewalk) * both sides of road
			$275.18		$262.32	
			$2,676.50		**$2,410.45**	
			Reconstruction per metre		**New construction per metre**	

ART4-29
4 Lane Arterial, 29m ROW

ROW	29	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	14	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	11	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula	New Construction	Assumptions
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$263.75	(D7+2)*((L6+L7)/1000)*1*D13	$263.75	
			$263.75		$263.75	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$66.33	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$48.78	(D6-D8-1-3)*1*D25	48.783	150 mm stripped
			$301.98		$48.78	
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$131.04	(D7+1*2)*D30	$131.04	reconstruction (difference btn ex and prop asphalt width)
Granular B - 600 mm	sq. m.	$25.14	$402.24	(D7+1*2)*D31	$402.24	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32	$92.30	
Concrete Barrier Curb (for centre median)	m.	$56.15		(1*2)*D33		
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D34	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$117.72	(D7)*1*D35	$117.72	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$238.03	(D7)*1*D36	$238.03	
Tack Coat	sq. m.	$0.29	$4.09	(D7)*1*D37	$4.09	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D38	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$86.61	(D6-D7-1-4+3.8)*1*D39	$86.61	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$43.35	D40/13000*D7	$43.35	1 device for every 13000sq. m. of asphalt
600mm Diameter Storm Sewer	m.	$451.42	$451.42	1*D41	$451.42	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$79.67	2/60*D44*D7/2	$79.67	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D46/15	$64.48	1 tree every 15 m both sides
			$2,108.45		$2,108.45	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$48.14		$42.70	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$26.74		$23.72	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$2.67		$2.37	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$33.16		$29.42	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$3.21		$2.85	
Schedule of Work	L. S.	0.10%	$2.67		$2.37	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$68.48		$68.48	45 ft (13.72m) lot, 20 ft (6.1m) driveway 44%of blvd is dwy. depth of dwy = (blvd width - sidewalk) * both sides of road
			$277.95		$264.78	
			$2,952.13 **Reconstruction per metre**		**$2,685.77** **New construction per metre**	

ART5-34
5 Lane Arterial, 34m ROW

ROW	34	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	18.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	11	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		Assumptions New Construction
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$332.98	(D7+2)*((L6+L7)/1000)*1*D13	$332.98	
			$332.98		$332.98	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$66.33	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$66.21	(D6-D8-1-3)*1*D25	66.2055	150 mm stripped
			$319.40		$66.21	
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$165.44	(D7+1*2)*D30	$165.44	
Granular B - 600 mm	sq. m.	$25.14	$507.83	(D7+1*2)*D31	$507.83	
Concrete Curb and Gutter	m.	$46.15	$92.30	1*2*D32	$92.30	
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D33	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$153.04	D7*1*D34	$153.04	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$309.44	D7*1*D35	$309.44	
Tack Coat	sq. m.	$0.29	$5.31	D7*1*D36	$5.31	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D37	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D38	$93.54	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$56.35	D39/13000*D7	$56.35	1 device for every 13000sq. m. of asphalt
600mm Diameter Storm Sewer	m.	$451.42	$451.42	1*D41	$451.42	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$103.57	2/60*D44*D7/2	$103.57	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D45/15	$64.48	1 tree every 15 m both sides
			$2,400.23		$2,400.23	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$54.95		$49.20	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$30.53		$27.33	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$3.05		$2.73	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$37.85		$33.89	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$3.66		$3.28	
Schedule of Work	L. S.	0.10%	$3.05		$2.73	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$77.61		$77.61	45 ft (13.72m) lot, 20 ft (6.1m) driveway 44%of blvd is dwy. depth of dwy = (blvd width - sidewalk) * both sides of road
			$303.58		$289.65	
			$3,356.18 Reconstruction per metre		**$3,089.07 New construction per metre**	

ART6-41 Note: New X-Section, not in previous DC

6 Lane Arterial, 41m ROW

ROW	41	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	21	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	11	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		Assumptions New Construction
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$379.14	(D7+2)*((L6+L7)/1000)*1*	$379.14	
Average Cost of Removals for 29.2m asphalt road on a 41.0m ROW			$379.14		$379.14	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$66.33	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$90.60	(D6-D8-1-3)*1*D25	90.597	150 mm stripped
			$343.79		$90.60	
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$188.37	(D7+1*2)*D30	$188.37	reconstruction (difference btn ex and prop asphalt width)
Granular B - 600 mm	sq. m.	$25.14	$578.22	(D7+1*2)*D31	$578.22	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32	$92.30	
Concrete Barrier Curb	m.	$56.15	$112.30	(1*2)*D33	$112.30	
Concrete Centre Median	sq. m.	$39.80	$31.84	0.8*D34	$31.84	1.2m raised median - 0.2m barrier curb on each side
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D35	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$176.59	(D7)*1*D36	$176.59	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$357.05	(D7)*1*D37	$357.05	
Tack Coat	sq. m.	$0.29	$6.13	(D7)*1*D38	$6.13	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D39	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$129.92	(D6-D7-1-4)*1*D40	$129.92	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$65.02	D41/13000*D7	$65.02	1 device for every 13000sq. m. of asphalt
750mm Diameter Storm Sewer	m.	$488.19	$488.19	1*D41	$488.19	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$119.50	2/60*D44*D7/2	$119.50	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D47/15	$64.48	1 tree every 15 m both sides
			$2,807.40		$2,807.40	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$63.55		$57.36	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$35.30		$31.87	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$3.53		$3.19	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$43.78		$39.51	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$4.24		$3.82	
Schedule of Work	L. S.	0.10%	$3.53		$3.19	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$125.55		$125.55	45 ft (13.72m) lot, 20 ft (6.1m) driveway 44%of blvd is dwy.
						ROW - pavement width - curbs x 2 (0.5m x 2 = 1m) - sidewalk (2m x 2 = 4m) - Assumed AT (2m x 2) = boulvard width with asphalt (x 44%)
			$372.34		$357.35	
			$3,902.67 Reconstruction per metre		**$3,634.49 New construction per metre**	

ART7-41
7 Lane Arterial, 41m ROW

ROW	41	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	25.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	11	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		Assumptions New Construction
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$448.37	(D7+2)*((L6+L7)/1000)*1*	$448.37	
Average Cost of Removals for 29.2m asphalt road on a 41.0m ROW			$448.37		$448.37	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$66.33	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$90.60	(D6-D8-1-3)*1*D25	90.597	150 mm stripped
			$343.79		$90.60	
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$222.77	(D7+1*2)*D30	$222.77	reconstruction (difference btn ex and prop asphalt width)
Granular B - 600 mm	sq. m.	$25.14	$683.81	(D7+1*2)*D31	$683.81	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32	$92.30	
Concrete Barrier Curb	m.	$56.15	$112.30	(1*2)*D33	$112.30	
Concrete Centre Median	sq. m.	$39.80	$31.84	0.8*D34	$31.84	1.2m raised median - 0.2m barrier curb on each side
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D35	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$211.90	(D7)*1*D36	$211.90	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$428.46	(D7)*1*D37	$428.46	
Tack Coat	sq. m.	$0.29	$7.36	(D7)*1*D38	$7.36	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D39	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D40	$93.54	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$78.02	D41/13000*D7	$78.02	1 device for every 13000sq. m. of asphalt
750mm Diameter Storm Sewer	m.	$488.19	$488.19	1*D41	$488.19	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$143.40	2/60*D44*D7/2	$143.40	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D47/15	$64.48	1 tree every 15 m both sides
			$3,055.87		$3,055.87	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$69.26		$63.08	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$38.48		$35.04	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$3.85		$3.50	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$47.72		$43.45	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$4.62		$4.21	
Schedule of Work	L. S.	0.10%	$3.85		$3.50	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$77.61		$77.61	45 ft (13.72m) lot, 20 ft (6.1m) driveway 44%of blvd is dwy.
						ROW - pavement width - curbs x 2 (0.5m x 2 = 1m) - sidewalk (2m x 2 = 4m) - Assumed AT (2m x 2) = boulvard width with asphalt (x 44%)
			$338.26		$323.27	
			$4,186.29 Reconstruction per metre		**$3,918.11 New construction per metre**	

MAJ5-34 (3 to 5)
Reconstruct 3 lane roadway to 5 lane Major Collector, 34m ROW

ROW	34	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	18.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	11	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$332.98	(D7+2)*((L6+L7)/1000)*1*D13		
			$332.98			
REMOVALS						
Remove Existing Asphalt	sq.m.	$6.03	$66.33	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		
Tree Removal	each	$370.00	$49.33	2*D24/15		
Stripping of Topsoil	sq. m.	$3.48	$66.21	(D6-D8-1-3)*1*D25		
			$319.40			
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$165.44	(D7+1*2)*D30		
Granular B - 600 mm	sq. m.	$25.14	$507.83	(D7+1*2)*D31		
Concrete Curb and Gutter	m.	$46.15	$92.30	1*2*D32		
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D33		
HL1 Asphalt - 40 mm	sq. m.	$8.41	$153.04	D7*1*D34		
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$309.44	D7*1*D35		
Tack Coat	sq. m.	$0.29	$5.31	D7*1*D36		
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D37		
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D38		
Mechanical Water Quality Device	each	$40,250.00	$56.35	D39/13000*D7		
600mm Diameter Storm Sewer	m.	$451.42	$451.42	1*D41	$451.42	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$103.57	2/60*D44*D7/2	$103.57	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D45/15		
			$2,400.23			
MISCELLANEOUS			**Reconstruction**			
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$54.95			
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$30.53			
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$3.05			
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$37.85			
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$3.66			
Schedule of Work	L. S.	0.10%	$3.05			
Street Lights	each	$1,662.38	$59.37			
Street Light Duct Work	m.	$33.50	$33.50			
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$66.20			
			$292.16			
			$3,344.77 Reconstruction per metre			

ART4-29 (3 to 4)
Reconstruct 3 lane roadway to 4 lane Arterial, 29m ROW

ROW	29	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	14	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	11	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula	
REMOVALS (From Scratch)					
Earth Excavation	cu. m.	$21.98	$263.75	(D7+2)*((L6+L7)/1000)*1*D13	
			$263.75		
REMOVALS (Existing 2-Lane Urban Road)					
REMOVALS	sq.m.	$6.03	$66.33	D8*1*D18	
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19	
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20	1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21	2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%	85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23	
Tree Removal	each	$370.00	$49.33	2*D24/15	
Stripping of Topsoil	sq. m.	$3.48	$48.78	(D6-D8-1-3)*1*D25	
			$301.98		
CONSTRUCTION					
Granular A - 150 mm	sq. m.	$8.19	$131.04	(D7+1*2)*D30	
Granular B - 600 mm	sq. m.	$25.14	$402.24	(D7+1*2)*D31	
Concrete Curb and Gutter	m.	$46.15	$92.30	1*2*D32	
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D33	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$117.72	D7*1*D34	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$238.03	D7*1*D35	
Tack Coat	sq. m.	$0.29	$4.09	D7*1*D36	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D37	
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$86.61	(D6-D7-1-4)*1*D38	
Mechanical Water Quality Device	each	$40,250.00	$43.35	D39/13000*D7	
600mm Diameter Storm Sewer	m.	$451.42	$451.42	1*D41	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$79.67	2/60*D44*D7/2	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D45/15	
			$2,108.45		

MISCELLANEOUS			**Reconstruction**
Bonds	L. S.		
Bonds as a percentage of net tender amount		1.80%	$48.14
Insurance	L. S.		
Insurance as a percentage of net tender amount		1.00%	$26.74
Garbage and Recyclable Collection	L. S.		
Garbage and Recyclable Collection as a % of net		0.10%	$2.67
Traffic Control and Signing	L. S.		
Traffic Control and Signing as a % of net		1.24%	$33.16
Field Office	L. S.		
Field Office as a percentage of net tender amount		0.12%	$3.21
Schedule of Work	L. S.	0.10%	$2.67
Street Lights	each	$1,662.38	$59.37
Street Light Duct Work	m.	$33.50	$33.50
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$68.48
			$277.95

$2,952.13
Reconstruction per metre

ART5-34 (3 to 5)
Reconstruct 3 lane roadway to 5 lane Arterial, 34m ROW

ROW	34	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	18.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	11	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$332.98	(D7+2)*((L6+L7)/1000)*1*D13		
			$332.98			
REMOVALS						
Remove Existing Asphalt	sq.m.	$6.03	$66.33	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		
Tree Removal	each	$370.00	$49.33	2*D24/15		
Stripping of Topsoil	sq. m.	$3.48	$66.21	(D6-D8-1-3)*1*D25		
			$319.40			
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$165.44	(D7+1*2)*D30		
Granular B - 600 mm	sq. m.	$25.14	$507.83	(D7+1*2)*D31		
Concrete Curb and Gutter	m.	$46.15	$92.30	1*2*D32		
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D33		
HL1 Asphalt - 40 mm	sq. m.	$8.41	$153.04	D7*1*D34		
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$309.44	D7*1*D35		
Tack Coat	sq. m.	$0.29	$5.31	D7*1*D36		
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D37		
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D38		
Mechanical Water Quality Device	each	$40,250.00	$56.35	D39/13000*D7		
600mm Diameter Storm Sewer	m.	$451.42	$451.42	1*D41	$451.42	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$103.57	2/60*D44*D7/2	$103.57	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D45/15		
			$2,400.23			
MISCELLANEOUS			**Reconstruction**			
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$54.95			
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$30.53			
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$3.05			
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$37.85			
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$3.66			
Schedule of Work	L. S.	0.10%	$3.05			
Street Lights	each	$1,662.38	$59.37			
Street Light Duct Work	m.	$33.50	$33.50			
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$66.20			
			$292.16			
			$3,344.77 Reconstruction per metre			

ART5-34 (4 to 5)
Reconstruct 4 lane roadway to 5 lane Arterial, 34m ROW

ROW	34	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	18.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	14	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$332.98	(D7+2)*((L6+L7)/1000)*1*D13		
			$332.98			
REMOVALS						
Remove Existing Asphalt	sq.m.	$6.03	$84.42	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		
Tree Removal	each	$370.00	$49.33	2*D24/15		
Stripping of Topsoil	sq. m.	$3.48	$55.75	(D6-D8-1-3)*1*D25		
			$327.04			
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$165.44	(D7+1*2)*D30		
Granular B - 600 mm	sq. m.	$25.14	$507.83	(D7+1*2)*D31		
Concrete Curb and Gutter	m.	$46.15	$92.30	1*2*D32		
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D33		
HL1 Asphalt - 40 mm	sq. m.	$8.41	$153.04	D7*1*D34		
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$309.44	D7*1*D35		
Tack Coat	sq. m.	$0.29	$5.31	D7*1*D36		
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D37		
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D38		
Mechanical Water Quality Device	each	$40,250.00	$56.35	D39/13000*D7		
600mm Diameter Storm Sewer	m.	$451.42	$451.42	1*D41	$451.42	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$103.57	2/60*D44*D7/2	$103.57	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D45/15		
			$2,400.23			
MISCELLANEOUS			**Reconstruction**			
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$55.08			
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$30.60			
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$3.06			
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$37.95			
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$3.67			
Schedule of Work	L. S.	0.10%	$3.06			
Street Lights	each	$1,662.38	$59.37			
Street Light Duct Work	m.	$33.50	$33.50			
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$66.20			
			$292.50			
			$3,352.74 Reconstruction per metre			

ART6-41 (4 to 6)
Reconstruct 4 lane roadway to 6 lane Arterial, 41m ROW

ROW	41	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	21	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	14	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$379.14	(D7+2)*((L6+L7)/1000)*1*D13		
			$379.14			
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$84.42	D8*1*D18		
REMOVALS	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		
Tree Removal	each	$370.00	$49.33	2*D24/15		
Stripping of Topsoil	sq. m.	$3.48	$80.14	(D6-D8-1-3)*1*D25		
			$351.43			
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$188.37	(D7+1*2)*D30		
Granular B - 600 mm	sq. m.	$25.14	$578.22	(D7+1*2)*D31		
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32		
Concrete Barrier Curb	m.	$56.15	$112.30	(1*2)*D33		
Concrete Centre Median	sq. m.	$39.80	$31.84	0.8*D34		
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D35		
HL1 Asphalt - 40 mm	sq. m.	$8.41	$176.59	(D7)*1*D36		
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$357.05	(D7)*1*D37		
Tack Coat	sq. m.	$0.29	$6.13	(D7)*1*D38		
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D39		
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$129.92	(D6-D7-1-4)*1*D40		
Mechanical Water Quality Device	each	$40,250.00	$65.02	D41/13000*D7		
750mm Diameter Storm Sewer	m.	$488.19	$488.19	1*D41	$488.19	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$119.50	2/60*D44*D7/2	$233.32	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D47/15		
			$2,807.40			

MISCELLANEOUS			**Reconstruction**
Bonds	L. S.		
Bonds as a percentage of net tender amount		1.80%	$63.68
Insurance	L. S.		
Insurance as a percentage of net tender amount		1.00%	$35.38
Garbage and Recyclable Collection	L. S.		
Garbage and Recyclable Collection as a % of net		0.10%	$3.54
Traffic Control and Signing	L. S.		
Traffic Control and Signing as a % of net		1.24%	$43.87
Field Office	L. S.		
Field Office as a percentage of net tender amount		0.12%	$4.25
Schedule of Work	L. S.	0.10%	$3.54
Street Lights	each	$1,662.38	$59.37
Street Light Duct Work	m.	$33.50	$33.50
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$77.61
			$324.74

$3,862.70
Reconstruction per metre

ART7-41 (4 to 7)
Reconstruct 4 lane roadway to 7 lane Arterial, 41m ROW

ROW	41	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	25.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	14	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$448.37	(D7+2)*((L6+L7)/1000)*1*D13		
			$448.37			
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$84.42	D8*1*D18		
REMOVALS	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		
Tree Removal	each	$370.00	$49.33	2*D24/15		
Stripping of Topsoil	sq. m.	$3.48	$80.14	(D6-D8-1-3)*1*D25		
			$351.43			
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$222.77	(D7+1*2)*D30		
Granular B - 600 mm	sq. m.	$25.14	$683.81	(D7+1*2)*D31		
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32		
Concrete Barrier Curb	m.	$56.15	$112.30	(1*2)*D33		
Concrete Centre Median	sq. m.	$39.80	$31.84	0.8*D34		
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D35		
HL1 Asphalt - 40 mm	sq. m.	$8.41	$211.90	(D7)*1*D36		
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$428.46	(D7)*1*D37		
Tack Coat	sq. m.	$0.29	$7.36	(D7)*1*D38		
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D39		
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D40		
Mechanical Water Quality Device	each	$40,250.00	$78.02	D41/13000*D7		
750mm Diameter Storm Sewer	m.	$488.19	$488.19	1*D41	$488.19	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$143.40	2/60*D44*D7/2	$233.32	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D47/15		
			$3,055.87			
MISCELLANEOUS			**Reconstruction**			
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$69.40			
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$38.56			
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$3.86			
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$47.81			
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$4.63			
Schedule of Work	L. S.	0.10%	$3.86			
Street Lights	each	$1,662.38	$59.37			
Street Light Duct Work	m.	$33.50	$33.50			
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$77.61			
			$338.59			
			$4,194.26			
			Reconstruction per metre			

ART7-41 (5 to 7)
Reconstruct 5 lane roadway to 7 lane Arterial, 41m ROW

ROW	41	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	25.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	18	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$448.37	(D7+2)*((L6+L7)/1000)*1*D13		
			$448.37			
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$108.54	D8*1*D18		
REMOVALS	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		
Tree Removal	each	$370.00	$49.33	2*D24/15		
Stripping of Topsoil	sq. m.	$3.48	$66.21	(D6-D8-1-3)*1*D25		
			$361.61			
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$222.77	(D7+1*2)*D30		
Granular B - 600 mm	sq. m.	$25.14	$683.81	(D7+1*2)*D31		
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32		
Concrete Barrier Curb	m.	$56.15	$112.30	(1*2)*D33		
Concrete Centre Median	sq. m.	$39.80	$31.84	0.8*D34		
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D35		
HL1 Asphalt - 40 mm	sq. m.	$8.41	$211.90	(D7)*1*D36		
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$428.46	(D7)*1*D37		
Tack Coat	sq. m.	$0.29	$7.36	(D7)*1*D38		
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D39		
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D40		
Mechanical Water Quality Device	each	$40,250.00	$78.02	D41/13000*D7		
750mm Diameter Storm Sewer	m.	$488.19	$488.19	1*D41	$488.19	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$143.40	2/60*D44*D7/2	$233.32	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D47/15		
			$3,055.87			
MISCELLANEOUS			**Reconstruction**			
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$69.59			
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$38.66			
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$3.87			
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$47.94			
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$4.64			
Schedule of Work	L. S.	0.10%	$3.87			
Street Lights	each	$1,662.38	$59.37			
Street Light Duct Work	m.	$33.50	$33.50			
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$77.61			
			$339.03			
			$4,204.88			
			Reconstruction per metre			

ART7-41 (6 to 7)
Reconstruct 6 lane roadway to 7 lane Arterial, 41m ROW

ROW	41	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	25.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	21	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$448.37	(D7+2)*((L6+L7)/1000)*1*D13		
			$448.37			
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$126.63	D8*1*D18		
REMOVALS	m.	$9.21	$18.42	1*2*D19		
Remove Ex Storm MH	each	$619.85	$6.20	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$14.98	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$62.83	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$35.10	1.5*1*2*D23		
Tree Removal	each	$370.00	$49.33	2*D24/15		
Stripping of Topsoil	sq. m.	$3.48	$55.75	(D6-D8-1-3)*1*D25		
			$369.25			
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$222.77	(D7+1*2)*D30		
Granular B - 600 mm	sq. m.	$25.14	$683.81	(D7+1*2)*D31		
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32		
Concrete Barrier Curb	m.	$56.15	$112.30	(1*2)*D33		
Concrete Centre Median	sq. m.	$39.80	$31.84	0.8*D34		
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D35		
HL1 Asphalt - 40 mm	sq. m.	$8.41	$211.90	(D7)*1*D36		
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$428.46	(D7)*1*D37		
Tack Coat	sq. m.	$0.29	$7.36	(D7)*1*D38		
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D39		
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D40		
Mechanical Water Quality Device	each	$40,250.00	$78.02	D41/13000*D7		
750mm Diameter Storm Sewer	m.	$488.19	$488.19	1*D41	$488.19	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$143.40	2/60*D44*D7/2	$233.32	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D47/15		
			$3,055.87			
MISCELLANEOUS			**Reconstruction**			
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$69.72			
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$38.73			
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$3.87			
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$48.03			
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$4.65			
Schedule of Work	L. S.	0.10%	$3.87			
Street Lights	each	$1,662.38	$59.37			
Street Light Duct Work	m.	$33.50	$33.50			
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$77.61			
			$339.37			
			$4,212.85			
			Reconstruction per metre			

Right Turn lane

3.5m Right Turn Lane with 50m parallel and 50m taper

ROW	XX	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	3.5	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	0	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre	Formula	Assumptions
REMOVALS (From Scratch)					
Earth Excavation	cu. m.	$21.98	$57.69	(D7)*((L6+L7)/1000)*1*D13	
Average Cost of Removals for 3.5m asphalt road			$57.69		
REMOVALS (Existing 2-Lane Urban Road)					
Remove Existing Asphalt	sq.m.	$6.03	--	--	
Remove Concrete Curb and Gutter	m.	$9.21	--	--	
Remove Ex Storm MH	each	$619.85	--	--	1 storm MH every 90 metres
Remove Ex Catch basin	each	$449.38	--	--	2 catchbasins every 90 metres
Remove Ex Storm Sewer	m.	$73.92	--	--	85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	--	--	1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	--	--	1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	--	--	150 mm stripped
Average Cost of Removals for 3.5m right turn lane			$0.00		
CONSTRUCTION					
Granular A - 150 mm	sq. m.	$8.19	$28.67	(D7)*D30	
Granular B - 600 mm	sq. m.	$25.14	$87.99	(D7)*D31	
Concrete Curb and Gutter	m.	$46.15		(1*2)*D32	
Concrete Barrier Curb	m.	$56.15	--	(1*2)*D33	
Concrete Centre Median	sq. m.	$39.80	--	0.8*D34	1.2m raised median - 0.2m barrier curb on each side
100 mm Diameter PE Subdrain	m.	$24.75		1*2*D35	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$29.43	(D7)*1*D36	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$59.51	(D7)*1*D37	
Tack Coat	sq. m.	$0.29	$1.02	(D7)*1*D38	
Concrete Sidewalk	sq. m.	$50.33		2*2*1*D39	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	--	(D6-D7-1-4)*1*D40	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	--	D41/13000*D7	1 device for every 13000sq. m. of asphalt
375mm Diameter Storm Sewer	m.	$376.21	--	1*D42*85%	85% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	--	1/90*D43	1 mh every 90 metres
Precast Catch Basin -Single	each	$2,463.43	--	2/90*D44	2 catchbasins every 90 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$13.28	1/90*D45*D7	every 90 metres x right turn lane width
Adjust Existing MH and CB to finished grade	each	$368.06	--	3/90*D46	1 mh, 2 cbs every 90 metres
Trees	each	$483.63	--	2*D47/15	1 tree every 15 m both sides
Average Cost of Construction for 3.5m right turn lane			$219.89		

MISCELLANEOUS			**New Construction**		
Bonds	L. S.				
Bonds as a percentage of net tender amount		1.80%	$5.00		
Insurance	L. S.				
Insurance as a percentage of net tender amount		1.00%	$2.78		
Garbage and Recyclable Collection	L. S.				
Garbage and Recyclable Collection as a % of net		0.10%	$0.00		
Traffic Control and Signing	L. S.				
Traffic Control and Signing as a % of net		1.24%	$3.44		
Field Office	L. S.				
Field Office as a percentage of net tender amount		0.12%	$0.33		
Schedule of Work	L. S.	0.10%	$0.28		0.1% of net cost
Street Lights	each	$1,662.38	--		spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	--		$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	--		45 ft (13.72m) lot, 20 ft (6.1m) driveway 44%of blvd is dwy. depth of dwy = (blvd width - sidewalk) * both sides of road
Average Cost of Miscellaneous Items for 3.5m right turn lane			$11.83		
			$289.41 New construction per metre		

Cost of right turn lane	**$21,706.08**	cost per metre*(50+50/2) 50=parallel length (with full 3.5m width) 50/2=taper length (width ranged from 0 to 50m, triangular area)

Adding 1 Lane to Interchange Ramp

ROW	4	m	HL1	40 mm	Gran A	150 mm	Bike Lane width
Proposed Aspalt Width	4	m	HL3	0 mm	Gran B	600 mm	No. of Bike Lane
Existing Asphalt Width	3.75	m	HL4/HL8	100 mm			

	Unit	Average Unit Price	Formula		Assumptions
REMOVALS (From Scratch)				New Construction	
Earth Excavation	cu. m.	$21.98	(D7+2)*((L6+L7)/1000)*1*D13	$98.91	
				$98.91	
REMOVALS (Existing 2-Lane Urban Road)					
Remove Existing Asphalt	sq.m.	$6.03	D8*1*D18	$22.61	
Remove Concrete Curb and Gutter	m.	$9.21	1*2*D19		
Remove Ex Storm MH	each	$619.85	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	(D6-D8)*1*D25	$0.87	150 mm stripped
				$ 23.48	
CONSTRUCTION					
Granular A - 150 mm	sq. m.	$8.19	(D7+1*2)*D30	$49.14	reconstruction (difference btn ex and prop asphalt width)
Granular B - 600 mm	sq. m.	$25.14	(D7+1*2)*D31	$150.84	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	(1*2)*D32		
Concrete Barrier Curb (for centre median)	m.	$56.15	(1*2)*D33		
100 mm Diameter PE Subdrain	m.	$24.75	1*2*D34	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	(D7)*1*D35	$33.64	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	(D7)*1*D36	$68.01	
Tack Coat	sq. m.	$0.29	(D7)*1*D37	$1.17	
Concrete Sidewalk	sq. m.	$50.33	2*2*1*D38		
Fine Grading, Topsoil & Sod	sq. m.	$8.66	(D6-D7-1-4+3.8)*1*D39		Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	D40/13000*D7		1 device for every 13000sq. m. of asphalt
450mm Diameter Storm Sewer	m.	$414.66	1*D41	$414.66	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	1/100*D42		1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	2/60*D43		2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	2/60*D44*D7/2		2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width
Adjust Existing MH and CB to finished grade	each	$368.06	3/73.333*D45		73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	2*D46/15		1 tree every 15 m both sides
				$766.95	
MISCELLANEOUS				**New Construction**	
Bonds	L. S.				
Bonds as a percentage of net tender amount		1.80%		$15.59	
Insurance	L. S.				
Insurance as a percentage of net tender amount		1.00%		$8.66	
Garbage and Recyclable Collection	L. S.				
Garbage and Recyclable Collection as a % of net		0.10%		$0.87	
Traffic Control and Signing	L. S.				
Traffic Control and Signing as a % of net		1.24%		$10.74	
Field Office	L. S.				
Field Office as a percentage of net tender amount		0.12%		$1.04	
Schedule of Work	L. S.	0.10%		$0.87	0.1% of net cost
Street Lights	each	$1,662.38		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94		$0.00	45 ft (13.72m) lot, 20 ft (6.1m) driveway 44%of blvd is dwy. depth of dwy = (blvd width - sidewalk) * both sides of road
				$130.62	
				$1,019.96	
				New construction per metre	

Cost of additional lane on Essa IC NB on ramp (2019 dollars)					Approximate ramp segment length:	750 m
Construction cost:			$828,373.68		Assumed additional ROW width:	4 m
Watercourse Relocation:			$1,600,000.00			
Property for creek relocation:			$3,700,000.00			
Utilities Reallocation:	$1,152.00	per m	$760,320.00			
Land Acquisition:	$670.14	per sq. m.	$1,889,794.80	(assume commercial land unit costs)		
	TOTAL (rounded):		**$8,780,000.00**			

Cost of additional lane on Dunlop IC SB on ramp (2019 dollars)					Approximate ramp segment length:	815 m
Construction cost:			$904,748.56		Assumed additional ROW width:	4 m
Utilities Reallocation:	$1,152.00	per m	$835,200.00			
Land Acquisition:	$670.14	per sq. m.	$2,064,031.20	(assume commercial land unit costs)		
	TOTAL (rounded):		**$3,800,000.00**			

ARP2-27
2 lane Arterial, 27m ROW
(Rural to Urban roadway)

Arterial Periphery - Big Bay Point Road and Lockhart near 20th Sideroad - atypical occurrence

ROW	27	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	9	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	7	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		Assumptions New Construction
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$181.33	(D7+2)*((L6+L7)/1000)*1'	$181.33	
			$181.33		$181.33	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$42.21	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$0.00	1*2*D19		
Remove Ex Storm MH	each	$619.85	$0.00	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$0.00	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$0.00	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$0.00	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$55.75	(D6-D8-1-3)*1*D25	$55.75	150 mm stripped
			$147.30		$55.75	
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$90.09	(D7+1*2)*D30	$90.09	reconstruction (difference btn ex and prop asphalt width)
Granular B - 600 mm	sq. m.	$25.14	$276.54	(D7+1*2)*D31	$276.54	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32	$92.30	
Concrete Barrier Curb	m.	$56.15		(1*2)*D33		
Concrete Centre Median	sq. m.	$39.80		0.8*D34		
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D35	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$75.68	(D7)*1*D36	$75.68	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$153.02	(D7)*1*D37	$153.02	
Tack Coat	sq. m.	$0.29	$2.63	(D7)*1*D38	$2.63	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D39	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$112.59	(D6-D7-1-4)*1*D40	$112.59	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$27.87	D41/13000*D7	$27.87	1 device for every 13000sq. m. of asphalt
600mm Diameter Storm Sewer	m.	$414.66	$414.66	1*D41	$414.66	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin - Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$51.22	2/60*D44*D7/2	$51.22	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D47/15	$64.48	1 tree every 15 m both sides
			$1,758.57		$1,758.57	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$37.57		$35.92	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$20.87		$19.96	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$2.09		$2.00	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$25.88		$24.75	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$2.50		$2.39	
Schedule of Work	L. S.	0.10%	$2.09		$2.00	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$25.94		$25.94	assuming 10% of road length has driveway frontage
						ROW - pavement width - sidewalk witdh (2x2m) - AT (2x2m) = width of boulevard that requires asphalt
			$209.81		$205.82	
			$2,297.01		**$2,201.47**	
			Reconstruction per metre		**New construction per metre**	

ARP2-30 Site Specific Road - 20th Sideroad (boundary road - urbanized on west side only)

2 lane Arterial, 30m ROW
(Rural to Urban roadway)

ROW	30	m	0	mm	Gran A	150 mm
Proposed Aspalt Width	9	m	40	mm	Gran B	600 mm
Existing Asphalt Width (based on existing 20m ROW Xsection)	7	m	100	mm		

	Unit	Average Unit Price	Price per metre	Assumptions
REMOVALS (From Scratch)				
Earth Excavation	cu. m.	$21.98	$181.33	
Average Cost of Excavation to 9.5m asphalt road on a 30.0m ROW			$181.33	
REMOVALS (Existing 2-Lane Rural Road				
Remove Existing Asphalt	sq.m.	$6.03	$42.21	
Tree Removal	each	$370.00	$49.33	1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$80.14	150 mm stripped
Average Cost of Removals for 7m 2-lane asphalt road			$171.69	
CONSTRUCTION				
Granular A - 150 mm	sq. m.	$8.19	$98.28	additional width allowance for curb (1.0m) and shoulder (2.0m)
Granular B - 600 mm	sq. m.	$25.14	$301.68	additional width allowance for curb (1.0m) and shoulder (2.0m)
Concrete Curb and Gutter	m.	$46.15	$46.15	one side only
100 mm Diameter PE Subdrain	m.	$24.75	$24.75	one side only
HL3 Asphalt - 40 mm	sq. m.	$9.26	$83.35	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$153.02	
Tack Coat	sq. m.	$0.29	$2.63	
Concrete Sidewalk	sq. m.	$50.33	$0.00	No sidewalk - multi-use path west side, to be captured in AT costs
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$221.94	Width of blvd = ROW- asphalt width -curb width; increased cost for ditching by 20%
Mechanical Water Quality Device	each	$40,250.00	$27.87	1 device for every 13000sq. m. of asphalt
450mm Diameter Storm Sewer	m.	$414.66	$414.66	$414.66 100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	$49.51 1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$41.06	$82.11 1 catchbasins every 60 metres - catchbasin only installed on urbanized side
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$51.22	#VALUE! 2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width) - asphalt leads will be preinstalled on rural side
Adjust Existing MH and CB to finished grade	each	$368.06	$0.00	$15.06 73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	1 tree every 15 m both sides
Average Cost of Construction for 8.0m asphalt road on a 18.0m ROW			$1,580.58	
MISCELLANEOUS			**Reconstruction**	
Bonds	L. S.			
Bonds as a percentage of net tender amount		1.80%	$34.80	
Insurance	L. S.			
Insurance as a percentage of net tender amount		1.00%	$19.34	
Garbage and Recyclable Collection	L. S.			
Garbage and Recyclable Collection as a % of net		0.10%	$1.93	
Traffic Control and Signing	L. S.			
Traffic Control and Signing as a % of net		1.24%	$23.98	
Field Office	L. S.			
Field Office as a percentage of net tender amount		0.12%	$2.32	
Schedule of Work	L. S.	0.10%	$1.93	0.1% of net .0.1% of net cost
Street Lights	each	$1,662.38	$29.69	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell) - illumination to be provided on urbanized side only
Street Light Duct Work	m.	$33.50	$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$23.35	assuming 5% of road length has driveway frontage; 5% used due to boundary road and access should be restricted on arterials
				ROW - pavement width - in-boulevard trail = width of boulevard that requires asphalt
Average Cost of Miscellaneous Items for 8.0m asphalt road on a 18.0m ROW			$170.84	

$2,104.44
Reconstruction per metre

MIN2-24
2 lane Minor Collector, 24m ROW
(Rural to Urban roadway)

ROW	24	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	9.5	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	7	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		Assumptions New Construction
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$189.57	(D7+2)*((L6+L7)/1000)*1	$189.57	
			$189.57		$189.57	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$42.21	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$0.00	1*2*D19		
Remove Ex Storm MH	each	$619.85	$0.00	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$0.00	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$0.00	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$0.00	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$45.30	(D6-D8-1-3)*1*D25	$45.30	150 mm stripped
			$136.84		$45.30	
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$94.19	(D7+1*2)*D30	$94.19	reconstruction (difference btn ex and prop asphalt width)
Granular B - 600 mm	sq. m.	$25.14	$289.11	(D7+1*2)*D31	$289.11	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32	$92.30	
Concrete Barrier Curb	m.	$56.15		(1*2)*D33		
Concrete Centre Median	sq. m.	$39.80		0.8*D34		
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D35	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$79.88	(D7)*1*D36	$79.88	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$161.52	(D7)*1*D37	$161.52	
Tack Coat	sq. m.	$0.29	$2.77	(D7)*1*D38	$2.77	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D39	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$82.28	(D6-D7-1-4)*1*D40	$82.28	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$29.41	D41/13000*D7	$29.41	1 device for every 13000sq. m. of asphalt
450mm Diameter Storm Sewer	m.	$414.66	$414.66	1*D41	$414.66	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$54.06	2/60*D44*D7/2	$54.06	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D47/15	$64.48	1 tree every 15 m both sides
			$1,762.17		$1,762.17	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$37.59		$35.95	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$20.89		$19.97	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$2.09		$2.00	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$25.90		$24.76	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$2.51		$2.40	
Schedule of Work	L. S.	0.10%	$2.09		$2.00	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$27.24		$27.24	assuming 10% of road length has driveway frontage
						ROW - pavement width - sidewalk width (2 x 2m) = width of boulevard that requires asphalt
			$211.17		$207.18	
			$2,299.75		**$2,204.22**	
			Reconstruction per metre		**New construction per metre**	

MAJ3-27
3 lane Major Collector, 27m ROW
(Rural to Urban roadway)

ROW	27	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	11	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	7	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		Assumptions New Construction
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$214.30	(D7+2)*((L6+L7)/1000)*1'	$214.30	
			$214.30		$214.30	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$42.21	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$0.00	1*2*D19		
Remove Ex Storm MH	each	$619.85	$0.00	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$0.00	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$0.00	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$0.00	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$55.75	(D6-D8-1-3)*1*D25	$55.75	150 mm stripped
			$147.30		$55.75	
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$106.47	(D7+1*2)*D30	$106.47	reconstruction (difference btn ex and prop asphalt width)
Granular B - 600 mm	sq. m.	$25.14	$326.82	(D7+1*2)*D31	$326.82	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32	$92.30	
Concrete Barrier Curb	m.	$56.15		(1*2)*D33		
Concrete Centre Median	sq. m.	$39.80		0.8*D34		1.2m raised median - 0.2m barrier curb on each side
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D35	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$92.50	(D7)*1*D36	$92.50	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$187.02	(D7)*1*D37	$187.02	
Tack Coat	sq. m.	$0.29	$3.21	(D7)*1*D38	$3.21	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D39	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$95.27	(D6-D7-1-4)*1*D40	$95.27	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$34.06	D41/13000*D7	$34.06	1 device for every 13000sq. m. of asphalt
600mm Diameter Storm Sewer	m.	$414.66	$414.66	1*D41	$414.66	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$62.60	2/60*D44*D7/2	$62.60	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D47/15	$64.48	1 tree every 15 m both sides
			$1,876.89		$1,876.89	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$40.29		$38.64	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$22.38		$21.47	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$2.24		$2.15	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$27.76		$26.62	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$2.69		$2.58	
Schedule of Work	L. S.	0.10%	$2.24		$2.15	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$20.75		$20.75	assuming 10% of road length has driveway frontage ROW - pavement width - sidewalk width (2 x 2m) - AT (2 x 2m) = width of boulevard that requires asphalt
			$211.22		$207.23	
			$2,449.70		**$2,354.17**	
			Reconstruction per metre		**New construction per metre**	

ART3-27
3 lane Arterial, 27m ROW
(Rural to Urban roadway)

ROW	27	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	11.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	7	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		Assumptions New Construction
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$217.59	(D7+2)*((L6+L7)/1000)*1	$217.59	
			$217.59		$217.59	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$42.21	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$0.00	1*2*D19		
Remove Ex Storm MH	each	$619.85	$0.00	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$0.00	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$0.00	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$0.00	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$55.75	(D6-D8-1-3)*1*D25	$55.75	150 mm stripped
			$147.30		$55.75	
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$108.11	(D7+1*2)*D30	$108.11	reconstruction (difference btn ex and prop asphalt width)
Granular B - 600 mm	sq. m.	$25.14	$331.85	(D7+1*2)*D31	$331.85	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32	$92.30	
Concrete Barrier Curb	m.	$56.15		(1*2)*D33		
Concrete Centre Median	sq. m.	$39.80		0.8*D34		
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D35	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$94.18	(D7)*1*D36	$94.18	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$190.43	(D7)*1*D37	$190.43	
Tack Coat	sq. m.	$0.29	$3.27	(D7)*1*D38	$3.27	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D39	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D40	$93.54	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$34.68	D41/13000*D7	$34.68	1 device for every 13000sq. m. of asphalt
600mm Diameter Storm Sewer	m.	$414.66	$414.66	1*D41	$414.66	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin - Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$63.74	2/60*D44*D7/2	$63.74	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D47/15	$64.48	1 tree every 15 m both sides
			$1,888.72		$1,888.72	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$40.56		$38.92	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$22.54		$21.62	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$2.25		$2.16	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$27.94		$26.81	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$2.70		$2.59	
Schedule of Work	L. S.	0.10%	$2.25		$2.16	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$20.23		$20.23	assuming 10% of road length has driveway frontage
						ROW - pavement width - sidewalk width (2 x 2m) - AT (2 x 2m) = width of boulevard that requires asphalt
			$211.36		$207.37	
			$2,464.97		**$2,369.44**	
			Reconstruction per metre		**New construction per metre**	

ART5-34
5 lane Arterial, 34m ROW
(Rural to Urban roadway)

ROW	34	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	18.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	7	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		Assumptions New Construction
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$332.98	(D7+2)*((L6+L7)/1000)*1*D13	$332.98	
			$332.98		$332.98	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$42.21	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$0.00	1*2*D19		
Remove Ex Storm MH	each	$619.85	$0.00	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$0.00	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$0.00	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$0.00	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$80.14	(D6-D8-1-3)*1*D25	$80.14	150 mm stripped
			$171.69		$80.14	
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$165.44	(D7+1*2)*D30	$165.44	
Granular B - 600 mm	sq. m.	$25.14	$507.83	(D7+1*2)*D31	$507.83	
Concrete Curb and Gutter	m.	$46.15	$92.30	1*2*D32	$92.30	
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D33	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$153.04	D7*1*D34	$153.04	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$309.44	D7*1*D35	$309.44	
Tack Coat	sq. m.	$0.29	$5.31	D7*1*D36	$5.31	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D37	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D38	$93.54	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$56.35	D39/13000*D7	$56.35	1 device for every 13000sq. m. of asphalt
600mm Diameter Storm Sewer	m.	$451.42	$451.42	1*D41	$451.42	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$103.57	2/60*D44*D7/2	$103.57	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D45/15	$64.48	1 tree every 15 m both sides
			$2,400.23		$2,400.23	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$52.29		$50.64	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$29.05		$28.13	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$2.90		$2.81	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$36.02		$34.89	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$3.49		$3.38	
Schedule of Work	L. S.	0.10%	$2.90		$2.81	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$20.23		$20.23	assuming 10% of road length has driveway frontage
						ROW - pavement width - sidewalk width (2 x 2m) - AT (2 x 2m) = width of boulevard that requires asphalt
			$239.76		$235.77	
			$3,144.65		**$3,049.12**	
			Reconstruction per metre		**New construction per metre**	

ART7-41
7 lane Arterial, 41m ROW
(Rural to Urban roadway)

ROW	41	m	HL1	40	mm	Gran A	150 mm
Proposed Aspalt Width	25.2	m	HL3	0	mm	Gran B	600 mm
Existing Asphalt Width	7	m	HL4/HL8	100	mm		

	Unit	Average Unit Price	Price per metre Reconstruction	Formula		Assumptions New Construction
REMOVALS (From Scratch)						
Earth Excavation	cu. m.	$21.98	$448.37	(D7+2)*((L6+L7)/1000)*1'	$448.37	
Average Cost of Removals for 29.2m asphalt road on a 41.0m ROW			$448.37		$448.37	
REMOVALS (Existing 2-Lane Urban Road)						
Remove Existing Asphalt	sq.m.	$6.03	$42.21	D8*1*D18		
Remove Concrete Curb and Gutter	m.	$9.21	$0.00	1*2*D19		
Remove Ex Storm MH	each	$619.85	$0.00	1/100*D20		1 storm MH every 100 metres
Remove Ex Catch basin	each	$449.38	$0.00	2/60*D21		2 catchbasins every 60 metres
Remove Ex Storm Sewer	m.	$73.92	$0.00	1*D22*85%		85% of section has storm sewer
Remove Existing Concrete Sidewalk	sq. m.	$11.70	$0.00	1.5*1*2*D23		1.5 metre wide sidewalk, both sides of the road
Tree Removal	each	$370.00	$49.33	2*D24/15		1 tree every 15m both sides
Stripping of Topsoil	sq. m.	$3.48	$104.54	(D6-D8-1-3)*1*D25	$104.54	150 mm stripped
			$196.08		$104.54	
CONSTRUCTION						
Granular A - 150 mm	sq. m.	$8.19	$222.77	(D7+1*2)*D30	$222.77	reconstruction (difference btn ex and prop asphalt width)
Granular B - 600 mm	sq. m.	$25.14	$683.81	(D7+1*2)*D31	$683.81	reconstruction (difference btn ex and prop asphalt width)
Concrete Curb and Gutter	m.	$46.15	$92.30	(1*2)*D32	$92.30	
Concrete Barrier Curb	m.	$56.15	$112.30	(1*2)*D33	$112.30	
Concrete Centre Median	sq. m.	$39.80	$31.84	0.8*D34	$31.84	1.2m raised median - 0.2m barrier curb on each side
100 mm Diameter PE Subdrain	m.	$24.75	$49.50	1*2*D35	$49.50	
HL1 Asphalt - 40 mm	sq. m.	$8.41	$211.90	(D7)*1*D36	$211.90	
HL 4 or HL 8 Hot Mix or Recycled - 100 mm	sq. m.	$17.00	$428.46	(D7)*1*D37	$428.46	
Tack Coat	sq. m.	$0.29	$7.36	(D7)*1*D38	$7.36	
Concrete Sidewalk	sq. m.	$50.33	$201.32	2*2*1*D39	$201.32	2.0 metre wide sidewalk, both sides of the road
Fine Grading, Topsoil & Sod	sq. m.	$8.66	$93.54	(D6-D7-1-4)*1*D40	$93.54	Width of blvd = ROW-asphalt width- curb width - sidewalk both sides
Mechanical Water Quality Device	each	$40,250.00	$78.02	D41/13000*D7	$78.02	1 device for every 13000sq. m. of asphalt
750mm Diameter Storm Sewer	m.	$488.19	$488.19	1*D41	$488.19	100% of section requires storm sewer
1200mm Diameter Precast Maintenance Hole	each	$4,950.78	$49.51	1/100*D42	$49.51	1 mh every 100 metres
Precast Catch Basin -Single	each	$2,463.43	$82.11	2/60*D43	$82.11	2 catchbasins every 60 metres
250mm Diameter Catch Basin Lead, Flexible	m.	$341.44	$143.40	2/60*D44*D7/2	$143.40	2 every 60 metres x road width / 2, reconstruction (diff btn ex and prop asphalt width)
Adjust Existing MH and CB to finished grade	each	$368.06	$15.06	3/73.333*D45	$15.06	73.333 metres (1 mh and 2 CB's for reconstruction)
Trees	each	$483.63	$64.48	2*D47/15	$64.48	1 tree every 15 m both sides
			$3,055.87		$3,055.87	
MISCELLANEOUS			**Reconstruction**		**New Construction**	
Bonds	L. S.					
Bonds as a percentage of net tender amount		1.80%	$66.61		$64.96	
Insurance	L. S.					
Insurance as a percentage of net tender amount		1.00%	$37.00		$36.09	
Garbage and Recyclable Collection	L. S.					
Garbage and Recyclable Collection as a % of net		0.10%	$3.70		$3.61	
Traffic Control and Signing	L. S.					
Traffic Control and Signing as a % of net		1.24%	$45.88		$44.75	
Field Office	L. S.					
Field Office as a percentage of net tender amount		0.12%	$4.44		$4.33	
Schedule of Work	L. S.	0.10%	$3.70		$3.61	0.1% of net cost
Street Lights	each	$1,662.38	$59.37		$59.37	spacing 56m, on both sides, Street Lights (Pole,Luminaire Arm Bracket, Luminaire c/w Photocell)
Street Light Duct Work	m.	$33.50	$33.50		$33.50	$25 @2006, inflated 5%, $33.50 @2012
Asphalt Driveway Removal and Restoration	sq. m.	$25.94	$20.23		$20.23	assuming 10% of road length has driveway frontage ROW - pavement width - sidewalk width (2 x 2m) - AT (2 x 2m) = width of boulevard that requires asphalt
			$274.44		$270.45	
			$3,974.76		**$3,879.22**	
			Reconstruction per metre		**New construction per metre**	

APPENDIX

H-3 DEVELOPMENT CHARGES

City of Barrie Development Charges –Transportation Master Plan

Growth/Non-Growth Development Charge Share

This document provides an overview of the City of Barrie's transportation policy as it relates to assigning growth and non-growth shares to the capital infrastructure identified within the Transportation Master Plan to be considered as an input in the City's Development Charges Background Study. The allocations have been undertaken in conjunction with City staff, WSP and Watson.

1. Overview

As noted in section 7, the City's transportation service goes beyond constructing, maintaining and operating road networks and planning for infrastructure improvements. The transportation network embraces all modes of transportation and thus requires new infrastructure as well as upgrades, expansions and/or enhancements of various capital works to accommodate growth in vehicles, transit, cyclists, pedestrians, etc.

The Development Charges Act (D.C.A.) requires that, the increase in the need for service attributable to anticipated development must be estimated for each service to which the development charge by-law would relate. The transportation master plan has identified the increased need for service related to complete streets, traffic calming, transportation demand management and intelligent transportation systems. This has translated into the planned capital projects which will be used in determining the City's development charges.

The D.C.A., further requires that the increase in the need for service must be reduced by the extent to which an increase in service to meet the increased need would benefit existing development. Therefore, a non-growth (benefit to existing (B.T.E.)) provision is required against a portion of growth-related capital costs if the existing community will benefit from the capital works. These costs are deducted from the eligible D.C. capital costs and are essentially paid for by the existing residents and business (the community) through municipal property taxes and/or user fees.

The portion of the capital cost attributable to B.T.E. typically varies by project type, location and/or grouping of projects depending on the extent of benefit. Out of the transportation related infrastructure needs identified for the City, certain improvements will benefit current residents and would comprise the non-growth (i.e. B.T.E.) component of the D.C.

2. Location of Capital Infrastructure Needs for Transportation

Improvements have been identified for both the Salem and Hewitt's Secondary Plan Areas as well as the Former Barrie City Area. The Secondary Plans are new greenfield growth areas with little existing population or employment, where growth in the Former Barrie City Area includes a mix of greenfield development along with infill, intensification and redevelopment among the existing population and employment. As such, the capital infrastructure related to growth vs. non-growth (B.T.E.) differ in each of the areas.

3. Capital Improvements Required for Growth

The improvements required to accommodate growth include:

- Proposed Improvements to Highway 400 Interchange Ramps and Crossings;
- New Roads;
- Roundabouts;
- Road Widenings;
- Streetscape Improvements in Primary Intensification Corridors;
- Road Reconstructions to Urban Standard with no additional vehicle lanes;
- Active Transportation:
    - Cycling Facilities;
    - Multi-use Facilities (In-Boulevard Pathways);
    - Trails (Off-Road Trails & Hiking Trails);
    - Sidewalks;
    - Trail Bridges and Underpasses;
    - Outreach Programs;
    - Transit Stops;
    - Intelligent Transportation Systems (I.T.S.); and
    - H.O.V. Infrastructure.

4. Benefit to Existing Share of Capital Infrastructure

Table 1 outlines the percentage allocation and the rationale behind attributing all or a portion of an improvement as B.T.E. in the Secondary Plan Areas and the Former Barrie City Areas for various project types. For the most part, the B.T.E. attributions to be used in the City's 2019 and future D.C. Background Studies are the same as what the attributions were in the City's 2014 D.C. By-Law.

Table 1: Benefit to Existing Attributions

Project Type	Rationale	Benefit to Existing (%)
Former Barrie City Areas		
New Roads, Interchanges, Roundabouts	New road links, highway interchanges and roundabouts are built to increase capacity needed to serve growth however, they will also benefit the existing community. A B.T.E. attribution of 35% has been applied to recognize that they are in long established and /or developed corridors.	35%
Road Widenings and Streetscape Improvements in Primary Intensification Corridors	Highways (roads) are widened to increase capacity to help accommodate growth. In cases where a road is widened, typically the existing lanes are resurfaced and/or reconstructed, intersections are improved, active transportation is included, and traffic signals and other right-of-way features may be upgraded as part of the widening. In intensification corridors, streetscaping improvements are often required to provide the additional capacity required to service growth. As the projects in Former Barrie City Areas are in a mature, established area, a deduction of 35% has been applied. This deduction recognizes that projects located in the Former Barrie City Areas are subject to increased travel demand generated by new growth located elsewhere but will both impact and benefit the existing community.	35%
Secondary Plan Areas		
New Roads and Road Widenings	New roads and road widening projects in the Secondary Plan Areas are required to service mainly the growth in those areas. As there is very little existing development in the Secondary Plan areas a very high portion of the capital infrastructure required is for growth however, it is recognized that improvements to the road infrastructure in these areas will benefit existing development throughout the city. Therefore, a B.T.E. of 15% as been attributed for all new road and road widening projects within the Secondary Plan areas.	15%

Roads Reconstructed to Urban Standard with no Additional Vehicle Lanes	Road reconstruction and urbanization projects typically serve to improve operation, safety, operation, and increase the roads capacity. As several roads in the Secondary Plan areas are currently at a rural standard, there is a need to improve them to an urban cross-section. Even thought there are no additional lanes anticipated, these improvements provide capacity gains result from improvements in alignment, lane reconfiguration, pavement structure improvements, and in some cases, road damage caused by heavy construction traffic.	15%
Active Transportation – Former Barrie City Areas		
Cycling Facilities and Multi-Use Facilities	Active transportation cycling facilities include signed routes, urban shoulders, bike lanes, buffered bike lanes, and cycle tracks. Multi-use facilities include in-boulevard pathways. As these types of active transportation facilities are within the right of ways for complete streets, they B.T.E. attribution is based on the B.T.E. attribution for the road network (35% in the Former Barrie City Areas)	35%
Trails	Active transportation trails include off-road trails and hiking trials that connect to the overall transportation network to provide connectivity to the system. It is recognized that these linkages assist in reducing the reliance on vehicle traffic and are required to ensure additional road widenings are not required. As such a low B.T.E. has been attributed.	15%
Sidewalks	Improvement to sidewalks are required in various locations throughout the Former Barrie lands to achieve the active transpiration modal targets. They play a complementary role with public transit, traffic management and transportation demand management infrastructure, amenities and programs aimed at decreasing single-occupant vehicle use. For this reason, it is critical to helping to manage growth in travel demand due to new development. While there is some benefit to existing community, typically a 5% deduction was applied; the principle reason for implementing this approach is to help accommodate growth.	5%

Active Transportation – Secondary Plan Areas		
Cycling Facilities and Multi-Use Facilities	Similar to the active transportation cycling facilities and multi-use facilities in the Former Barrie areas, this infrastructure includes signed routes, urban shoulders, bike lanes, buffered bike lanes, and cycle tracks. Multi-use facilities include in-boulevard pathways. As these types of active transportation facilities are within the right of ways for complete streets, they B.T.E. attribution is based on the B.T.E. attribution for the road network (15% in the Secondary Plan Areas)	15%
Trails	Active transportation trails include off-road trails and hiking trials that connect to the overall transportation network to provide connectivity to the system. It is recognized that these linkages assist in reducing the reliance on vehicle traffic and are required to ensure additional road widenings are not required. Since the trails in the Secondary Plan areas are mainly to provide active transportation to new development in the area a very low B.T.E. has been attributed.	5%
Sidewalks	Sidewalks are located largely within the shared right of way of the roads as part of a complete street however, it is recognized that there are will also be connections required throughout the Secondary Plan areas aimed at decreasing single-occupant vehicle use. For this reason, a very low B.T.E. has been attributed to sidewalks in the Secondary Plan Areas.	5%
Other Active Transportation Initiatives - City-Wide		
Trail Bridges and Underpasses, Outreach Programs, Bus Stops, I.T.S and H.O.V. Infrastructure	Collectively, active transportation looks to reduce the number of vehicles on City roads, particularly single occupant vehicles, thereby reducing the road infrastructure that would need to be added to accommodate the same demand. The T.M.P. targets an increase in the active transportation mode split f by 2041 throughout the City. This reduces the capital infrastructure costs for such things as road widenings, but requires the installation of other infrastructure, amenities and programs including trail bridges and underpasses for connectivity, infrastructure to encourage increases in transit mode shares as well as outreach programs aimed to encourage residents and employees to use transit and active	35%

	transportation infrastructure. It is recognized that this investment will benefit both the exiting and growth communities, it is critical that this infrastructure is put in place for the City to reach its active transportation modal split by 2041. As such, a B.T.E. of 35% deduction was applied.	