

Lake to Lake Route				Legend				Local Features					
Preferred	Alternative	Multi-Use Path	Paved Shoulder	Signed Route	Trail Connection	Existing On-Road	Proposed Off-Road	Road	Railway	Hydro Corridor	Waterbody	Provincial Park	Municipal Boundary



June 2013



### Legend

Map Scale: 1:5000

June 2013

Multi-Use Path						Crossings		On-Road		Route Information				
Preferred	Existing Path	3.0 m Path	3.0m + Bollards	3.0m + Splashstrip	2.4m Path	Modified Design	Use Ex. Crossing	Prop. New Crossing	Paved Shoulder	Signed Route	● Photo Location #	● Move Utility Pole/ Box	● Move Support Pole	+++ New Retaining Wall
Alternative	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	● Private Entrance	● Move Light Pole	● Move Signal Pole	--- --- --- ---
											● Bus Stop		) Install Pole for Signage	--- --- --- ---
													) Use Existing Pole for Signage	--- --- --- ---
														--- --- --- ---
														--- --- --- ---



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## Lake to Lake Route Design



**[Aur-1] Nokiidaa Trail (St. John's Sideroad - west of John West Way)**  
**Preferred:** Lake to Lake Route uses existing granular surface pathway (Nokiidaa Trail).  
 No upgrades to existing path surface required.

**[Aur-1] Nokiidaa Trail (West of John West Way - East of John West Way)**  
**Preferred:** Construct a 3.0m granular surface pathway following existing desire line under John West Way.

**[Aur-1] Nokiidaa Trail (East of John West Way - North of Vandorf Sideroad)**  
**Preferred:** Construct a 3.0m granular surface pathway following existing desire line under John West Way.



### Legend

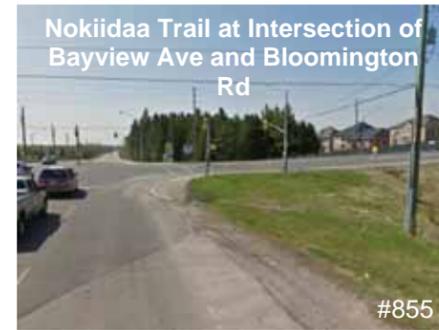
Multi-Use Path						Crossings		On-Road		Route Information													
Preferred	Existing Path	3.0 m Path	3.0m + Bollards	3.0m + Splashstrip	2.4m Path	Modified Design	Use Ex. Crossing	Prop. New Crossing	Paved Shoulder	Signed Route	Photo Location #	Private Entrance	Bus Stop	Move Utility Pole/ Box	Move Light Pole	Move Signal Pole	Move Support Pole	Install Pole for Signage	Use Existing Pole for Signage	New Retaining Wall	Trail Connection	Property Line	Municipal Boundary
Preferred	Orange line	Blue line	Green line	Blue line	Purple line	Red line	Green line	Green line	Purple line	Purple line	Black circle	Red circle	Blue circle	Green circle	Yellow circle	Brown circle	Purple circle	Black circle	Black circle	Grey line	Orange dashed line	Grey line	Black dashed line
Alternative	Orange dashed line	Blue dashed line	Green dashed line	Blue dashed line	Purple dashed line	Red dashed line	Green dashed line	Green dashed line	Purple dashed line	Purple dashed line	Black circle	Red circle	Blue circle	Green circle	Yellow circle	Brown circle	Purple circle	Black circle	Black circle	Grey line	Orange dashed line	Grey line	Black dashed line

Map Scale: 1:5000



June 2013

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### Legend

Map Scale: 1:5000

June 2013



Multi-Use Path		Crossings		On-Road		Route Information												
Preferred	Alternative	Use Ex. Crossing	Prop. New Crossing	Paved Shoulder	Signed Route	Photo Location #	Private Entrance	Bus Stop	Move Utility Pole/ Box	Move Light Pole	Move Signal Pole	Move Support Pole	Install Pole for Signage	Use Existing Pole for Signage	New Retaining Wall	Trail Connection	Property Line	Municipal Boundary
Orange line	Dashed orange line	Green line	Green dashed line	Purple line	Purple dashed line	Black circle	Red circle	Blue circle	Green circle	Yellow circle	Brown circle	Purple circle	Circle with cross	Circle with cross	Grey line with cross-hatch	Red dashed line	Thin grey line	Thick grey line
Blue line	Dashed blue line	Green line	Green dashed line	Blue line	Blue dashed line	Black circle	Red circle	Blue circle	Green circle	Yellow circle	Brown circle	Purple circle	Circle with cross	Circle with cross	Grey line with cross-hatch	Red dashed line	Thin grey line	Thick grey line

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#### 4. Facility Design Considerations

Segment	Road / Path: Nokiidaa Trail	Start: Newmarket / Aurora Boundary	End: Bayview Avenue	Ward: N/A	Sheet#: 3-1A – 3-3A				
Aur-1	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road and Driveway Crossings</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing: 2</b> - Nokiidaa Trail @ Vandorf Sideroad - Nokiidaa Trail @ Crossing Bridge Place <b>Use Existing Crossing: 2</b> - St. John's Sideroad @ Industrial Parkway (North and East Sides) - Wellington Street @ John West Way (East Side) <b>Existing Underpass: 1</b> - Nokiidaa Trail @ John West Way <b>Existing Bridge:</b> None <b># of Private Entrances: 5</b>		- <b>Preferred:</b> Lake to Lake Route uses existing multi-use pathway on Nokiidaa Trail; At the existing Nokiidaa Trail underpass at John West Way, construct new 3.0m granular surface pathway along existing desire line to provide more direct route for trail users. No other upgrades are required to existing pathway surface.				
	<b>Estimated Cost</b>					<b>Phasing</b>			
		<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
		Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	0.21	linear KM	\$140,000.00	\$29,400.00	\$131,565.00	✓	
		Pathway / Road transition at existing signalized intersection (crossside)	3	each	\$25,000.00	\$75,000.00			
		Pathway marker signs	7.76	linear KM	\$1,500.00	\$11,640.00			
		Staging area kiosk	1	each	\$5,000.00	\$5,000.00			
		Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00			
	Pathway marker sign (Single sign on new post)	2	each	\$250.00	\$500.00				
	Pathway marker sign (Double sided sign on existing post or previously proposed)	11	each	\$200.00	\$2,200.00				
	Pathway marker sign (Single sign on existing post or previously proposed post)	13	each	\$125.00	\$1,625.00				
	Pathway marker sign (Double sided sign on new post)	14	each	\$300.00	\$4,200.00				

Segment	Road / Path: Bayview Avenue	Start: Nokiidaa Trail	End: Bloomington Road	Ward: N/A	Sheet#: 3-3B				
Aur-2	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road and Driveway Crossings</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> 2 - Bayview Avenue @ Beacon Hall Drive - Bayview Avenue @ Steeplechase Avenue <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> 5		- Bayview Avenue is expected to be widened in 2020 as part of the Regional Road 10-Year Capital Works program. - <b>Preferred:</b> As part of future road widening on Bayview Avenue, construct new 3.0m multi-use path with 1.0m splash strip (use red stamped concrete) in order to increase separation between vehicles and path users.				
	<b>Estimated Cost</b>				<b>Phasing</b>				
		<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
		Two Way Active Transportation Multi-use path within road right-of-way	1.36	linear KM	\$275,000.00	\$374,000.00	\$589,575.00		
		Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	1,360	m <sup>2</sup>	\$150.00	\$204,000.00			
		Pathway / Road transition at unsignalized intersection (crossride)	2	each	\$5,000.00	\$10,000.00			✓
		Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00			
		Pathway marker sign (Double sided sign on existing post or previously proposed)	3	each	\$200.00	\$600.00			
	Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00				
	Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00				

## 5. Summary of Preferred Route

- The following table presents a summary of the preferred route by facility type for each phase and outlines the overall capital and maintenance cost for the Lake to Lake Route in Aurora. A more detailed Cost Summary highlighting the estimated capital costs and estimated maintenance costs is found in [Appendix A – Unit Costs Schedule and Detailed Cost Tables](#).

Facility Type	Phase 1 (0-3 Years)		Phase 2 (4-5 Years)		Total Length (km)	Total Estimated Cost for all Phases	Estimated Annual Maintenance Cost	Estimated Maintenance Cost 0-5 Years	Estimated Maintenance Cost Over 20 Years
	Length (km)	Estimated Capital Cost	Length (km)	Estimated Capital Cost					
<b>Signed Route</b>	0.00	\$0.00	0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Multi-Use Pathway</b>	7.74	\$131,565.00	1.40	\$589,575.00	9.14	\$721,140.00	\$36,560.00	\$91,400.00	\$639,800.00
<b>Total Network</b>	7.74	\$131,565.00	1.40	\$589,575.00	9.14	<b>\$721,140.00</b>	\$36,560.00	\$91,400.00	\$639,800.00

## 2.4.5 Section #5: Town of Richmond Hill

### 1. Route Alternatives and Rationale

- The Lake to Lake Route within the Town of Richmond Hill will be comprised primarily of a multi-use pathway with some on-road signed route segments.
- From Bloomington Road, the route will use a multi-use pathway on the west side of Bayview Avenue to Snively Street. The route will shift to a section of on-road signed route segments on Bayview Court, Sunbay Court, and Old Bayview Avenue to a multi-use pathway on the west side of Bayview Avenue to Oak Ridges Community Centre. The preferred route crosses Bayview Avenue at the community centre into the Toronto Region Conservation Authority lands where the route will follow the proposed trail network within the Oak Ridges Corridor Nature Reserve. The route will return onto Bayview Avenue just north of Stouffville Road and will continue as a multi-use pathway on the east side of the road to 19<sup>th</sup> Avenue. The route will proceed east along 19<sup>th</sup> Avenue on the south side of the road, and will connect to a multi-use pathway on the west side of Leslie Street via a proposed trail following the existing watercourse through the North Leslie development lands. The preferred route will travel on the west side of Leslie Street as a multi-use pathway to Highway 7.

#### Local Municipal Policies

- The Town of Richmond Hill completed their Trails Master Plan in 2004 which identifies key destinations and off-road trail connections consistent with the preferred Lake to Lake route.
- Town of Richmond Hill Pedestrian and Cycling Master Plan identifies both municipal and regional on and off-road routing consistent with the preferred route alignment along Leslie Street, Bayview Avenue and the existing off-road trail connections.

#### Regional Policies

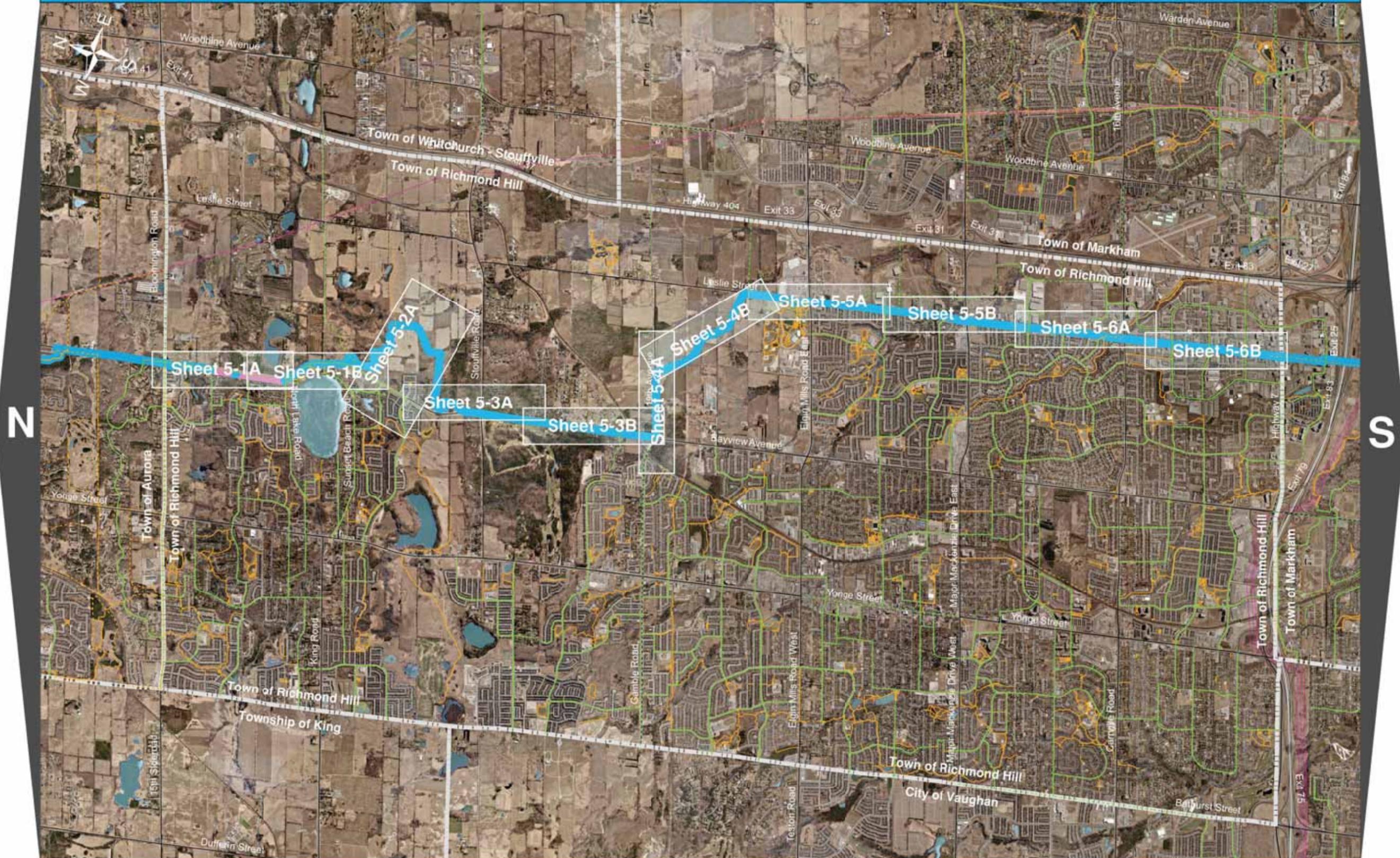
- Northern areas of the Town of Richmond Hill are proposed as part of the strategic priorities for the potential Regional Trail Corridor System identified in the Greenlands System Trail Study.
- The preferred route alignment is consistent with the existing and proposed pedestrian and cycling routes found within the Region's Pedestrian and Cycling Master Plan (PCMP) and the Transportation Master Plan (TMP), e.g. the proposed bike lanes and signed routes along Leslie Street. With regard to pedestrians, the proposed sidewalks on both sides of Leslie Street are consistent with the proposed pedestrian network identified in the PCMP and TMP.
- The Region's Official Plan outlines a Regional Cycling Network which identifies key cycling routes consistent with the PCMP. It is recommended that the Region implement routes / facilities which support the development and use of active transportation. The Lake to Lake Route is consistent with the proposed network and supports the idea of promoting active transportation Region-wide.

### 2. Consultation and Approvals

- Consideration should be given to consulting with the following stakeholders for the Lake to Lake Route: Local ward Counsellors and residents, Town of Richmond Hill staff, North Leslie Landowners Group, and the Toronto Region Conservation Authority.
- Federal environmental assessments are not required for the proposed route as it is not identified as a designated project under the new Canadian Environmental Assessment Act (CEAA) (2012).
- No further approvals are anticipated for the implementation of the Lake to Lake Route in Richmond Hill beyond standard local municipal engineering design and local municipal council budget approvals.

### 3. Design Sheets

- [Map 2.5](#) provides an overview of the Lake to Lake Route in the Town of Richmond Hill.
- Sheet 5-1 to Sheet 5-6 outlines specific design considerations for the route.



Lake to Lake Route				Legend			
Multi-Use Path	Paved Shoulder	Signed Route	Trail Connection	Local Cycling Network		Local Features	
				On-Road	Off-Road		
Preferred							
Alternative							
				Existing	Proposed	Road	Waterbody
						Railway	Provincial Park
						Hydro Corridor	Municipal Boundary

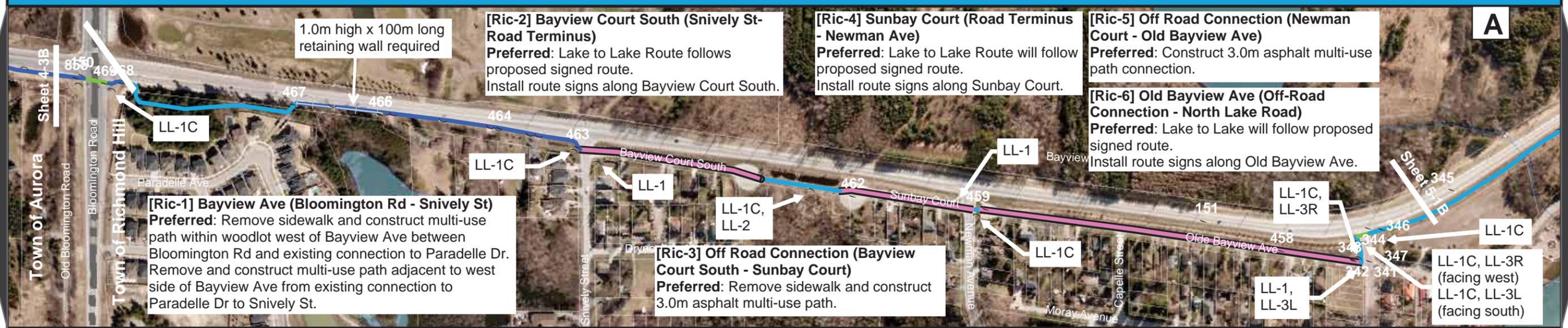


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Lake to Lake Route Design



Legend

		Multi-Use Path					Crossings			On-Road		Route Information							
	Preferred	Existing Path	3.0 m Path	3.0m + Bollards	3.0m + Splashstrip	2.4m Path	Modified Design	Use Ex. Crossing	Prop. Crossing	New Crossing	Paved Shoulder	Signed Route	● Photo Location #	● Move Utility Pole/ Box	● Move Support Pole	--- New Retaining Wall	--- Trail Connection	--- Property Line	--- Municipal Boundary
	Alternative																		

Map Scale: 1:5000

0 50 100 200 Metres

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Legend

Map Scale: 1:5000

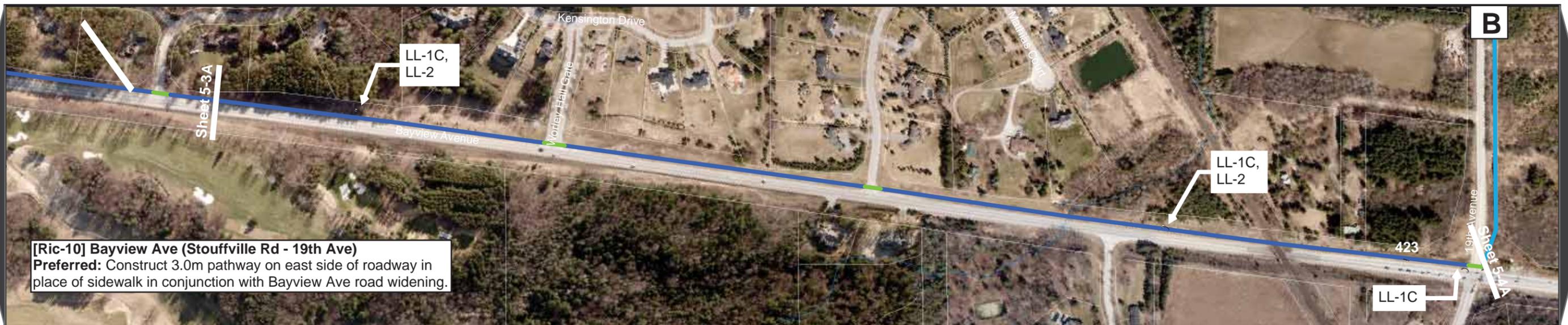
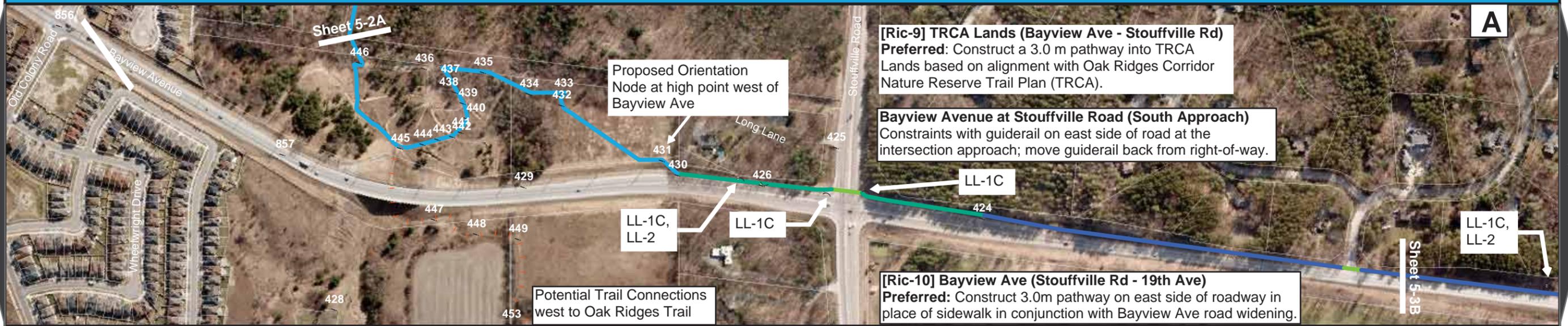
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Multi-Use Path						Crossings		On-Road		Route Information				
Preferred	Existing Path	3.0 m Path	3.0m + Bollards	3.0m + Splashstrip	2.4m Path	Modified Design	Use Ex. Crossing	Prop. New Crossing	Paved Shoulder	Signed Route	● Photo Location #	● Move Utility Pole/ Box	● Move Support Pole	+++ New Retaining Wall
Alternative	--- (dashed orange)	--- (dashed blue)	--- (dashed green)	--- (dashed purple)	--- (dashed red)	--- (dashed red)	--- (dashed green)	--- (dashed green)	--- (dashed purple)	--- (dashed purple)	● Private Entrance	● Move Light Pole	● Move Signal Pole	--- Trail Connection
											● Bus Stop			--- Property Line
														--- Municipal Boundary

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Lake to Lake Route Design



**[Ric-10] Bayview Ave (Stouffville Rd - 19th Ave)**  
**Preferred:** Construct 3.0m pathway on east side of roadway in place of sidewalk in conjunction with Bayview Ave road widening.

**Legend**

Map Scale: 1:5000

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	Multi-Use Path						Crossings		On-Road		Route Information			
	Existing Path	3.0 m Path	3.0m + Bollards	3.0m + Splashstrip	2.4m Path	Modified Design	Use Ex. Crossing	Prop. New Crossing	Paved Shoulder	Signed Route	● Photo Location #	● Move Utility Pole/ Box	● Move Support Pole	+++ New Retaining Wall
Preferred														
Alternative														

0 50 100 200 Metres

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Lake to Lake Route Design



Legend

Map Scale: 1:5000

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Multi-Use Path		Crossings		On-Road		Route Information			
Preferred	Alternative	Use Ex. Crossing	Prop. New Crossing	Paved Shoulder	Signed Route	Photo Location #	Private Entrance	Bus Stop	Municipal Boundary
Existing Path	3.0 m Path	Use Ex. Crossing	Prop. New Crossing	Paved Shoulder	Signed Route	● Photo Location #	● Private Entrance	● Bus Stop	----- Municipal Boundary
3.0m + Bollards	3.0m + Splashstrip	Prop. New Crossing	Prop. New Crossing	Signed Route	Signed Route	● Move Utility Pole/ Box	● Move Light Pole	● Move Signal Pole	++++ New Retaining Wall
2.4m Path	Modified Design	Prop. New Crossing	Prop. New Crossing	Signed Route	Signed Route	● Move Support Pole	● Move Light Pole	● Move Signal Pole	--- Trail Connection
Alternative	Alternative	Prop. New Crossing	Prop. New Crossing	Signed Route	Signed Route	● Install Pole for Signage	● Move Light Pole	● Move Signal Pole	--- Property Line
Alternative	Alternative	Prop. New Crossing	Prop. New Crossing	Signed Route	Signed Route	● Use Existing Pole for Signage	● Move Light Pole	● Move Signal Pole	----- Municipal Boundary



## Lake to Lake Route Design



### Legend

		Multi-Use Path					Crossings		On-Road		Route Information													
Preferred	Alternative	Existing Path	3.0 m Path	3.0m + Bollards	3.0m + Splashstrip	2.4m Path	Modified Design	Use Ex. Crossing	Prop. New Crossing	Paved Shoulder	Signed Route	Photo Location #	Private Entrance	Bus Stop	Move Utility Pole/ Box	Move Light Pole	Move Signal Pole	Move Support Pole	Install Pole for Signage	Use Existing Pole for Signage	New Retaining Wall	Trail Connection	Property Line	Municipal Boundary
[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]

Map Scale: 1:5000

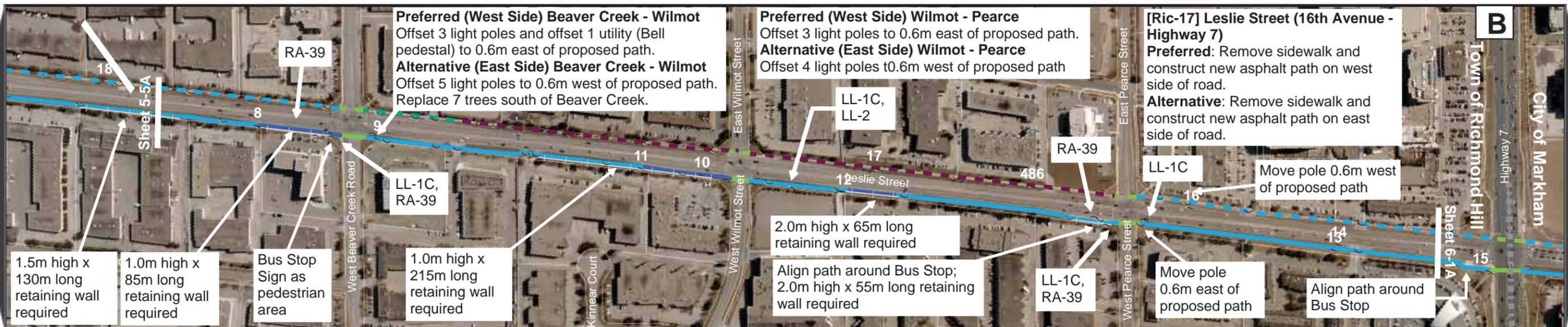


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## Lake to Lake Route Design



### Legend

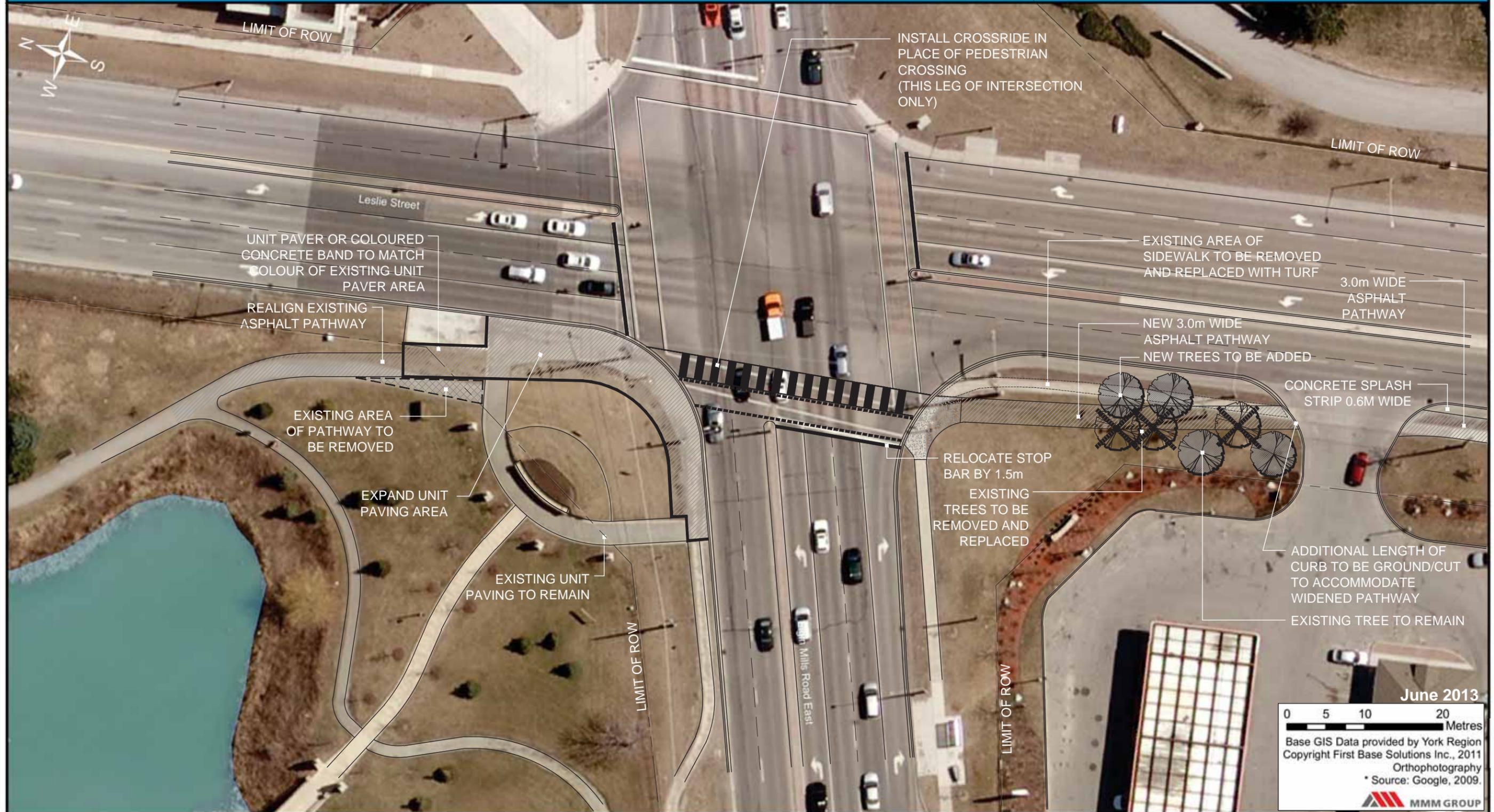
Multi-Use Path		Crossings		On-Road		Route Information												
Preferred	Alternative	Use Ex. Crossing	Prop. New Crossing	Paved Shoulder	Signed Route	Photo Location #	Private Entrance	Bus Stop	Move Utility Pole/ Box	Move Light Pole	Move Signal Pole	Move Support Pole	Install Pole for Signage	Use Existing Pole for Signage	New Retaining Wall	Trail Connection	Property Line	Municipal Boundary
—	- - -	—	—	—	—	●	●	●	●	●	●	●	⌋	⌋	—	—	—	—

Map Scale: 1:5000



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#### 4. Facility Design Considerations

Segment	Road / Path: Bayview Avenue (West Side)	Start: Bloomington Road	End: Snively Street	Ward: 1	Sheet#: 5-1A			
Ric-1	<b>Facility Design Considerations</b>							
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>			
	Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> 4 total <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> None <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> 3		<ul style="list-style-type: none"> <li>- <b>Preferred:</b> Remove sidewalk at southwest corner of intersection and construct 3.0m asphalt multi-use path within woodlot west of Bayview Avenue between Bloomington Road and existing sidewalk connection to Paradelle Drive.</li> <li>- Remove sidewalk and construct 3.0m asphalt multi-use path and 0.75m splash strip (use red stamped concrete) adjacent to west side of Bayview Avenue between existing sidewalk connection to Paradelle Drive and Snively Street. The splash strip provides additional separation between the roadway and the multi-use path.</li> <li>- <b>Required Structure:</b> Retaining Wall (1.0m high x approximately 75m length) in section immediately south of existing sidewalk connection to Paradelle Drive.</li> </ul>			
	<b>Estimated Cost</b>				<b>Phasing</b>			
	<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.39	linear KM	\$320,000.00	\$124,800.00	\$333,050.00		
	Two Way Active Transportation Multi-use path within road right-of-way	0.23	linear KM	\$275,000.00	\$63,250.00			
	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	390	m <sup>2</sup>	\$150.00	\$58,500.00			
	Retaining Wall	75	m <sup>2</sup>	\$600.00	\$45,000.00			✓
	Relocation of Light / Support Pole	4	each	\$4,000.00	\$16,000.00			
Pathway / Road transition at existing signalized intersection (crossride)	1	each	\$25,000.00	\$25,000.00				
Pathway marker sign (Double sided sign on existing post or previously proposed)	1	each	\$200.00	\$200.00				
Pathway marker sign (Double sided sign on new post)	1	each	\$300.00	\$300.00				



Segment	Road / Path: Bayview Court South		Start: Snively Street		End: Road Terminus		Ward: 1	Sheet#: 5-1A	
Ric-2	Facility Design Considerations								
	Facility Type	Municipal Infrastructure Impacts	Road Crossings and Private Entrances			Other Considerations			
	Signed Route	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> Not applicable <b>Use Existing Crossing:</b> Not applicable <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> Not applicable			<ul style="list-style-type: none"> <li>- Low volume, low speed (40km/h) residential roadway.</li> <li>- <b>Preferred:</b> Install route signs along Bayview Court South; cyclists and pedestrians to share space with vehicles.</li> </ul>			
	Estimated Cost							Phasing	
	Description		Estimated Quantity	Units	Unit Price	Item Cost	Segment Cost	0-3 Years	4-5 Years
	Signed Bike Route in Urban Area		0.23	linear KM	\$1,500.00	\$345.00	\$595.00	✓	
Pathway marker sign (Single sign on new post)		1	each	\$250.00	\$250.00				

Segment	Road / Path: Off-Road Connection		Start: Bayview Court South		End: Sunbay Court		Ward: 1	Sheet#: 5-1A	
Ric-3	Facility Design Considerations								
	Facility Type	Municipal Infrastructure Impacts	Road Crossings and Private Entrances			Other Considerations			
	Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> None <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None			<ul style="list-style-type: none"> <li>- Existing sidewalk connection between Bayview Court South and Sunbay Court.</li> <li>- <b>Preferred:</b> At next scheduled resurfacing of connection, remove sidewalk and construct 3.0m asphalt multi-use path.</li> <li>- <b>Interim:</b> Install route signs along sidewalk.</li> </ul>			
	Estimated Cost							Phasing	
	Description		Estimated Quantity	Units	Unit Price	Item Cost	Segment Cost	0-3 Years	4-5 Years
	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk		0.10	linear KM	\$320,000.00	\$32,000.00	\$32,500.00	✓	
Pathway marker sign (Double sided sign on new post)		1	each	\$300.00	\$300.00				
Pathway marker sign (Double sided sign on existing post or previously proposed)		1	each	\$200.00	\$200.00				

Segment	Road / Path: Sunbay Court	Start: Road Terminus	End: Newman Avenue	Ward: 1	Sheet#: 5-1A			
Ric-4	<b>Facility Design Considerations</b>							
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>			
	Signed Route	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> Not applicable <b>Use Existing Crossing:</b> Not applicable <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> Not applicable		<ul style="list-style-type: none"> <li>- Low volume, low speed (40km/h) residential roadway.</li> <li>- <b>Preferred:</b> Install route signs along Sunbay Court; cyclists to share space with vehicles and pedestrians to use existing sidewalk.</li> </ul>			
	<b>Estimated Cost</b>				<b>Phasing (TBD)</b>			
		<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>
	Signed Bike Route in Urban Area	0.17	linear KM	\$1,500.00	\$255.00	\$505.00	✓	
	Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00			

Segment	Road / Path: Off-Road Connection	Start: Newman Avenue	End: Old Bayview Avenue	Ward: 1	Sheet#: 5-1A			
Ric-5	<b>Facility Design Considerations</b>							
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>			
	Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> None <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None		<ul style="list-style-type: none"> <li>- <b>Preferred:</b> Modify guiderail at the terminus of Old Bayview Avenue and construct 3.0m asphalt multi-use path connection between Newman Avenue and Old Bayview Avenue.</li> </ul>			
	<b>Estimated Cost</b>				<b>Phasing</b>			
		<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>
	Two Way Active Transportation Multi-use path within road right-of-way	0.02	linear KM	\$275,000.00	\$5,500.00	\$5,825.00	✓	
	Pathway marker sign (Double sided sign on existing post or previously proposed)	1	each	\$200.00	\$200.00			
	Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00			



Segment	Road / Path: Old Bayview Avenue		Start: South of Newman Avenue		End: North Lake Road		Ward: 1	Sheet#: 5-1A/B	
Ric-6	Facility Design Considerations								
	Facility Type	Municipal Infrastructure Impacts	Road Crossings and Private Entrances			Other Considerations			
	Signed Route	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> Not applicable <b>Use Existing Crossing:</b> Not applicable <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> Not applicable			<ul style="list-style-type: none"> <li>- Low volume, low speed (40km/h) residential roadway.</li> <li>- <b>Preferred:</b> Install route signs at 1.0km intervals along Old Bayview Avenue; cyclists to share space with vehicles and pedestrians to use future sidewalk proposed by the Oak Ridges Community Centre and Park Master Plan (2005).</li> <li>-</li> </ul>			
	Estimated Cost							Phasing	
	Description	Estimated Quantity	Units	Unit Price	Item Cost	Segment Cost	0-3 Years	4-5 Years	
Signed Bike Route in Urban Area	0.47	linear KM	\$1,500.00	\$705.00	\$1,080.00	✓			
Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00					
Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00					

Segment	Road / Path: Bayview Avenue		Start: North Lake Road		End: Oak Ridges Community Centre		Ward: 1	Sheet#: 5-1A/B	
Ric-7	Facility Design Considerations								
	Facility Type	Municipal Infrastructure Impacts	Road Crossings and Private Entrances			Other Considerations			
	Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> 1 <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> 1 New Crossride at signalized intersection - Bayview Ave @ North Lake Road <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None			<ul style="list-style-type: none"> <li>- <b>Preferred:</b> Construct 3.0m multi-use pathway on the west side of Bayview Avenue from proposed crossride at Oak Ridges Community Centre to North Lake Road.</li> </ul>			
	Estimated Cost							Phasing	
	Description	Estimated Quantity	Units	Unit Price	Item Cost	Segment Cost	0-3 Years	4-5 Years	
	Two Way Active Transportation Multi-use path within road right-of-way	1.16	linear KM	\$275,000.00	\$319,000.00	\$558,075.00	✓		
	Install Light Pole	1	linear km	\$200,000.00	\$232,000.00				
Pathway marker sign (Double sided sign on existing post or previously proposed post)	3	each	\$200.00	\$200.00					
Pathway marker sign (Single sign on existing post or previously proposed post)	5	each	\$125.00	\$375.00					
Pathway marker sign (Double sided sign on new post)	1	each	\$300.00	\$1,500.00					
Pathway / Road transition at unsignalized intersection(crossride)		each	\$5,000.00	\$5,000.00					

Segment	Road / Path: Oak Ridges CC Parking Lot	Start: Oak Ridges Community Centre Pathway	End: Bayview Avenue	Ward: 1	Sheet#: 5-1B		
Ric-8	<b>Facility Design Considerations</b>						
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>		
	Signed Route	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> 1 New Crossride at Signalized Intersection - Bayview Ave @ Oak Ridges Community Centre <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None		- <b>Preferred:</b> Use existing crossing from Oak Ridges Community Centre to proposed route along the trail alignment identified in the Oak Ridges Corridor Nature Reserve Trail Plan.		
	<b>Estimated Cost</b>				<b>Phasing</b>		
	<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>
Pathway / Road transition at existing signalized intersection (crossride)	1	each	\$25,000.00	\$25,000.00	\$25,000.00	✓	

Segment	Road / Path: Oak Ridges Corridor Nature Reserve Trail	Start: Bayview Avenue	End: 200m north of Stouffville Road	Ward: 1	Sheet#: 5-1B; 5-2			
Ric-9	<b>Facility Design Considerations</b>							
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>			
	Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> None <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> <b>Existing Bridge:</b> <b># of Private Entrances:</b> None		- <b>Preferred:</b> Construct new 3.0m (suggested minimum: 2.4m) granular multi-use path along the trail alignment identified in the Oak Ridges Corridor Nature Reserve Trail Plan to Bayview Avenue. - Trail Connection north of Stouffville Road to the Oak Ridges Trail. - Proposed Orientation Node (Trailhead without parking) at high point approximately 275m north of Stouffville Road; install interpretive information signage (regarding watershed divide) at this location.			
	<b>Estimated Cost</b>				<b>Phasing</b>			
	<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	3.36	linear KM	\$140,000.00	\$470,400.00	\$565,550.00	✓	
	Two Way Active Transportation Multi-use path within road right-of-way	0.20	linear KM	\$275,000.00	\$55,000.00			
	Flexible Bollards	20	each	\$100.00	\$2,000.00			
Retaining Wall	40	m <sup>2</sup>	\$600.00	\$24,000.00				
Staging area kiosk	1	each	\$5,000.00	\$5,000.00				
Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00				



	Relocation of Light / Support Pole	1	each	\$4,000.00	\$4,000.00			
	Pathway marker sign (Double sided sign on new post)	7	each	\$300.00	\$2,100.00			
	Pathway marker sign (Double sided sign on existing post or previously proposed post)	4	each	\$200.00	\$800.00			
	Pathway marker sign (Single sign on existing post or previously proposed post)	2	each	\$125.00	\$250.00			

<b>Segment</b>	<b>Road / Path:</b> Bayview Avenue (East Side)	<b>Start:</b> 200m north of Stouffville Road	<b>End:</b> 19 <sup>th</sup> Avenue	<b>Ward:</b> 3	<b>Sheet#:</b> 5-3A/B
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Facility Design Considerations				
Facility Type	Municipal Infrastructure Impacts	Road Crossings and Private Entrances		Other Considerations
Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing: 5</b> New Crossside at Signalized Intersection: <ul style="list-style-type: none"> <li>- Bayview Ave @ Stouffville Road</li> <li>- Bayview Ave @ 19th Avenue</li> </ul> New Crossside at Stop-Controlled Intersection <ul style="list-style-type: none"> <li>- Bayview Ave @ Forest Ridge Place</li> <li>- Bayview Ave @ Worley Hill Gate</li> <li>- Bayview Ave @ Summit Trail Drive</li> </ul> <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None		<ul style="list-style-type: none"> <li>- <b>Preferred:</b> Remove sidewalk and construct 3.0m asphalt multi-use path and 0.75m splash strip adjacent to east side of Bayview Avenue from 200m north of Stouffville Road to Stouffville Road. The splash strip provides additional separation between the roadway and the multi-use path.</li> <li>- Move guiderail back from the road and construct 3.0m asphalt multi-use path with flexible bollards from Stouffville Road to 150m south of Stouffville Road.</li> <li>- Construct 3.0m asphalt multi-use path and 0.75m splash strip adjacent to east side of Bayview Avenue from 200m north of Stouffville Road to 19<sup>th</sup> Avenue as part of the Bayview Avenue Road Widening project (east side of road will have an urban cross-section).</li> </ul>

Ric-10	Estimated Cost					Phasing		
	Description	Estimated Quantity	Units	Unit Price	Item Cost	Segment Cost	0-3 Years	4-5 Years
	Two Way Active Transportation Multi-use path within road right-of-way	2.16	linear KM	\$275,000.00	\$594,000.00	\$1,477,731.80	✓	
	Flexible Bollards	0.16	each	\$100.00	\$16.00			
	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	2,010	m <sup>2</sup>	\$150.00	\$301,500.00			
	Pathway / Road transition at existing signalized intersection (crossside)	5	each	\$25,000.00	\$125,000.00			
	Install Light Pole	2.28	linear km	\$200,000.00	\$455,815.80			
	Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00			
	Pathway marker sign (Double sided sign on existing post or previously proposed post)	4	each	\$200.00	\$800.00			

Segment	Road / Path: 19 <sup>th</sup> Avenue (South Side)	Start: Bayview Avenue (East Side)	End: North Leslie Lands – Proposed Path	Ward: 3	Sheet#: 5-4A				
Ric-11	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> None <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None		- <b>Preferred:</b> Construct 3.0m asphalt multi-use path on south side of 19 <sup>th</sup> Avenue with future 19 <sup>th</sup> Avenue road widening. Exact route alignment south of 19 <sup>th</sup> Avenue to be determined and constructed by future developer.				
	<b>Estimated Cost</b>				<b>Phasing</b>				
	<b>Description</b>		<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
	Two Way Active Transportation Multi-use path within road right-of-way		0.85	linear KM	\$275,000.00	\$233,750.00	\$235,100.00		
	Pathway marker sign (Double sided sign on existing post or previously proposed post)		1	each	\$200.00	\$200.00			
Pathway marker sign (Single sign on existing post or previously proposed post)		2	each	\$125.00	\$250.00			✓	
Pathway marker sign (Double sided sign on new post)		3	each	\$300.00	\$900.00				

Segment	Road / Path: North Leslie Lands – Proposed Path	Start: 19 <sup>th</sup> Avenue	End: Leslie Street	Ward: 3	Sheet#: 5-4B				
Ric-12	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> None <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None		- <b>Preferred:</b> Construct 3.0m asphalt multi-use path on southwest side of watercourse within North Leslie Development Lands as per discussion with the North Leslie Landowners Group. Exact route alignment south of 19 <sup>th</sup> Avenue to be determined and constructed by future developer.				
	<b>Estimated Cost</b>				<b>Phasing</b>				
	<b>Description</b>		<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)		1.65	linear KM	\$250,000.00	\$412,500.00	\$413,550.00		
	Pathway marker sign (Double sided sign on existing post or previously proposed post)		1	each	\$200.00	\$200.00			
Pathway marker sign (Single sign on existing post or previously proposed post)		2	each	\$125.00	\$250.00			✓	
Pathway marker sign (Double sided sign on new post)		2	each	\$300.00	\$600.00				



Segment	Road / Path: Leslie Street (West Side)	Start: North Leslie Lands – Proposed Path	End: Richmond Green Park	Ward: 3	Sheet#: 5-4B, 5-5A				
Ric-13	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing: 1</b> New Crossride at Stop-Controlled Intersection - Leslie Street @ Richmond Green High School Entrance <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> 3		- <b>Preferred:</b> Construct 3.0m asphalt multi-use path on west side of Leslie Street between drainage ditch and utility poles north of high school entrance. Construct 3.0m asphalt multi-use path on west side of Leslie Street between road and utility poles south of high school entrance. Route passes in front of Richmond Green High School and connects to existing trail network within Richmond Green Park.				
	<b>Estimated Cost</b>					<b>Phasing</b>			
		<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
		Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	0.51	linear KM	\$250,000.00	\$127,500.00	\$159,550.00	✓	
		Pathway / Road transition at existing signalized intersection (crossride)	1.00	each	\$25,000.00	\$25,000.00			
		Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00			
	Pathway marker sign (Double sided sign on existing post or previously proposed post)	1	each	\$200.00	\$200.00				
	Pathway marker sign (Single sign on existing post or previously proposed post)	2	each	\$125.00	\$250.00				

Segment	Road / Path: Richmond Green Park Path	Start: Leslie Street	End: Elgin Mills Road	Ward: 3	Sheet#: 5-5A				
Ric-14	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> 1	<b>New Crossing:</b> None <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None		<ul style="list-style-type: none"> <li>- <b>Preferred:</b> Proposed Lake to Lake Route uses the existing asphalt pathway within Richmond Green Park immediately west of Leslie Street; no upgrades required to existing path surface. Realign trail southern terminus of existing trail to abut the bus stop concrete pad at the northwest corner of the Elgin Mills Road and Leslie Street intersection.</li> <li>- Existing Major Trailhead at Richmond Green Park includes washroom and parking facilities; install route information signage at this location.</li> </ul>				
	<b>Estimated Cost</b>				<b>Phasing</b>				
		<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
		Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	0.03	linear KM	\$250,000.00	\$7,500.00	\$16,095.00	✓	
		Staging area kiosk	1	each	\$5,000.00	\$5,000.00			
		Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00			
		Pathway marker signs	0.33	linear KM	\$1,500.00	\$495.00			
		Pathway marker sign (Double sided sign on existing post or previously proposed post)	1	each	\$200.00	\$200.00			
	Pathway marker sign (Double sided sign on new post)	3	each	\$300.00	\$900.00				



Segment	Road / Path: Leslie Street (West Side)	Start: Elgin Mills Road	End: Major Mackenzie Drive	Ward: 3	Sheet#: 5-5A/B				
Ric-15	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Poles:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> 1 total - Offset 1 pole at SW corner at Princeton Ave to 0.6m east of path alignment <b>Bus Stops:</b> 6	<b>New Crossing: 3</b> New Crossride at Signalized Intersection - Leslie Street @ Elgin Mills Road - Leslie Street @ Princeton Avenue New Crossride at Stop-Controlled Intersection - Leslie Street @ Toporowski Avenue <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge: 1</b> - Leslie Street (350m north of Major Mackenzie Drive) <b># of Private Entrances: 2</b>		<ul style="list-style-type: none"> <li>- <b>Elgin Mills – 115m north of Major Mackenzie Drive (Preferred):</b> Remove sidewalk and construct new 3.0m asphalt multi-use path with 0.75m splash strip (use red stamped concrete), which provides additional separation between the roadway and the multi-use path.  <i>Exception:</i> At the SW corner of Leslie Street and Elgin Mills Road and at the SW corner of Leslie Street at Toporowski Avenue, align path west of light pole to avoid offsetting light and signal poles.  <i>Exception:</i> At the creek crossing 350m north of Major Mackenzie Drive, use existing 4.0m concrete surface; no upgrades are required for the existing path surface. On the approaches to this crossing, relocate guiderail away from the road to allow for a 3.0m asphalt multi-use path with 0.75m splash strip.</li> <li>- <b>115m north of Major Mackenzie Drive – Major Mackenzie Drive (Preferred):</b> Remove sidewalk and construct new 3.0m asphalt multi-use path adjacent to west side curb of Leslie Street. Install flexible bollards to visually delineate space between path users and vehicles.</li> <li><b>115m north of Major Mackenzie Drive – Major Mackenzie Drive (Alternative):</b> Offset guiderail 1.0m west, remove sidewalk and construct new 3.0m asphalt multi-use path with 0.75m splash strip (use red stamped concrete), which provides additional separation between the roadway and the multi-use path.</li> </ul>				
	<b>Estimated Cost</b>				<b>Phasing</b>				
		<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
		Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	1.97	linear KM	\$320,000.00	\$630,400.00	\$971,375.00	✓	
		Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	1,680	m <sup>2</sup>	\$150.00	\$252,000.00			
		Flexible Bollards	19	each	\$100.00	\$1,900.00			
		Pathway / Road transition at existing signalized intersection (crossride)	3	each	\$25,000.00	\$75,000.00			
		Pathway Crossing of Private Entrance	2	each	\$2,000.00	\$4,000.00			
	Relocation of Light / Support Pole	1	each	\$4,000.00	\$4,000.00				
	Pathway marker sign (Double sided sign on new post)	1	each	\$300.00	\$300.00				
	Pathway marker sign (Double sided sign on existing post or previously proposed post)	7	each	\$200.00	\$1,400.00				
	Pathway marker sign (Single sign on new post)	8	each	\$250.00	\$2,000.00				
	Pathway marker sign (Single sign on existing post or previously proposed post)	3	each	\$125.00	\$375.00				

<b>Segment</b>	<b>Road / Path:</b> Leslie Street (West Side)	<b>Start:</b> Major Mackenzie Drive	<b>End:</b> 16 <sup>th</sup> Avenue	<b>Ward:</b> 6	<b>Sheet#:</b> 5-5B, 5-6A
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**Facility Design Considerations**

Facility Type	Municipal Infrastructure Impacts	Road Crossings and Private Entrances	Other Considerations
Multi-Use Path	<p><b>Utility Poles:</b> None</p> <p><b>Light Poles:</b> 18 total</p> <ul style="list-style-type: none"> <li>- Offset 10 poles between Major Mackenzie Dr. and Greenhill Ave to 0.6m east of path alignment</li> <li>- Offset 7 poles between Greenhill Ave and Headford Ave to 0.6m east of path alignment</li> <li>- Offset 1 pole ~400m north of 16<sup>th</sup> Avenue to 0.6m east of path alignment</li> </ul> <p><b>Signal Poles:</b> None</p> <p><b>Support Poles:</b> 2</p> <ul style="list-style-type: none"> <li>- Offset 2 poles between Greenhill Ave and Headford Ave to 0.6m east of path alignment</li> </ul> <p><b>Bus Stops:</b> 3</p>	<p><b>New Crossing:</b> 3</p> <p>New Crossride at Signalized Intersection</p> <ul style="list-style-type: none"> <li>- Leslie Street @ Major Mackenzie Drive</li> <li>- Leslie Street @ Greenhill Avenue</li> <li>- Leslie Street @ Headford Avenue</li> </ul> <p><b>Use Existing Crossing:</b> None</p> <p><b>Existing Underpass:</b> None</p> <p><b>Existing Bridge:</b> None</p> <p><b># of Private Entrances:</b> 1</p>	<ul style="list-style-type: none"> <li>- <b>Major Mackenzie Drive – 1<sup>st</sup> Private Entrance south of Major Mackenzie Drive (Preferred):</b> Remove sidewalk on west side of road and align new 3.0m asphalt multi-use path west of first light pole at south west corner of Leslie Street and Major Mackenzie. Then remove sidewalk on west side of road and construct 3.0m asphalt multi-use path adjacent to west side curb of Leslie Street. Install flexible bollards to visually delineate space between path users and vehicles.</li> <li>- <b>1<sup>st</sup> Private Entrance south of Major Mackenzie Drive – Greenhill Avenue (Preferred):</b> Remove sidewalk on west side of road, trim 470m of shrubs back from right-of-way, offset poles to 0.6m east of proposed path, and construct 2.4m asphalt multi-use path between shrubs and treeline to avoid displacement of 43 trees.</li> <li>- <b>1<sup>st</sup> Private Entrance south of Major Mackenzie Drive – Greenhill Avenue (Alternative):</b> Remove sidewalk on west side of road, trim 470m of shrubs back from right-of-way, offset poles to 0.6m east of proposed path, relocate 43 trees to 0.6m east of proposed path and construct 3.0m asphalt multi-use path between shrubs and treeline.</li> <li>- <b>Greenhill Avenue – Headford Avenue (Preferred):</b> Remove sidewalk on west side of road, offset poles to 0.6m east of path alignment and construct 3.0m asphalt multi-use path with 0.6m clear zones between treeline and poles.</li> <li>- <b>Headford Avenue – 300m north of 16<sup>th</sup> Avenue (Preferred):</b> Remove sidewalk on west side of road and construct 2.4m asphalt multi-use path between fence line and treeline to avoid displacement of trees in this section.</li> <li>- <b>300m north of 16<sup>th</sup> Avenue – 16<sup>th</sup> Avenue (Preferred):</b> Remove sidewalk on west side of road and construct 3.0m asphalt with multi-use path with 0.6m clear zones.</li> </ul>

**Estimated Cost**

Description	Estimated Quantity	Units	Unit Price	Item Cost	Segment Cost	Phasing	
						0-3 Years	4-5 Years
Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	1.96	linear KM	\$320,000.00	\$627,200.00	\$787,465.00	✓	
Flexible Bollards	0.15	each	\$100.00	\$15.00			
Pathway / Road transition at existing signalized intersection (crossride)	3	each	\$25,000.00	\$75,000.00			
Pathway Crossing of Private Entrance	1	each	\$2,000.00	\$2,000.00			
Relocation of Light / Support Pole	20	each	\$4,000.00	\$80,000.00			
Pathway marker sign (Double sided sign on existing post or previously proposed)	8	each	\$200.00	\$1,800.00			
Pathway marker sign (Single sign on existing post or previously proposed post)	6	each	\$125.00	\$750.00			
Pathway marker sign (Double sided sign on new post)	3	each	\$300.00	\$900.00			



Segment	Road / Path: Leslie Street	Start: 16 <sup>th</sup> Avenue	End: Highway 7	Ward: 2	Sheet#: 5-6A/B
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Facility Design Considerations			
Facility Type	Municipal Infrastructure Impacts	Road Crossings and Private Entrances	Other Considerations
Ric-17 Multi-Use Path	<p><b>Utility Box:</b> 2 total</p> <ul style="list-style-type: none"> <li>- Offset 1 Bell pedestal located ~490m south of 16<sup>th</sup> Avenue to 0.6m east of path alignment</li> <li>- Offset 1 Bell pedestal located ~20m south of West Beaver Creek to 0.6m east of path alignment</li> </ul> <p><b>Light Poles:</b> 10 total</p> <ul style="list-style-type: none"> <li>- Offset 4 poles between 16<sup>th</sup> Ave and West Beaver Creek Rd to 0.6m east of path alignment</li> <li>- Offset 3 poles between West Beaver Creek Rd and West Wilmot St to 0.6m east of path alignment</li> <li>- Offset 3 poles between West Wilmot St and West Pearce St to 0.6m east of path alignment</li> </ul> <p><b>Signal Poles:</b> 1 total</p> <ul style="list-style-type: none"> <li>- Offset pedestrian signal pole at southwest corner at West Pearce Street to 0.6m east of path alignment</li> </ul> <p><b>Support Poles:</b> None</p> <p><b>Bus Stops:</b> 2</p>	<p><b>New Crossing:</b> 4</p> <p>New Crossride at Signalized Intersection</p> <ul style="list-style-type: none"> <li>- Leslie Street @ 16<sup>th</sup> Avenue</li> <li>- Leslie Street @ West Beaver Creek Road</li> <li>- Leslie Street @ West Wilmot Street</li> <li>- Leslie Street @ West Pearce Street</li> </ul> <p><b>Use Existing Crossing:</b> 1</p> <ul style="list-style-type: none"> <li>- Leslie Street @ Highway 7</li> </ul> <p><b>Existing Underpass:</b> None</p> <p><b>Existing Bridge:</b> None</p> <p><b># of Private Entrances:</b> 10</p>	<ul style="list-style-type: none"> <li>- <b>Preferred (Leslie Street (West Side): 16<sup>th</sup> Avenue – Highway 7):</b> Remove sidewalk, offset poles to 0.6m east of path alignment and construct 3.0m asphalt multi-use pathway on west side of road. Where path is located adjacent to curb, construct a 0.75m splash strip (use red stamped concrete), which provides additional separation between the roadway and the multi-use path. <ul style="list-style-type: none"> <li>At N-W corner of Leslie Street and Pearce Street align path west around bus stop.</li> <li>At N-W corner of Leslie Street and Hwy 7 align path west around bus stop.</li> </ul> </li> <li>- <b>Required Structure:</b> Retaining Wall (1.5m high x approximately 130m length) in section starting ~265m south of 16<sup>th</sup> Avenue.</li> <li>- <b>Required Structure:</b> Retaining Wall (1.0m high x approximately 85m length) in section starting ~490m south of 16<sup>th</sup> Avenue.</li> <li>- <b>Required Structure:</b> Retaining Wall (1.0m high x approximately 215m length) in section starting ~215m south of West Beaver Creek Road.</li> <li>- <b>Required Structure:</b> Retaining Wall (2.0m high x approximately 65m length) in section starting ~215m south of West Wilmot Street.</li> <li>- <b>Required Structure:</b> Retaining Wall (2.0m high x approximately 55m length) in section starting ~395m south of West Wilmot Street.</li> <li>- <b>Alternative (Leslie Street (East Side): 16<sup>th</sup> Avenue – Highway 7):</b> Remove sidewalk, offset poles to 0.6m west of path alignment and construct 3.0m asphalt multi-use pathway on east side of road. Where path is located adjacent to curb, construct a 0.75m splash strip (use red stamped concrete), which provides additional separation between the roadway and the multi-use path.</li> </ul>

Estimated Cost						Phasing	
Description	Estimated Quantity	Units	Unit Price	Item Cost	Segment Cost	0-3 Years	4-5 Years
Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	1.93	linear KM	\$320,000.00	\$617,600.00	\$1,311,375.00	✓	
Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	270	m <sup>2</sup>	\$150.00	\$40,500.00			
Pathway / Road transition at existing signalized intersection (crossride)	5	each	\$25,000.00	\$125,000.00			
Retaining Wall	195	m <sup>2</sup>	\$600.00	\$117,000.00			
Retaining Wall	85	m <sup>2</sup>	\$600.00	\$51,000.00			
Retaining Wall	215	m <sup>2</sup>	\$600.00	\$129,000.00			
Retaining Wall	130	m <sup>2</sup>	\$600.00	\$78,000.00			
Retaining Wall	110	m <sup>2</sup>	\$600.00	\$66,000.00			
Pathway Crossing of Private Entrance	10	each	\$2,000.00	\$20,000.00			
Relocation of Light / Support Pole	10	each	\$4,000.00	\$40,000.00			

Relocation of Signal Pole / Utility Box	3	each	\$8,000.00	\$24,000.00			
Pathway marker sign (Double sided sign on new post)	4	each	\$300.00	\$1,200.00			
Pathway marker sign (Double sided sign on existing post or previously proposed post)	6	each	\$200.00	\$1,200.00			
Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00			
Pathway marker sign (Single sign on existing post or previously proposed post)	5	each	\$125.00	\$625.00			



## 5. Summary of Preferred Route

- The following table presents a summary of the preferred route by facility type for each phase and outlines the overall capital and maintenance cost for the Lake to Lake Route in Richmond Hill. A more detailed Cost Summary highlighting the estimated capital costs and estimated maintenance costs is found in [Appendix A – Unit Costs Schedule and Detailed Cost Tables](#).

Facility Type	Phase 1 (0-3 Years)		Phase 2 (4-5 Years)		Total Length (km)	Estimated Total Capital Cost for all Phases		Estimated Annual Maintenance Cost	Estimated Maintenance Cost 0-5 Years	Estimated Maintenance Cost Over 20 Years
	Length (km)	Estimated Capital Cost	Length (km)	Estimated Capital Cost						
<b>Signed Route</b>	0.89	\$27,180.00	0.00	\$0.00	0.89	\$27,180.00		\$445.00	\$1,112.50	\$7,787.50
<b>Multi-Use Pathway</b>	14.18	\$5,885,541.80	3.15	\$981,700.00	17.33	\$6,867,241.80		\$69,320.00	\$173,300.00	\$1,213,100.00
<b>Total Network</b>	15.07	\$5,912,721.80	3.15	\$981,700.00	18.22	<b>\$6,894,421.80</b>		\$69,765.00	\$174,412.50	\$1,220,887.50

## 2.4.6 Section #6: City of Markham

### 1. Route Alternatives and Rationale

- The Lake to Lake Route within the City of Markham will consist primarily of proposed multi-use pathways. From Highway 7 south to Commerce Valley Drive, the preferred route will be located on the west side of Leslie Street. From Commerce Valley Drive to John Street, the route will be located on the east side of Leslie Street at which point the route continues west on John Street on the south side of the road connecting to German Mills Settler's Park Trail. The route then follows the existing signed route along Leslie Street to Steeles Avenue East.
- An alternative to the primary route is an alignment to run along the east side of Leslie Street from Highway 7 south to Commerce Valley Drive. This would eliminate the crossing at Leslie Street and Commerce Valley Drive; however the route would need to cross at Leslie Street and 16<sup>th</sup> Avenue which is a much busier intersection. Furthermore, there is a proposed commercial development at the southeast corner of Highway 7 and Leslie Street with frontages on both streets. It is expected that there would be high pedestrian traffic in this area, which would not be desirable for a multi-use pathway shared between cyclists and pedestrians.

#### Local Municipal Policies

- The Town of Markham Cycling and Trails Master Plan identifies some existing as well as proposed routes which are consistent with the preferred Lake to Lake Route, e.g. along Leslie Street.
- The Markham Cycling, Pathways and Trails 5-Year Implementation Plan identifies preferred alternatives as well as design options for on and off-road trail connections including but not limited to those Leslie Street connections identified as part of the preferred route.

#### Regional Policies

- The preferred route alignment is consistent with the existing and proposed pedestrian and cycling routes found within the Region's Pedestrian and Cycling Master Plan (PCMP) and the Transportation Master Plan (TMP), e.g. the proposed bike lanes and signed routes along Leslie Street. With regard to pedestrians, the proposed sidewalks on both sides of the road along Leslie Street are consistent with the proposed pedestrian routes identified in the PCMP and TMP.
- The Region's Official Plan outlines a Regional Cycling Network which identifies key cycling routes consistent with the PCMP. It is recommended that the Region implement routes / facilities which support the development and use of active transportation. The Lake to Lake Route is consistent with the proposed network and supports the idea of promoting active transportation Region-wide.

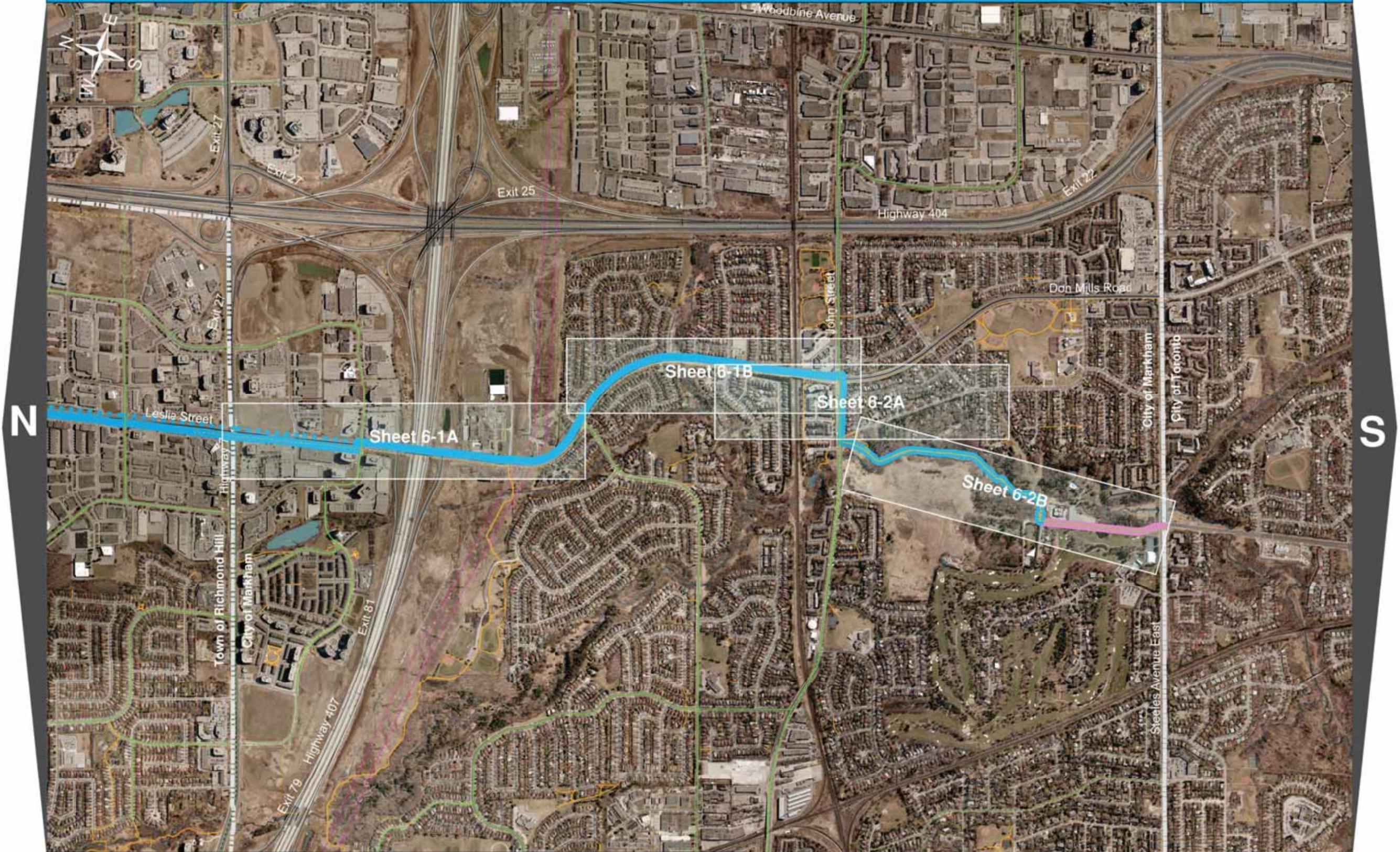
### 2. Consultation and Approvals

- Consideration should be given to consulting with the following stakeholders for the Lake to Lake Route: Local ward Counsellors and residents, City of Markham staff, Ministry of Transportation of Ontario (MTO), Highway 407 ETR, CN Rail, Transport Canada and the Toronto Region Conservation Authority
- The bridge crossing on Leslie Street over Highway 407 may be subject to approvals from MTO and Highway 407 ETR.
- The bridge crossing on Leslie Street over the CN Rail Corridor may be subject to approvals from CN Rail and Transport Canada.
- Federal environmental assessments are not required for the proposed route as it is not identified as a designated project under the new Canadian Environmental Assessment Act (CEAA) (2012).
- No further approvals are anticipated for the implementation of the Lake to Lake Route in Markham beyond standard local municipal engineering design and local municipal council budget approvals.

### 3. Design Sheets

- [Map 2.6](#) provides an overview of the Lake to Lake Route in the City of Markham.
- Sheet 6-1 to Sheet 6-2 outlines specific design considerations for the route.





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Lake to Lake Route				Local Cycling Network				Local Features			
Multi-Use Path	Paved Shoulder	Signed Route	Trail Connection	On-Road	Off-Road	Road	Railway	Hydro Corridor	Municipal Boundary	Waterbody	Provincial Park
Preferred											
Alternative											



June 2013

## Lake to Lake Route Design



### Legend

	Multi-Use Path					Crossings		On-Road		Route Information				
	Existing Path	3.0 m Path	3.0m + Bollards	3.0m + Splashstrip	2.4m Path	Modified Design	Use Ex. Crossing	Prop. New Crossing	Paved Shoulder	Signed Route	● Photo Location #	● Move Utility Pole/ Box	● Move Support Pole	+++ New Retaining Wall
Preferred														
Alternative														

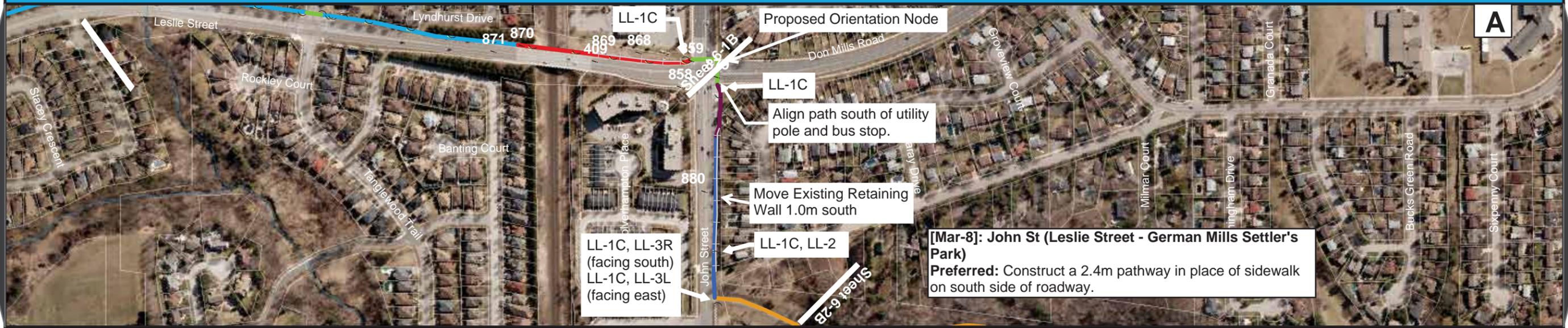
Map Scale: 1:5000

0 50 100 200 Metres

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 2011 Orthophotography  
 \*Image Source: Google, 2009.

MMM GROUP

Lake to Lake Route Design



Legend

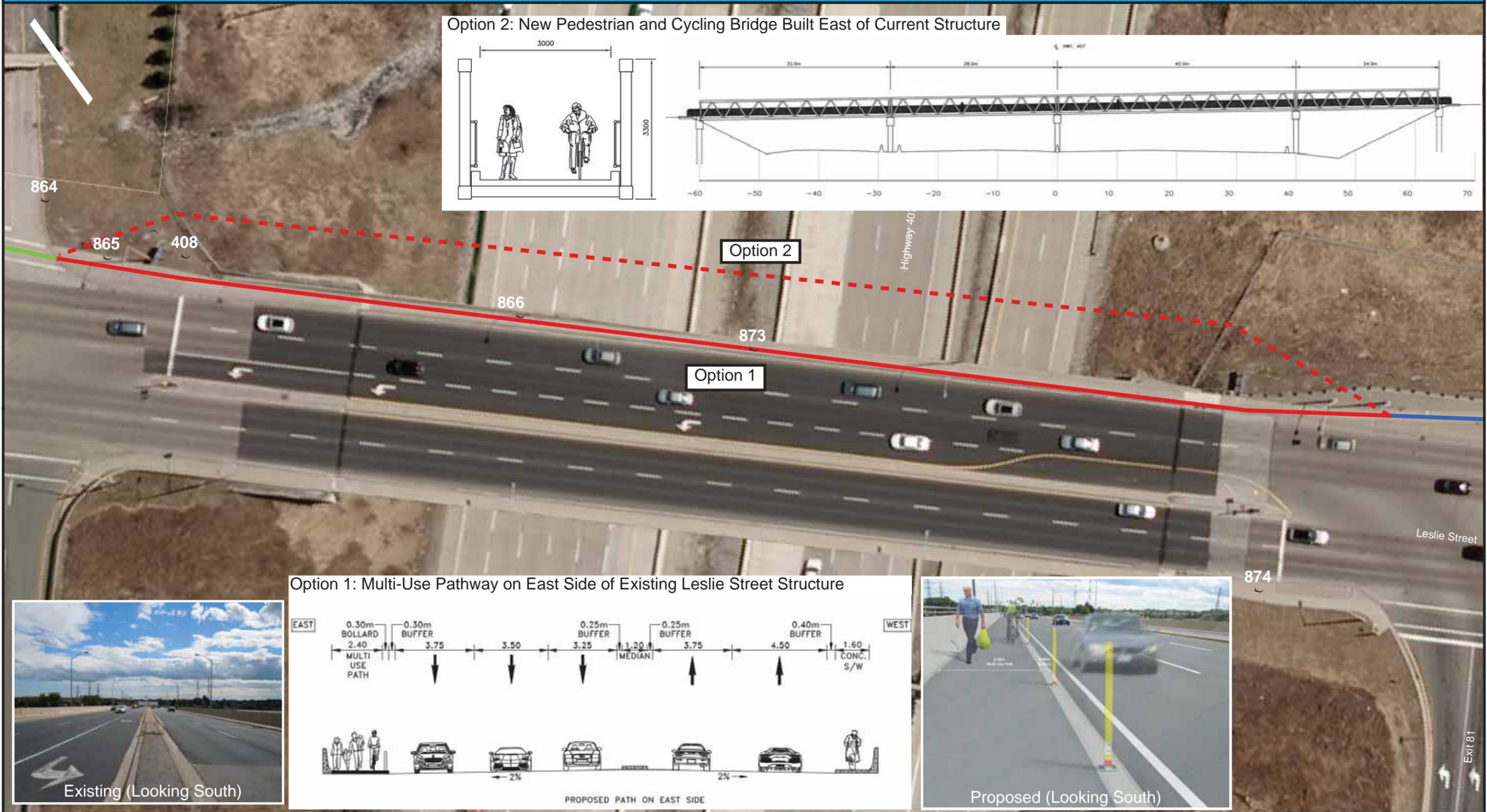
Map Scale: 1:5000

June 2013



Multi-Use Path		Crossings		On-Road		Route Information												
Preferred	Alternative	Use Ex. Crossing	Prop. New Crossing	Paved Shoulder	Signed Route	Photo Location #	Private Entrance	Bus Stop	Move Utility Pole/ Box	Move Light Pole	Move Signal Pole	Move Support Pole	Install Pole for Signage	Use Existing Pole for Signage	New Retaining Wall	Trail Connection	Property Line	Municipal Boundary

Base GIS Data provided by York Region  
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 2011 Orthophotography  
 \*Image Source: Google, 2009.



**Legend**

Map Scale: 1:5000

June 2013



	Multi-Use Path						Crossings		On-Road		Route Information			
Preferred	Existing Path	3.0 m Path	3.0m + Bollards	3.0m + Splashstrip	2.4m Path	Modified Design	Use Ex. Crossing	Prop. New Crossing	Paved Shoulder	Signed Route	● Photo Location #	● Move Utility Pole/ Box	● Move Support Pole	+++ New Retaining Wall
Alternative	---	---	---	---	---	---	---	---	---	---	● Private Entrance	● Move Light Pole	) Install Pole for Signage	--- Trail Connection
											● Bus Stop	● Move Signal Pole	) Use Existing Pole for Signage	--- Property Line
														----- Municipal Boundary

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 2011 Orthophotography  
 \*Image Source: Google, 2009.

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# Markham: Leslie Street (Summerdale Drive - Rosemount Avenue)



June 2013

0 5 10 20 Metres

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Orthophotography  
\* Source: Google, 2009.



#### 4. Facility Design Elements

Segment	Road / Path: Leslie Street	Start: Highway 7	End: Commerce Valley Drive	Ward: 2	Sheet#: 6-1A			
<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>			
	Multi-Use Path	<b>Utility Pole/Box:</b> None <b>Light Poles:</b> 5 total - Offset 5 poles between Highway 7 and Commerce Valley Drive to 0.6m east of path alignment <b>Signal Poles:</b> 1 total - Offset pedestrian signal pole at northwest corner at Minthorn Boulevard to 0.6m west of path alignment <b>Support Poles:</b> None <b>Bus Stops:</b> 2	<b>New Crossing:</b> 3 New Crossride at Signalized Intersection - Leslie Street @ Highway 7 (west approach) - Leslie Street @ Minthorn Boulevard (west approach) - Leslie Street @ Commerce Valley Drive (north approach) <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> 1		- <b>Preferred (Leslie Street (West Side): Highway 7 – Commerce Valley Drive):</b> Remove sidewalk, offset poles to 0.6m away from path alignment and construct 3.0m asphalt multi-use pathway on west side of road. Approximately 120m section of path located north of Minthorn Boulevard is recommended to be 2.4m in width due to property constraints. <b>Alternative (Leslie Street (East Side): Highway 7 – Commerce Valley Drive):</b> Remove sidewalk and construct 3.0m asphalt multi-use pathway on east side of road. Approximately 105m section of path located south of Minthorn Boulevard is recommended to be 2.4m in width due to property constraints. An easement from the hotel property on the southeast corner at Minthorn Boulevard would be required to accommodate the 2.4m path. This alternative path would pass in front of a proposed commercial development at the southeast corner at Highway 7. It is expected that this development would have frontages on Leslie and Highway 7 and would generate significant pedestrian traffic. A multi-use path shared between cyclists and pedestrians in this section may not be desirable.			
<b>Estimated Cost</b>					<b>Phasing</b>			
	<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
Mar-1	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.51	linear KM	\$320,000.00	\$163,200.00	\$205,300.00	✓	
	Pathway / Road transition at unsignalized intersection(crossride)	2	each	\$5,000.00	\$10,000.00			
	Pathway Crossing of Private Entrance	1	each	\$2,000.00	\$2,000.00			
	Relocation of Light / Support Pole	5	each	\$4,000.00	\$20,000.00			
	Relocation of Signal Pole / Utility Box	1	each	\$8,000.00	\$8,000.00			
	Pathway marker sign (Double sided sign on existing post or previously proposed post)	4	each	\$200.00	\$800.00			
	Pathway marker sign (Single sign on new post)	2	each	\$250.00	\$500.00			
	Pathway marker sign (Single sign on existing post or previously proposed post)	4	each	\$125.00	\$500.00			
	Pathway marker sign (Double sided sign on new post)	1	each	\$300.00	\$300.00			

Segment	Road / Path: Leslie Street (East Side)	Start: Commerce Valley Drive (north side)	End: Hwy 407 WB On-Ramp (south side)	Ward: 2	Sheet#: 6-1A				
Mar-2	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Pole/Box:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> 1	<b>New Crossing: 2</b> New Crossside at Signalized Intersection - Leslie Street @ Commerce Valley Drive (east approach) - Leslie Street @ Hwy 407 WB on-ramp (east approach) <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None		- <b>Preferred:</b> Remove sidewalk and construct new 3.0m asphalt multi-use path with 0.75m splash strip (use red stamped concrete), which provides additional separation between the roadway and the multi-use path.				
	<b>Estimated Cost</b>					<b>Phasing</b>			
		<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
		Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.14	linear KM	\$320,000.00	\$44,800.00	\$77,125.00	✓	
		Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	140	m <sup>2</sup>	\$150.00	\$21,000.00			
		Pathway / Road transition at unsignalized intersection(crossside)	2	each	\$5,000.00	\$10,000.00			
		Pathway marker sign (Double sided sign on existing post or previously proposed post)	2	each	\$200.00	\$400.00			
		Pathway marker sign (Single sign on existing post or previously proposed post)	3	each	\$125.00	\$375.00			
	Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00				
	Pathway marker sign (Double sided sign on new post)	1	each	\$300.00	\$300.00				



Segment	Road / Path: Leslie Street (East Side)	Start: Highway 407 Westbound On-Ramp	End: Highway 407 Eastbound On-Ramp	Ward: 2	Sheet#: 6-1A; D6-1			
Mar-3	<b>Facility Design Considerations</b>							
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>			
	Multi-Use Path	<b>Utility Pole/Box:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> None <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> 1 - Leslie Street @ Hwy 407 (existing road bridge) <b># of Private Entrances:</b> None		- <b>Preferred:</b> Modify existing sidewalk on roadway bridge to accommodate multi-use path. Remove 40mm from existing sidewalk surface, widen concrete path base to 2.7m, adjust catch basins, adjust roadway pavement markings, place 40mm of asphalt surface, and install flexible bollards to visually delineate space between path users and motorists (place 10 at 1.0m intervals at each end of bridge, and 15 at 10.0m intervals across bridge). <b>See Rendering for Design Concept</b> - <b>Alternative:</b> Construct new prefabricated bridge over Highway 407 immediately east of existing road bridge. No major changes to existing approaches required. <b>Required Structure:</b> Construct concrete abutments and piers, and erect new prefabricated 124m long, 3.0m clear width three-span steel truss bridge with timber deck over Highway 407.			
	<b>Estimated Cost</b>					<b>Phasing</b>		
	<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
	Place 1.1m wide concrete base adjacent to existing sidewalk on east side of road	190	m <sup>2</sup>	\$50.00	\$9,500.00	\$74,050.00		✓
	Place 40mm asphalt surface	50	tonne	\$150.00	\$7,500.00			
	Flexible Bollards	35	each	\$100.00	\$3,500.00			
	Traffic Control	1	allowance	\$20,000.00	\$20,000.00			
	Adjust Catch basins	1	allowance	\$10,000.00	\$10,000.00			
Pavement Markings	350	m	\$1.00	\$350.00				
Safety Railings / Rubrail	190	linear M	\$120.00	\$22,800.00				
Pathway marker sign (Double sided sign on existing post or previously proposed)	2	each	\$200.00	\$400.00				

Leslie Street over Highway 407 (Preferred)

Existing



Proposed



Segment	Road / Path: Leslie Street (East Side)	Start: Highway 407 Eastbound Off-Ramp	End: Summerdale Dr. (Photo Location #24)	Ward: 2	Sheet#: 6-1A/B				
Mar-4	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Pole/Box:</b> None <b>Light Poles:</b> 13 total - Offset 13 poles between Highway 407 and Summerdale Drive (southern access) to 0.6m west of path alignment  <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> 2	<b>New Crossing: 3</b> New Crossride at Signalized Intersection - Leslie Street @ St. Robert Catholic High School Access - Leslie Street @ Summerdale Drive (northern access) New Crossride at Stop Controlled Intersection - Leslie Street @ Summerdale Drive (southern access)  <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None		- <b>Preferred (Leslie Street (East Side): Highway 407 – 175m south of entrance to St. Robert Catholic High School):</b> Remove sidewalk and construct new 3.0m asphalt multi-use path with 1.0m splash strip (use red stamped concrete), which provides additional separation between the roadway and the multi-use path.  - <b>Preferred (Leslie Street (East Side): 175m south of entrance to St. Robert Catholic High School – Summerdale Drive (Photo Location #24)):</b> Remove sidewalk, align path west of first light pole in section, offset all other poles to 0.6m west of path alignment, and construct new 3.0m asphalt multi-use path.				
	<b>Estimated Cost</b>					<b>Phasing</b>			
		<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
		Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	1.15	linear KM	\$320,000.00	\$368,000.00	\$509,375.00	✓	
		Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	480	m <sup>2</sup>	\$150.00	\$72,000.00			
		Pathway / Road transition at unsignalized intersection (crossride)	3	each	\$5,000.00	\$15,000.00			
		Relocation of Light / Support Pole	13	each	\$4,000.00	\$52,000.00			
		Pathway marker sign (Double sided sign on existing post or previously proposed post)	3	each	\$200.00	\$600.00			
	Pathway marker sign (Single sign on new post)	3	each	\$250.00	\$750.00				
	Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00				
	Pathway marker sign (Double sided sign on new post)	3	each	\$300.00	\$900.00				

Segment	Road / Path: Leslie Street (East Side)	Start: Summerdale Drive (Photo Location #24)	End: Rosemount Avenue	Ward: 2	Sheet#: 6-1B; D6-2				
Mar-5	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Pole/Box:</b> None <b>Light Poles:</b> 2 total - Offset 2 poles between Summerdale Dr. and Rosemount Ave to 0.6m west of path alignment <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> 1	<b>New Crossing:</b> None <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None		- <b>Preferred:</b> Remove sidewalk, modify guiderail, offset poles to 0.6m west of path alignment and construct new prefabricated bridge over watercourse immediately east of existing road bridge. No major changes to existing approaches required. <b>Required Structure:</b> Construct concrete abutments and erect new prefabricated 32m long, 3.0m clear width single span steel truss bridge with timber deck over watercourse between Summerdale Drive and Rosemount Avenue.				
	<b>Estimated Cost</b>					<b>Phasing</b>			
		<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
		Self-weathering steel truss bridge with timber deck (32m long, 3m clear width)	96	m <sup>2</sup>	\$2,500.00	\$240,000.00	\$427,800.00		
		Concrete abutments on piles	2	each	\$50,000.00	\$100,000.00			
		Mobilization, pile driving equipment and erection of bridge	1	allowance	\$60,000.00	\$60,000.00			
	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.06	linear KM	\$320,000.00	\$19,200.00				
	Relocation of Light / Support Pole	2	each	\$4,000.00	\$8,000.00				
	Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00				
								✓	



Segment	Road / Path: Leslie Street (East Side)	Start: Rosemount Avenue	End: CN Railway Overpass (North Side)	Ward: 2	Sheet#: 6-1B			
Mar-6	<b>Facility Design Considerations</b>							
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>			
	Multi-Use Path	<b>Utility Pole/Box:</b> None <b>Light Poles:</b> 8 - Offset 8 poles between Rosemount Ave and CN Rail Overpass to 0.6m west of path alignment <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> 2	<b>New Crossing:</b> 2 New Crossride at Signalized Intersection - Leslie Street @ Tanglewood Trail New Crossride at Stop Controlled Intersection - Leslie Street @ Rosemount Avenue <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None		- <b>Preferred:</b> Remove sidewalk, align path west of first light pole in section, offset all other poles to 0.6m west of path alignment, and construct new 3.0m asphalt multi-use path.			
	<b>Estimated Cost</b>				<b>Phasing</b>			
	<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.37	linear KM	\$320,000.00	\$118,400.00	\$160,775.00	✓	
	Pathway / Road transition at unsignalized intersection (crossride)	2	each	\$5,000.00	\$10,000.00			
	Relocation of Light / Support Pole	8	each	\$4,000.00	\$32,000.00			
	Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00			
	Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00			

Segment	Road / Path: Leslie Street (East Side)	Start: CN Railway Overpass (North Side)	End: John Street	Ward: 2	Sheet#: 6-1B; D6-3				
Mar-7	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Pole/Box:</b> None <b>Light Poles:</b> 4 total - Offset 4 poles between CN Railway Overpass (north side) – John Street to 0.6m west of path alignment <b>Signal Poles:</b> 1 total - Offset traffic signal pole at northeast corner at John Street to 0.6m west of path alignment <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing: 1</b> New Crossride at Signalized Intersection - Leslie Street @ John Street (east approach) <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None		- <b>Preferred:</b> Remove sidewalk, relocate guiderail to match the face of the curb, offset poles to 0.6m west of path alignment and construct new single span pedestrian and cyclist bridge (124m long) with 3.0m path width clearance over CN Rail corridor immediately east of existing road bridge. <b>Required Structure:</b> Construct concrete abutments and erect new prefabricated 50m long, 3.0m clear width three-span steel truss bridge with timber deck over CN Rail corridor. No major changes to existing north approach required. Widen berm and install safety railing on south approach between proposed bridge and John Street. <b>Required Structure:</b> Retaining Wall (3.0m high x approximately 50m length) in section between CN Rail Overpass and John Street at base of slope.				
	<b>Estimated Cost</b>					<b>Phasing</b>			
		<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
		Retaining Wall	300	m <sup>2</sup>	\$600.00	\$180,000.00	\$289,400.00	✓	
		Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.13	linear KM	\$320,000.00	\$41,600.00			
		Safety Railings/ Rubrail	130	linear M	\$120.00	\$15,600.00			
		Relocation of Light / Support Pole	5	each	\$4,000.00	\$20,000.00			
		Pathway / Road transition at existing signalized intersection (crossride)	1	each	\$25,000.00	\$25,000.00			
		Staging area kiosk	1	each	\$5,000.00	\$5,000.00			
		Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00			
	Pathway marker sign (Double sided sign on existing post or previously proposed)	1	each	\$200.00	\$200.00				
	Self-weathering steel truss bridge with timber deck (50m long, 3m clear width)	150	m <sup>2</sup>	\$2,500.00	\$375,000.00	\$690,000.00		✓	
	Concrete abutments on piles	2	each	\$50,000.00	\$100,000.00				
	Mobilization, pile driving equipment, erection and inspection of bridge	1	allowance	\$200,000.00	\$200,000.00				
	Remove and replace steel beam guide rail	1	allowance	\$15,000.00	\$15,000.00				



Segment	Road / Path: John Street (South Side)	Start: Leslie Street	End: German Mills Settlers Park Path	Ward: 2	Sheet#: 6-2A				
Mar-8	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Pole/Box:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing: 1</b> New Crossride at Signalized Intersection - Leslie Street @ John Street (south approach) <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> None		<ul style="list-style-type: none"> <li>- <b>Preferred (John Street (South Side): Leslie Street – 60m west of Leslie Street):</b> Remove sidewalk and construct 2.4m asphalt multi-use pathway on south side of road with alignment south of existing sidewalk in order to avoid bus stop and utility pole.</li> <li>- <b>Preferred (John Street (South Side): 60m west of Leslie Street – German Mills Settler’s Park Path):</b> Remove sidewalk and construct new 3.0m asphalt multi-use path with 0.6m splash strip (use red stamped concrete), which provides additional separation between the roadway and the multi-use path.</li> <li><b>Required Structure:</b> Move existing retaining wall (1.0m high x approximately 165m length) in this section 1.0m south of existing location.</li> <li>- Proposed Orientation Node at the southeast corner of John Street and Leslie Street. Construct asphalt pad, install benches and route information signage at this location.</li> </ul>				
	<b>Estimated Cost</b>					<b>Phasing</b>			
		<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
		Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.27	linear KM	\$320,000.00	\$86,400.00	\$241,100.00	✓	
		Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	200	m <sup>2</sup>	\$150.00	\$30,000.00			
		Retaining Wall	165	m <sup>2</sup>	\$600.00	\$99,000.00			
		Pathway / Road transition at existing signalized intersection (crossride)	1	each	\$25,000.00	\$25,000.00			
		Pathway marker sign (Double sided sign on existing post or previously proposed)	2	each	\$200.00	\$400.00			
	Pathway marker sign (Double sided sign on new post)	1	each	\$300.00	\$300.00				

Segment	Road / Path: German Mills Settlers Park Path	Start: John Street	End: Leslie Street	Ward: 2	Sheet#: 6-2B				
Mar-9	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>				
	Multi-Use Path	<b>Utility Pole/Box:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> None <b>Use Existing Crossing:</b> None <b>Existing Underpass:</b> None <b>Existing Bridge:</b> 1 - Multi-Use Path @ Watercourse ~ 115m east of Leslie Street <b># of Private Entrances:</b> None		- <b>Preferred:</b> Proposed Lake to Lake Route uses the existing pathway within German Mills Settlers Park.  Upgrades to existing pathway identified in the City of Markham Cycling Pathways and Trails 5 Year Implementation Plan. General recommended improvements include: upgrade of path surface from granular to asphalt on existing path base; raise elevation of pathway bed to improve pathway surface drainage; and ensure existing culverts are functional and clear.				
	<b>Estimated Cost</b>				<b>Phasing</b>				
	<b>Description</b>		<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (Upgrade existing granular surface)		1.11	linear KM	\$100,000.00	\$111,000.00	\$152,500.00	✓	
	Stream bank repairs in vicinity of existing bridge		1.00	allowance	\$40,000.00	\$40,000.00			
	Pathway marker sign (Double sided sign on existing post or previously proposed)		2	each	\$200.00	\$400.00			
Pathway marker sign (Single sign on existing post or previously proposed post)		4	each	\$125.00	\$500.00				
Pathway marker sign (Double sided sign on new post)		2	each	\$300.00	\$600.00				

Segment	Road / Path: Leslie Street	Start: German Mills Settlers Park Path	End: Steeles Avenue	Ward: 2	Sheet#: 6-2B				
Mar-10	<b>Facility Design Considerations</b>								
	<b>Facility Type</b>	<b>Municipal Infrastructure Impacts</b>	<b>Road Crossings and Private Entrances</b>		<b>Other Considerations</b>				
	Signed Route	<b>Utility Pole/Box:</b> None <b>Light Poles:</b> None <b>Signal Poles:</b> None <b>Support Poles:</b> None <b>Bus Stops:</b> None	<b>New Crossing:</b> Not applicable <b>Use Existing Crossing:</b> Not applicable <b>Existing Underpass:</b> None <b>Existing Bridge:</b> None <b># of Private Entrances:</b> Not applicable		- Low volume, low speed (40km/h) residential roadway, two-lanes (one in each direction) along Leslie Street with a rural cross-section (no curbs or gutter). - <b>Preferred:</b> Lake to Lake Route follows existing signed route. Cyclists and pedestrians to share road space with vehicles.				
	<b>Estimated Cost</b>				<b>Phasing</b>				
	<b>Description</b>		<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>	<b>Segment Cost</b>	<b>0-3 Years</b>	<b>4-5 Years</b>
	Pathway marker signs		0.54	linear KM	\$1,500.00	\$810.00	\$8,810.00	✓	
	Staging area kiosk		1	each	\$5,000.00	\$5,000.00			
	Signboards for staging area kiosk sign		1	each	\$2,000.00	\$2,000.00			
Pathway marker sign (Single sign on new post)		3	each	\$250.00	\$750.00				
Pathway marker sign (Single sign on existing post or previously proposed post)		2	each	\$125.00	\$250.00				

## 5. Summary of Preferred Route

- The following table presents a summary of the preferred route by facility type for each phase and outlines the overall capital and maintenance cost for the Lake to Lake Route in Markham. A more detailed Cost Summary highlighting the estimated capital costs and estimated maintenance costs is found in [Appendix A – Unit Costs Schedule and Detailed Cost Tables](#).

Facility Type	Phase 1 (0-3 Years)		Phase 2 (4-5 Years)		Total Length (km)	Total Estimated Capital Cost for all Phases		Estimated Annual Maintenance Cost	Estimated Maintenance Cost 0-5 Years	Estimated Maintenance Cost Over 20 Years
	Length (km)	Estimated Capital Cost	Length (km)	Estimated Capital Cost						
Signed Route	0.54	\$8,810.00	0.00	\$0.00	0.54	\$8,810.00		\$270.00	\$675.00	\$4,725.00
Multi-Use Pathway	3.91	\$1,635,575.00	0.06	\$27,800.00	3.97	\$1,663,375.00		\$15,880.00	\$39,700.00	\$277,900.00
Bridges	0.00	\$0.00	0.32	\$1,164,050.00	0.32	\$1,164,050.00		\$1,280.00	\$3,200.00	\$22,400.00
<b>Total Network</b>	<b>4.45</b>	<b>\$1,644,385.00</b>	<b>0.38</b>	<b>\$1,191,850.00</b>	<b>4.83</b>	<b>\$2,836,235.00</b>		<b>\$17,430.00</b>	<b>\$43,575.00</b>	<b>\$305,025.00</b>

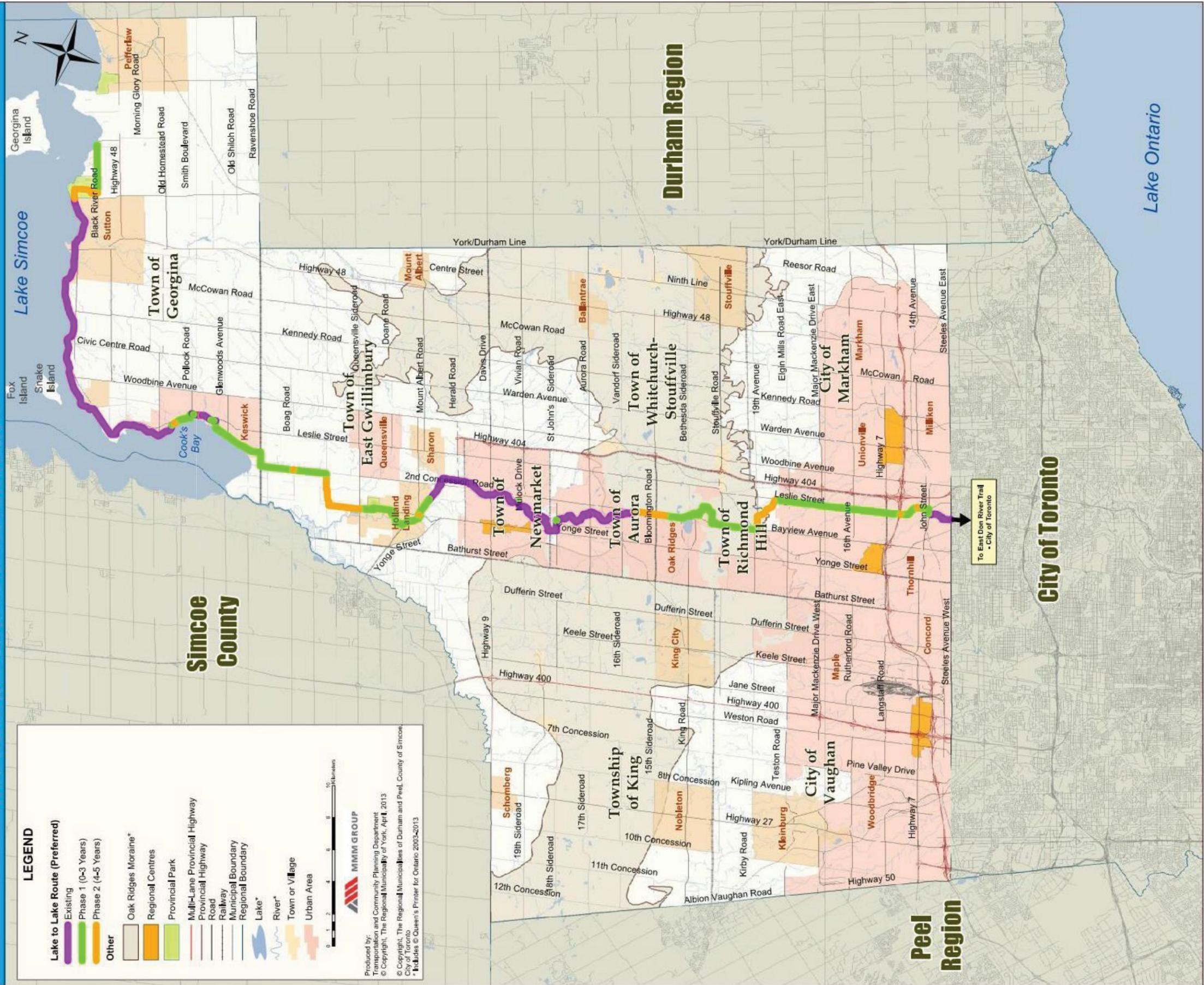
### 2.4.7 The Preferred Route

- Based on the information provided in [Section 2.4.1 – Section 2.4.6](#). The following table has been developed which summarizes the Lake to Lake Route by municipality by phase for each facility type:

Network Length (km) by Facility Type, Phase and Municipality													
Facility Type	Georgina		East Gwillimbury		Newmarket		Aurora		Richmond Hill		Markham		Total (km)
	Phase 1 (km)	Phase 2 (km)	Phase 1 (km)	Phase 2 (km)	Phase 1 (km)	Phase 2 (km)	Phase 1 (km)	Phase 2 (km)	Phase 1 (km)	Phase 2 (km)	Phase 1 (km)	Phase 2 (km)	
Signed Route	29.74	1.77	0.87	3.50	0.00	0.00	0.00	0.00	0.89	0.00	0.54	0.00	37.31
Multi-Use Pathway	1.58	0.39	12.98	1.09	7.88	0.00	7.74	1.40	14.18	3.15	3.91	0.06	54.36
Bridges	0.00	0.12	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.49
<b>Total Network</b>	<b>31.32</b>	<b>2.16</b>	<b>13.85</b>	<b>4.65</b>	<b>7.91</b>	<b>0.00</b>	<b>7.74</b>	<b>1.40</b>	<b>15.07</b>	<b>3.15</b>	<b>4.45</b>	<b>0.38</b>	<b>92.16</b>

Figure 2.4 illustrates the Lake to Lake Cycling Route and Walking Trail by phase. Further design details and considerations are presented in [Section 4.0](#)

**FIGURE 2.4  
YORK REGION LAKE TO LAKE  
CYCLING ROUTE AND WALKING TRAIL  
PREFERRED ROUTE BY PHASE**



**LEGEND**

- Lake to Lake Route (Preferred)**
  - Existing
  - Phase 1 (0-3 Years)
  - Phase 2 (4-5 Years)
  - Other
- Oak Ridges Moraine\*
- Regional Centres
- Provincial Park
- Multi-Lane Provincial Highway
- Provincial Highway
- Road
- Railway
- Municipal Boundary
- Regional Boundary
- Lake\*
- River\*
- Town or Village
- Urban Area

Produced by:  
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\* Includes © Queen's Printer for Ontario 2003-2013

MMM GROUP

0 1 2 4 8 16 Kilometers





Credit: MMM Group 2012 – Nokiiidaa Trail, Aurora

## 3.0 GETTING IT BUILT

### 3.1 How to Implement the Plan

#### 3.1.1 Roles and Responsibilities

York Region initiated the planning component of the Lake to Lake Cycling Route and Walking Trail following the development of the Regional Pedestrian and Cycling Master Plan (PCMP). Building upon this study, the Region has moved from the planning stage to completing a design feasibility assessment for the Lake to Lake Route.

As this project moves forward, the Region's local municipalities have an important role in the implementation of the Lake to Lake Route as they have jurisdiction over the majority of the route, and will review and sign off on the detailed design, construction and maintenance of the route segments within their jurisdiction (including municipal road right-of-ways, municipally-owned parks, and boulevards of Regional roads).

The local conservation authorities (Lake Simcoe Regional Conservation Authority and Toronto Region Conservation Authority) and Ontario Parks will review and sign off on the detailed design, construction and maintenance of route segments located on lands within their jurisdiction and may have approval authority for segments located outside of existing municipal roadways.

It is proposed that York Region assist local municipalities and the two conservation authorities as well as Ontario Parks in the implementation of the Lake to Lake Cycling Route and Walking Trail through a Partnership Strategy. Two cost-sharing strategies have been developed for York Region's consideration to fund and implement the Lake to Lake Route. The first option assumes York Region will fund 100% of the capital costs for the Lake to Lake Route. The second option is based on a 50% / 50% funding strategy between York Region and the respective local municipality, conservation authority or agency for each segment of the Lake to Lake Route. The cost and responsibility for maintenance of the trail would be the responsibility of each local municipality, conservation authority and agency as sections of the Lake to Lake route fall within lands / roads under their respective jurisdiction.

It is recommended that existing partnerships between the Region, local municipalities, conservation authorities and Ontario Parks are to continue to promote and encourage the benefits of walking and cycling using promotional material and outreach venues, such as Facebook / Twitter. This could be continued and enhanced for the Lake to Lake Route design and ultimate development.

#### 3.1.2 Strategies for Implementation

##### Public and Stakeholder Consultation

Consultation with the public and stakeholders has been an important component in the planning and conceptual design of the Lake to Lake Cycling Route and Walking Trail. The preliminary route was identified in the York Region Pedestrian



and Cycling Master Plan (PCMP) and the preferred route alignment was subsequently confirmed through this study based on input provided by the public and stakeholder at key stages of the study.

As this project moves forward to implementation, it is important that the lead agency continue to communicate and engage with the public and local stakeholders, which may include but are not limited to: local counsellors, local conservation authorities, the Ministry of Transportation of Ontario (MTO), Highway 407 ETR, CN Rail, Transport Canada, and the residents of adjacent local neighbourhoods. The following sections outline the suggested consultation considerations for implementing the Lake to Lake Route.

### **Pathways and On-road Bike Routes in New Communities / Neighbourhoods**

Where pathways are planned in new development areas, no additional consultation is expected to be required above and beyond what is required for the subdivision planning and approvals process related to the subject lands. It is expected that developers will work through planning, consultation and approvals with Regional and local municipal staff as well as approval agencies. The details of the pathway route(s) and their construction will take place as part of that process.

### **Pathways and On-road Bike Routes in Existing Communities / Neighbourhoods**

Where new pathways are being implemented or significant improvements are being made to existing pathways (e.g. retrofitting existing sidewalks) within or nearby existing communities. Differing levels of consultation may be required to advance the project through the detail design and implementation stages. The level of consultation / public notification required for individual route segments depends on the following elements:

- Segment location;
- Design approvals required;
- Complexity; and
- Whether the project is identified in the Regionally approved PCMP, or other locally approved active transportation master plans (e.g. East Gwillimbury Active Transportation and Trails Master Plan, Aurora Trails Master Plan, Richmond Hill Pedestrian and Cycling Master Plan, Markham Cycling Master Plan). A brief explanation of the typical types of consultation are outlined below:

#### **1. Notification of Construction**

A public notice should be developed which outlines the local municipality or conservation authority's intention to proceed with construction for projects that meet the following criteria:

- The project is located entirely in the Region of York, local municipality or conservation area owned land;
- The project does not require easements or property from abutting residential or commercial properties;
- The project has all necessary planning and design approvals in place, and

- The project is ready to be tendered.

This public notice of construction should first be published on the local municipality's website and in the "public notice" section of the local newspaper(s). It should briefly explain the project, note it was approved by York Region as part of the Lake to Lake Route Design Feasibility Study and supported by other locally approved plans, identify the expected construction start and end dates and provide a contact name and number for questions. Although not included in the notice, it is suggested that the Region and local municipality wait for 30 days from the time of initial notification to commencement of construction activities in the event that questions arise providing the Region's project manager to respond to them.

If a significant issue or concern is raised by residents, First Nations or area property owners, local staff, in consultation with the local Counsellor, may select to schedule a local neighbourhood meeting (see 2 below).

#### **2. Local Neighbourhood Meeting (Conducted by Counsellor and Staff)**

A Local Counsellor and / or municipal staff may select to host a neighbourhood information meeting for a project that has been approved as part of the Lake to Lake Route (or other plans) and is in the final design and approvals stage (not yet tendered). A meeting would be conducted if the local Counsellor or staff is of the opinion that additional consultation with the public is warranted to address comments received and/or to present the recommended route alignment and draft design details. This meeting may also serve to present the most current changes or solutions to the alignment or design (if any) from that presented to area residents in the past.

Outcomes of the meeting may include a number of directions, such as:

- Finalize and / or revise detailed design based on direction agreed to at the meeting, secure outstanding approvals, tender project, issue notification of construction and proceed to construction;
- Revise design and report to area residents at a second neighbourhood meeting (see item 3 below); or
- Defer the project until Regional staff have time to consult further with the local Councilor, area residents and/or report back to the Region's Transportation Committee with a recommended planning / design solution for the project.

#### **3. Consultation as part of Design Process (Conducted by Staff with optional external consultant assistance)**

A possible outcome of a neighbourhood meeting (as outlined above in 2) may include revisions to the design concept or pathway alignment. The local municipality may select to undertake this work internally or secure the assistance of external specialists to assist municipal staff. With these types of projects it is expected that one or more working meetings may be scheduled with the local Counsellor and/or neighbourhood residents/stakeholders to identify, review and refine design changes. If, in the opinion of the local Counsellor and/or staff, there is consensus to proceed, then the design should be finalized, any approvals secured, project tendered, notification of construction issued and then the

project constructed. If consensus is not apparent, staff should be asked to report back to the local municipality's Transportation or Public Works Committee with a recommended course of action and request direction from Council.

#### 4. Consultation as part of a Class Environmental Assessment or similar study process (Conducted by Staff with external consultant assistance)

Projects that require or where the Region or local municipality selects to proceed with) a Class Environmental Assessment (none are anticipated to implement the Lake to Lake Route), Feasibility Study or further investigation should include some type of a formal consultation program tailored to meet the scale, location and range of issues anticipated for the proposed project.

### 3.1.3 Performance Measures

The monitoring of facilities along the Lake to Lake Route should be led by York Region in partnership with local municipalities and conservation authorities. This is specifically important in areas where the route includes unique design features (e.g. crossrides) that deviate from the post-practice and to evaluate the effectiveness of the implemented solution in terms of operations, safety and cost. The overall objectives of route monitoring are to:

- Provide a reference framework against which to measure performance;
- Periodically measure facility performance so that adjustments and improvements can be made in the delivery of trails and bikeways;
- Provide the basis of a peer review that is comparable with other municipalities; and
- Provide citizens and Council with a reference for expectations.

A monitoring process should be initiated for Lake to Lake Route segments where:

- Engineering design options to integrate active transportation facilities may deviate from existing design standards;
- New active transportation features or designs are introduced;
- Specific operational concerns have been identified; or
- The operational costs of the proposed active transportation feature outweigh user benefits.

The monitoring process implemented for any particular Lake to Lake Route should consider indicators and measures that assess the use and operational efficiency of the facility including but not limited to safety; comfort and convenience; maintenance needs; risk and liability implications; and cost. [Table 3-1](#) outlines a list of potential measures that could be considered for monitoring.

Table 3-1 Active Transportation Performance Measures

Measure	Indicators	Data and Analysis
Active Transportation Use	Pedestrian usage and demand	Classification counts at interchange / intersections
	Cyclist usage and demand on-road	Classification counts at interchange / intersections
	Cyclist usage in-boulevard	Classification counts at interchange/intersections
Safety of All Road Users	Change in collision rate or severity/pattern	Before and after collision data collection
	Illegal or undesirable movement	Field observations
	Change in AT-vehicle and vehicle-vehicle conflicts	Before and after conflict data
Maintenance	Adhere to snow removal requirements	Additional cost or Municipal compliance
	Road/sidewalk debris removal	Additional cost or Municipal compliance
	Marking restriping / coloured treatments, sign repair	Additional cost or Municipal compliance
Cost Effectiveness	Public opinion / support	User comfort level / concerns
	Capital and Maintenance Costs	Ease of implementation Financial costs

Source: Development of a Monitoring Plan for Active Transportation Projects, 2012



## 3.2 Lake to Lake Route Marketing & Promotion

### Maps

Along with a proposed signage strategy (see **Section 2.0**), maps are one of the most important marketing tools for a cycling and trail / pedestrian route. Maps are to be designed to accommodate a range of uses and users to most efficiently promote the route. A variety of map scales, detail, sizes and formats are recommended, including but not necessarily limited to the following:

- **Large scale, printed map brochure** – a map of the entire primary route printed on a tri-fold type of brochure with editorial describing the route, destinations and things to see and do along the route, and how / where to get more detailed mapping and trip planning information. This map brochure would be used primarily as a lure piece for distribution through Visitor Information Centres and at tourism attractions and businesses in York Region and the City of Toronto.
- **Small scale, printed maps on waterproof paper** – a series of maps with each covering approximately 20 - 25km of the overall route, showing the route in detail along with the locations of trailheads/staging areas, points of interest, attractions, accommodation, restaurants, public washrooms, hospitals, and other services and facilities of interest to cyclists. These would be used primarily by cyclists while riding the route. In addition to printed versions, the maps could be made available through the Lake to Lake Route website as downloadable pdfs (for an example, see Waterfront Trail <http://www.waterfronttrail.org/trail.html>)
- **Scalable, digital map** – a map of the entire Route as well as links and connecting trails, locations of trailheads/staging areas, points of interest, attractions, accommodation, restaurants, public washrooms, hospitals, and other services and facilities of interest to cyclists. Ideally this map would be available on the Lake to Lake Route website to enable pre-trip planning and also available as an application for use on a smart phone equipped with global positioning system (GPS). The mobile application would allow cyclists to navigate the Route using a smart phone or mobile tablet computer (see Sustrans Network <http://www.sustrans.org.uk/map> and Toronto Bike Map <http://itunes.apple.com/ca/app/toronto-bike-map/id383032026?mt=8> for examples).

### Online Presence

Given the importance of the Internet as a travel promotion and planning tool, it is recommended that the Trail Route have a strong Internet presence, including but not necessarily limited to:

- **Website** – the online warehouse of all information about the Lake to Lake Route including:
  - Maps (see above);
  - Route facts, distances, etc.
  - Photos and videos of the Route, points of interest and attractions along the Route, and Route events;
  - Telephone and email contact information for York Region Tourism, Tourism Toronto, as well as other organizations and businesses that can assist with trip planning and trip services;

- Web links to websites for destinations and businesses along the Route, including businesses offering guided tours and/or tour support services, as well as the Ontario tourism marketing website [www.Ontariotravel.net](http://www.Ontariotravel.net);
- Web links to Facebook, Twitter, YouTube and Flickr accounts for the Route;
- History about the origins and development of the Route;
- Announcements about planned and just completed Route facility improvements;
- Route conditions report identifying up to date riding surface conditions for off-road segments and traffic conditions/volumes for on-road segments; and
- Calendar with schedule of cycling and other types of events happening along the Route.
- **Mobile App** – a mobile device optimized version of the website, with the key featuring being a scalable Route map integrated with the device's GPS (see Maps, above);
- **Facebook page** – populated with much the same information as available on the website, but also encouraging Route users to post their comments, photos and videos of their Route experiences;
- **Twitter account** – frequent posts to announce events along the Route, links to new photos and videos posted online, etc.
- **Flickr or similar photo sharing website account** – a complete archive of photos of the Route, points of interest and attractions along it, and events that occurred on it, including photos taken by the Region as well as Route users; also web links to the website, Facebook page and YouTube account; and
- **YouTube account** – same as for Flickr or photo sharing website account (above), but for videos.

### Product Development

From a tourism perspective, the Lake to Lake Route is a key piece of cycle and walking / hiking tourism infrastructure that will facilitate and promote cycle tourism experiences. Product development typically refers to the provision of additional facilities or services, often together in a single package that can be purchased. This approach helps to increase the convenience for cycle tourists wishing to enjoy a cycle tourism experience on the Route.

It is recommended that the York Region Tourism and Tourism Toronto, perhaps in partnership with Transportation Options and their Welcome Cyclist Program (<http://www.welcomecyclists.ca/>), work with private businesses located along the Route to develop cycle tourism products, including but not limited to the following:

- Guided day, overnight and multi-day cycle tours – likely to be small groups (10 or less) lead by a tour leader familiar with the route, its points of interest, attractions, etc., for tours of varying distance and time. The overnight and multi-day tours would include pre-booked meals and accommodation and possibly the option of luggage being transported by support vehicle.

- **Cycle touring support services** – for cyclists choosing overnight or longer self-guided rides, this might include the rental of GPS units and luggage being transported to destinations. For self-guided day tours, it might include the rental of GPS unit and emergency roadside service in the event of mechanical breakdown, injury or fatigue.
- **Accommodation & restaurant packages** – local accommodation and restaurants located along or near the Cycling Route could combine their offerings to provide meal and accommodation packages for cyclists.

In addition to product developed by private businesses, it is recommended that the York Region Tourism and Tourism Toronto develop themed cycle touring itineraries of varying lengths from one day to overnight and longer that would be available as hard copy maps or digital maps downloadable from the Lake to Lake Route website.

### Print Listings & Advertisements

It is recommended that York Region Tourism and Tourism Toronto develop and place print advertisements (newspapers, magazines, regional visitor guides) and listings (provincial and regional visitor guides) to assist in raising community and tourism / visitor awareness of the cycle and walking/hiking tourism experiences supported by the Lake to Lake Route.

## 3.3 The Investment

The total capital investment to design and construct the Lake to Lake Cycling Route and Walking Trail is estimated at \$15.9 million, plus an estimated \$6 million for detailed design, approvals, tendering and contingencies. The estimated cost to implement the Lake to Lake Route is based on unit prices (see [Appendix A – Unit Cost Schedule & Detailed Cost Tables](#)), cost estimates from similar projects, field investigations and the type of facility proposed for each Lake to Lake Route segment. The first cost-sharing option assumes York Region will fund 100% of the capital costs for the Lake to Lake Route. The second cost-sharing option is based on a 50% / 50% funding strategy between York Region and the respective local municipality, conservation authority or agency for each segment of the Lake to Lake Route. With regard to the second option, several segments are proposed to include a modification to a Regional road or bridge (e.g. Leslie Street bridge crossing over Highway 407) and these have been assigned 100% as a Regional cost.

### 3.3.1 Who Pays?

The Lake to Lake Route is both an infrastructure and operations plan. Therefore, it requires infrastructure, program development and operations (maintenance) funding to ensure successful implementation and monitoring. Details pertaining to the maintenance costs are discussed in detail in [Section 4.2](#). The information presented in [Appendix A – Unit Cost Schedule & Detailed Cost Tables](#) identifies the implementation cost summary in more detail by facility type, phase and the two cost-sharing options for all jurisdictions.

[Tables 3-2A and 3-2B](#) identify the two cost-sharing options for the funding and implementation of the Lake to Lake Route.

Table 3-2A: Estimated Cost of 5+ Year Implementation Plan by Municipality / Agency by York Region funding 100% of capital costs

	Existing / Short Term (0-3 Years)				Long Term (4-5+ Years)				
	Region	Local	TRCA	Total	Region	Local	Ontario Parks	LSRCA	Total
Georgina	\$833,740	\$0.00	\$0.00	\$833,740	\$478,110	\$0.00	\$0.00	\$0.00	\$478,110
East Gwillimbury	\$3,698,370	\$0.00	\$0.00	\$3,698,370	\$1,742,750	\$0.00	\$0.00	\$0.00	\$1,742,750
Newmarket	\$769,680	\$0.00	\$0.00	\$769,680	\$0.00	\$0.00	\$0.00	\$0.00	\$0
Aurora	\$181,560	\$0.00	\$0.00	\$181,560	\$813,610	\$0.00	\$0.00	\$0.00	\$813,610
Richmond Hill	\$8,159,560	\$0.00	\$0.00	\$8,159,560	\$1,354,750	\$0.00	\$0.00	\$0.00	\$1,354,750
Markham	\$2,269,250	\$0.00	\$0.00	\$2,269,250	\$1,644,750	\$0.00	\$0.00	\$0.00	\$1,644,750
<b>Total</b>	<b>\$15,912,160</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$15,912,160</b>	<b>\$6,033,970</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$6,033,970</b>
Capital Cost including Engineering and Contingency Costs									<b>\$21,946,130</b>

Table 3-2B: Estimated Cost of 5+ Year Implementation Plan by Municipality / Agency by 50% / 50% Funding Partnership

	Existing / Short Term (0-3 Years)				Long Term (4-5+ Years)				
	Region	Local	TRCA	Total	Region	Local	Ontario Parks	LSRCA	Total
Georgina	\$416,870	\$416,870	\$0.00	\$833,740	\$266,730	\$140,140	\$71,240	\$0.00	\$478,110
East Gwillimbury	\$1,849,190	\$1,849,190	\$0.00	\$3,698,380	\$871,370	\$478,620	\$0.00	\$392,750	\$1,742,740
Newmarket	\$384,840	\$384,840	\$0.00	\$769,680	\$0.00	\$0.00	\$0.00	\$0.00	\$0
Aurora	\$90,780	\$90,780	\$0.00	\$181,560	\$406,810	\$406,810	\$0.00	\$0.00	\$813,620
Richmond Hill	\$4,079,780	\$3,689,550	\$390,230	\$8,159,560	\$677,370	\$677,370	\$0.00	\$0.00	\$1,354,740
Markham	\$1,134,625	\$1,134,625	\$0.00	\$2,269,250	\$1,625,570	\$19,180	\$0.00	\$0.00	\$1,644,750
<b>Total</b>	<b>\$7,956,085</b>	<b>\$7,565,855</b>	<b>\$390,230</b>	<b>\$15,912,170</b>	<b>\$3,847,850</b>	<b>\$1,722,120</b>	<b>\$71,240</b>	<b>\$392,750</b>	<b>\$6,033,960</b>
Capital Cost including Engineering and Contingency Costs									<b>\$21,946,130</b>

It is estimated that the total capital investment to implement the Lake to Lake Cycling Route and Walking Trail is approximately \$15.9 million, plus an estimated \$6 million for detailed design, approvals, tendering and contingencies, over the next 5 years. The cost of the route is exclusive of maintenance and operating costs and other approved future road projects for local municipalities. It is recommended that each local municipal jurisdiction and agency would be expected as partners, to assume ownership of routes / facilities that fall within lands / roads under their jurisdiction and thus be responsible for maintaining their own costs as they do with their existing cycling and pedestrian / trail facilities. It is recognized that the maintenance program and level of service standard is specific to each local municipality. Details pertaining to the maintenance costs are discussed in detail in [Section 4.2](#).

The network cost of approximately \$15.9 million is a conservative estimate and is based on stand-alone unit prices identified in [Appendix A – Unit Costs Schedule and Detailed Cost Tables](#). However, it has been assumed that on-road components of the network would typically be included as part of the same tender for a road resurfacing, reconstruction or widening project. Therefore, through economies of scale, the construction cost charged to the municipality by a contractor should be less.

For on-road facilities shown in the tables, the distance shown represents the length of the road with bicycle facilities on both sides of the road. The distances for multi-use trails in a local municipality and Regional road rights-of-way have been assigned to the local municipality because multi-use trails, like sidewalks, are the responsibility of local municipalities in York Region.

### 3.3.2 Partnership & Funding Strategies

#### Lake to Lake Investment Strategy

As previously noted, it is recommended York Region should assume a lead role in coordinating the implementation of the Lake to Lake Route in partnership with the respective jurisdictions for each segment of the route in the Region.

Given the Lake to Lake Route is a Regional network, there are a number of benefits to the first cost sharing option where the Region funds 100% of the capital costs for the implementation and construction of the Route:

1. This approach is expected to reduce the design and tendering component costs through realizing economies of scale by York Region completing the detailed design, tendering and managing the implementation, compared to the second option where York Region would be a funding partner but the local municipalities would separately be responsible for design, tender and implementation.
2. The goal to implement the Lake to Lake Route within five years is expected to be more achievable if York funds the entire capital cost as only one Council (York Region) will be required to approve the annual implementation budget compared to the challenges in securing timely annual budget approvals from each of the local municipalities, conservation authorities and Ontario Parks for their 50% funding share in option 2.

Although Option 2 does require each local municipality, conservation authority and Ontario Parks to have a funding role in implementation, they would still have an ownership role in Option 1 as they would be required to approve the alignment, detailed design, issue appropriate approvals and permits and then assume and maintain the routes in each of their jurisdictions.

Regardless of the funding approach selected by York Region, projects approved under the “Lake to Lake Route Investment Strategy” should adhere to the approved Lake to Lake design and route. Changes proposed after a contribution agreement is signed (the form this agreement would take is dependent on the funding approach) would have to be approved by the Region prior to construction.

Detailed design and implementation of the Lake to Lake Route should include the following:

- Tender ready construction plans;
- Typical cross-section drawings;
- Proposed construction commencement/phasing;
- Maintenance details; and
- Detailed construction cost.

The detailed design approval process for each municipal section should also include the following:

- A confirmation that the route alignment and facility type is consistent with the Lake to Lake Design Feasibility Study or subsequent revisions as approved by the Region of York;
- Meet current Regional planning and design guidelines;
- Be supported by a resolution of local council, conservation authority and/ or an agency;
- A commitment from the local municipalities and/agency for:
  - Assumption of the Lake to Lake Route segment under their jurisdiction
  - All maintenance and future rehabilitation responsibilities.

The intent of the Investment Strategy is to assist local municipalities, conservation authorities and Ontario Parks in implementing their respective segments of the Lake to Lake Route by funding up to 100% of eligible capital work. The cost share is calculated from the total capital cost of the project.

It is recommended that a report be presented to Regional Council during each year of implementation that identifies work completed over the past year and segments proposed for the upcoming year and then requests approval of the budget necessary to implement project segments scheduled for the following year.

Typical eligible items for Regional funding are labour and material costs for:

- Pavement Material;
- Signage;
- Safety Barriers;
- Hard Landscaping;
- Lighting (as per Regional policy);
- Bridge Structures;
- Utility Relocation;
- Traffic Control;
- Project Management;
- Administration / overhead (only contracted portion of the project – “out of the pocket expenses”); and
- Design and planning.

Project elements not eligible for Regional funding include:

- Temporary or seasonal enhancement including landscaping;
- On-going maintenance during the course of operations;
- Repair or replacement during the course of operations;
- New curb & gutter (unless necessitated by project design);
- Interlocking pavers; and
- End of trip facilities that are not part of the construction project (i.e. bike racks, lockers, etc.).

### Other Funding Source Considerations

As set out in the York Region PCMP, funding of the Lake to Lake Route may rely on Development Charges (DC), the general tax base and a portion of federal / provincial gas tax funds. The Region’s DC by-law should be reviewed to confirm that it permits the use of DC funds for improving Regional Road right-of-ways to better accommodate alternative modes, including walking, cycling and public transit use.

To assist in reducing taxpayer costs, York Region may also select to pursue outside funding opportunities. Over the last few years, funding sources made available for cycling, pedestrian and trail related projects are at or near an all-time high due to the increasing popularity of on and off-road cycling facilities and trails. It is expected that this trend will continue. Outside funding opportunities may include:

- Gas Tax;
- The Canada-Ontario Infrastructure Program;
- Federation of Canadian Municipalities Green Municipal Fund;
- The Federal Government’s Transportation Showcase Program;
- Ontario Trillium Foundation that was recently expanded in response to the money collected throughout the Province by casinos;
- Human Resources Development Canada program that enables personnel positions to be made available to various groups and organizations. For example, the Ontario Trails Council has been able to hire two people under this program;
- Corporate Environmental Funds such as Shell and Mountain Equipment Co-op tend to fund small, labour-intensive projects where materials or logistical support is required;
- Corporate Donations may consist of money or services in-kind, and have been contributed by a number of large and small corporations over the years;
- Potential future funding from the Ontario Trails Strategy;
- Service Club such as Lions, Rotary and Optimists have assisted with a number of high visibility projects at the community level; and
- Private citizen donations / bequeaths.

### 3.3.3 Economic & Tourism Benefits

For host communities, tourism is an economic activity which generates economic benefits in the form of contribution to gross domestic product, generation and support of jobs, and taxes paid to municipal, provincial and federal governments. When tourism is sustainable, the economic benefits are realized in combination with environmental and social / cultural stewardship. This “triple bottom line”, results in an enhanced quality of life for host community residents as well as an authentic visitor experience for tourists.

The proposed Lake to Lake Route represents a sustainable tourism development initiative with the potential to benefit tourists and residents within York Region and the City of Toronto. These benefits may include:

- **Establishment of a cycle tourism destination** – linking Lake Simcoe and Lake Ontario as well as communities located between these two centres in a shared tourism development initiative with the potential to brand the region as a cycling destination.
- **Increased regional tourism economic benefits** – as a branded cycle tourism destination, new cycle tourist spending will be attracted to York Region and the City of Toronto. In general, cycle tourists travel light and therefore shop at local businesses more frequently than other types of tourists.



- **Increased safety of cycling and pedestrian activities in and through York Region** -- by providing an attractive, compelling experience that directs cyclists and trail users (pedestrians etc.) to engaging facilities that have been designed to reduce user risk (function of safety) in a designated corridor through communities and rural areas.
- **Enhanced regional quality of life** – use of the Route by regional residents for recreation and for transportation between communities would facilitate increased physical activity and its related health and fitness benefits, while replacing some motorized travel with bicycles thus reducing air pollution and greenhouse gas emissions.
- **Contribution to a regional tourism development strategy** – success from implementing this shared, regional tourism development initiative linking communities can provide a model and platform for regional tourism projects and initiatives.

Using the Ontario Ministry of Tourism, Culture and Sport Tourism Regional Economic Impact Model (TREIM), it is possible to quantify future economic benefits associated with capital investment in developing the Route, and spending by “out-of-Region” visitors using the Route.

For every \$100,000 of capital investment in developing the Route, \$42,400 would be contributed to the Region’s Gross Domestic Product (GDP), \$19,900 would be collected in tax revenues (all three levels of government combined), and just less than 1 full time job would be supported. Given the total estimated capital expenditure of \$15,000,000 to fully develop the Lake to Lake Route, approximately \$6,360,000 will be contributed to Regional GDP, \$2,985,000 in tax revenues will be collected and 150 full time jobs will be supported.

If the Route were fully developed and open for use in 2012, for every 1,000 visitors to York Region that were drawn to the region to use the Route, 50% of whom stayed overnight within the Region, the contributions to the York Region economy from the visits would have included:

If the visitors were residents of Ontario, \$78,400 in direct spending generating \$44,700 contribution to Gross Domestic Product (GDP) and \$23,000 in tax revenues while supporting 1 job;

- If the visitors were residents of other provinces within Canada, \$69,500 in direct spending generating \$43,900 contribution to GDP and \$21,700 in tax revenues while supporting 1 job;

- If the visitors were residents of the USA, \$68,400 in direct spending generating \$45,700 contribution to GDP and \$23,000 in tax revenues while supporting 1 job; and
- If the visitors were residents of countries other than Canada or the USA, \$130,000 in direct spending generating \$91,800 contribution to GDP and \$43,100 in tax revenues while supporting 1 job.

It should be noted that in 2008, data collected by Statistics Canada, revealed that York Region attracted almost 3.1 million visits. If the Lake to Lake Route were responsible for increasing this by 1% (approximately 31,000), the resulting economic benefits if all of the visitors were residents of Ontario would be as much as \$2.4 million in direct spending generating \$1.4 million contribution to GDP and \$713,000 in tax revenues while supporting 31 jobs.

## 4.0 LAKE TO LAKE ROUTE DESIGN GUIDELINES & ALTERNATIVES

### 4.1 Designer’s Tool Box

For the purposes of the Lake to Lake Cycling Route and Walking Trail, the “Designer’s Tool Box” has been divided into [Off-Road Pedestrian / Cycling Facilities](#) and [On-Road Bicycle Facilities with an Adjacent Sidewalk](#). The following table defines off and on-road facilities as well as identifies some of the key facility types which fall under each category. [Section 4.1.1](#) and [Section 4.1.2](#) provide typical functional design guidelines for each of these facility types. The Lake to Lake Design Guidelines comply with the new Accessibility for Ontarians with Disabilities Act (AODA) Built Environment Standards. The Designer’s Tool Box highlights the Technical Requirements for Recreational Trails in [Section 4.1.1.3](#).

Table 4-1: Bicycle Facility Types

Off-Road Pedestrian/Cycling Facilities	On-Road Bicycle Facilities with an Adjacent Sidewalk
<p>“Off-Road Pedestrian/Cycling Facilities” are those facilities that are located outside the travelled portion of the roadway through open spaces, valleys and parklands, as well as linear corridors such as abandoned railway lines, unopened road allowances and utility corridors. Off-road facilities may or may not be located within the road right-of-way such as In-Boulevard Pathways/Active Transportation Paths and Off-Road Multi-Use Trails, respectively.</p>	<p>“Sidewalks” are defined as raised paved or asphalted paths for pedestrians alongside the roadway. “On-road Bicycle Facilities” are those within the travelled portion of the roadway, located on or along an existing road and may be incorporated into the existing or future street network. Such facilities include Signed Bike Routes with an adjacent Sidewalk, Signed Bike Routes with a Paved Shoulder, Bicycle Lanes with an adjacent Sidewalk and Cycle Tracks with an adjacent Sidewalk.</p>
<p><b>Key Off-Road Pedestrian / Cycling Facilities:</b></p> <ul style="list-style-type: none"> <li>• In-Boulevard Pathway / Active Transportation Path (one-way, two-way and shared-use); and</li> <li>• Off-Road Multi-Use Trail</li> </ul>	<p><b>Key On-Road Bicycle Facilities with Adjacent Sidewalk:</b></p> <ul style="list-style-type: none"> <li>• Signed Bike Route with an Adjacent Sidewalk;</li> <li>• Signed Bike Route with a Paved Shoulder;</li> <li>• Bicycle Lane with an Adjacent Sidewalk; and</li> <li>• Cycle Track with an Adjacent Sidewalk.</li> </ul>
<p><b>Examples:</b></p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>In-Boulevard Pathway – Shared Use</p>  <p>Credit: loopsframelove.blogspot.ca, 2011</p> </div> <div style="text-align: center;"> <p>Off-Road Multi-Use Trail</p>  <p>Credit: MMM Group, 2012</p> </div> </div>	<p><b>Examples:</b></p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Conventional Bicycle Lane with Adjacent Sidewalk</p>  <p>Credit: MMM Group, 2012</p> </div> <div style="text-align: center;"> <p>Signed Bike Route with a Paved Shoulder</p>  <p>Credit: MMM Group, 2012</p> </div> </div>
<p><b>Other Design Considerations - Crossings</b></p> <ul style="list-style-type: none"> <li>• Potential Conflicts with Side-roads and Driveways;</li> <li>• Cross-Walks and Cross-Rides; and</li> <li>• Mid-Block Crossings.</li> </ul>	<p><b>Other Design Considerations – Grade Separations and Retrofitting</b></p> <ul style="list-style-type: none"> <li>• Grade Separations; and</li> <li>• Retrofitting</li> </ul>



## 4.1.1 Off-Road Pedestrian / Cycling Facilities

### In-Boulevard Pathway / Active Transportation Path within the Road Right-of-Way

An **In-Boulevard Pathway** is a bicycle path adjacent to a sidewalk or a combined bicycle / pedestrian path physically separated from motor vehicle traffic typically by a hard surface splash strip (e.g. asphalt, stamped concrete, etc.) adjacent to the curb followed by a grass / landscaped strip (often referred to as part of a “boulevard” or “verge”) within the road right-of-way. Sometimes referred to as an “Active Transportation Path”, this facility type is typically design for a wide range of non-motorized users including pedestrians, cyclists, in-line skaters and skateboarders. Motor vehicles are not permitted, except when emergency or maintenance vehicles require access.

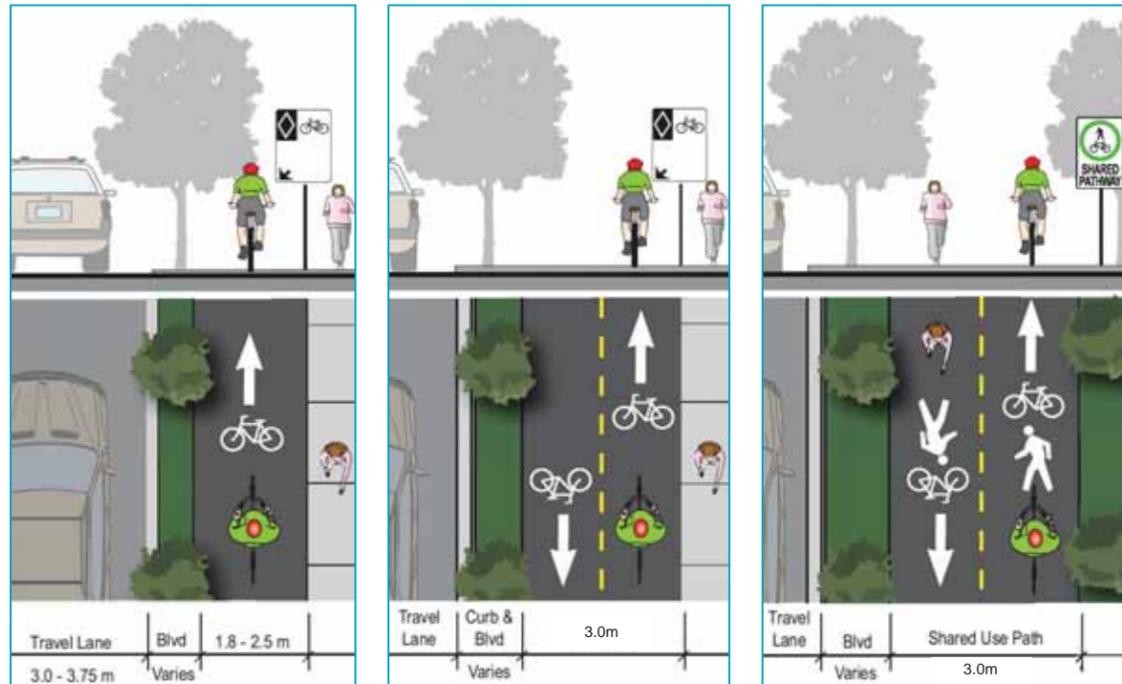


Figure 4.1 – One-Way In-Boulevard Pathway

Figure 4.2 – Two-Way In-Boulevard Pathway

Figure 4.3 – Shared Use In-Boulevard Pathway



Figure 4.4 – Town of Milton In-Boulevard Pathway  
Credit: MMM Group, 2010



Figure 4.5 – In-Boulevard Pathway alongside Sidewalk (Town of Milton)  
Credit: MMM Group, 2010



Figure 4.6 – Shared Use In-Boulevard Pathway  
Credit: loopsframelove.blogspot.ca, 2011



Figure 4.7 – Two-way In-Boulevard Pathway with Adjacent Sidewalk  
Credit: Unknown, 2012

#### Key Considerations:

- An in-boulevard pathway should typically be considered where there are few intersections and conflict points per kilometre (e.g. ideally less than 4). On an urban cross-section a shared use path may be implemented on one side of the road and a pedestrian sidewalk on the other side.
- Surface may be compacted granular (e.g. limestone screening / recycled compacted concrete) or hard surface (e.g. asphalt); A hard surface will accommodate a wider range of users.
- A yellow centre line may be used on busier in-boulevard pathways with an asphalt surface to help delineate travel lanes.
- An in-boulevard pathway is a good facility choice where a large portion of the bicycle users may have low to moderate level of experience.
- It is recommended that a buffer, with a minimum width of 0.5 metres, separate an in-boulevard pathway from the sidewalk.

**Pedestrian Consideration:** An in-boulevard pathway can take on two forms, one where the bicycle path is distinct from the sidewalk and the other where a single path is shared by pedestrians and cyclists. In corridors with high pedestrian and cycling demand, ideally the in-boulevard pathway would take on the form where the bicycle path is distinct from the sidewalk. However, consideration should be given to the location of the route, the available right-of-way and the cost of implementing and maintaining two separate facilities.

Table 4-2: Signage for In-Boulevard Pathways

	Reserved Bicycle Lane Sign	Shared Pathway Sign
Sign / Code	RB-91	RB-93
Size	600 mm x 750 mm	300 mm x 600 mm

Source: TAC Bikeway Traffic Control Guidelines, 2012

*An In-Boulevard Pathway is typically an ideal facility type for families and recreational users.*

Table 4-3: Pavement Markings for In-Boulevard Pathways

Cyclist Directional Arrows	Pedestrian Symbol
Delineating Lines	Bicycle Symbol

### Off-Road Multi-Use Trail outside the Road Right-of-Way

An **Off-Road Multi-Use Trail** is a facility shared by pedestrians, cyclists and other non-motorized users located outside the road right-of-way. If permitted by municipal by-law, multi-use trails may also be used by recreational motorized vehicles. Multi-use trails are generally used to provide a recreational opportunity for local residents and visitors and are typically located through parks, open spaces and rail corridors as well as along rivers, lake fronts and canals.



Figure 4.8 – Multi-Use Trail

Table 4-4: Signage for Multi-Use Trails

Shared Pathway Sign	
Sign / Code	 RB-93
Size	300 mm x 600 mm

Source: TAC Bikeway Traffic Control Guidelines, 2012

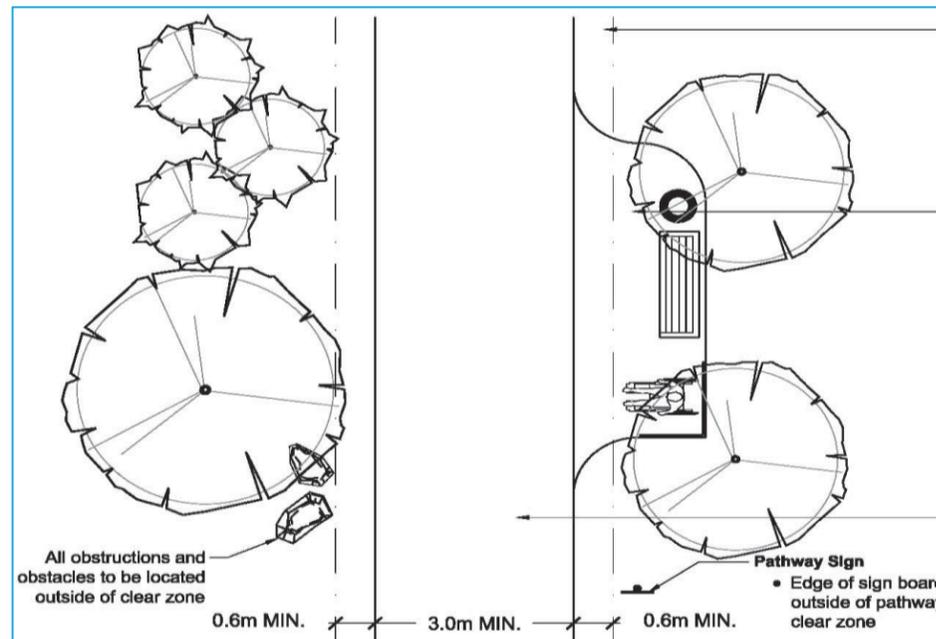


Figure 4.9 – Main / Spine Trail Detail

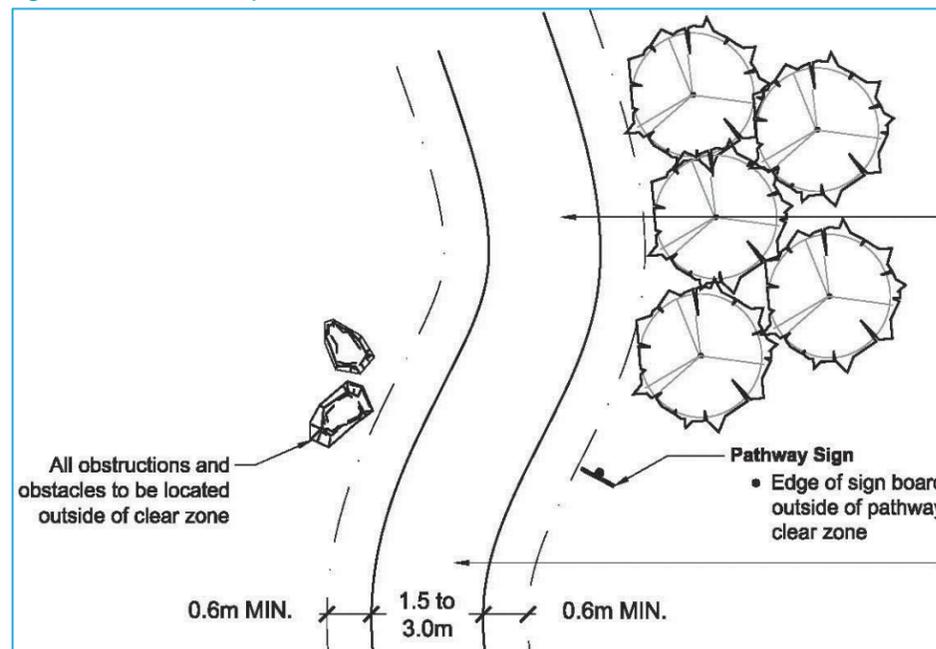
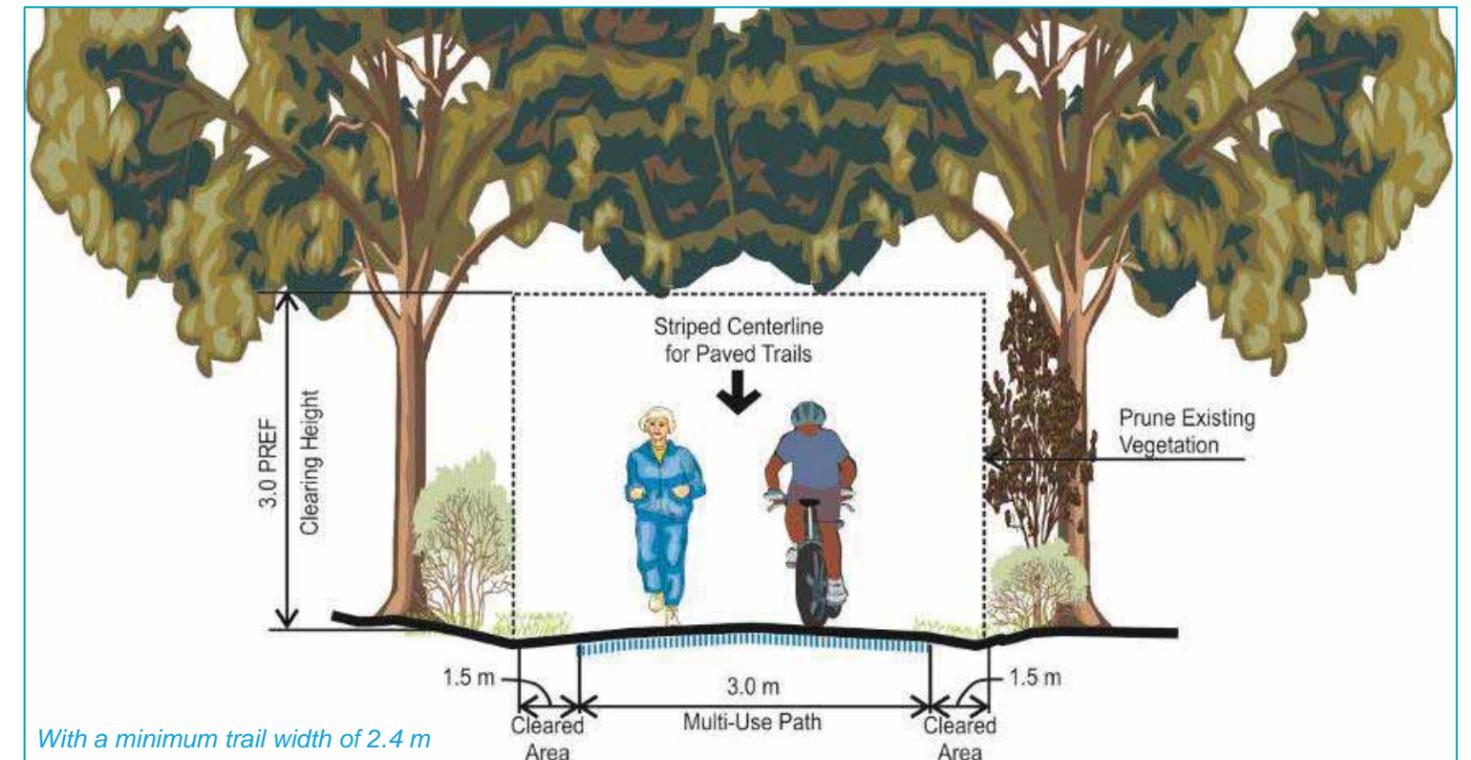


Figure 4.10 – Secondary / Neighbourhood Trail Detail



With a minimum trail width of 2.4 m

Figure 4.11 – Multi-Use Trail Concept Drawing

#### Key Considerations:

- Generally used to provide a recreational opportunity for both pedestrians and cyclists, and other non-motorized users if paved.
- Designers must consider the specific users when determining the operating and design of the off-road facility.
- Surface may be compacted granular (e.g. limestone screening) or hard surface (e.g. asphalt).
- Surface type may vary, may be granular in rural areas and asphalt in urban areas to accommodate a wider range of users.
- Wayfinding and directional signs are important to those using off-road multi-use trails.
- Path organization signage and / or painted centrelines (for paved trails) can be utilized to identify separate lanes for opposing directions of travel and encourage the practice of keeping to the right side of the trail.

Refer to the next page for typical trail design details for gravel surfaced and hard surface (e.g. recycled concrete) trails.

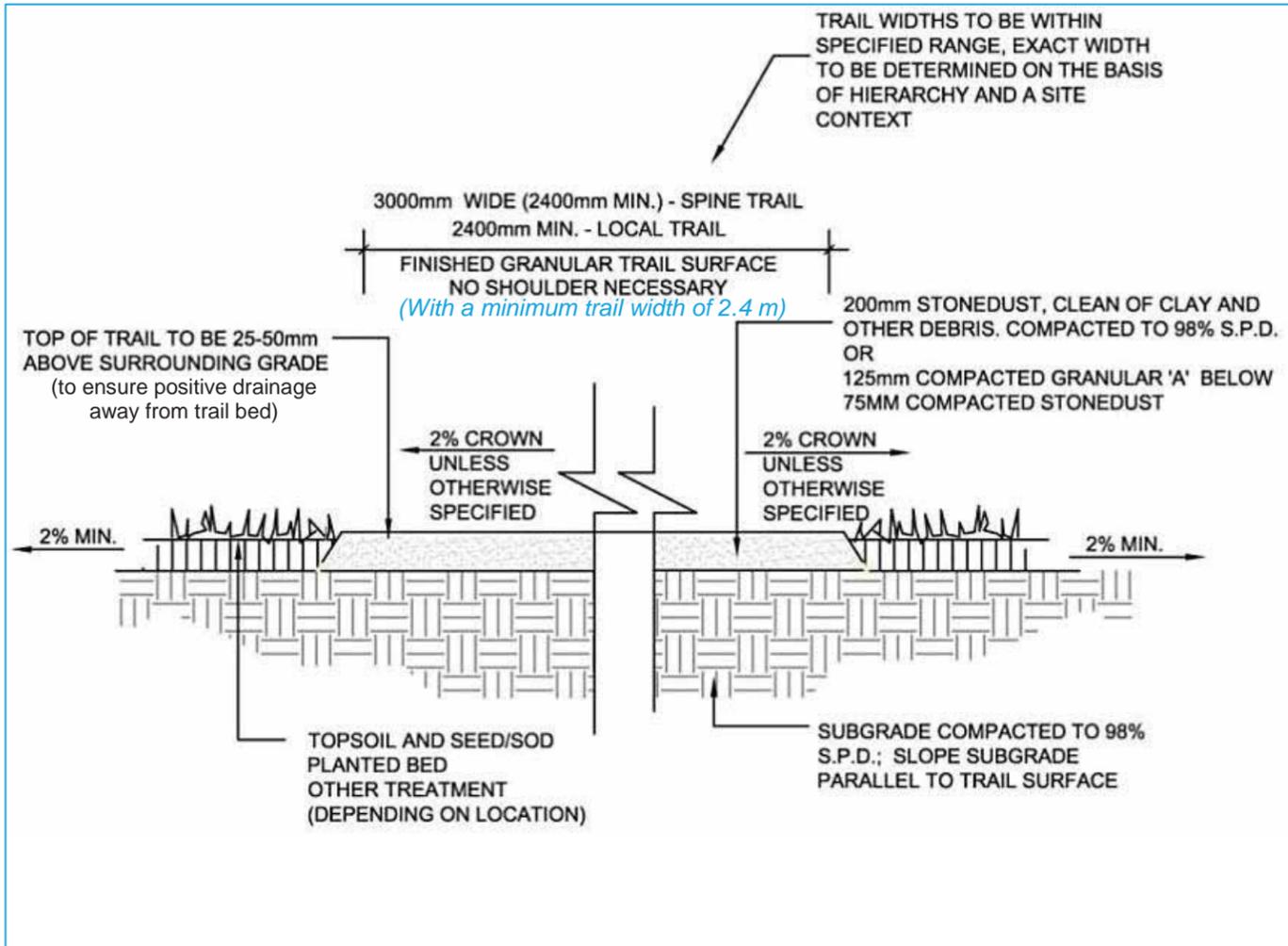


Figure 4.12 – Typical Design Detail - Gravel Surfaced Trail



Figure 4.14 – Town of Aurora Multi-Use Trail  
Credit: MMM Group, 2009



Figure 4.15 – Town of East Gwillimbury Multi-Use Trail  
Credit: MMM Group, 2010

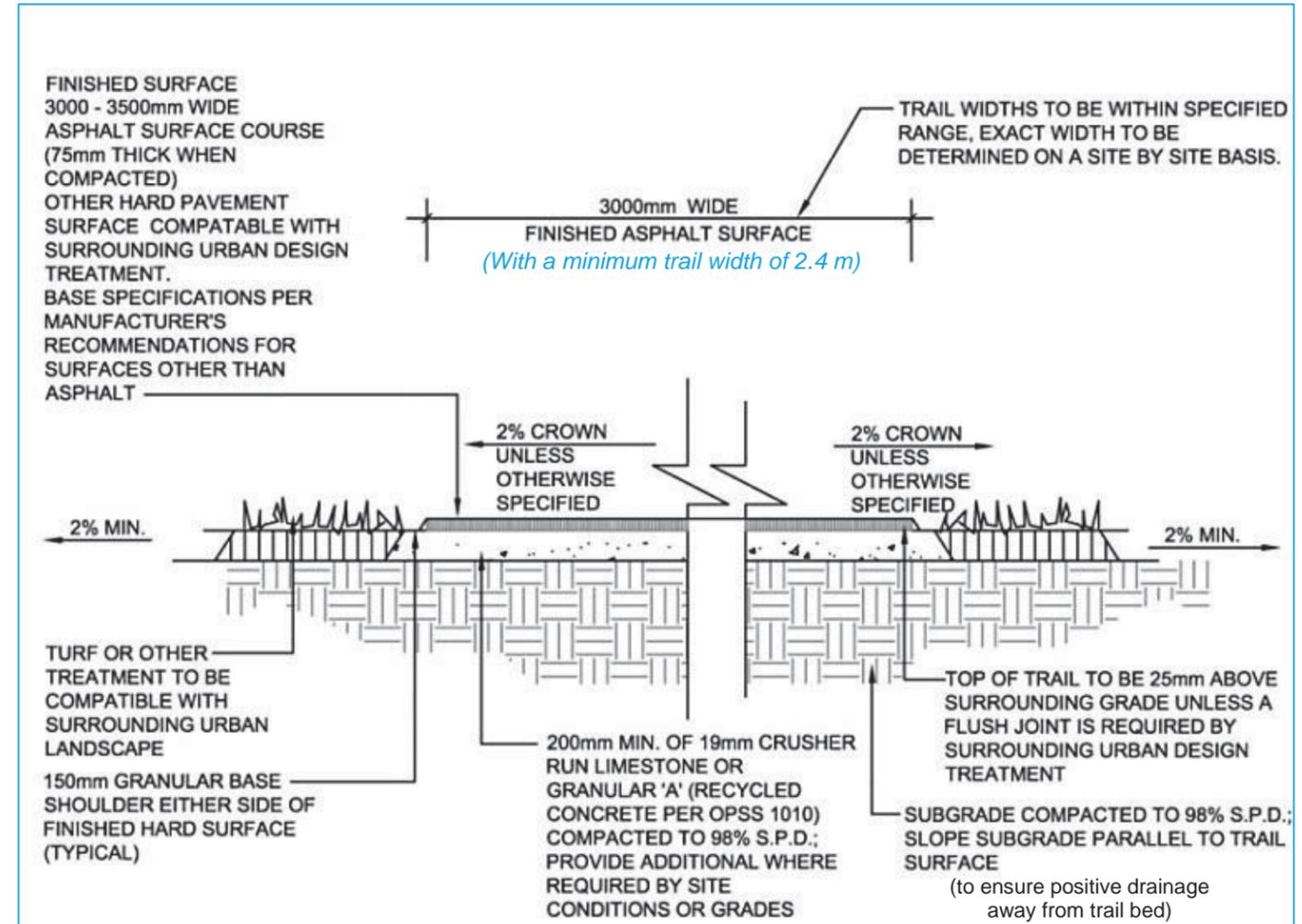


Figure 4.13 – Typical Design Detail - Hard Surfaced Trail



Figure 4.16 – Town of East Gwillimbury Multi-Use Trail  
Credit: MMM Group, 2010



Figure 4.17 – Town of Richmond Hill Multi-Use Trail  
Credit: MMM Group, 2010

## Accessibility

Approximately one in eight Canadians suffer from some type of physical disability. Mobility, agility, and pain-related disabilities are by far the most common types, each accounting for approximately 10% of reported disabilities nationally. Disability increases with age: from 3.3% among children, to 9.9% among working-age adults (15 to 64), and 31.2% among seniors 65 to 74 years of age. Disability rates are highest among older seniors (75 and over), with fully 53.3% in this age group reporting a disability.

As a result, the Accessibility for Ontarians with Disabilities Act (AODA), 2005 was developed which states that “the people of Ontario support the right of persons of all ages with disabilities to enjoy equal opportunity and to participate fully in the life of the province.” In October of 2012, it was proposed that The Regulation be amended by adding Part IV.1 Design of Public Spaces Standards (Accessibility Standards for the Built Environment).

*“The goal of the Accessibility Standards for the Built Environment is to remove barriers in public spaces and buildings.*

*This will make it easier for all Ontarians — including people with disabilities, seniors and families — to access the places where they work, travel, shop and play.”*

The standard for public spaces currently only applies to new construction and planned redevelopment and enhancements to accessibility in buildings will happen at a later date through Ontario’s Building Code, which governs new construction and renovations in buildings. The standards for public spaces cover: Recreational Trails and Beach Access Routes, Outdoor Public Use Eating Areas, Outdoor Play Spaces, Exterior Paths of Travel, Accessible Parking and Obtaining Services. Some highlights of the proposed technical requirements for recreational trails under the new regulation 80.8(1) include:

- A recreational trail must have a minimum clear width of 1,000 mm;
- A recreational trail must have a clear height that provides a minimum head room clearance of 2,100 mm above the trail.
- The surface of the recreational trail must be firm and stable.
- The entrance to the recreational trail must provide a clear opening of between 850 mm and 1,000 mm, whether the entrance is a gate, bollard or other entrance design.
- A recreational trail must have at its start signage that provides the following information: the length of trail; the type of surface of which the trail is constructed; the average and the minimum trail width; the average running slope and maximum cross slope and the location of amenities, where provided.

The development of trails and active transportation facilities is not a one size fits all approach. Trails facilities are to be developed to accommodate all users including those with a variety of needs and levels of ability. The Technical Requirements for Recreational Trails in the AODA outlines necessary criteria for the development and design of trails to accommodate such user groups. When designing and implementing active transportation facilities for the Lake to Lake Cycling Route and Walking Trails, the technical requirements should be utilized to ensure that the needs of all user groups are accommodated and satisfying the requirements of the AODA to the greatest extent possible, given the context of each trail’s location, the surrounding environment and type of trail experience that is desired.

For more information on the Design of Public Spaces in the Built Environment visit: [http://www.mcass.gov.on.ca/en/mcass/programs/accessibility/built\\_environment/index.aspx](http://www.mcass.gov.on.ca/en/mcass/programs/accessibility/built_environment/index.aspx)

Or to access the current Accessibility for Ontarians with Disabilities Act (AODA), 2005 visit: [http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_05a11\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_05a11_e.htm)



Figure 4.18 – Accessibility is mandated under the Accessibility for Ontarians with Disabilities Act, 2005

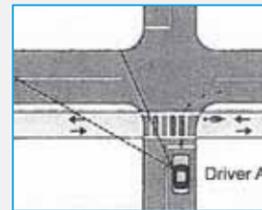
Credit: MyNewWaterfrontHome.com — May 2012



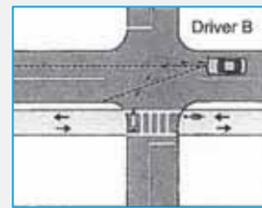
## Other Design Considerations - Crossings

### Potential Conflicts with Side-roads and Driveways

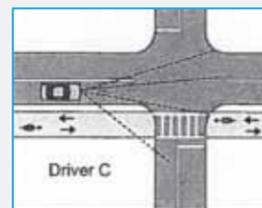
Conflict points exist at roadway and driveway crossings creating operational and safety problems for both cyclists and motorists using off-road bicycle facilities.



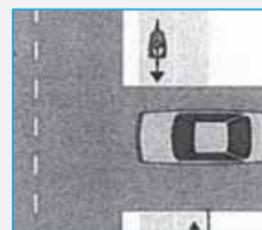
Motorists entering or crossing the roadway (e.g. Driver A) from a cross-street or driveway are looking for traffic coming from the left and may not notice cyclists approaching from the right.



Motorists turning left from the main roadway onto the cross-street or driveway (e.g. Driver B) are looking for traffic ahead and may also fail to notice cyclists travelling in the opposite direction.



Motorists turning right from the main roadway onto the cross-street or driveway (e.g. Driver C) may not expect a cyclist to be crossing since the bicycle facility is removed from the travelled portion of the roadway and often not visible to the driver.



Motorists stopped on a cross-street or driveway may block cyclists travelling along the AT path or multi-use trail. Therefore these facilities should not be implemented along routes where there are a large number of crossings and/or driveway entrance and exit points.

At the end of a multi-use trail, cyclists travelling in the opposite direction of adjacent motor vehicle traffic may continue travelling on the wrong side of the roadway or cyclists may travel on the wrong side of the roadway to access a multi-use trail entrance point.

Credit: AASHTO Guide for the Development of Bicycle Facilities, 2012

### Cross-Walks and Cross-Rides

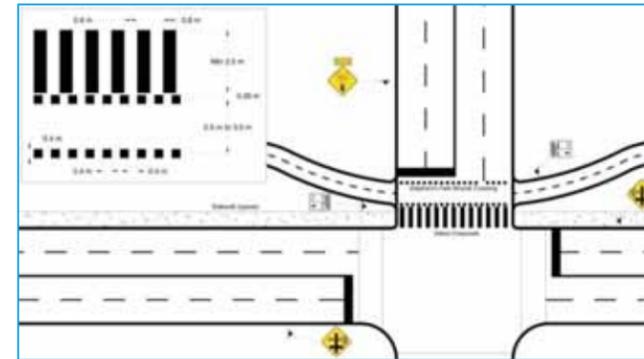


Figure 4.19 – Separate Cross-Walk/Cross-Ride Crossing

Credit: TAC Bikeway Traffic Control Guidelines, 2012



Figure 4.20 – Separate Cross-Walk/Cross-Ride Crossing

Credit: TAC Bikeway Traffic Control Guidelines, 2012



Figure 4.21 – Mixed Pedestrian and Cyclist Crossroad (Unsignalized Example)

Credit: TAC Bikeway Traffic Control Guidelines, 2012

### Mid-Block Crossings

An off-road multi-use trail may sometimes cross a roadway mid-block. A mid-block pedestrian signal allows dismounted cyclists and pedestrians to cross the roadway while motor vehicles are stopped. However, a mid-block trail crossing of a multi-lane roadway should only be implemented at locations with adequate sight lines and only if the nearest controlled intersection is too far to expect users to travel to it. Note: Crossing pavement markings apply to signalized mid-block crossings only (as per OTM Book 18).

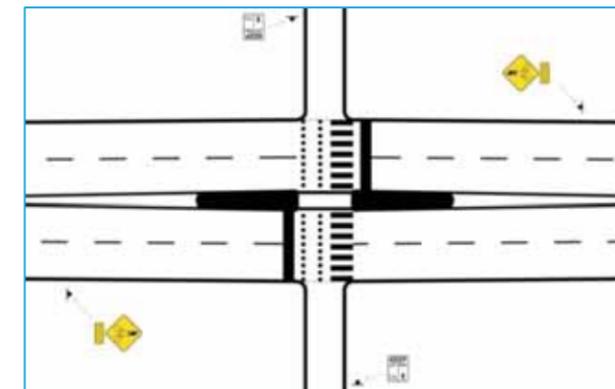


Figure 4.22 – Separate Pedestrian/Cyclist Mid-Block Trail Crossing

Credit: TAC Bikeway Traffic Control Guidelines, 2012

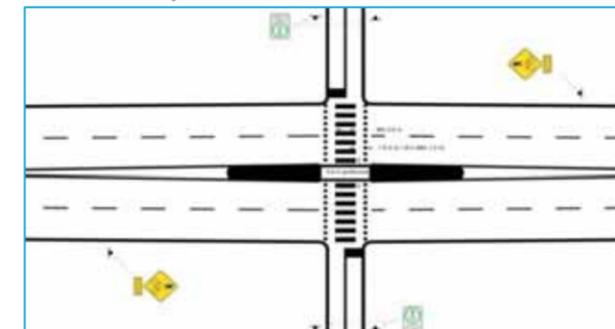


Figure 4.23 – Combined Pedestrian/Cyclist Mid-Block Trail Crossing

Credit: TAC Bikeway Traffic Control Guidelines, 2012

### Examples



Figure 4.24 – CrossRide Pilot Program, City of Mississauga

Credit: City of Mississauga, 2011



Figure 4.25 – Mid-Block Pedestrian Signal in Guelph

Credit: MMM Group, 2012



Figure 4.26 – Mid-Block Trail Crossing with Refuge Island in Guelph

Credit: MMM Group, 2012

## 4.1.2 On-Road Bicycle Facilities with an Adjacent Sidewalk

### Signed Bike Route with an Adjacent Sidewalk

A **Signed Bike Route / Shared Roadway with an Adjacent Sidewalk** is a roadway cross-section where both motorists and cyclists share the same vehicular travel lane and pedestrians use an adjacent sidewalk.



Figure 4.27 – Signed Bike Route with an Adjacent Sidewalk



Figure 4.28 – Signed Bike Route with Optional Sharrow Adjacent to Sidewalk

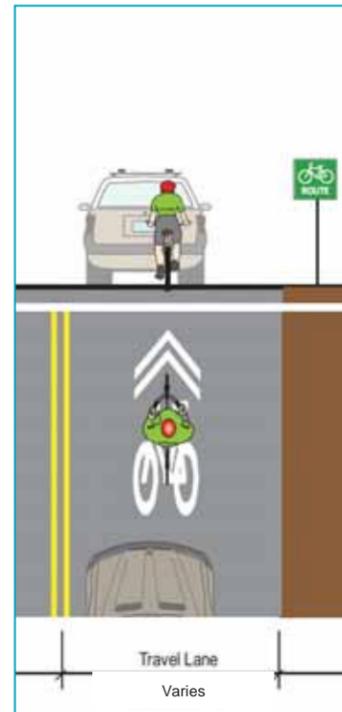


Figure 4.29 – Narrow Signed Bike Route with Optional Sharrow



Figure 4.30 – Signed-Only Bike Route with an Adjacent Sidewalk

Credit: City of Vaughan, 2012

*The sharrow symbol should be placed approximately 1.0 metres from the curb where there is no on-street parking and 3.4 metres from the curb where there is on-street parking.*



Figure 4.31 – Shared Roadway / Signed Bike Route with an Adjacent Sidewalk

Credit: Town of Richmond Hill, 2011



Figure 4.32 – Cyclists sharing Road with Adjacent Sidewalk

Credit: MMM Group, 2012

#### Key Considerations:

- Bicycles and motor vehicles share the right-most travel lane, no physical space is dedicated for bicycle use only.
- Design does not include pavement markings for bicycles; however designers may consider applying sharrows along these routes particularly across intersections, driveway and other conflict points. Sharrows are intended to guide cyclists where they should ride within a travel lane shared by both motorists and cyclists and are an optional treatment and context specific.
- Signed with the green “Bicycle Route” marker which may be supplemented by optional “Share the Road” signs.
- “Share the Road” signs and sharrows should be considered at pinch points.
- Roadways should typically only be signed as a bike route where lower motor vehicle operation speeds and traffic volumes exist.
- A signed bike route may be an appropriate solution for urban downtown / main street areas where on-street parking cannot be removed to implement dedicated bike lanes.

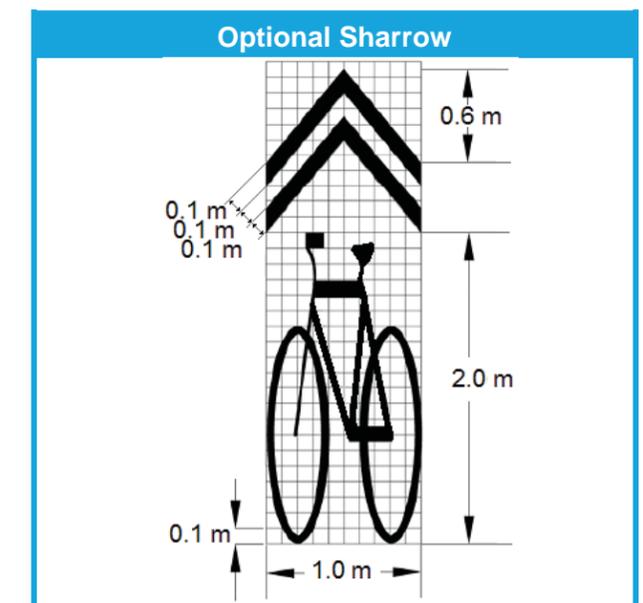
**Pedestrian Considerations:** Pedestrians use the sidewalk in residential areas and may use the road shoulder facing oncoming traffic in rural areas in accordance with the Highway Traffic Act.

Table 4-5: Signage for Signed Bike Routes

	Bike Route Marker	Optional Share the Road Sign
Sign / Code	 IB-23	 WC-20 / 20S
Size	450 mm x 450 mm	600 mm x 600 mm 600 mm x 300 mm

Source: TAC Bikeway Traffic Control Guidelines, 2012

Table 4-6: Optional Pavement Markings for Signed Bike Route



Source: Based on information from TAC Bikeway Traffic Control Guidelines, 2012

*Shared roadways designated as signed bike routes typically have travel lanes between 3.0 and 4.0 metres wide. When side-by-side travel is to be provided for motorists and cyclists a wide shared travel lane of a width of at least 4.0 metres should be considered to a maximum of 5.0 metres. Travel lanes that exceed 5.0 metres may encourage side-by-side travel between motorists.*

### Signed Bike Route with a Paved Shoulder

A **Signed Bike Route with a Paved Shoulder** is a road with a rural road cross section signed as a bike route that also includes a paved shoulder. A Paved Shoulder is a portion of a roadway which provides accommodation of stopped vehicles, emergency use, as well as for lateral support of the pavement structure. In rural areas, paved shoulders are sometimes used by pedestrians and cyclists for travel. They provide cyclists with an area for riding that is adjacent to vehicular travel lanes offering separation between bicycle traffic and vehicular traffic.



Figure 4.33 – Signed Bike Route with a Paved Shoulder



Figure 4.34 – Signed Bike Route with a Buffered Paved Shoulder

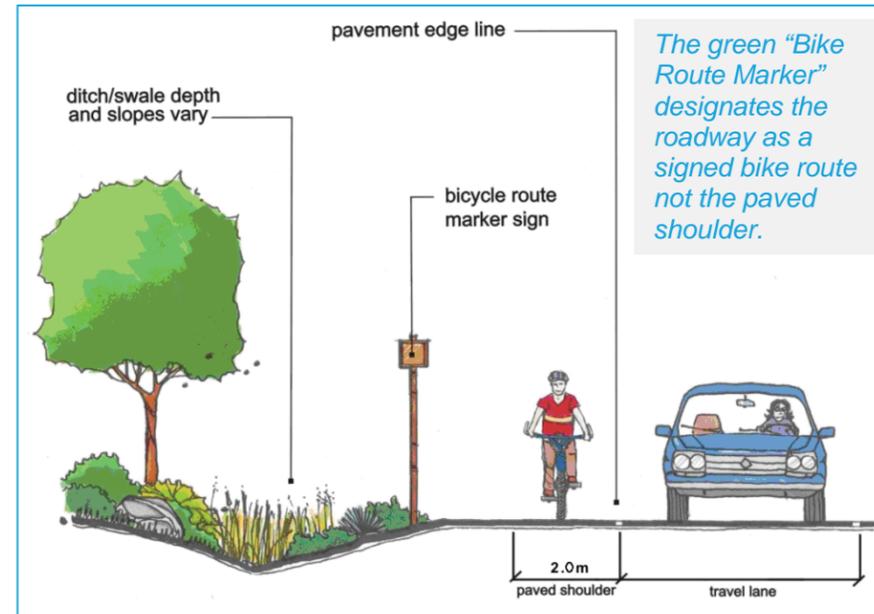


Figure 4.35 – Typical Signed Bike Route with a Paved Shoulder Schematic

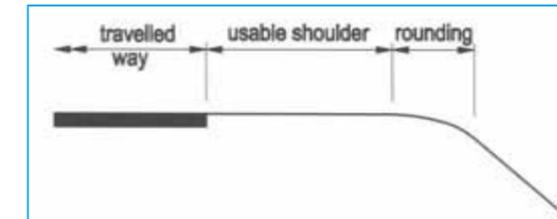


Figure 4.36 – Typical Roadway Shoulder



Figure 4.38 – Signed Bike Route with a Paved Shoulder

Credit: MMM Group, 2009



Figure 4.37 – Signed Bike Route with a Paved Shoulder

Credit: John Luton, 2010



Figure 4.39 – Pedestrian using Paved Shoulder

Credit: MMM Group, 2012

#### Key Considerations:

- Typical on a rural cross-section road (no curbs) where motor vehicle traffic volume and speeds are higher.
- Although not a designated space the paved shoulder provides a convenient location for pedestrians and cyclists to travel in rural areas.
- A wider shoulder and / or painted buffer provides more separation between the pedestrians/cyclists and motor vehicles.
- Other benefits include: reduction in the amount of maintenance required; extension of the service life of the road as heavy vehicles are travelling further away from road edge and reduction of run-off-the -road motor vehicle accidents.
- May be supplement with Bike Route Signs and/or Share the Road Signs.
- Rumble strips can be considered as an additional cue provided that there are clearly marked breaks at regular intervals, allowing cyclists to move in or out of the paved shoulder area to overtake pedestrians, slower moving cyclists or avoid stalled vehicles.

**Pedestrian Considerations:** Pedestrians may use the paved shoulder or remaining gravel shoulder. Pedestrians must walk facing oncoming traffic in accordance with the Highway Traffic Act.

*Rural roadways identified as a potential cycling route should have a paved shoulder width of 1.5 to 2.0 metres depending on the volume, speed and mix of vehicular traffic. In constrained sections practitioners may consider providing a minimum paved shoulder width of 1.2 metres. In situations where the facility type selection process has identified that the facility should contain a paved shoulder but due to roadway constraints the corridor is unable to accommodate the suggested minimum paved shoulder width, the road should not be designated as a cycling route.*

Table 4-7: Signage for Signed Bike Routes with a Paved Shoulder

	Bike Route Marker	Optional Share the Road Sign
Sign / Code	 IB-23	 WC-20 / 20S
Size	450 mm x 450 mm	600 mm x 600 mm 600 mm x 300 mm

Source: TAC Bikeway Traffic Control Guidelines, 2012

### Bicycle (Bike) Lane with an Adjacent Sidewalk

A **Bicycle Lane** is a portion of a roadway which has been designated by pavement markings and signage for preferential or exclusive use by cyclists. A **Separated Bicycle Lane** provides additional spatial or physical separation between motorists and cyclists through the use of a painted buffer and/or physical barrier. Pedestrians use an adjacent sidewalk



Figure 4.40 – Conventional Bicycle Lane



Figure 4.41 – Wide Bicycle Lane



Figure 4.42 – Buffered Bicycle Lane



Figure 4.43 – Separated Bicycle Lane with Flex Bollards



Figure 4.44 – Separated Bicycle Lane with Planters

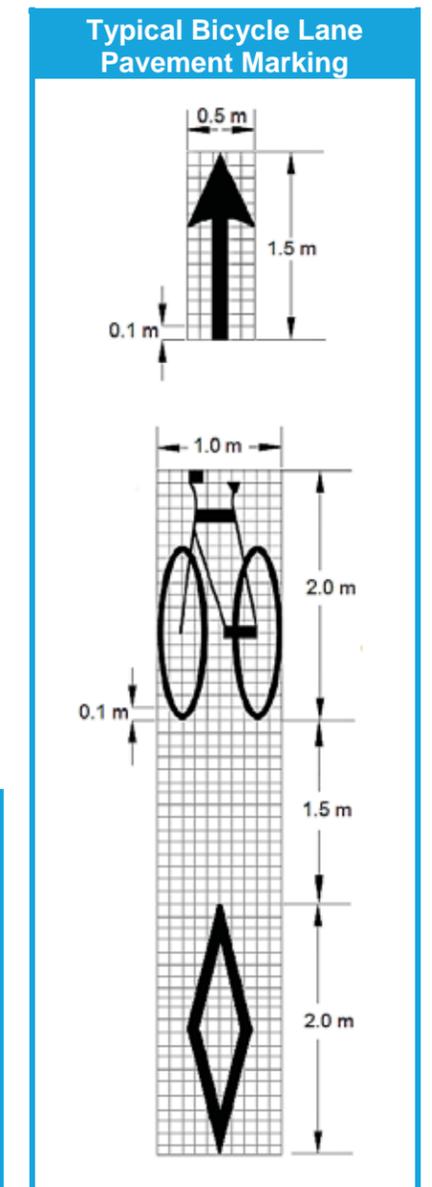


Figure 4.45 – Conventional Bicycle Lane  
Credit: www.ibiketo.ca, 2007



Figure 4.46 – Separated Bicycle Lane  
Credit: City of Toronto, 2012

Table 4-8: Pavement Markings for Bicycle Lane



Source: Based on information from TAC Bikeway Traffic Control Guidelines, 2012

#### Key Considerations:

- The designated space offered by Bicycle Lanes is perceived to provide a more comfortable riding environment for cyclists and better organize traffic flow for motorists, pedestrians and other non-motorized vehicle users.
- Bicycle lanes should typically be provided on both sides of two-way streets and in the direction of travel on one-way streets. Sidewalks are generally provided on both sides of the street.
- Conventional bicycle lanes are defined by delineating lines and diamond symbol followed by a bicycle symbol indicating that the lane is reserved and signed using the “Reserved Bicycle Lane” sign.
- Bicycle lanes are sometimes implemented adjacent to on-street parking – sufficient space should be provided to mitigate conflict between cyclists and open car doors on streets where on-street parking is permitted.
- Separated bicycle lanes should be considered for implementation on high volume, higher speed roads.
- Guidelines for the preferred buffer width vary and can be adjusted based on context and barrier type.

**Pedestrian Considerations:** Pedestrians use the sidewalk in urban areas. Sidewalks should at a minimum be installed on one side of the road along designated AT routes where none currently exist.

Table 4-9: Signage for Bicycle Lanes

	Reserved Bicycle Lane Sign	Reserved Bicycle Lane Ends Sign	Turning Vehicles Yield to Bicycles Sign
Sign / Code	RB-91	RB-92	RB-37
Size	600 mm x 750 mm	600 mm x 750 mm	600 mm x 750 mm

Source: TAC Bikeway Traffic Control Guidelines, 2012

## Cycle Track with an Adjacent Sidewalk

A **Cycle Track** is a bicycle facility adjacent to but vertically separated from motor vehicular travel lanes designated for exclusive use by cyclists and is distinct from the sidewalk. Cycle tracks are typically raised and curb separated either to the level of the adjacent sidewalk, or to an intermediate level between the roadway and sidewalk.



Figure 4.47 – One-Way Cycle Track



Figure 4.48 – Two-Way Cycle Track



Figure 4.49 – Cycle Track along Stone Road in Guelph  
Credit: MMM Group, 2011



Figure 4.50 – Concrete Cycle Track  
Credit: John Luton, 2008

*Similar to conventional and separated bicycle lanes, the implementation of cycle tracks requires thorough consideration of a number of design parameters including vehicular speed, annual average daily traffic (AADT) and truck traffic volumes.*

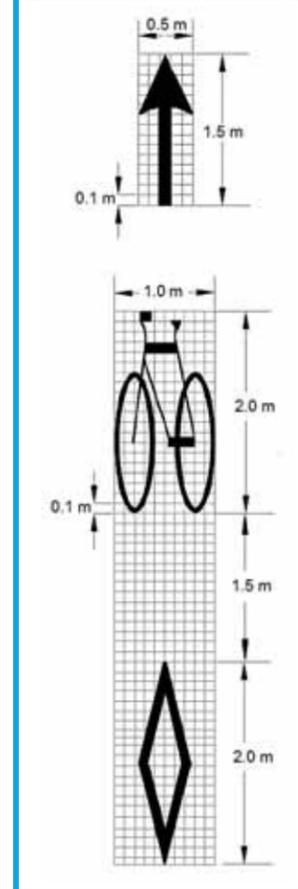
### Key Considerations:

- Cycle tracks are similar to bicycle lanes but are vertically separated (typically raised and curb separated) from motor vehicular travel lanes. Cycle tracks are designated for exclusive use by cyclists.
- An adjacent sidewalk is typically provided for pedestrians.
- Cycle tracks may be designed for one-way or two-way travel and are distinct from the sidewalk.
- If designed for two-way travel then a boulevard of at least 0.5 metre width is required to separate the cycle track from the roadway since cyclists adjacent to motorized traffic are travelling in the opposite direction.
- Cycle tracks are typically raised and curb separated either to the level of the adjacent sidewalk, or to an intermediate level between the roadway and sidewalk and are signed using the “Reserved Bicycle Lane” sign.
- At intersections the “Turning Vehicles Yield to Bicycles” sign should be used.
- A yellow centre line should be used on two-way cycle tracks to help delineate travel lanes.

**Pedestrian Consideration:** Pedestrians use the sidewalk in urban areas. Sidewalks should at a minimum be installed on one side of the road along designated AT routes where none currently exist.

Table 4-8: Pavement Markings for One-Way Cycle Tracks

### Typical Bicycle Lane Pavement Marking



Source: Based on information from TAC Bikeway Traffic Control Guidelines, 2012



Table 4-2: Signage for Cycle Tracks

	Reserved Bicycle Lane Sign	Reserved Bicycle Lane Ends Sign	Turning Vehicles Yield to Bicycles Sign
Sign / Code	RB-91	RB-92	RB-37
Size	600 mm x 750 mm	600 mm x 750 mm	600 mm x 750 mm

Source: TAC Bikeway Traffic Control Guidelines, 2012

Table 4-3: Pavement Markings for In-Boulevard Pathways

Cyclist Directional Arrows
Delineating Lines

Source: TAC Bikeway Traffic Control Guidelines, 2012

← Figure 4.51 – Concrete Cycle Track with adjacent Sidewalk

Credit: John Luton, 2009

Other Design Considerations – Grade Separations and Retrofitting

Grade Separations

Occasionally a walking and cycling route must continue over a bridge to overcome a major barrier or obstacle. The simplest modification that can be made to a bridge structure for the integration of cyclists is the reallocation of space. Vehicular travel lanes may be narrowed where practical and safe to allow for the implementation of a bicycle lane or signed bike route/shared roadway. Another approach may be to widen the sidewalk to allow for shared use between cyclists and pedestrians. The final option may be to build a separate pedestrian/cyclist crossing adjacent to the bridge structure. The design of new structures or the modification of existing bridges must comply with the standards of the *Canadian Highway Bridge Design Code (2002)* and accompanying *MTO Revision Information Sheet for Geometric Standards of Ontario Highways (2002)*. The following table provides minimum side clearance requirements at bridges.

	Design Speed (km/h)	Urban Roads			Rural Roads		
		Left	Right		Left	Right	
			No Sidewalk	Sidewalk		No Sidewalk	Sidewalk
<b>FREEWAY 4-LANE DIVIDED</b>	100 to 120	2.5a	3.0 a		2.5a	3.0 a	
<b>FREEWAY MULTI-LANE DIVIDED</b>	100 to 120	2.5 a	3.0 a		2.5 a	3.0 a	
<b>ARTERIAL DIVIDED</b>	90 to 110	2.0 a	2.5 a	1.5	2.0	3.0 a	
	80	2.0 a	2.5 a	1.5	1.5	2.5 a	
<b>ARTERIAL UNDIVIDED</b>	90 to 110	-	2.0	1.5	-	3.0 a	2.5 a
	80	-	2.0	1.5	-	2.5 a	2.0 b
<b>COLLECTOR UNDIVIDED</b>	90 to 100	-	1.25 c	1.0	-	2.5 a	1.5 c
	70 to 80	-	1.25 c	1.0	-	1.5 d	1.25
	60	-	1.0	1.0	-	1.5 d	1.25
<b>LOCAL UNDIVIDED</b>	60 to 80	-	1.0	0.5	-	1.25	0.5 d

Notes:

1. If a barrier is to be placed between the sidewalk and roadway, then clearance should be the same as when there are no sidewalks.
2. All clearance should meet requirements for sight distance.
3. The width of a median on a bridge should match that of the approach roadway.
4. L = Length of bridge between centreline of abutment bearings.

a - For bridges with L>50 m, consideration can be given to decreasing the clearances to 1.5 m.  
 b - For bridges with L>50 m, consideration can be given to decreasing the clearance by up to 0.5 m  
 c - For bridges with L>50 m, consideration can be given to decreasing the clearance by 0.25 m.  
 d - For bridges with L>50 m, consideration can be given to increasing the clearance by up to 0.75 m.  
 e - The values of the clearances given above are the minimum values. Consideration may be given to providing more than the minimum if justification is provided.

Figure 4.52 – Minimum Side Clearances at Bridges

Source: MTO Geometric Design Standards for Ontario Highways – Revision Information Sheet, February 2002, Table D7-1

Retrofitting

It is recommended that bicycle lanes have a preferred design width of 1.5 metres to edge of pavement (design minimum of 1.5 metres to face of curb) and 1.8 – 2.0 metres wide if adjacent to a parking lane. Additional width can be obtained from the adjacent travel lanes and/or parking lanes. Research shows, that “there is no indication that the use of 3.0- or 3.3-m (10- or 11-ft lanes), rather than 3.6-m (12-ft) lanes, for arterial midblock segments leads to increases in accident frequency”. The following figures illustrate examples of road retrofitting where vehicular lanes are narrowed to accommodate bicycle lanes.

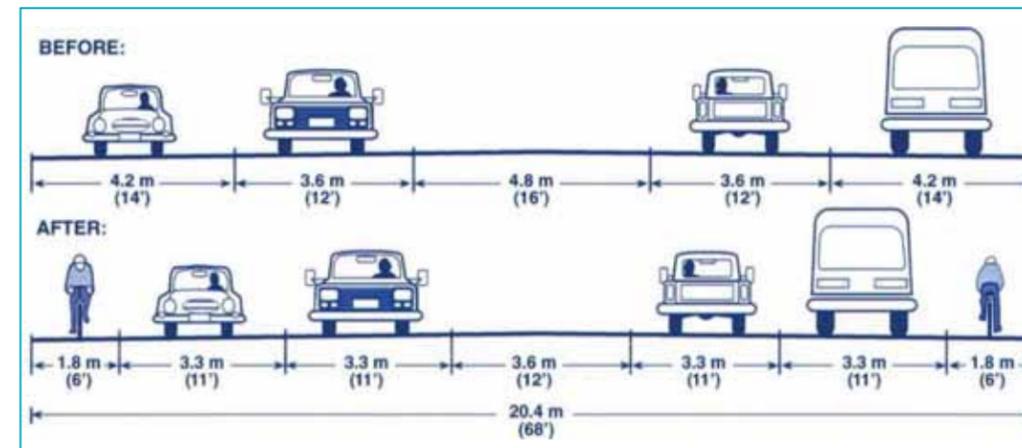


Figure 4.53 – Narrowing Vehicular Lane Widths for Implementation of Bicycle Lanes

Source: “Complete the Streets – Laying the Foundation” Presentation by John LaPlante, P.E., PTOE, Toronto, April 2012

Retrofitting Example: Georgetown, ON



Figure 4.56 – Original Road Configuration



Figure 4.57 – Option 1: Bicycle Lanes with On-Street Parking on One Side, Sidewalks on Both Sides



Figure 4.58 – Option 2: Bicycle Lanes with On-Street Parking and Sidewalks on Both Sides

### 4.1.3 Signage Guidelines

As previously noted in [Section 2.3.2](#), signing standards for each local municipality / agency should comply with Regulation 80.9 (1) Technical Requirement for Trails, General in Part IV.1 Design of Public Spaces Standards (Accessibility Standards for the Built Environment) of the Integrated Accessibility Standards, AODA 2005. This legislation as of January 2013 applies to projects being tendered in 2013 or currently in the detailed design phase. As identified in Regulation 80.5 Schedule in Part IV.1 Design of Public Spaces Standards (Accessibility Standards for the Built Environment) of the Integrated Accessibility Standards, AODA 2005, public organizations are obligated to comply with the legalisation as of January 1, 2016. The following are the proposed technical requirements for recreational trailhead signage identified in Regulation 80.9 (1):

“8. A recreational trail must have at each trail head signage that provides the following information:

- i. The length of the trail.
- ii. The type of surface of which the trail is constructed.
- iii. The average and the minimum trail width.
- iv. The average and maximum running slope and cross slope.
- v. The location of amenities, where provided. O. Reg. 413/12, s. 6.”

Where a multi-use pathway crosses the roadway, a cross-ride is recommended. A separate cyclist cross-ride may be used where the path crosses the roadway adjacent to a parallel sidewalk and pedestrian crosswalk. A combined pedestrian / cyclist cross-ride may be used where a shared pathway crosses the roadway and there is no sidewalk. Cross-rides are marked with ‘elephant feet’ pavement markings.



Figure 4.59 - Mid-Block Signalized Cross-Ride of Bathurst Street North of Finch Avenue, City of Toronto

Credit: MMM Group, 2012



Figure 4.60- Mid-Block Signalized Cross-Ride of Flint Road North of Finch Avenue, City of Toronto

Credit: MMM Group, 2012

Figure 4.62 highlights the typical pavement markings applied for active transportation facilities. The proposed pavement markings will be consistent with the applications outlined in OTM Book 18 – Bicycle Facilities and the TAC Bikeway Traffic Control Guidelines for Canada.

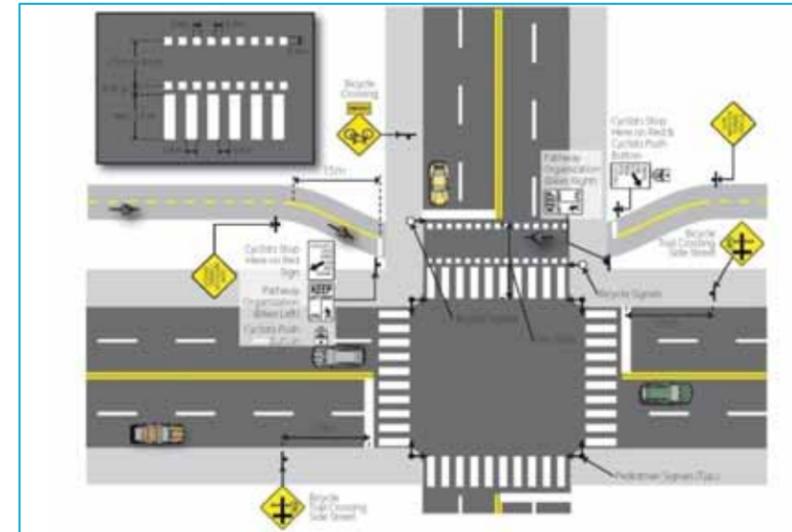


Figure 4.61 – Bikeway Path Crossing Road at Signalized Intersection

Credit: OTM Book 18 Bicycle Facilities

		NAME OF LINE	DIMENSIONS
LONGITUDINAL	BICYCLE LANE (SOLID, WHITE)		100 mm
	BICYCLE LANE (DASHED, WHITE)		100-200 mm
	CONTRA-FLOW LANE (YELLOW)		200 mm
	GUIDING LINES (WHITE)		100-150 mm 100-150 mm
TRANSVERSE	ELEPHANT'S FEET BICYCLE CROSSING (WHITE)		200-400 mm 200-400 mm
	CROSSWALK (WHITE)		100-200 mm
	ZEBRA CROSSWALK (WHITE)		0.6 m 0.6 m 2.5 m Min.

Figure 4.62 Typical Pavement Markings

Credit: TAC Bikeway Traffic Control Guidelines for Canada

## 4.2 Lake to Lake Route Maintenance Strategies

Maintenance of facilities once they are constructed is a critical aspect of any plan to move forward with implementation of the Lake to Lake Route. The general objectives of a route maintenance program are to:

- Provide safe, dependable and affordable levels of service;
- Preserve infrastructure assets;
- Protect the natural environment; and
- Enhance the appearance and health of the community.

Maintenance costs for the Lake to Lake Route are calculated for each route segment by facility type. It is recognized that the maintenance program and level of service standard is specific to each local municipality. It is recommended that the local municipality or conservation authority budget for maintenance increase in an incremental fashion along with the incremental growth of the network of facilities within their jurisdiction. Maintenance costs for route facilities within the first five years of implementation may consist of sweeping and winter maintenance. Beyond the first five years of implementation, the local municipality or conservation authority should also incorporate the anticipated cost of minor repairs to the trail surface and fixtures for Lake to Lake Route segments as part of its annual maintenance budget request.

Annual maintenance of multi-use paths (within the road right-of-way and within parks) can range between \$4,000 and \$6,000 per linear kilometre of path (3.0 to 4.0 m wide), depending on the level of service standard. Maintenance typically includes drainage and storm channel maintenance, sweeping, clearing of debris, trash removal, vegetation management, mowing of grass along shoulders, minor surface repairs, repairs to trail fixtures (benches, signs) and other general repairs. Costs for the replacement or repair of major items such as bridges are usually allocated through capital budgets.

Annual maintenance costs for on-road facilities are estimated to range from \$500 to \$8,000 per kilometre depending on the facility type (paved shoulder with edge / signs, bike lane in urban area, painted lines vs. thermo plastic etc.) and economies of scale gained from incorporating cycling facility maintenance in the local municipality's current road maintenance program.

It is proposed that York Region will manufacture or purchase the signs and provide them at no cost to each local municipality, conservation authority and agency to ensure consistency across the region. Each respective jurisdiction in turn will be responsible for installing and maintaining the signs along the Lake to Lake Route.

Facilities typically have a lower maintenance cost in the first five years. Therefore, the Lake to Lake Route has assumed a unit price of 50% of the typical annual maintenance cost for the first 5 years. A detailed outline of maintenance cost by Local Municipality can be found in [Appendix A – Unit Cost Schedule and Detailed Cost Tables](#). It is recommended

that the Region and Local Municipalities review their annual maintenance budgets to accommodate the maintenance of active transportation infrastructure. These budgets should be increased over time to correspond with the increase in the number of kilometres of active transportation facilities.

## 5.0 CONCLUSION

The proposed Lake to Lake Cycling Route and Walking Trail, originally conceived in the Region's Pedestrian and Cycling Master Plan, is intended to provide active transportation (pedestrian and cycling) opportunities and alternatives for both residents and visitors of the Regional Municipality of York. Once developed, this high-profile regional route will support regional and local strategic policies and plans by promoting alternative modes of transportation to help develop a more healthy, liveable, walkable and bikeable region and improve connections to and from the City of Toronto.

In 2012, a study was initiated to review and confirm the proposed Lake to Lake Route concept. The preferred route confirmed through this design feasibility study provides a continuous, cycling and walking connection between Lake Simcoe in the north boundary of York Region and Lake Ontario to the south in the City of Toronto. Most of the route in the City of Toronto is already in place. In York Region the route is proposed to follow existing sections of the Nokiidaa Trail and Tom Taylor Trail systems as well as new on and off-road sections. Once completed, the Lake to Lake Route will serve as a major recreational, utilitarian and tourism amenity for both residents and visitors whether it be for day trips or multi-day cycling tourism travel.

The design feasibility assessment outlines strategic priorities with regard to route implementation (phasing and costing), maintenance, promotion and marketing. Priorities have been identified for the short to long term to ensure that the route's implementation, over the next 5+ years is successfully completed by the Region, local municipalities, conservation authorities and Ontario Parks. The implementation of the Lake to Lake Route as well as the economic gains which are anticipated to be realized directly and indirectly from it are not only beneficial to the Region but will also benefit all local municipalities in York Region and the City of Toronto. The route has been developed to strategically connect and attract users to key tourist destinations and natural and cultural features.

York Region and its partners, who will ultimately be responsible for the implementation of the route (e.g. local municipalities, Ontario Parks, Toronto Region Conservation Authority, Lake Simcoe Region Conservation Authority with support from local stakeholders and interest groups), are encouraged to use this document as a guide for route development and implementation in the short and long term. The recommendations in this report have been designed to provide direction on how to commence the implementation process and identify marketing and promotion techniques that are realistic and achievable. The Lake to Lake Design Feasibility Study provides York Region and its partners with the tools, information and design guidelines necessary to advance the Lake to Lake Cycling Route and Walking Trail from the concept envisioned in York Region's Pedestrian and Cycling Master Plan to a project that can now be implemented.







# APPENDIX A

UNIT COST SCHEDULE &  
DETAILED COST TABLES



## Appendix A - Price Table Tab

### Appendix A - Unit Price Schedule

ITEM	DESCRIPTION	UNIT	VALUE	COMMENTS/ASSUMPTIONS
<b>1.0 GENERAL ACTIVE TRANSPORTATION FACILITIES</b>				
<b>Shared Lanes / Paved Shoulders</b>				
1.1	Signed Bike Route in Urban Area	linear KM	\$1,500.00	Price for both sides of the road, assumes one sign a minimum of every 330m / direction of travel (e.g. 6 signs / km).
1.2	Signed Bike Route in Rural Area	linear KM	\$1,000.00	Price for both sides of the road, assumes one sign a minimum of every 600m / direction of travel (e.g. 4 signs / km)
1.3	Signed Bike Route with Sharrow Lane Markings	linear KM	\$3,500.00	Price for both sides of the road, includes route signs every 330m (\$1,500/km both sides), and sharrow stencil every 75m as per Ministry Guidelines (Painted \$75 each x 26/km = \$1,950 in table) If thermoplastic type product is used assume \$250 / each x 26 = \$6,500 source Flint Trading Inc.
1.4	Signed Bike Route with Wide Curb Lane with Construction of a New Road	linear KM	\$60,000.00	Price for both sides of the road, assumes 0.5m to 1.0m widening on both sides of the road (3.5m to 4.0m)
1.5	Signed Bike Route with Wide Curb Lane with Road Reconstruction Project	linear KM	\$240,000.00	Price for both sides of the road, includes curb replacement, catch basin adjustments, lead extensions and driveway ramps
1.6	Signed Bike Route with Paved Shoulder in conjunction with existing road reconstruction / resurfacing	linear KM	\$55,000.00	Price for both sides of the road, 1.5m paved shoulder, assumes cycling project pays for additional granular base, asphalt and edge line (assume \$110,000 per kilometre if additional widening of granular base required)
1.7	Signed Bike Route with Buffered Paved Shoulder in conjunction with existing road reconstruction / resurfacing project	linear KM	\$150,000.00	Price for both sides of the road, 1.5m paved shoulder + 0.5 to 1.0m paved buffer, assumes cycling project pays for additional granular base, asphalt, edge lines and signs (buffer zone framed by white edge lines)
1.8	Addition of Rumble Strip to Existing Buffered Paved Shoulder (rural)	linear KM	\$3,000.00	Price for both sides
1.9	Granular Shoulder Sealing	linear KM	\$3,000.00	Both sides spray emulsion applied to harden the granular shoulder. This will reduce gravel on the paved portion of the shoulder and significantly reduce shoulder maintenance.
<b>Conventional and Separated Bike Lanes</b>				
1.10	Conventional 1.5m-1.8m Bicycle Lanes by Adding Bike Lane Markings and Signs	linear KM	\$7,500.00	Price for both sides of the road, includes signs, stencils and edge line. Price is for conventional paint, (assumes painted lane line at \$1 / m + \$75 / symbol x 26 + \$2000 for signs)increase budget to \$20,000 /km for Thermoplastic) e.g. lane line in thermo is \$5.50/m compared to \$1.00/m for paint
1.11	Conventional 1.5m-1.8m Bicycle Lanes through Lane Conversion from 4 lanes to 3 lanes	linear KM	\$35,000.00	Price for both sides. Includes grinding of existing pavement, markings, signs, line painting and symbols
1.12	Conventional 1.5m-1.8m Bicycle Lanes in Conjunction with a New Road or Road Reconstruction Project	linear KM	\$300,000.00	Price for both sides of the road, assumes 1.5m bike lanes on both sides of the roadway (1.5m x 2 sides = 3.0m). Includes catch basin leads, asphalt, signs, pavement markings sub-base only. Road project funds all other improvements
1.13	Conventional 1.5m-1.8m Bicycle Lanes by Retrofitting / Widening Existing Road	linear KM	\$700,000.00	Price for both sides of the road, includes the cost for excavation, adjust catch basins, lead extensions, new curbs/driveway ramps, asphalt and sub-base, pavement markings and signs.
1.14	Wide Bicycle Lane (2.0m - 2.5m BL) in Conjunction with New Road or Road Widening Project	linear KM	\$250,000.00	Price for both sides of the road, assumes 2.0m to 2.5m bike lanes on both sides of the roadway . Includes catch basin leads, asphalt, signs, pavement markings sub-base only
1.15	Buffered Bicycle Lane with Hatched Pavement Markings - Assumes New Road or Road Reconstruction/Widening already Planned	linear KM	\$350,000.00	Price for both sides of the road, assumes 1.5m bike lanes + 0.5m - 1.0m buffer zone with hatched pavement markings on both sides of the roadway. Includes catch basin leads, asphalt, signs, pavement markings sub-base only. Road project funds all other components
1.16	Buffered Bicycle Lane with Flex Bollards - Assumes New Road or Road Reconstruction/Widening Already Planned	linear KM	\$365,000.00	Price for both sides of the road, assumes 1.5m bike lanes + flex bollards centred in hatched buffer zone at 10m intervals. Includes catch basin leads, asphalt, signs, edge line pavement markings (both sides of buffer zone) sub-base only
1.17	Buffered Bicycle Lane with Pre-Cast Barrier - Assumes New road or Road Reconstruction/Widening Already Planned	linear KM	\$400,000.00	Price for both sides of the road, assumes 1.5m bike lanes + pre-cast and anchored curb delineators . Includes catch basin leads, asphalt, signs, edge line pavement markings (both sides of buffer zone) sub-base only

## Appendix A - Price Table Tab

Cycle Tracks				
1.18	Uni-directional Cycle Tracks: Raised and Curb Separated - Retrofit Existing Roadway	linear KM	\$1,200,000.00	Price varies from \$500,000 - \$ 1,200,000. Both sides. Includes construction but excludes design and signal modifications. Form of cycle track and materials as well as related components such as bike signals, upgrade/modification of signal controllers, utility/lighting pole relocations, bike boxes etc. are project specific and will impact unit price
1.19	Two Way Cycle Track - Retrofit Existing Roadway	linear KM	\$800,000.00	Price varies from \$500,000 - \$800,000. One side. Includes construction but excludes design and signal modifications. Form of cycle track and materials as well as related components such as bike signals, upgrade/modification of signal controllers, utility/lighting pole relocations, bike boxes etc. are project specific and will impact unit price
Active Transportation Paths and Multi-Use Trails				
1.20	Two Way Active Transportation Multi-use path within road right-of-way	linear KM	\$275,000.00	3.0m wide hard surface pathway (asphalt) within road right of way (no utility relocations). Does not include trail lighting.
1.21	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	linear KM	\$320,000.00	3.0m wide hard surface pathway (asphalt) within road right of way on one side of road in place of 1.5m concrete sidewalk (includes crushing of existing sidewalk and compacting for trail base). Does not include trail lighting.
1.22	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	m <sup>2</sup>	\$150.00	Colour Stamped Concrete
1.23	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	linear KM	\$250,000.00	3.0m wide hard surface pathway (asphalt) within park setting (normal conditions) 90mm asphalt depth
1.24	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (Upgrade existing granular surface)	linear KM	\$100,000.00	Includes some new base work (25% approx.), half of the material excavated is removed from site. Add trail marker signs
1.25	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	linear KM	\$140,000.00	3.0m wide, compacted stone dust surface normal site conditions
1.26	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in a Rural Setting (New)	linear KM	\$200,000.00	3.0m wide, compacted stone dust surface in complex site conditions (includes cost of clearing and grubbing)
1.27	Upgrade existing granular surface trail to meet 3.0m wide compacted granular trail standard	linear KM	\$50,000.00	Includes some new base work (25% approx.) and an average of 20 regulatory signs per kilometre
1.28	Off-Road Multi-Use Trail Outside of Road Right-of-Way on Abandoned Rail Bed in a Rural Setting	linear KM	\$130,000.00	3.0m wide, compacted stone dust surface, includes signage along trail and gates at road crossings
1.29	Granular Surfaced Multi-use Trail in a Woodland Setting	linear KM	\$120,000.00	2.4m wide, compacted stone dust surface
2.0 STRUCTURES AND CROSSINGS				
2.1	Pedestrian Boardwalk (Light-Duty)	linear KM	\$1,500,000.00	Structure on footings, 3.0m wide with railings
2.2	Self weathering steel truss bridge	m <sup>2</sup>	\$2,500.00	Price varies from \$2,000 - \$2,500. Footings/ abutments additional, assume \$30,000 per side for spread footings; \$50,000 - \$90,000 per side for piles
2.3	Retrofit / Widen Existing Pedestrian / Trail Bridge (29m long, 3m clear width)	m <sup>2</sup>	\$2,500.00	Price assumes modifications to existing abutments
2.4	Grade separated cycling/overpass of major arterial/highway	each	\$500,000.00	Price varies from \$1,000,000 - \$8,000,000. Requirements and design vary widely, use price as general guideline only
2.5	Metal stairs with hand railing and gutter to roll bicycle	vertical M	\$3,000.00	1.8m wide, galvanized steel
2.6	Pathway Crossing of Private Entrance	each	\$2,000.00	Price varies from \$1,500 - \$2,000. Adjustment of existing curb cuts to accommodate 3.0m multi-use pathway
2.7	Pathway / Road transition at unsignalized intersection(crossride)	each	\$5,000.00	Typically includes warning signs, curb cuts and minimal restoration (3.0m pathway)
2.8	Pathway / Road transition at existing signalized intersection (crossride)	each	\$25,000.00	Typically includes installation of 4 signal heads, 2 poles, 2 foundations, 2 controller connector and 2 arms.
2.9	At grade mid-block crossing	each	\$5,000.00	Typically includes pavement markings on pathway, warning signs, curb cuts and minimal restoration. Does not include median refuge island.
2.1	Median Refuge	each	\$20,000.00	Average price for basic refuge with curbs, no pedestrian signals
2.11	Mid-block Pedestrian Signal	each	\$100,000.00	Prices varies from \$75,000 - \$100,000. Varies depending on number of signal heads required
2.12	At grade railway crossing	each	\$120,000.00	Flashing lights, motion sensing switch (C.N. estimate)
2.13	At grade railway crossing with gate	each	\$300,000.00	Flashing lights, motion sensing switch and automatic gate (C.N. estimate)
2.14	Below grade railway crossing	each	\$750,000.00	Price varies from \$500,000 to \$750,000. 3.0m wide, unlit culvert style approx. 10 m long for single elevated railway track
2.15	Multi use subway under 4 lane road	each	\$1,200,000.00	Price varies from \$1,000,0000 - \$3,000,000. Guideline price only for basic 3.3 m wide, lit.
2.16	Retaining Wall	m <sup>2</sup>	\$600.00	Face metre squared

## Appendix A - Price Table Tab

3.0 BARRIERS AND ACCESS CONTROL FOR MULTI-USE TRAILS OUTSIDE OF THE ROAD RIGHT-OF-WAY				
3.1	Lockable gate (2 per road crossing)	each	\$5,000.00	Heavy duty gates, price for one side of road (2 required per road crossing). Typically only required in rural settings or city boundary areas
3.2	Metal offset gates	each	\$1,200.00	"P"-style park gate
3.3	Removable Bollard	each	\$500-\$750	Price varies from \$500 - \$700. Basic style (e.g. 75mm diameter galvanized), with footing. Increase budget for decorative style bollards
3.4	Berming/boulders at road crossing	each	\$600.00	Price for one side of road (2 required per road crossing)
3.5	Granular parking lot at staging area (15 car capacity-gravel)	each	\$35,000.00	Basic granular surfaced parking area (i.e. 300mm granular B sub-base with 150mm granular A surface), with precast bumper curbs. Includes minor landscaping and site furnishings, such as garbage receptacles and bike racks.
3.6	Page wire fencing	linear M	\$20.00	1.5m height with peeled wood posts
3.7	Chain link fencing	linear M	\$100.00	Galvanized, 1.5m height
4.0 SIGNAGE				
4.1	Regulatory and caution Signage (off-road pathway) on new metal post	each	\$250.00	Price varies from \$150 - \$250. 300mm x 300mm metal signboard c/w metal "u" channel post
4.2	Signboards for interpretive sign	each	\$800.00	Price varies from \$500 - \$800. Does not include graphic design. Based on a 600mm x 900mm typical size and embedded polymer material, up to 40% less for aluminum or aluminum composite panel
4.3	Staging area kiosk	each	\$5,000.00	Price varies from \$2,000 - \$10,000. Price depends on design and materials selected. Does not include design and supply of signboards
4.4	Signboards for staging area kiosk sign	each	\$2,000.00	Price varies from \$1,500 - \$2,000. Typical production cost, does not include graphic design (based on a 900mm x 1500mm typical size and embedded polymer material). Up to 40% less for aluminum or aluminum composite panel
4.5	Pathway directional sign	each	\$750.00	Price varies from \$500 - \$750. Bollard / post (100mm x100mm marker), with graphics on all 4 sides
4.6	Pathway marker sign	each	\$250.00	Bollard / post (100mm x100mm marker), graphics on one side only
4.7	Pathway marker sign	linear KM	\$1,500.00	Price for both sides of the path, assumes one sign on average, per direction of travel every 0.5 km
4.8	Pathway marker sign (Double sided sign on existing post or previously proposed post)	each	\$200.00	Double sided sign on existing post (includes installation of signs)
4.9	Pathway marker sign (Single sign on existing post or previously proposed post)	each	\$125.00	Single sign on existing post (includes installation of sign)
4.10	Pathway marker sign (Double sided sign on new post)	each	\$300.00	Double sided sign on new post (includes installation of post and signs)
5.0 OTHER				
5.1	Major rough grading (for multi-use pathway)	m <sup>3</sup>	\$25.00	Price varies from \$10 - \$25. Varies depending on a number of factors including site access, disposal location etc.
5.2	Clearing and Grubbing	m <sup>2</sup>	\$2.00	
5.3	Bicycle rack (Post and Ring style)	each	\$250.00	Price varies from \$150 - \$250. Holds 2 bicycles , price varies depending on manufacturer (includes installation)
5.4	Bicycle rack	each	\$1,200.00	Price varies from \$1,000 - \$1,200. Holds 6 bicycles, price varies depending on manufacturer (includes installation)

## Appendix A - Price Table Tab

5.5	Bicycle Locker	each	\$3,000.00	Price varies depending on style and size. Does not include concrete mounting pad
5.6	Bench	each	\$2,000.00	Price varies from \$1,000 - \$2,000. Price varies depending on style and size. Does not include footing/concrete mounting pad
5.7	Safety Railings/Rubrail	linear M	\$120.00	Price varies from \$100 - \$120. 1.4m height basic post and rail style
5.8	Small diameter culvert	linear M	\$200.00	Price varies from \$150 - \$250. Price range applies to 400mm to 600mm diameter PVC or CSP culverts for drainage below trail
5.9	Pathway Lighting	linear M	\$130-\$160	Includes cabling, connection to power supply, transformers and fixtures
5.10	Relocation of Light / Support Pole	each	\$4,000.00	Adjustment of pole offset (distance between pole and roadway)
5.11	Relocation of Signal Pole / Utility Box	each	\$8,000.00	Adjustment of pole offset (distance between pole and roadway)
5.12	Flexible Bollards	each	\$100.00	Should be placed at 10m intervals where required
5.13	Pavement Markings	linear M	\$1.00	
5.14	Unit Pavers	m <sup>2</sup>	\$80-\$120	Includes base. Price range reflects different paver styles.

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**NOTES:**

1. Unit Prices are for functional design purposes only, include installation but exclude contingency, design and approvals costs (unless noted) and reflect 2013 dollars, based on projects in southern Ontario
2. Estimates do not include the cost of property acquisitions, signal modifications, utility relocations, major roadside drainage works or costs associated with site-specific projects such as bridges, railway crossings, retaining walls, and stairways, unless otherwise noted
3. Assumes typical environmental conditions and topography
4. Applicable taxes and permit fees are additional

## Georgina Tab

						Funding Options				
						A	B			
						York Region at 100%	Region	Local		
Geo-1	Phase 1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
		6	Signed Bike Route with Paved Shoulder in conjunction with existing road reconstruction / resurfacing	2.97	linear KM	\$55,000.00	\$163,350.00	\$172,475.00	50%	50%
		54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00			
		55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00			
		57	Pathway marker sign (Single sign on new post)	6	each	\$250.00	\$1,500.00			
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	5	each	\$125.00	\$625.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local	Ontario Parks		
OP-1 (Funded by York Region and Ontario Parks)	Phase 2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost				
		25	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	0.39	linear KM	\$250,000.00	\$97,500.00	\$98,725.00	50%	0%	50%
		57	Pathway marker sign (Single sign on new post)	2	each	\$250.00	\$500.00				
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00				
		80	Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00				

						Funding Options					
						A	B				
						York Region at 100%	Region	Local	Ontario Parks		
OP-2 (Funded by York Region and Ontario Parks)	Phase 2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost				
		2	Signed Bike Route in Rural Area	1.77	linear KM	\$1,000.00	\$1,770.00	\$4,520.00	50%	0%	50%
		57	Pathway marker sign (Single sign on new post)	7	each	\$250.00	\$1,750.00				
		79	Pathway marker sign	8	each	\$125.00	\$1,000.00				

						Funding Options				
						A	B			
						York Region at 100%	Region	Local		
Geo-3	Phase 1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
		3	Signed Bike Route with Sharrow Lane Markings	3.18	linear KM	\$3,500.00	\$11,130.00	\$21,505.00	50%	50%
		54	Staging area kiosk	1.00	each	\$5,000.00	\$5,000.00			
		55	Signboards for staging area kiosk sign	1.00	each	\$2,000.00	\$2,000.00			
		57	Pathway marker sign (Single sign on new post)	9	each	\$250.00	\$2,250.00			
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	9	each	\$125.00	\$1,125.00			

## Georgina Tab

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
Geo-4	Phase	1	Cost Code	<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>			
			3	Signed Bike Route with Sharrow Lane Markings	13.58	linear KM	\$3,500.00	\$47,530.00	\$73,405.00	50%	50%
			54	Staging area kiosk	2	each	\$5,000.00	\$10,000.00			
			55	Signboards for staging area kiosk sign	2	each	\$2,000.00	\$4,000.00			
			57	Pathway marker sign (Single sign on new post)	30	each	\$250.00	\$7,500.00			
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	35	each	\$125.00	\$4,375.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
Geo-5	Phase	1	Cost Code	<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>			
			3	Signed Bike Route with Sharrow Lane Markings	1.38	linear KM	\$3,500.00	\$4,830.00	\$7,330.00	50%	50%
			57	Pathway marker sign (Single sign on new post)	6	each	\$250.00	\$1,500.00			
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	8	each	\$125.00	\$1,000.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
Geo-6	Phase	1	Cost Code	<b>Description</b>	<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>			
			3	Signed Bike Route with Sharrow Lane Markings	3.33	linear KM	\$3,500.00	\$11,655.00	\$14,530.00	50%	50%
			57	Pathway marker sign (Single sign on new post)	6	each	\$250.00	\$1,500.00			
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	11	each	\$125.00	\$1,375.00			

						Funding Options							
						A	B						
						York Region at 100%	Region	Local					
Geo-7*	Phase	2	Cost Code	<b>Off-Road Connection between Shoreline Pl and Metropolitan Cres</b>			<b>Estimated Quantity</b>	<b>Units</b>	<b>Unit Price</b>	<b>Item Cost</b>			
				Demolition of existing bridge between Shoreline Place and Metropolitan Crescent			1	allowance	\$20,000.00	\$20,000.00	\$203,100.00	50%	50%
Geo-7B			32	Self-weathering steel truss bridge with timber deck (32m long, 3m clear width)			30	m <sup>2</sup>	\$2,500.00	\$75,000.00			
				Concrete abutments on spread footings			2	each	\$30,000.00	\$60,000.00			
				Mobilization and erection of bridge			1	allowance	\$35,000.00	\$35,000.00			
			25	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)			0.05	linear KM	\$250,000.00	\$12,500.00			
			80	Pathway marker sign (Double sided sign on new post)			2	each	\$300.00	\$600.00			

## Georgina Tab

						Funding Options				
						A	B			
						York Region at 100%	Region	Local		
<b>Geo-7</b> Phase 1 Geo-7A, Geo-7C & Geo-7E Geo-7D	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
								50%	50%	
		1	Signed Bike Route in Urban Area	1.55	linear KM	\$1,500.00	\$2,325.00	\$13,700.00	\$6,850.00	\$6,850.00
		65	Small diameter culvert	20	linear M	\$200.00	\$4,000.00			
		25	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	0.02	linear KM	\$250,000.00	\$5,000.00			
		57	Pathway marker sign (Single sign on new post)	4	each	\$250.00	\$1,000.00			
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	11	each	\$125.00	\$1,375.00			

						Funding Options				
						A	B			
						York Region at 100%	Region	Local		
<b>Geo-8</b> Phase 1 Geo-8A Geo-8X Geo-8A, Geo-8X & Geo-8Z Geo-8Z	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
								50%	50%	
		25	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	0.03	linear KM	\$250,000.00	\$7,500.00	\$146,040.00	\$73,020.00	\$73,020.00
		36	Pathway / Road transition at existing signalized intersection (crossride)	5	each	\$25,000.00	\$125,000.00			
		70	Pathway marker signs	0.61	linear KM	\$1,500.00	\$915.00			
		71	Pathway Crossing of Private Entrance	6	each	\$2,000.00	\$12,000.00			
		57	Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00			
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	3	each	\$125.00	\$375.00			

						Funding Options				
						A	B			
						York Region at 100%	Region	Local		
<b>Geo-9</b> Phase 2 The Queensway Bridge over Maskinonge River	2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
								100%	0%	
			Place 1.0m wide concrete base adjacent to existing sidewalk on east side of road	57	m <sup>2</sup>	\$50.00	\$2,850.00	\$40,110.00	\$40,110.00	\$0.00
			Place 40mm asphalt surface	20	tonne	\$150.00	\$3,000.00			
		73	Flexible Bollards	23	each	\$100.00	\$2,300.00			
			Traffic Control	1	allowance	\$15,000.00	\$15,000.00			
			Adjust Catchbasins	1	allowance	\$10,000.00	\$10,000.00			
		74	Pavement Markings	120	m	\$1.00	\$120.00			
		64	Safety Railings/Rubrail	57	linear M	\$120.00	\$6,840.00			

						Funding Options				
						A	B			
						York Region at 100%	Region	Local		
<b>Geo-10</b> Phase 1 Geo-10X & Geo-10Z Geo-10X Geo-10Z	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
								50%	50%	
		70	Pathway marker signs	0.97	linear KM	\$1,500.00	\$1,455.00	\$137,580.00	\$68,790.00	\$68,790.00
		36	Pathway / Road transition at existing signalized intersection (crossride)	4	each	\$25,000.00	\$100,000.00			
		71	Pathway Crossing of Private Entrance	18	each	\$2,000.00	\$36,000.00			
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00			

## Georgina Tab

### Geo-11

Phase **1** Cost Code

						Funding Options		
						A	B	
						York Region at 100%	Region 50%	Local 50%
	Cost Code	Description	Estimated	Units	Unit Price	Item Cost		
	1	Signed Bike Route in Urban Area	3.73	linear KM	\$1,500.00	\$5,595.00	\$17,595.00	\$8,797.50
	54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00		
	55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00		
	57	Pathway marker sign (Single sign on new post)	12	each	\$250.00	\$3,000.00		
	79	Pathway marker sign (Single sign on existing post or previously proposed post)	16	each	\$125.00	\$2,000.00		

#### Identification of Segment ID Letters

<b>R</b>	Resurface Existing Off-Road Trail
<b>T</b>	Trail Connection
<b>X</b>	Proposed Crossride
<b>Y</b>	Existing Crossing
<b>Z</b>	Existing Path
All other letters are used in sequential order (starting from "A") to identify the segment.	

The following is an example of the identification of segment IDs for Geo-8:

Geo-8A: This is the first section of the Geo-8 segment that is not identified in the table above.

Geo-8X: This identifies a proposed cross ride that is required on Geo-8.

Geo-8Z: This identifies a section of the segment that uses an existing trail.

## East Gwillimbury Tab

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
<b>Eas-1</b>	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			3	Signed Bike Route with Sharrow Lane Markings	0.87	linear KM	\$3,500.00	\$3,045.00	\$4,975.00	50%	50%
			70	Pathway marker signs	0.87	linear KM	\$1,500.00	\$1,305.00			
			57	Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00			
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	3	each	\$125.00	\$375.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
<b>Eas-2</b>	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			27	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	2.04	linear KM	\$140,000.00	\$285,600.00	\$287,100.00	50%	50%
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	3	each	\$200.00	\$600.00			
			80	Pathway marker sign (Double sided sign on new post)	3	each	\$300.00	\$900.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
<b>Eas-3*</b>	<b>Replace and Construct two bridges on 2nd Concession Right-of-Way</b>										
<b>Eas-3A</b>	Phase	2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
				Demolition of existing snowmobile crossing	1	allowance	\$20,000.00	\$20,000.00	\$515,000.00	50%	50%
			32	Self-weathering steel truss bridge with timber deck (10m long, 4m clear width)	40	m <sup>2</sup>	\$2,500.00	\$100,000.00			
				Concrete abutments on spread footings	2	each	\$30,000.00	\$60,000.00			
				Mobilization and erection of bridge	1	allowance	\$35,000.00	\$35,000.00			
			32	Self-weathering steel truss bridge with timber deck (20m long, 4m clear width)	80	m <sup>2</sup>	\$2,500.00	\$200,000.00			
				Concrete abutments on spread footings	2	each	\$30,000.00	\$60,000.00			
				Mobilization and erection of bridge	1	allowance	\$40,000.00	\$40,000.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
<b>Eas-3</b>	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			75	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Rural Setting (New)	0.66	linear KM	\$200,000.00	\$132,000.00	\$1,317,375.00	50%	50%
			30	Pedestrian Boardwalk (Light-Duty)	0.79	linear KM	\$1,500,000.00	\$1,185,000.00			
			57	Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00			
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00			

**Eas-3A,  
Eas-3B &  
Eas-3D  
Eas-3C**

## East Gwillimbury Tab

						Funding Options			
						A	B		
						York Region at 100%	Region	Local	
Eas-4	Phase 2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost		
		2	Signed Bike Route in Rural Area	0.63	linear KM	\$1,000.00	\$630.00		
		57	Pathway marker sign (Single sign on new post)	2	each	\$250.00	\$500.00		
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	4	each	\$125.00	\$500.00		
						\$1,630.00	\$815.00	\$815.00	

						Funding Options			
						A	B		
						York Region at 100%	Region	Local	
Eas-5	Phase 2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost		
		2	Signed Bike Route in Rural Area	0.94	linear KM	\$1,000.00	\$940.00		
		70	Pathway marker signs	0.94	linear KM	\$1,500.00	\$1,410.00		
		57	Pathway marker sign (Single sign on new post)	1.00	each	\$250.00	\$250.00		
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	3.00	each	\$125.00	\$375.00		
						\$2,975.00	\$1,487.50	\$1,487.50	

						Funding Options					
						A	B				
						York Region at 100%	Region	Local	LSRCA		
Eas-6 (Funded by York Region and Lake Simcoe Region Conservation Authority)	Phase 2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost				
		75	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Rural Setting (New)	1.09	linear KM	\$200,000.00	\$218,000.00				
			Acquisition of 97 acre lands southeast of Yonge St and Holborn Rd	97.00	acre	-	\$300,000.00				
		54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00				
		55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00				
		49	Granular parking lot at staging area (15 car capacity-gravel)	1	each	\$35,000.00	\$35,000.00				
		63	Bench	4	each	\$2,000.00	\$8,000.00				
		78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	3	each	\$200.00	\$600.00				
		80	Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00				
						\$569,200.00	\$284,600.00	\$0.00	\$284,600.00		

						Funding Options			
						A	B		
						York Region at 100%	Region	Local	
Eas-7	Phase 2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost		
		2	Signed Bike Route in Rural Area	1.93	linear KM	\$1,000.00	\$1,930.00		
		57	Pathway marker sign (Single sign on new post)	6	each	\$250.00	\$1,500.00		
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	5	each	\$125.00	\$625.00		
						\$4,055.00	\$2,027.50	\$2,027.50	

## East Gwillimbury Tab

### Eas-8

Phase **1**

Cost Code

	Description	Estimated Quantity	Units	Unit Price	Item Cost
27	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	2.16	linear KM	\$140,000.00	\$302,400.00
71	Pathway Crossing of Private Entrance	29	each	\$2,000.00	\$58,000.00
57	Pathway marker sign (Single sign on new post)	2	each	\$250.00	\$500.00
79	Pathway marker sign (Single sign on existing post or previously proposed post)	4	each	\$125.00	\$500.00
78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	1	each	\$200.00	\$200.00
80	Pathway marker sign (Double sided sign on new post)	3	each	\$300.00	\$900.00

Funding Options		
A	B	
York Region at 100%	Region	Local
	50%	50%
\$362,500.00	\$181,250.00	\$181,250.00

### Eas-9\* Holland River Crossing East of Yonge Street

Phase **2**

Cost Code

	Description	Estimated Quantity	Units	Unit Price	Item Cost
32	Self-weathering steel truss bridge with timber deck (20m long, 4m clear width)	30	m <sup>2</sup>	\$2,500.00	\$75,000.00
	Concrete abutments on spread footings	2	each	\$30,000.00	\$60,000.00
	Mobilization and erection of bridge	1	allowance	\$35,000.00	\$35,000.00

Funding Options		
A	B	
York Region at 100%	Region	Local
	50%	50%
\$170,000.00	\$85,000.00	\$85,000.00

### Eas-9

Phase **1**

Cost Code

	Description	Estimated Quantity	Units	Unit Price	Item Cost
54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00
55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00
49	Granular parking lot at staging area (15 car capacity-gravel)	1	each	\$35,000.00	\$35,000.00
63	Bench	4	each	\$2,000.00	\$8,000.00
1	Signed Bike Route in Urban Area	0.48	linear KM	\$1,500.00	\$720.00
27	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	2.48	linear KM	\$140,000.00	\$347,200.00
54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00
55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00
49	Granular parking lot at staging area (15 car capacity-gravel)	1	each	\$35,000.00	\$35,000.00
63	Bench	4	each	\$2,000.00	\$8,000.00
36	Pathway / Road transition at existing signalized intersection (crossride)	1	each	\$25,000.00	\$25,000.00
57	Pathway marker sign (Single sign on new post)	3	each	\$250.00	\$750.00
78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	4	each	\$200.00	\$800.00
79	Pathway marker sign (Single sign on existing post or previously proposed post)	8	each	\$125.00	\$1,000.00
80	Pathway marker sign (Double sided sign on new post)	10	each	\$300.00	\$3,000.00

Funding Options		
A	B	
York Region at 100%	Region	Local
	50%	50%
\$478,470.00	\$239,235.00	\$239,235.00

Eas-9A &  
Eas-9C  
Eas-9B,  
Eas-9D,  
Eas-9E &  
Eas-9G  
Eas-9G

Eas-9X

## East Gwillimbury Tab

### Eas-10

Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost	Funding Options		
								A	B	
								York Region at 100%	Region	Local
		27	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	1.23	linear KM	\$140,000.00	\$172,200.00	\$222,800.00	50%	50%
		54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00			
		55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00			
		49	Granular parking lot at staging area (15 car capacity-gravel)	1	each	\$35,000.00	\$35,000.00			
		63	Bench	4	each	\$2,000.00	\$8,000.00			
		80	Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00			

### Eas-11

#### Eas-11Y & Eas-12Z

Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost	Funding Options		
								A	B	
								York Region at 100%	Region	Local
		70	Pathway marker signs	3.14	linear KM	\$1,500.00	\$4,710.00	\$6,760.00	50%	50%
		78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	3	each	\$200.00	\$600.00			
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	2	each	\$125.00	\$250.00			
		80	Pathway marker sign (Double sided sign on new post)	4	each	\$300.00	\$1,200.00			

#### Identification of Segment ID Letters

<b>R</b>	Resurface Existing Off-Road Trail
<b>T</b>	Trail Connection
<b>X</b>	Proposed Crossride
<b>Y</b>	Existing Crossing
<b>Z</b>	Existing Path
All other letters are used in sequential order (starting from "A") to identify the segment.	

The following is an example of the identification of segment IDs for Eas-11:

Eas-11Y: This identifies a section of the segment that will use an existing crossing.

Eas-11Z: This identifies a section of the segment that uses an existing trail.

## Newmarket Tab

							Funding Options			
							A	B		
							York Region at 100%	Region	Local	
<b>New-1</b>  Phase New-1Y & New-1Z	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost	York Region at 100%	50%	50%
		70	Pathway marker signs	3.17	linear KM	\$1,500.00	\$4,755.00	\$15,055.00	\$7,527.50	\$7,527.50
		54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00			
		55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00			
		78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	7	each	\$200.00	\$1,400.00			
		80	Pathway marker sign (Double sided sign on new post)	3	each	\$300.00	\$900.00			
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	8	each	\$125.00	\$1,000.00			

							Funding Options			
							A	B		
							York Region at 100%	Region	Local	
<b>New-2*</b> <b>Pedestrian / Trail Bridge North on Fairy Lake</b>  Phase New-2B	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost	York Region at 100%	50%	50%
		76	Retrofit / Widen Existing Pedestrian / Trail Bridge (29m long, 3m clear width)	87.00	m <sup>2</sup>	\$2,500.00	\$217,500.00	\$217,500.00	\$108,750.00	\$108,750.00

							Funding Options			
							A	B		
							York Region at 100%	Region	Local	
<b>New-2</b>  Phase New-2R New-2A New-2X New-2A & New-2Z New-2Z	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost	York Region at 100%	50%	50%
		26	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (Upgrade existing granular surface)	0.74	linear KM	\$100,000.00	\$74,000.00	\$311,020.00	\$155,510.00	\$155,510.00
		22	Two Way Active Transportation Multi-use path within road right-of-way	0.50	linear KM	\$275,000.00	\$137,500.00			
		69	Relocation of Signal Pole / Utility Box	8	each	\$8,000.00	\$64,000.00			
		36	Pathway / Road transition at existing signalized intersection (crossride) This assumes the implementation of a proposed signalized intersection at Water St and Doug Duncan Dr to be developed by the Town of Newmarket, at the Town's cost in a specific project (not included).	1	each	\$25,000.00	\$25,000.00			
		70	Pathway marker signs	0.38	linear KM	\$1,500.00	\$570.00			
		54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00			
		55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00			
		78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	2	each	\$200.00	\$400.00			
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	6	each	\$125.00	\$750.00			
		80	Pathway marker sign (Double sided sign on new post)	6	each	\$300.00	\$1,800.00			

## Newmarket Tab

New-3

Phase 1 Cost Code

New-3Z

Cost Code

	Description	Estimated Quantity	Units	Unit Price	Item Cost
70	Pathway marker signs	3.11	linear KM	\$1,500.00	\$4,665.00
54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00
55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00
78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	3	each	\$200.00	\$600.00
79	Pathway marker sign (Single sign on existing post or previously proposed post)	8	each	\$125.00	\$1,000.00
80	Pathway marker sign (Double sided sign on new post)	3	each	\$300.00	\$900.00

### Funding Options

A	B	
York Region at 100%	Region	Local
	50%	50%
\$14,165.00	\$7,082.50	\$7,082.50

### Identification of Segment ID Letters

<b>R</b>	Resurface Existing Off-Road Trail
<b>T</b>	Trail Connection
<b>X</b>	Proposed Crossride
<b>Y</b>	Existing Crossing
<b>Z</b>	Existing Path
All other letters are used in sequential order (starting from "A") to identify the segment.	

The following is an example of the identification of segment IDs for New-2:

New-2A: This is the first section of the New-2 segment that is not identified in the table above.

New-2R: This identifies a section on an existing off-road trail that needs to be resurfaced.

New-2Z: This identifies a section of the segment that uses an existing trail.

## Aurora Tab

							Funding Options			
							A	B		
							York Region at 100%	Region	Local	
<b>Aur-1</b>  Phase 1  Aur-1A & Aur-1B Aur-1X Aur-1A, Aur-1X & Aur-1Z Aur-1Z	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
		27	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	0.21	linear KM	\$140,000.00	\$29,400.00	\$131,565.00	50%	50%
		36	Pathway / Road transition at existing signalized intersection (crossride)	3	each	\$25,000.00	\$75,000.00			
		70	Pathway marker signs	7.76	linear KM	\$1,500.00	\$11,640.00			
		54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00			
		55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00			
		57	Pathway marker sign (Single sign on new post)	2	each	\$250.00	\$500.00			
		78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	11	each	\$200.00	\$2,200.00			
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	13	each	\$125.00	\$1,625.00			
		80	Pathway marker sign (Double sided sign on new post)	14	each	\$300.00	\$4,200.00			

							Funding Options			
							A	B		
							York Region at 100%	Region	Local	
<b>Aur-2</b>  Phase 2  Aur-2A  Aur-2X	2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
		22	Two Way Active Transportation Multi-use path within road right-of-way	1.36	linear KM	\$275,000.00	\$374,000.00	\$589,575.00	50%	50%
		24	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	1,360	m <sup>2</sup>	\$150.00	\$204,000.00			
		35	Pathway / Road transition at unsignalized intersection(crossride)	2	each	\$5,000.00	\$10,000.00			
		57	Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00			
		78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	3	each	\$200.00	\$600.00			
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00			
		80	Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00			

### Identification of Segment ID Letters

<b>R</b>	Resurface Existing Off-Road Trail
<b>T</b>	Trail Connection
<b>X</b>	Proposed Crossride
<b>Y</b>	Existing Crossing
<b>Z</b>	Existing Path
All other letters are used in sequential order (starting from "A") to identify the segment.	

The following is an example of the identification of segment IDs for Aur-1:  
 Aur-1A: This is the first section of the Aur-1 segment that is not identified in the table above.  
 Aur-1X: This identifies a proposed cross rides that is required on Aur-1.  
 Aur-1Z: This identifies a section of the segment that uses an existing trail.

## Richmond Hill Tab

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
							50%	50%			
<b>Ric-1</b>	Phase	2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			23	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.39	linear KM	\$320,000.00	\$124,800.00	\$333,050.00	\$166,525.00	\$166,525.00
<b>Ric-1A &amp; Ric-1C</b>			22	Two Way Active Transportation Multi-use path within road right-of-way	0.23	linear KM	\$275,000.00	\$63,250.00			
<b>Ric-1B</b>			24	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	390	m <sup>2</sup>	\$150.00	\$58,500.00			
<b>Ric-1C</b>			44	Retaining Wall	75	m <sup>2</sup>	\$600.00	\$45,000.00			
			67	Relocation of Light / Support Pole	4	each	\$4,000.00	\$16,000.00			
<b>Ric-1X</b>			36	Pathway / Road transition at existing signalized intersection (crossride)	1	each	\$25,000.00	\$25,000.00			
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	1	each	\$200.00	\$200.00			
			80	Pathway marker sign (Double sided sign on new post)	1	each	\$300.00	\$300.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
							50%	50%			
<b>Ric-2</b>	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			1	Signed Bike Route in Urban Area	0.23	linear KM	\$1,500.00	\$345.00	\$595.00	\$297.50	\$297.50
			57	Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
							50%	50%			
<b>Ric-3</b>	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			23	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.10	linear KM	\$320,000.00	\$32,000.00	\$32,500.00	\$16,250.00	\$16,250.00
			80	Pathway marker sign (Double sided sign on new post)	1	each	\$300.00	\$300.00			
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	1	each	\$200.00	\$200.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
							50%	50%			
<b>Ric-4</b>	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			1	Signed Bike Route in Urban Area	0.17	linear KM	\$1,500.00	\$255.00	\$505.00	\$252.50	\$252.50
			57	Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
							50%	50%			
<b>Ric-5</b>	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			22	Two Way Active Transportation Multi-use path within road right-of-way	0.02	linear KM	\$275,000.00	\$5,500.00	\$5,825.00	\$2,912.50	\$2,912.50
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	1	each	\$200.00	\$200.00			
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00			

## Richmond Hill Tab

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
Ric-6	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			1	Signed Bike Route in Urban Area	0.47	linear KM	\$1,500.00	\$705.00	\$1,080.00	50%	50%
			57	Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00			
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
Ric-7	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
Ric-7A & Ric-7B			22	Two Way Active Transportation Multi-use path within road right-of-way	1.16	linear KM	\$275,000.00	\$319,000.00	\$558,075.00	50%	50%
			77	Install Light Pole	1.16	linear km	\$200,000.00	\$232,000.00			
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	1	each	\$200.00	\$200.00			
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	3	each	\$125.00	\$375.00			
			80	Pathway marker sign (Double sided sign on new post)	5	each	\$300.00	\$1,500.00			
Ric-7X			35	Pathway / Road transition at unsignalized intersection(crossride)	1	each	\$5,000.00	\$5,000.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
Ric-8	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
Ric-8X			36	Pathway / Road transition at existing signalized intersection (crossride)	1	each	\$25,000.00	\$25,000.00	\$25,000.00	\$12,500.00	\$12,500.00

						Funding Options						
						A	B					
						York Region at 100%	Region	Local	TRCA			
Ric-9 (Funded by York Region and Toronto Region Conservation Authority)	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost				
Ric-9A			27	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	3.36	linear KM	\$140,000.00	\$470,400.00	\$565,550.00	50%	0%	50%
Ric-9B			22	Two Way Active Transportation Multi-use path within road right-of-way	0.20	linear KM	\$275,000.00	\$55,000.00				
			73	Flexible Bollards	20	each	\$100.00	\$2,000.00				
			44	Retaining Wall	40	m <sup>2</sup>	\$600.00	\$24,000.00				
			54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00				
			55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00				
			67	Relocation of Light / Support Pole	1	each	\$4,000.00	\$4,000.00				
			80	Pathway marker sign (Double sided sign on new post)	7	each	\$300.00	\$2,100.00				
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	4	each	\$200.00	\$800.00				
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	2	each	\$125.00	\$250.00				

## Richmond Hill Tab

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
							50%	50%			
<b>Ric-10</b>	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			22	Two Way Active Transportation Multi-use path within road right-of-way	2.16	linear KM	\$275,000.00	\$594,000.00	\$1,477,731.80	\$738,865.90	\$738,865.90
<b>Ric-10A &amp; Ric-10B Ric-10A</b>			73	Flexible Bollards	0.16	each	\$100.00	\$16.00			
<b>Ric-10B Ric-10X Ric-10A, Ric-10B &amp; Ric-10X</b>			24	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	2,010	m <sup>2</sup>	\$150.00	\$301,500.00			
			36	Pathway / Road transition at existing signalized intersection (crossride)	5	each	\$25,000.00	\$125,000.00			
			77	Install Light Pole	2.28	linear km	\$200,000.00	\$455,815.80			
			80	Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00			
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	4	each	\$200.00	\$800.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
							50%	50%			
<b>Ric-11</b>	Phase	2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			22	Two Way Active Transportation Multi-use path within road right-of-way	0.85	linear KM	\$275,000.00	\$233,750.00	\$235,100.00	\$117,550.00	\$117,550.00
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	1	each	\$200.00	\$200.00			
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	2	each	\$125.00	\$250.00			
			80	Pathway marker sign (Double sided sign on new post)	3	each	\$300.00	\$900.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
							50%	50%			
<b>Ric-12</b>	Phase	2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			25	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	1.65	linear KM	\$250,000.00	\$412,500.00	\$413,550.00	\$206,775.00	\$206,775.00
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	1	each	\$200.00	\$200.00			
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	2	each	\$125.00	\$250.00			
			80	Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00			

## Richmond Hill Tab

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
							50%	50%			
<b>Ric-13</b>	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			25	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	0.51	linear KM	\$250,000.00	\$127,500.00	\$159,550.00	\$79,775.00	\$79,775.00
<b>Ric-13A</b>			36	Pathway / Road transition at existing signalized intersection (crossride)	1.00	each	\$25,000.00	\$25,000.00			
<b>Ric-13X</b>			71	Pathway Crossing of Private Entrance	3	each	\$2,000.00	\$6,000.00			
<b>Ric-13A</b>			80	Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00			
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	1	each	\$200.00	\$200.00			
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	2	each	\$125.00	\$250.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
							50%	50%			
<b>Ric-14</b>	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			25	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	0.03	linear KM	\$250,000.00	\$7,500.00	\$16,095.00	\$8,047.50	\$8,047.50
<b>Ric-14A</b>			54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00			
<b>Ric-14Z</b>			55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00			
<b>Ric-14A &amp; Ric-14Z</b>			70	Pathway marker signs	0.33	linear KM	\$1,500.00	\$495.00			
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	1	each	\$200.00	\$200.00			
			80	Pathway marker sign (Double sided sign on new post)	3	each	\$300.00	\$900.00			

						Funding Options					
						A	B				
						York Region at 100%	Region	Local			
							50%	50%			
<b>Ric-15</b>	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
			23	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	1.97	linear KM	\$320,000.00	\$630,400.00	\$971,375.00	\$485,687.50	\$485,687.50
<b>Ric-15A - Ric15I</b>			24	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	1,680	m <sup>2</sup>	\$150.00	\$252,000.00			
<b>Ric-15B, Ric-15D, Ric-15F, Ric-15H</b>			73	Flexible Bollards	19	each	\$100.00	\$1,900.00			
<b>Ric-15I</b>			36	Pathway / Road transition at existing signalized intersection (crossride)	3	each	\$25,000.00	\$75,000.00			
<b>Ric-15X</b>			71	Pathway Crossing of Private Entrance	2	each	\$2,000.00	\$4,000.00			
<b>Ric-15A &amp; Ric-15B</b>			67	Relocation of Light / Support Pole	1	each	\$4,000.00	\$4,000.00			
<b>Ric-15A &amp; Ric-15E</b>			80	Pathway marker sign (Double sided sign on new post)	1	each	\$300.00	\$300.00			
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	7	each	\$200.00	\$1,400.00			
			57	Pathway marker sign (Single sign on new post)	8	each	\$250.00	\$2,000.00			
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	3	each	\$125.00	\$375.00			

## Richmond Hill Tab

### Ric-16

Phase **1** Cost Code

Ric-16A -  
Ric-16D  
Ric-16B  
Ric-16X  
Ric-16C  
Ric-16A -  
Ric-16D

Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost
23	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	1.96	linear KM	\$320,000.00	\$627,200.00
73	Flexible Bollards	0.15	each	\$100.00	\$15.00
36	Pathway / Road transition at existing signalized intersection (crossride)	3	each	\$25,000.00	\$75,000.00
71	Pathway Crossing of Private Entrance	1	each	\$2,000.00	\$2,000.00
67	Relocation of Light / Support Pole	20	each	\$4,000.00	\$80,000.00
78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	8	each	\$200.00	\$1,600.00
79	Pathway marker sign (Single sign on existing post or previously proposed post)	6	each	\$125.00	\$750.00
80	Pathway marker sign (Double sided sign on new post)	3	each	\$300.00	\$900.00

#### Funding Options

A	B	
York Region at 100%	Region	Local
	50%	50%
\$787,465.00	\$393,732.50	\$393,732.50

### Ric-17

Phase **1** Cost Code

Ric-17A -  
Ric-17G  
Ric-17B,  
Ric-17D &  
Ric-17F  
Ric-17X  
Ric-17A  
Ric-17B  
Ric-17C &  
Ric-17D  
Ric-17F  
Ric-17G  
Ric-17A,  
Ric-17C,  
Ric-17E,  
Ric-17F &  
Ric-17G  
Ric-17A,  
Ric-17C,  
Ric-17D,  
Ric-17E &  
Ric-17G  
Ric-17B &  
Ric-17G

Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost
23	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	1.93	linear KM	\$320,000.00	\$617,600.00
24	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	270	m <sup>2</sup>	\$150.00	\$40,500.00
36	Pathway / Road transition at existing signalized intersection (crossride)	5	each	\$25,000.00	\$125,000.00
44	Retaining Wall	195	m <sup>2</sup>	\$600.00	\$117,000.00
44	Retaining Wall	85	m <sup>2</sup>	\$600.00	\$51,000.00
44	Retaining Wall	215	m <sup>2</sup>	\$600.00	\$129,000.00
44	Retaining Wall	130	m <sup>2</sup>	\$600.00	\$78,000.00
44	Retaining Wall	110	m <sup>2</sup>	\$600.00	\$66,000.00
71	Pathway Crossing of Private Entrance	10	each	\$2,000.00	\$20,000.00
67	Relocation of Light / Support Pole	10	each	\$4,000.00	\$40,000.00
69	Relocation of Signal Pole / Utility Box	3	each	\$8,000.00	\$24,000.00
80	Pathway marker sign (Double sided sign on new post)	4	each	\$300.00	\$1,200.00
78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	6	each	\$200.00	\$1,200.00
57	Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00
79	Pathway marker sign (Single sign on existing post or previously proposed post)	5	each	\$125.00	\$625.00

#### Funding Options

A	B	
York Region at 100%	Region	Local
	50%	50%
\$1,311,375.00	\$655,687.50	\$655,687.50

## Richmond Hill Tab

### Identification of Segment ID Letters

<b>R</b>	Resurface Existing Off-Road Trail
<b>T</b>	Trail Connection
<b>X</b>	Proposed Crossride
<b>Y</b>	Existing Crossing
<b>Z</b>	Existing Path
All other letters are used in sequential order (starting from "A") to identify the segment.	

The following is an example of the identification of segment IDs for Ric-14:

Ric-14A: This is the first section of the Ric-14 segment that is not identified in the table above.

Ric-14Z: This identifies a section of the segment that uses an existing trail.

## Markham Tab

### Mar-1

Phase **1** Cost Code

Mar-1A,  
Mar-1B &  
Mar-1C  
Mar-1X  
Mar-1B  
Mar-1C  
Mar-1B

Cost Code

						Funding Options		
						A	B	
						York Region at 100%	Region	Local
							50%	50%
23		Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.51	linear KM	\$320,000.00	\$163,200.00		
35		Pathway / Road transition at unsignalized intersection(crossride)	2	each	\$5,000.00	\$10,000.00		
71		Pathway Crossing of Private Entrance	1	each	\$2,000.00	\$2,000.00		
67		Relocation of Light / Support Pole	5	each	\$4,000.00	\$20,000.00		
69		Relocation of Signal Pole / Utility Box	1	each	\$8,000.00	\$8,000.00		
78		Pathway marker sign (Double sided sign on existing post or previously proposed post)	4	each	\$200.00	\$800.00		
57		Pathway marker sign (Single sign on new post)	2	each	\$250.00	\$500.00		
79		Pathway marker sign (Single sign on existing post or previously proposed post)	4	each	\$125.00	\$500.00		
80		Pathway marker sign (Double sided sign on new post)	1	each	\$300.00	\$300.00		
						\$205,300.00	\$102,650.00	\$102,650.00

### Mar-2

Phase **1** Cost Code

Mar-2A

Mar-2X

Cost Code

						Funding Options		
						A	B	
						York Region at 100%	Region	Local
							50%	50%
23		Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.14	linear KM	\$320,000.00	\$44,800.00		
24		Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	140	m <sup>2</sup>	\$150.00	\$21,000.00		
35		Pathway / Road transition at unsignalized intersection(crossride)	2	each	\$5,000.00	\$10,000.00		
78		Pathway marker sign (Double sided sign on existing post or previously proposed post)	2	each	\$200.00	\$400.00		
79		Pathway marker sign (Single sign on existing post or previously proposed post)	3	each	\$125.00	\$375.00		
57		Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00		
80		Pathway marker sign (Double sided sign on new post)	1	each	\$300.00	\$300.00		
						\$77,125.00	\$38,562.50	\$38,562.50

### Mar-3 Crossing of Highway 407 on Leslie St

Phase **2** Cost Code

Mar-3A

Cost Code

						Funding Options		
						A	B	
						York Region at 100%	Region	Local
							100%	0%
		Place 1.1m wide concrete base adjacent to existing sidewalk on east side of road	190	m <sup>2</sup>	\$50.00	\$9,500.00		
		Place 40mm asphalt surface	50	tonne	\$150.00	\$7,500.00		
73		Flexible Bollards	35	each	\$100.00	\$3,500.00		
		Traffic Control	1	allowance	\$20,000.00	\$20,000.00		
		Adjust Catchbasins	1	allowance	\$10,000.00	\$10,000.00		
74		Pavement Markings	350	m	\$1.00	\$350.00		
64		Safety Railings/Rubrail	190	linear M	\$120.00	\$22,800.00		
78		Pathway marker sign (Double sided sign on existing post or previously proposed post)	2	each	\$200.00	\$400.00		
						\$74,050.00	\$74,050.00	\$0.00

## Markham Tab

							Funding Options			
							A	B		
							York Region at 100%	Region	Local	
Mar-4	Phase 1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
Mar-4A & Mar-4B		23	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	1.15	linear KM	\$320,000.00	\$368,000.00	\$509,375.00	50%	50%
Mar-4A		24	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	480	m <sup>2</sup>	\$150.00	\$72,000.00			
Mar-4X		35	Pathway / Road transition at unsignalized intersection(crossride)	3	each	\$5,000.00	\$15,000.00			
Mar-4B		67	Relocation of Light / Support Pole	13	each	\$4,000.00	\$52,000.00			
		78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	3	each	\$200.00	\$600.00			
		57	Pathway marker sign (Single sign on new post)	3	each	\$250.00	\$750.00			
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00			
		80	Pathway marker sign (Double sided sign on new post)	3	each	\$300.00	\$900.00			

							Funding Options			
							A	B		
							York Region at 100%	Region	Local	
Mar-5*	Phase 2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
Mar-5B		32	Self-weathering steel truss bridge with timber deck (32m long, 3m clear width)	96	m <sup>2</sup>	\$2,500.00	\$240,000.00	\$400,000.00	100%	0%
			Concrete abutments on piles	2	each	\$50,000.00	\$100,000.00			
			Mobilization, pile driving equipment and erection of bridge	1	allowance	\$60,000.00	\$60,000.00			

							Funding Options			
							A	B		
							York Region at 100%	Region	Local	
Mar-5	Phase 2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
Mar-5A & Mar-5C		23	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.06	linear KM	\$320,000.00	\$19,200.00	27,800.00	50%	50%
		67	Relocation of Light / Support Pole	2	each	\$4,000.00	\$8,000.00			
		80	Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00			

							Funding Options			
							A	B		
							York Region at 100%	Region	Local	
Mar-6	Phase 1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost			
Mar-6A		23	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.37	linear KM	\$320,000.00	\$118,400.00	\$160,775.00	50%	50%
Mar-6X		35	Pathway / Road transition at unsignalized intersection(crossride)	2	each	\$5,000.00	\$10,000.00			
Mar-6A		67	Relocation of Light / Support Pole	8	each	\$4,000.00	\$32,000.00			
		57	Pathway marker sign (Single sign on new post)	1	each	\$250.00	\$250.00			
		79	Pathway marker sign (Single sign on existing post or previously proposed post)	1	each	\$125.00	\$125.00			

## Markham Tab

							Funding Options				
							A	B			
							York Region at 100%	Region	Local		
<b>Mar-7*</b>	<b>Construction of bridge on Leslie St over CN Rail Corridor</b>	Phase 2	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost	100%	0%	
<b>Mar-7A</b>			32	Self-weathering steel truss bridge with timber deck (50m long, 3m clear width)	150	m <sup>2</sup>	\$2,500.00	\$375,000.00	\$690,000.00	\$690,000.00	\$0.00
				Concrete abutments on piles	2	each	\$50,000.00	\$100,000.00			
				Mobilization, pile driving equipment, erection and inspection of bridge	1	allowance	\$200,000.00	\$200,000.00			
				Remove and replace steel beam guide rail	1	allowance	\$15,000.00	\$15,000.00			

							Funding Options				
							A	B			
							York Region at 100%	Region	Local		
<b>Mar-7</b>		Phase 1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost	50%	50%	
<b>Mar-7B</b>			44	Retaining Wall	300	m <sup>2</sup>	\$600.00	\$180,000.00	\$289,400.00	\$144,700.00	\$144,700.00
			23	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.13	linear KM	\$320,000.00	\$41,600.00			
			64	Safety Railings/Rubrail	130	linear M	\$120.00	\$15,600.00			
<b>Mar-7A &amp; Mar-7B</b>			67	Relocation of Light / Support Pole	5	each	\$4,000.00	\$20,000.00			
<b>Mar-7X</b>			36	Pathway / Road transition at existing signalized intersection (crossride)	1	each	\$25,000.00	\$25,000.00			
			54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00			
			55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00			
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	1	each	\$200.00	\$200.00			

							Funding Options				
							A	B			
							York Region at 100%	Region	Local		
<b>Mar-8</b>		Phase 1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost	50%	50%	
<b>Mar-8A &amp; Mar-8B</b>			23	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	0.27	linear KM	\$320,000.00	\$86,400.00	\$241,100.00	\$120,550.00	\$120,550.00
			24	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	200	m <sup>2</sup>	\$150.00	\$30,000.00			
<b>Mar-8B</b>			44	Retaining Wall	165	m <sup>2</sup>	\$600.00	\$99,000.00			
<b>Mar-8X</b>			36	Pathway / Road transition at existing signalized intersection (crossride)	1	each	\$25,000.00	\$25,000.00			
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	2	each	\$200.00	\$400.00			
			80	Pathway marker sign (Double sided sign on new post)	1	each	\$300.00	\$300.00			

## Markham Tab

							Funding Options			
							A	B		
							York Region at 100%	Region	Local	
Mar-9	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost		
Mar-9Z			26	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an	1.11	linear KM	\$100,000.00	\$111,000.00		
			64	Stream bank repairs in vicinity of existing bridge	1.00	allowance	\$40,000.00	\$40,000.00		
			78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	2	each	\$200.00	\$400.00	\$152,500.00	\$76,250.00
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	4	each	\$125.00	\$500.00		
			80	Pathway marker sign (Double sided sign on new post)	2	each	\$300.00	\$600.00		

							Funding Options			
							A	B		
							York Region at 100%	Region	Local	
Mar-10	Phase	1	Cost Code	Description	Estimated Quantity	Units	Unit Price	Item Cost		
			70	Pathway marker signs	0.54	linear KM	\$1,500.00	\$810.00	\$8,810.00	\$4,405.00
			54	Staging area kiosk	1	each	\$5,000.00	\$5,000.00		
			55	Signboards for staging area kiosk sign	1	each	\$2,000.00	\$2,000.00		
			57	Pathway marker sign (Single sign on new post)	3	each	\$250.00	\$750.00		
			79	Pathway marker sign (Single sign on existing post or previously proposed post)	2	each	\$125.00	\$250.00		
									50%	50%

### Identification of Segment ID Letters

<b>R</b>	Resurface Existing Off-Road Trail
<b>T</b>	Trail Connection
<b>X</b>	Proposed Crossride
<b>Y</b>	Existing Crossing
<b>Z</b>	Existing Path
All other letters are used in sequential order (starting from "A") to identify the segment.	

The following is an example of the identification of segment IDs for Mar-8:  
 Mar-8A: This is the first section of the Mar-8 segment that is not identified in the table above.  
 Mar-8B: This is the second section of the Mar-8 segment.  
 Mar-8X: This identifies a proposed cross ride that is required on Mar-8.

**Phasing Tab**

Segment	Cost	Phase	Existing / Short Term (0 - 3 Years)			Long Term (4-5+ Years)			Total
			Region	Local	Ontario Parks	Region	Local	Ontario Parks	
Geo-1	\$172,475.00	1	\$66,237.50	\$86,237.50	\$0.00	\$0.00	\$0.00	\$172,475.00	
OP-1	\$98,725.00	2	\$0.00	\$0.00	\$49,362.50	\$0.00	\$49,362.50	\$98,725.00	
OP-2	\$4,520.00	2	\$0.00	\$0.00	\$2,260.00	\$0.00	\$2,260.00	\$4,520.00	
Geo-3	\$21,505.00	1	\$10,752.50	\$10,752.50	\$0.00	\$0.00	\$0.00	\$21,505.00	
Geo-4	\$73,405.00	1	\$36,702.50	\$36,702.50	\$0.00	\$0.00	\$0.00	\$73,405.00	
Geo-5	\$7,330.00	1	\$3,665.00	\$3,665.00	\$0.00	\$0.00	\$0.00	\$7,330.00	
Geo-6	\$14,530.00	1	\$7,265.00	\$7,265.00	\$0.00	\$0.00	\$0.00	\$14,530.00	
Geo-7*	\$203,100.00	2	\$0.00	\$0.00	\$101,550.00	\$101,550.00	\$0.00	\$203,100.00	
Geo-7	\$13,700.00	1	\$6,850.00	\$6,850.00	\$0.00	\$0.00	\$0.00	\$13,700.00	
Geo-8	\$146,040.00	1	\$73,020.00	\$73,020.00	\$0.00	\$0.00	\$0.00	\$146,040.00	
Geo-9	\$40,110.00	2	\$0.00	\$0.00	\$40,110.00	\$0.00	\$0.00	\$40,110.00	
Geo-10	\$137,580.00	1	\$68,790.00	\$68,790.00	\$0.00	\$0.00	\$0.00	\$137,580.00	
Geo-11	\$17,595.00	1	\$8,797.50	\$8,797.50	\$0.00	\$0.00	\$0.00	\$17,595.00	
<b>Total by Phase</b>			\$302,080.00	\$302,080.00	\$193,282.50	\$101,550.00	\$51,622.50		
<b>Total Network</b>			604,160.00		\$346,455.00			950,615.00	

Segment	Cost	Phase	Existing / Short Term (0 - 3 Years)			Long Term (4-5+ Years)			Total
			Region	Local	LSRCA	Region	Local	LSRCA	
Eas-1	\$4,975.00	1	\$2,487.50	\$2,487.50	\$0.00	\$0.00	\$0.00	\$4,975.00	
Eas-2	\$287,100.00	1	\$143,550.00	\$143,550.00	\$0.00	\$0.00	\$0.00	\$287,100.00	
Eas-3*	\$515,000.00	2	\$0.00	\$0.00	\$257,500.00	\$257,500.00	\$0.00	\$515,000.00	
Eas-3	\$1,317,375.00	1	\$658,687.50	\$658,687.50	\$0.00	\$0.00	\$0.00	\$1,317,375.00	
Eas-4	\$1,630.00	2	\$0.00	\$0.00	\$815.00	\$815.00	\$0.00	\$1,630.00	
Eas-5	\$2,975.00	2	\$0.00	\$0.00	\$1,487.50	\$1,487.50	\$0.00	\$2,975.00	
Eas-6	\$569,200.00	2	\$0.00	\$0.00	\$284,600.00	\$284,600.00	\$0.00	\$569,200.00	
Eas-7	\$4,055.00	2	\$0.00	\$0.00	\$2,027.50	\$2,027.50	\$0.00	\$4,055.00	
Eas-8	\$362,500.00	1	\$181,250.00	\$181,250.00	\$0.00	\$0.00	\$0.00	\$362,500.00	
Eas-9*	\$170,000.00	2	\$0.00	\$0.00	\$85,000.00	\$85,000.00	\$0.00	\$170,000.00	
Eas-9	\$478,470.00	1	\$239,235.00	\$239,235.00	\$0.00	\$0.00	\$0.00	\$478,470.00	
Eas-10	\$222,800.00	1	\$111,400.00	\$111,400.00	\$0.00	\$0.00	\$0.00	\$222,800.00	
Eas-11	\$6,760.00	1	\$3,380.00	\$3,380.00	\$0.00	\$0.00	\$0.00	\$6,760.00	
<b>Total by Phase</b>			\$1,339,990.00	\$1,339,990.00	\$631,430.00	\$346,830.00	\$284,600.00		
<b>Total Network</b>			\$2,679,980.00		\$1,262,860.00			\$3,942,840.00	

Segment	Cost	Phase	Existing / Short Term (0 - 3 Years)			Existing / Short Term (0 - 3 Years)			Total
			Region	Local		Region	Local		
New-1	\$15,055.00	1	\$7,527.50	\$7,527.50	\$0.00	\$0.00	\$0.00	\$15,055.00	
New-2*	\$217,500.00	1	\$108,750.00	\$108,750.00	\$0.00	\$0.00	\$0.00	\$217,500.00	
New-2	\$311,020.00	1	\$155,510.00	\$155,510.00	\$0.00	\$0.00	\$0.00	\$311,020.00	
New-3	\$14,165.00	1	\$7,082.50	\$7,082.50	\$0.00	\$0.00	\$0.00	\$14,165.00	
<b>Total by Phase</b>			\$278,870.00	\$278,870.00	\$0.00	\$0.00	\$0.00	\$557,740.00	
<b>Total Network</b>			\$557,740.00		\$0.00			\$557,740.00	

Segment	Cost	Phase	Existing / Short Term (0 - 3 Years)			Long Term (4-5+ Years)			Total
			Region	Local		Region	Local		
Aur-1	\$131,565.00	1	\$65,782.50	\$65,782.50	\$0.00	\$0.00	\$0.00	\$131,565.00	
Aur-2	\$589,575.00	2	\$0.00	\$0.00	\$294,787.50	\$294,787.50	\$0.00	\$589,575.00	
<b>Total by Phase</b>			\$65,782.50	\$65,782.50	\$294,787.50	\$294,787.50	\$0.00	\$721,140.00	
<b>Total Network</b>			\$131,565.00		\$589,575.00			\$721,140.00	

Segment	Cost	Phase	Existing / Short Term (0 - 3 Years)			Existing / Short Term (0 - 3 Years)			Total
			Region	Local	TRCA	Region	Local		
Ric-1	\$333,050.00	2	\$0.00	\$0.00	\$0.00	\$166,525.00	\$166,525.00	\$333,050.00	
Ric-2	\$595.00	1	\$297.50	\$297.50	\$0.00	\$0.00	\$0.00	\$595.00	
Ric-3	\$32,500.00	1	\$16,250.00	\$16,250.00	\$0.00	\$0.00	\$0.00	\$32,500.00	
Ric-4	\$505.00	1	\$252.50	\$252.50	\$0.00	\$0.00	\$0.00	\$505.00	
Ric-5	\$5,825.00	1	\$2,912.50	\$2,912.50	\$0.00	\$0.00	\$0.00	\$5,825.00	
Ric-6	\$1,080.00	1	\$540.00	\$540.00	\$0.00	\$0.00	\$0.00	\$1,080.00	
Ric-7	\$558,075.00	1	\$279,037.50	\$279,037.50	\$0.00	\$0.00	\$0.00	\$558,075.00	
Ric-8	\$25,000.00	1	\$12,500.00	\$12,500.00	\$0.00	\$0.00	\$0.00	\$25,000.00	
Ric-9	\$565,550.00	1	\$282,775.00	\$282,775.00	\$0.00	\$0.00	\$0.00	\$565,550.00	
Ric-10	\$1,477,731.80	1	\$738,865.90	\$738,865.90	\$0.00	\$0.00	\$0.00	\$1,477,731.80	
Ric-11	\$235,100.00	2	\$0.00	\$0.00	\$0.00	\$117,550.00	\$117,550.00	\$235,100.00	
Ric-12	\$413,550.00	2	\$0.00	\$0.00	\$0.00	\$206,775.00	\$206,775.00	\$413,550.00	
Ric-13	\$159,550.00	1	\$79,775.00	\$79,775.00	\$0.00	\$0.00	\$0.00	\$159,550.00	
Ric-14	\$16,095.00	1	\$8,047.50	\$8,047.50	\$0.00	\$0.00	\$0.00	\$16,095.00	
Ric-15	\$971,375.00	1	\$485,687.50	\$485,687.50	\$0.00	\$0.00	\$0.00	\$971,375.00	
Ric-16	\$787,465.00	1	\$393,732.50	\$393,732.50	\$0.00	\$0.00	\$0.00	\$787,465.00	
Ric-17	\$1,311,375.00	1	\$655,687.50	\$655,687.50	\$0.00	\$0.00	\$0.00	\$1,311,375.00	
<b>Total by Phase</b>			\$2,956,360.90	\$2,673,585.90	\$282,775.00	\$490,850.00	\$490,850.00	\$6,894,421.80	
<b>Total Network</b>			\$5,912,721.80		\$981,700.00			\$6,894,421.80	

Segment	Cost	Phase	Existing / Short Term (0 - 3 Years)			Long Term (4-5+ Years)			Total
			Region	Local		Region	Local		
Mar-1	\$205,300.00	1	\$102,650.00	\$102,650.00	\$0.00	\$0.00	\$0.00	\$205,300.00	
Mar-2	\$77,125.00	1	\$38,562.50	\$38,562.50	\$0.00	\$0.00	\$0.00	\$77,125.00	
Mar-3	\$74,050.00	2	\$0.00	\$0.00	\$74,050.00	\$0.00	\$0.00	\$74,050.00	
Mar-4	\$509,375.00	1	\$254,687.50	\$254,687.50	\$0.00	\$0.00	\$0.00	\$509,375.00	
Mar-5*	\$400,000.00	2	\$0.00	\$0.00	\$400,000.00	\$0.00	\$0.00	\$400,000.00	
Mar-5	\$27,800.00	2	\$0.00	\$0.00	\$13,900.00	\$13,900.00	\$0.00	\$27,800.00	
Mar-6	\$160,775.00	1	\$80,387.50	\$80,387.50	\$0.00	\$0.00	\$0.00	\$160,775.00	
Mar-7*	\$690,000.00	2	\$0.00	\$0.00	\$690,000.00	\$0.00	\$0.00	\$690,000.00	
Mar-7	\$289,400.00	1	\$144,700.00	\$144,700.00	\$0.00	\$0.00	\$0.00	\$289,400.00	
Mar-8	\$241,100.00	1	\$120,550.00	\$120,550.00	\$0.00	\$0.00	\$0.00	\$241,100.00	
Mar-9	\$152,500.00	1	\$76,250.00	\$76,250.00	\$0.00	\$0.00	\$0.00	\$152,500.00	
Mar-10	\$8,810.00	1	\$4,405.00	\$4,405.00	\$0.00	\$0.00	\$0.00	\$8,810.00	
<b>Total by Phase</b>			\$822,192.50	\$822,192.50	\$1,177,950.00	\$13,900.00	\$13,900.00	\$2,836,235.00	
<b>Total Network</b>			\$1,644,385.00		\$1,191,850.00			\$2,836,235.00	

Geo-7\* represents the off-road connection between Shoreline Place and Metropolitan Crescent.  
Eas-3\* represents the replacement and construction of 2 bridges on the 2nd Concession Right-of-Way.  
Eas-9\* represents the construction of a bridge crossing the Holland River east of Yonge Street.  
Mar-5\* represents the construction of a bridge on Leslie St north of Rosemount Ave  
Mar-7\* represents the construction of a bridge on Leslie Street over the CN Rail Corridor.  
New-2\* represents the retrofit/ widening of the existing pedestrian/ trail bridge on Fairy Lake.

Total capital cost excludes engineering and contingency costs  
**\$15,902,991.80**

## Capital Costs Summary

This summary table displays the total cost of the Lake to Lake Route including Engineering and Contingency costs!

Engineering Costs	18%
Contingency Costs	20%

	Existing / Short Term (0-3 Years)					Long Term (4-5+ Years)					Total of all Phases
	Region	Local	TRCA	Total		Region	Local	Ontario Parks	LSRCA	Total	
Georgina	\$416,870.40	\$416,870.40	\$0.00	\$833,740.80		\$266,729.85	\$140,139.00	\$71,239.05	\$0.00	\$478,107.90	\$1,311,848.70
East Gwillimbury	\$1,849,186.20	\$1,849,186.20	\$0.00	\$3,698,372.40		\$871,373.40	\$478,625.40	\$0.00	\$392,748.00	\$1,742,746.80	\$5,441,119.20
Newmarket	\$384,840.60	\$384,840.60	\$0.00	\$769,681.20		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$769,681.20
Aurora	\$90,779.85	\$90,779.85	\$0.00	\$181,559.70		\$406,806.75	\$406,806.75	\$0.00	\$0.00	\$813,613.50	\$995,173.20
Richmond Hill	\$4,079,778.04	\$3,689,548.54	\$390,229.50	\$8,159,556.08		\$677,373.00	\$677,373.00	\$0.00	\$0.00	\$1,354,746.00	\$9,514,302.08
Markham	\$1,134,625.65	\$1,134,625.65	\$0.00	\$2,269,251.30		\$1,625,571.00	\$19,182.00	\$0.00	\$0.00	\$1,644,753.00	\$3,914,004.30
<b>Total</b>	<b>\$7,956,080.74</b>	<b>\$7,565,851.24</b>	<b>\$390,229.50</b>	<b>\$15,912,161.48</b>		<b>\$3,847,854.00</b>	<b>\$1,722,126.15</b>	<b>\$71,239.05</b>	<b>\$392,748.00</b>	<b>\$6,033,967.20</b>	<b>\$21,946,128.68</b>

Notes:

1. The capital cost excluding Engineering and Contingency costs is \$15,902,991.80
2. The distribution of capital costs are based on a cost share of 50% for York Region and 50% for Local Municipalities and other jurisdictions (i.e. TRCA, Ontario Parks and LSRCA).

Municipality Summary Tab

Signed Route (SR) = 1  
MUP = 2  
Yellow highlighted cells identify bridges on the Lake to Lake Route.

Segment	Facility Type	Distance	Phase	Distances				Capital Cost				
				SR	Phase 1 MUP	SR	Phase 2 MUP	SR	Phase 1 MUP	SR	Phase 2 MUP	
Geo-1	1.00	2.97	\$172,475.00	1	3.0	0.0	0.0	0.0	172,475.0	0.0	0.0	0.0
Geo-2					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Geo-3	1.00	3.18	\$21,505.00	1	3.2	0.0	0.0	0.0	21,505.0	0.0	0.0	0.0
Geo-4	1.00	13.58	\$73,405.00	1	13.6	0.0	0.0	0.0	73,405.0	0.0	0.0	0.0
Geo-5	1.00	1.38	\$7,330.00	1	1.4	0.0	0.0	0.0	7,330.0	0.0	0.0	0.0
Geo-6	1.00	3.33	\$14,530.00	1	3.3	0.0	0.0	0.0	14,530.0	0.0	0.0	0.0
Geo-7A, G	1.00	1.57	\$13,700.00	1	1.6	0.0	0.0	0.0	13,700.0	0.0	0.0	0.0
Geo-7B	2.00	0.06	\$203,100.00	2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	203,100.0
Geo-8	2.00	0.61	\$146,040.00	1	0.0	0.6	0.0	0.0	0.0	146,040.0	0.0	0.0
Geo-9	2.00	0.06	\$40,110.00	2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	40,110.0
Geo-10	2.00	0.97	\$137,580.00	1	0.0	1.0	0.0	0.0	0.0	137,580.0	0.0	0.0
Geo-11	1.00	3.73	\$17,595.00	1	3.7	0.0	0.0	0.0	17,595.0	0.0	0.0	0.0
Eas-1	1.00	0.87	\$4,975.00	1	0.9	0.0	0.0	0.0	4,975.0	0.0	0.0	0.0
Eas-2	2.00	2.04	\$287,100.00	1	0.0	2.0	0.0	0.0	0.0	287,100.0	0.0	0.0
Eas-3A & I	2.00	0.03	\$515,000.00	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	515,000.0
Eas-3C, E	2.00	1.44	\$1,317,375.00	1	0.0	1.4	0.0	0.0	0.0	1,317,375.0	0.0	0.0
Eas-4	1.00	0.63	\$1,630.00	2	0.0	0.0	0.6	0.0	0.0	0.0	1,630.0	0.0
Eas-5	1.00	0.94	\$2,975.00	2	0.0	0.0	0.9	0.0	0.0	0.0	2,975.0	0.0
Eas-6	2.00	1.09	\$569,200.00	2	0.0	0.0	1.0	1.1	0.0	0.0	0.0	569,200.0
Eas-7	1.00	1.93	\$4,055.00	2	0.0	0.0	1.9	0.0	0.0	0.0	4,055.0	0.0
Eas-8	2.00	2.16	\$362,500.00	1	0.0	2.2	0.0	0.0	0.0	362,500.0	0.0	0.0
Eas-9F	2.00	0.03	\$170,000.00	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	170,000.0
null	0.00	0.00	\$0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eas, 9A, E	2.00	2.97	\$478,470.00	1	0.0	3.0	0.0	0.0	0.0	478,470.0	0.0	0.0
Eas-10	2.00	1.23	\$222,800.00	1	0.0	1.2	0.0	0.0	0.0	222,800.0	0.0	0.0
Eas-11	2.00	3.14	\$6,760.00	1	0.0	3.1	0.0	0.0	0.0	6,760.0	0.0	0.0
New-1	2.00	3.17	\$15,055.00	1	0.0	3.2	0.0	0.0	0.0	15,055.0	0.0	0.0
New-2*	2.00	0.03	\$217,500.00	1	0.0	0.03	0.0	0.0	0.0	217,500.0	0.0	0.0
New-2	2.00	1.60	\$311,020.00	1	0.0	1.6	0.0	0.0	0.0	311,020.0	0.0	0.0
New-3	2.00	3.11	\$14,165.00	1	0.0	3.1	0.0	0.0	0.0	14,165.0	0.0	0.0
Aur-1	2.00	7.74	\$131,565.00	1	0.0	7.7	0.0	0.0	0.0	131,565.0	0.0	0.0
Aur-2	2.00	1.40	\$589,575.00	2	0.0	0.0	0.0	1.4	0.0	0.0	0.0	589,575.0
Ric-1	2.00	0.65	\$333,050.00	2	0.0	0.0	0.0	0.7	0.0	0.0	0.0	333,050.0
Ric-2	1.00	0.23	\$595.00	1	0.2	0.0	0.0	0.0	595.0	0.0	0.0	0.0
Ric-3	2.00	0.10	\$32,500.00	1	0.0	0.1	0.0	0.0	0.0	32,500.0	0.0	0.0
Ric-4	1.00	0.17	\$505.00	1	0.2	0.0	0.0	0.0	505.0	0.0	0.0	0.0
Ric-5	2.00	0.02	\$5,825.00	1	0.0	0.0	0.0	0.0	0.0	5,825.0	0.0	0.0
Ric-6	1.00	0.47	\$1,080.00	1	0.5	0.0	0.0	0.0	1,080.0	0.0	0.0	0.0
Ric-7	2.00	1.18	\$558,075.00	1	0.0	1.2	0.0	0.0	0.0	558,075.0	0.0	0.0
Ric-8	1.00	0.02	\$25,000.00	1	0.0	0.0	0.0	0.0	25,000.0	0.0	0.0	0.0
Ric-9	2.00	3.55	\$565,550.00	1	0.0	3.6	0.0	0.0	0.0	565,550.0	0.0	0.0
Ric-10	2.00	2.28	\$1,477,731.80	1	0.0	2.3	0.0	0.0	0.0	1,477,731.8	0.0	0.0
Ric-11	2.00	0.85	\$235,100.00	2	0.0	0.0	0.0	0.9	0.0	0.0	0.0	235,100.0
Ric-12	2.00	1.65	\$413,550.00	2	0.0	0.0	0.0	1.7	0.0	0.0	0.0	413,550.0
Ric-13	2.00	0.54	\$159,550.00	1	0.0	0.5	0.0	0.0	0.0	159,550.0	0.0	0.0
Ric-14	2.00	0.33	\$16,095.00	1	0.0	0.3	0.0	0.0	0.0	16,095.0	0.0	0.0
Ric-15	2.00	2.05	\$971,375.00	1	0.0	2.1	0.0	0.0	0.0	971,375.0	0.0	0.0
Ric-16	2.00	2.04	\$787,465.00	1	0.0	2.0	0.0	0.0	0.0	787,465.0	0.0	0.0
Ric-17	2.00	2.09	\$1,311,375.00	1	0.0	2.1	0.0	0.0	0.0	1,311,375.0	0.0	0.0
Mar-1	2.00	0.56	\$205,300.00	1	0.0	0.6	0.0	0.0	0.0	205,300.0	0.0	0.0
Mar-2	2.00	0.19	\$77,125.00	1	0.0	0.2	0.0	0.0	0.0	77,125.0	0.0	0.0
Mar-3	2.00	0.18	\$74,050.00	2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	74,050.0
Mar-4	2.00	1.21	\$509,375.00	1	0.0	1.2	0.0	0.0	0.0	509,375.0	0.0	0.0
Mar-5B	2.00	0.04	\$400,000.00	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	400,000.0
Mar-5A & I	2.00	0.06	\$27,800.00	2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	27,800.0
Mar-6	2.00	0.41	\$160,775.00	1	0.0	0.4	0.0	0.0	0.0	160,775.0	0.0	0.0
Mar-7	2.00	0.10	\$690,000.00	2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	690,000.0
Mar-7B	2.00	0.13	\$289,400.00	1	0.0	0.1	0.0	0.0	0.0	289,400.0	0.0	0.0
Mar-8	2.00	0.30	\$241,100.00	1	0.0	0.3	0.0	0.0	0.0	241,100.0	0.0	0.0
Mar-9	2.00	1.11	\$152,500.00	1	0.0	1.1	0.0	0.0	0.0	152,500.0	0.0	0.0
Mar-10	1.00	0.54	\$8,810.00	1	0.5	0.0	0.0	0.0	8,810.0	0.0	0.0	0.0
OP-1	2	0.39	\$98,725.00	2	0.0	0.0	0.0	0.4	0.0	0.0	0.0	98,725.0
OP-2	1	1.77	\$4,520.00	2	0.0	0.0	1.8	0.0	0.0	0.0	4,520.0	0.0

Average Annual Maintenance Cost per KM over 20 Years

Signed Route	\$500.00
MUP	\$4,000.00

The percentage below assumes a low annual maintenance cost in the first 5 years, therefore a unit price of 50% of the typical annual maintenance cost per kilometre has been assumed.

50%
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Georgina		Phase 1		Phase 2		Total Length (km)	Estimated Annual Maintenance Cost	Estimated Maintenance Cost 0-5 Years	Estimated Maintenance Cost Over 20 Years
Facility Type	Length (km)	Estimated Capital Cost	Length (km)	Estimated Capital Cost					
Signed Route	29.74	\$320,540.00	1.77	\$4,520.00	31.51	\$15,753.53	\$39,383.83	\$275,686.80	
Multi-Use Pathway	1.58	\$283,620.00	0.39	\$98,725.00	1.97	\$7,880.00	\$19,700.00	\$137,900.00	
Bridges	0.0	\$0.00	0.12	\$243,210.00	0.12	\$477.83	\$1,194.57	\$8,361.99	
Total	31.32	\$604,160.00	2.16	\$346,455.00	33.48	\$24,111.36	\$60,278.40	\$421,948.79	

East Gwillimbury		Phase 1		Phase 2		Total Length (km)	Estimated Annual Maintenance Cost	Estimated Maintenance Cost 0-5 Years	Estimated Maintenance Cost Over 20 Years
Facility Type	Length (km)	Estimated Capital Cost	Length (km)	Estimated Capital Cost					
Signed Route	0.87	\$4,975.00	3.50	\$8,660.00	4.37	\$2,185.00	\$5,462.50	\$38,237.50	
Multi-Use Pathway	12.98	\$2,675,005.00	1.09	\$569,200.00	14.07	\$56,280.00	\$140,700.00	\$984,900.00	
Bridges	0.00	\$0.00	0.06	\$685,000.00	0.06	\$220.17	\$550.43	\$3,853.01	
Total Network	13.85	\$2,679,980.00	4.65	\$1,262,860.00	18.50	\$58,685.17	\$146,712.93	\$1,026,990.51	

Newmarket		Phase 1		Phase 2		Total Length (km)	Estimated Annual Maintenance Cost	Estimated Maintenance Cost 0-5 Years	Estimated Maintenance Cost Over 20 Years
Facility Type	Length (km)	Estimated Capital Cost	Length (km)	Estimated Capital Cost					
Signed Route	0.00	\$0.00	0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00	
Multi-Use Pathway	7.88	\$340,240.00	0.00	\$0.00	7.88	\$31,520.00	\$78,800.00	\$551,600.00	
Bridges	0.03	\$217,500.00	0.00	\$0.00	0.03	\$120.00	\$300.00	\$2,100.00	
Total Network	7.91	\$557,740.00	0.00	\$0.00	7.91	\$31,640.00	\$79,100.00	\$553,700.00	

Aurora		Phase 1		Phase 2		Total Length (km)	Estimated Annual Maintenance Cost	Estimated Maintenance Cost 0-5 Years	Estimated Maintenance Cost Over 20 Years
Facility Type	Length (km)	Estimated Capital Cost	Length (km)	Estimated Capital Cost					
Signed Route	0.00	\$0.00	0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00	
Multi-Use Pathway	7.74	\$131,565.00	1.40	\$589,575.00	9.14	\$36,560.00	\$91,400.00	\$639,800.00	
Total Network	7.74	\$131,565.00	1.40	\$589,575.00	9.14	\$36,560.00	\$91,400.00	\$639,800.00	

Richmond Hill		Phase 1		Phase 2		Total Length (km)	Estimated Annual Maintenance Cost	Estimated Maintenance Cost 0-5 Years	Estimated Maintenance Cost Over 20 Years
Facility Type	Length (km)	Estimated Capital Cost	Length (km)	Estimated Capital Cost					
Signed Route	0.89	\$27,180.00	0.00	\$0.00	\$0.89	\$445.00	\$1,112.50	\$7,787.50	
Multi-Use Pathway	14.18	\$5,885,541.80	3.15	\$981,700.00	\$17.33	\$69,320.00	\$173,300.00	\$1,213,100.00	
Total Network	15.07	\$5,912,721.80	3.15	\$981,700.00	\$18.22	\$69,765.00	\$174,412.50	\$1,220,887.50	

Markham		Phase 1		Phase 2		Total Length (km)	Estimated Annual Maintenance Cost	Estimated Maintenance Cost 0-5 Years	Estimated Maintenance Cost Over 20 Years
Facility Type	Length (km)	Estimated Capital Cost	Length (km)	Estimated Capital Cost					
Signed Route	0.54	\$8,810.00	0.00	\$0.00	0.54	\$270.00	\$675.00	\$4,725.00	
Multi-Use Pathway	3.91	\$1,635,575.00	0.06	\$27,800.00	3.97	\$15,880.00	\$39,700.00	\$277,900.00	
Bridges	0.00	\$0.00	0.32	\$1,164,050.00	0.32	\$1,280.00	\$3,200.00	\$22,400.00	
Total Network	4.45	\$1,644,385.00	0.38	\$1,191,850.00	4.83	\$17,430.00	\$43,575.00	\$305,025.00	

Total capital cost excludes engineering and contingency costs  
\$15,902,991.80

Notes:

- The estimated maintenance cost over 20 years may be conservative as the first 5 years require minimal maintenance.
- Standard maintenance does not include upgrades/ refurbishing of bridges.
- Maintenance is tied to the jurisdiction the segments are located in. In this case, Local Municipality and conservation authorities are responsible for the maintenance of Lake to Lake Route segments. York Region is not responsible for the cost of maintaining the Lake to Lake Route.
- Typical maintenance of MUPs include trail drainage, storm channel and culvert maintenance, grading and minor topping up of trail surfaces, minor pothole repair, sweeping and clearing of debris, trash removal, mowing of clear zones, minor surface repairs and repairs to trail fixtures / furnishings.
- The annual maintenance cost of Signed Routes is primarily for sign / pole maintenance and replacement. These costs do not include sweeping / snow removal, clearing of debris and other general maintenance as this is part of the Region's regular on-going road maintenance.
- Maintenance costs are based on an average annual maintenance cost and may vary year to year.

## Route Summary Tab

Network Length (km) by Facility Type, Phase and Municipality													
Municipality	Georgina		East Gwillimbury		Newmarket		Aurora		Richmond Hill		Markham		Total
Facility Type	Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2	
Signed Route	29.74	1.77	0.87	3.50	0.00	0.00	0.00	0.00	0.89	0.00	0.54	0.00	37.31
Multi-Use Pathway	1.58	0.39	12.98	1.09	7.88	0.00	7.74	1.40	14.18	3.15	3.91	0.06	54.36
Bridges	0.00	0.12	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.49
Total Network	31.32	2.16	13.85	4.65	7.91	0.00	7.74	1.40	15.07	3.15	4.45	0.38	92.16

## Master Costs Tab

Lake to Lake Master Cost Unit Price Source Table - Refer to "Appendix A Price Table" Tab for Version of this Table that will go in Final Report.

1	2	3	4	5
Code	Item	Unit	Cost	Assumptions / Comments
1	Signed Bike Route in Urban Area	linear KM	\$1,500.00	Price for both sides of the road, assumes one sign a minimum of every 330m / direction of travel (e.g. 6 signs / km).
2	Signed Bike Route in Rural Area	linear KM	\$1,000.00	Price for both sides of the road, assumes one sign a minimum of every 600m / direction of travel (e.g. 4 signs / km)
3	Signed Bike Route with Sharrow Lane Markings	linear KM	\$3,500.00	Price for both sides of the road, includes route signs every 330m (\$1,500/km both sides), and sharrow stencil every 75m as per Ministry Guidelines (Painted \$75 each x 26/km = \$1,950 in table) If thermoplastic type product is used assume \$250 / each x 26 = \$6,500 source Flint Trading Inc.
4	Signed Bike Route with Wide Curb Lane with Construction of a New Road	linear KM	\$60,000.00	Price for both sides of the road, assumes 0.5m to 1.0m widening on both sides of the road (3.5m to 4.0m)
5	Signed Bike Route with Wide Curb Lane with Road Reconstruction Project	linear KM	\$240,000.00	Price for both sides of the road, includes curb replacement, catch basin adjustments, lead extensions and driveway ramps
6	Signed Bike Route with Paved Shoulder in conjunction with existing road reconstruction / resurfacing	linear KM	\$55,000.00	Price for both sides of the road, 1.5m paved shoulder, assumes cycling project pays for additional granular base, asphalt and edge line (assume \$110,000 per kilometre if additional widening of granular base required)
7	Signed Bike Route with Buffered Paved Shoulder in conjunction with existing road reconstruction / resurfacing project	linear KM	\$150,000.00	Price for both sides of the road, 1.5m paved shoulder + 0.5 to 1.0m paved buffer, assumes cycling project pays for additional granular base, asphalt, edge lines and signs (buffer zone framed by white edge lines)
9	Addition of Rumble Strip to Existing Buffered Paved Shoulder (rural)	linear KM	\$3,000.00	Price for both sides
10	Granular Shoulder Sealing	linear KM	\$3,000.00	Both sides spray emulsion applied to harden the granular shoulder. This will reduce gravel on the paved portion of the shoulder and significantly reduce shoulder maintenance.
11	Conventional 1.5m-1.8m Bicycle Lanes by Adding Bike Lane Markings and Signs	linear KM	\$7,500.00	Price for both sides of the road, includes signs, stencils and edge line. Price is for conventional paint, (assumes painted lane line at \$1 / m + \$75 / symbol x 26 + \$2000 for signs)increase budget to \$20,000 /km for Thermoplastic e.g. lane line in thermo is \$5.50/m compared to \$1.00/m for paint
12	Conventional 1.5m-1.8m Bicycle Lanes through Lane Conversion from 4 lanes to 3 lanes	linear KM	\$35,000.00	Price for both sides. Includes grinding of existing pavement, markings, signs, line painting and symbols
13	Conventional 1.5m-1.8m Bicycle Lanes in Conjunction with a New Road or Road Reconstruction Project	linear KM	\$300,000.00	Price for both sides of the road, assumes 1.5m bike lanes on both sides of the roadway (1.5m x 2 sides = 3.0m). Includes catch basin leads, asphalt, signs, pavement markings sub-base only. Road project funds all other improvements
14	Conventional 1.5m-1.8m Bicycle Lanes by Retrofitting / Widening Existing Road	linear KM	\$700,000.00	Price for both sides of the road, includes the cost for excavation, adjust catch basins, lead extensions, new curbs/driveway ramps, asphalt and sub-base, pavement markings and signs.
15	Wide Bicycle Lane (2.0m - 2.5m BL) in Conjunction with New Road or Road Widening Project	linear KM	\$250,000.00	Price for both sides of the road, assumes 2.0m to 2.5m bike lanes on both sides of the roadway. Includes catch basin leads, asphalt, signs, pavement markings sub-base only
16	Buffered Bicycle Lane with Hatched Pavement Markings - Assumes New Road or Road Reconstruction/Widening already Planned	linear KM	\$350,000.00	Price for both sides of the road, assumes 1.5m bike lanes + 0.5m - 1.0m buffer zone with hatched pavement markings on both sides of the roadway. Includes catch basin leads, asphalt, signs, pavement markings sub-base only. Road project funds all other components
17	Buffered Bicycle Lane with Flex Bollards - Assumes New Road or Road Reconstruction/Widening Already Planned	linear KM	\$365,000.00	Price for both sides of the road, assumes 1.5m bike lanes + flex bollards centred in hatched buffer zone at 10m intervals. Includes catch basin leads, asphalt, signs, edge line pavement markings (both sides of buffer zone) sub-base only
18	Buffered Bicycle Lane with Pre-Cast Barrier - Assumes New road or Road Reconstruction/Widening Already Planned	linear KM	\$400,000.00	Price for both sides of the road, assumes 1.5m bike lanes + pre-cast and anchored curb delineators. Includes catch basin leads, asphalt, signs, edge line pavement markings (both sides of buffer zone) sub-base only
19	Uni-directional Cycle Tracks: Raised and Curb Separated - Retrofit Existing Roadway	linear KM	\$1,200,000.00	<b>Price varies from \$500,000 - \$1,200,000.</b> Both sides. Includes construction but excludes design and signal modifications. Form of cycle track and materials as well as related components such as bike signals, upgrade/modification of signal controllers, utility/lighting pole relocations, bike boxes etc. are project specific and will impact unit price
20	Two Way Cycle Track - Retrofit Existing Roadway	linear KM	\$800,000.00	<b>Price varies from \$500,000 - \$800,000.</b> One side. Includes construction but excludes design and signal modifications. Form of cycle track and materials as well as related components such as bike signals, upgrade/modification of signal controllers, utility/lighting pole relocations, bike boxes etc. are project specific and will impact unit price
21	Two Way Active Transportation Multi-use path within road right-of way with sidewalk on one side	linear KM	\$375,000.00	3.0m wide hard surface pathway (asphalt) within road right of way one side of road and 1.5m concrete sidewalk on opposite side (no utility relocations)
22	Two Way Active Transportation Multi-use path within road right-of-way	linear KM	\$275,000.00	3.0m wide hard surface pathway (asphalt) within road right of way (no utility relocations). Does not include trail lighting.
23	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	linear KM	\$320,000.00	3.0m wide hard surface pathway (asphalt) within road right of way on one side of road in place of 1.5m concrete sidewalk (includes crushing of existing sidewalk and compacting for trail base). Does not include trail lighting.
24	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	m <sup>2</sup>	\$150.00	Colour Stamped Concrete
25	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	linear KM	\$250,000.00	3.0m wide hard surface pathway (asphalt) within park setting (normal conditions) 90mm asphalt depth
26	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (Upgrade existing granular surface)	linear KM	\$100,000.00	Includes some new base work (25% approx.), half of the material excavated is removed from site. Add trail marker signs
27	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	linear KM	\$140,000.00	3.0m wide, compacted stone dust surface normal site conditions
28	Off-Road Multi-Use Trail Outside of Road Right-of-Way on Abandoned Rail Bed in a Rural Setting	linear KM	\$130,000.00	3.0m wide, compacted stone dust surface, includes signage along trail and gates at road crossings
29	Granular Surfaced Multi-use Trail in a Woodland Setting	linear KM	\$120,000.00	2.4m wide, compacted stone dust surface
30	Pedestrian Boardwalk (Light-Duty)	linear KM	\$1,500,000.00	Structure on footings, 3.0m wide with railings
31	Self weathering steel truss bridge	linear M	\$4,000.00	1.8m wide (footings/abutments additional, assume \$25,000 per side for normal site conditions)
32	Self weathering steel truss bridge	m <sup>2</sup>	\$2,500.00	<b>Price varies from \$2,000 - \$2,500.</b> Footings/ abutments additional, assume \$30,000 per side for spread footings; \$50,000 - \$90,000 per side for piles
33	Grade separated cycling/overpass of major arterial/highway	each	\$500,000.00	<b>Price varies from \$1,000,000 - \$8,000,000.</b> Requirements and design vary widely, use price as general guideline only
34	Metal stairs with hand railing and gutter to roll bicycle	vertical M	\$3,000.00	1.8m wide, galvanized steel
35	Pathway / Road transition at unsignalized intersection(crossride)	each	\$5,000.00	Typically includes warning signs, curb cuts and minimal restoration (3.0m pathway)
36	Pathway / Road transition at existing signalized intersection (crossride)	each	\$25,000.00	Typically includes installation of 4 signal heads, 2 poles, 2 foundations, 2 controller connector and 2 arms.
37	At grade mid-block crossing	each	\$5,000.00	Typically includes pavement markings on pathway, warning signs, curb cuts and minimal restoration. Does not include median refuge island.
38	Median Refuge	each	\$20,000.00	Average price for basic refuge with curbs, no pedestrian signals
39	Mid-block Pedestrian Signal	each	\$100,000.00	<b>Prices varies from \$75,000 - \$100,000.</b> Varies depending on number of signal heads required
40	At grade railway crossing	each	\$120,000.00	Flashing lights, motion sensing switch (C.N. estimate)
41	At grade railway crossing with gate	each	\$300,000.00	Flashing lights, motion sensing switch and automatic gate (C.N. estimate)
42	Below grade railway crossing	each	\$750,000.00	<b>Price varies from \$500,000 to \$750,000.</b> 3.0m wide, unlit culvert style approx. 10 m long for single elevated railway track
43	Multi use subway under 4 lane road	each	\$1,200,000.00	<b>Price varies from \$1,000,000 - \$3,000,000.</b> Guideline price only for basic 3.3 m wide, lit.
44	Retaining Wall	m <sup>2</sup>	\$600.00	Face metre squared
45	Lockable gate (2 per road crossing)	each	\$5,000.00	Heavy duty gates, price for one side of road (2 required per road crossing). Typically only required in rural settings or city boundary areas
46	Metal offset gates	each	\$1,200.00	"P"-style park gate
47	Removable Bollard	each	\$500-\$750	<b>Price varies from \$500 - \$700.</b> Basic style (e.g. 75mm diameter galvanized), with footing. Increase budget for decorative style bollards
48	Berming/boulders at road crossing	each	\$600.00	Price for one side of road (2 required per road crossing)
49	Granular parking lot at staging area (15 car capacity-gravel)	each	\$35,000.00	Basic granular surfaced parking area (i.e. 300mm granular B sub-base with 150mm granular A surface), with precast bumper curbs. Includes minor landscaping and site furnashings, such as garbage receptacles and bike racks.
50	Page wire fencing	linear M	\$20.00	1.5m height with peeled wood posts
51	Chain link fencing	linear M	\$100.00	Galvanized, 1.5m height
52	Regulatory and caution Signage (off-road pathway) on new metal post	each	\$250.00	<b>Price varies from \$150 - \$250.</b> 300mm x 300mm metal signboard c/w metal "u" channel post
53	Signboards for interpretive sign	each	\$800.00	<b>Price varies from \$500 - \$800.</b> Does not include graphic design. Based on a 600mm x 900mm typical size and embedded polymer material, up to 40% less for aluminum or aluminum composite panel
54	Staging area kiosk	each	\$5,000.00	<b>Price varies from \$2,000 - \$10,000.</b> Price depends on design and materials selected. Does not include design and supply of signboards
55	Signboards for staging area kiosk sign	each	\$2,000.00	<b>Price varies from \$1,500 - \$2,000.</b> Typical production cost, does not include graphic design (based on a 900mm x 1500mm typical size and embedded polymer material). Up to 40% less for aluminum or aluminum composite panel
56	Pathway directional sign	each	\$750.00	<b>Price varies from \$500 - \$750.</b> Bollard / post (100mm x100mm marker), with graphics on all 4 sides
57	Pathway marker sign (Single sign on new post)	each	\$250.00	Bollard / post (100mm x100mm marker), graphics on one side only

## Master Costs Tab

58	Major rough grading (for multi-use pathway)	m <sup>3</sup>	\$25.00	Price varies from \$10 - \$25. Varies depending on a number of factors including site access, disposal location etc.
59	Clearing and Grubbing	m <sup>2</sup>	\$2.00	
60	Bicycle rack (Post and Ring style)	each	\$250.00	Price varies from \$150 - \$250. Holds 2 bicycles , price varies depending on manufacturer (includes installation)
61	Bicycle rack	each	\$1,200.00	Price varies from \$1,000 - \$1,200. Holds 6 bicycles, price varies depending on manufacturer (includes installation)
62	Bicycle Locker	each	\$3,000.00	Price varies depending on style and size. Does not include concrete mounting pad
63	Bench	each	\$2,000.00	Price varies from \$1,000 - \$2,000. Price varies depending on style and size. Does not include footing/concrete mounting pad
64	Safety Railings/Rubrail	linear M	\$120.00	Price varies from \$100 - \$120. 1.4m height basic post and rail style
65	Small diameter culvert	linear M	\$200.00	Price varies from \$150 - \$250. Price range applies to 400mm to 600mm diameter PVC or CSP culverts for drainage below trail
66	Pathway Lighting	linear M	\$130-\$160	Includes cabling, connection to power supply, transformers and fixtures
67	Relocation of Light / Support Pole	each	\$4,000.00	Adjustment of pole offset (distance between pole and roadway)
69	Relocation of Signal Pole / Utility Box	each	\$8,000.00	Adjustment of pole offset (distance between pole and roadway)
70	Pathway marker signs	linear KM	\$1,500.00	Price for both sides of the path, assumes one sign on average, per direction of travel every 0.5 km
71	Pathway Crossing of Private Entrance	each	\$2,000.00	Price varies from \$1,500 - \$2,000. Adjustment of existing curb cuts to accommodate 3.0m multi-use pathway
72	Upgrade existing granular surface trail to meet 3.0m wide compacted granular trail standard	linear KM	\$50,000.00	Includes some new base work (25% approx.) and an average of 20 regulatory signs per kilometre
73	Flexible Bollards	each	\$100.00	Should be placed at 10m intervals where required
74	Pavement Markings	linear M	\$1.00	
75	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Rural Setting (New)	linear KM	\$200,000.00	3.0m wide, compacted stone dust surface in complex site conditions (includes cost of clearing and grubbing)
76	Retrofit / Widen Existing Pedestrian / Trail Bridge (29m long, 3m clear width)	m <sup>2</sup>	\$2,500.00	Price assumes modifications to existing abutments
77	Install Light Pole	linear km	\$200,000.00	Includes installation on both sides of the road at 50 metre intervals
78	Pathway marker sign (Double sided sign on existing post or previously proposed post)	each	\$200.00	Double sided sign on existing post (includes installation of signs)
79	Pathway marker sign (Single sign on existing post or previously proposed post)	each	\$125.00	Single sign on existing post (includes installation of sign)
80	Pathway marker sign (Double sided sign on new post)	each	\$300.00	Double sided sign on new post (includes installation of post and signs)
81	Unit Pavers	m <sup>2</sup>	\$80-\$120	Includes base. Price range reflects different paver styles.

## Route Data Tab

FID	Shape *	Id	on_off	Status	FacType	Priority	Phasing	Treatment	SegID	Length	Length_DB
184	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph	Aur-1A	41	0.041
294	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph	Aur-1A	79	0.079
309	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph	Aur-1A	61	0.061
293	Polyline	0.00			Trail Connection	Primary			Aur-1T	154	0.154
182	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Crossride	Aur-1X	28	0.028
183	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Crossride	Aur-1X	28	0.028
185	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Crossride	Aur-1X	32	0.032
187	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExCross	Aur-1Y	18	0.017
189	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExCross	Aur-1Y	9	0.009
100	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Aur-1Z	578	0.578
102	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Aur-1Z	608	0.608
103	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Aur-1Z	2,545	2.545
104	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Aur-1Z	2,801	2.801
105	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Aur-1Z	402	0.402
181	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Aur-1Z	34	0.034
186	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Aur-1Z	192	0.192
188	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Aur-1Z	276	0.276
42	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	3.0AsphKS	Aur-2A	912	0.912
265	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	3.0AsphKS	Aur-2A	249	0.249
295	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	3.0AsphKS	Aur-2A	219	0.191
308	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	3.0AsphKS	Aur-2A	57	0.000
266	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	Crossride	Aur-2X	28	0.028
296	Polyline	0.00			Multi-Use Path	Primary	LT	Crossride	Aur-2X	17	0.017
250	Polyline	0.00	On	Solid	Signed Route	Primary	ST	Eas-1	Eas-1	865	0.865
22	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph	Eas-10	648	0.648
112	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph	Eas-10	314	0.314
246	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph	Eas-10	267	0.267
314	Polyline	0.00			Trail Connection	Primary			Eas-11T	74	0.074
237	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExCross	Eas-11Y	7	0.007
14	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Eas-11Z	1,090	1.090
110	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Eas-11Z	1,879	1.879
111	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Eas-11Z	157	0.157
52	Polyline	0.00	On	Solid	Multi-Use Path	Primary	ST	3.0Asph	Eas-2	2,038	2.038
319	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	ModDes	Eas-3A	25	0.025
320	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	ModDes	Eas-3B	24	0.024
118	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	ModDes	Eas-3C	782	0.782
160	Polyline	0.00	On	Solid	Multi-Use Path	Primary	ST	3.0Asph	Eas-3D	634	0.634
251	Polyline	0.00	On	Solid	Signed Route	Primary	ST	Eas-4	Eas-4	628	0.628
161	Polyline	0.00	On	Solid	Signed Route	Primary	LT	Eas-5	Eas-5	938	0.938
115	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	3.0Asph	Eas-6	1,047	1.047
252	Polyline	0.00	On	Solid	Multi-Use Path	Primary	LT	3.0Asph	Eas-6	41	0.041
49	Polyline	0.00	On	Solid	Signed Route	Primary	LT	Eas-7	Eas-7	1,923	1.923
26	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph	Eas-8	873	0.873
67	Polyline	0.00	On	Dashed	Multi-Use Path	Primary	ST	3.0Asph	Eas-8	780	0.780
114	Polyline	0.00	Off	Dashed	Multi-Use Path	Primary	ST	3.0Asph	Eas-8	114	0.114
164	Polyline	0.00	On	Dashed	Multi-Use Path	Primary	ST	3.0Asph	Eas-8	387	0.387
66	Polyline	0.00	On	Dashed	Signed Route	Primary	ST	Eas-9A	Eas-9A	114	0.114
254	Polyline	0.00		Solid	Signed Route	Primary	ST	Eas-9A	Eas-9A	63	0.063
24	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph	Eas-9B	996	0.996
25	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph	Eas-9B	306	0.306
68	Polyline	0.00	On	Solid	Signed Route	Primary	ST	Eas-9C	Eas-9C	294	0.294
23	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph	Eas-9D	1,059	1.059
240	Polyline	0.00			Multi-Use Path	Primary	ST	3.0Asph	Eas-9E	71	0.071
241	Polyline	0.00			Multi-Use Path	Primary	LT	ModDes	Eas-9F	25	0.025
239	Polyline	0.00			Multi-Use Path	Primary	ST	3.0Asph	Eas-9G	49	0.049
238	Polyline	0.00			Multi-Use Path	Primary	ST	Crossride	Eas-9X	13	0.013
73	Polyline	0.00	On	Solid	Signed Route	Primary	ST	Geo-1	Geo-1	2,966	2.966
281	Polyline	0.00			Multi-Use Path	Primary	ST	Crossride	Geo-10X	7	0.007
283	Polyline	0.00			Multi-Use Path	Primary	ST	Crossride	Geo-10X	9	0.009
285	Polyline	0.00			Multi-Use Path	Primary	ST	Crossride	Geo-10X	8	0.008
287	Polyline	0.00			Multi-Use Path	Primary	ST	Crossride	Geo-10X	16	0.016
33	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Geo-10Z	190	0.190
280	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Geo-10Z	166	0.166
282	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Geo-10Z	315	0.315
284	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Geo-10Z	142	0.142
286	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Geo-10Z	111	0.111
27	Polyline	0.00	On	Solid	Signed Route	Primary	ST	Geo-11	Geo-11	3,726	3.726
74	Polyline	0.00	On	Solid	Signed Route	Primary	EX	Geo-3	Geo-3	3,171	3.171
72	Polyline	0.00	On	Solid	Signed Route	Primary	EX	Geo-4	Geo-4	8,957	8.957
75	Polyline	0.00	On	Solid	Signed Route	Primary	EX	Geo-4	Geo-4	4,620	4.620
76	Polyline	0.00	On	Solid	Signed Route	Primary	EX	Geo-5	Geo-5	1,371	1.371
37	Polyline	0.00	On	Solid	Signed Route	Primary	EX	Geo-6	Geo-6	3,325	3.325
77	Polyline	0.00	On	Solid	Signed Route	Primary	ST	Geo-7A	Geo-7A	186	0.186
78	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	ModDes	Geo-7B	59	0.059
79	Polyline	0.00	On	Solid	Signed Route	Primary	ST	Geo-7C	Geo-7C	257	0.257
80	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph	Geo-7D	18	0.018
35	Polyline	0.00	On	Solid	Signed Route	Primary	ST	Geo-7E	Geo-7E	1,106	1.106
311	Polyline	0.00			Multi-Use Path	Primary	ST	3.0Asph	Geo-8A	25	0.025
272	Polyline	0.00			Multi-Use Path	Primary	ST	Crossride	Geo-8X	13	0.013
273	Polyline	0.00			Multi-Use Path	Primary	ST	Crossride	Geo-8X	13	0.013
275	Polyline	0.00			Multi-Use Path	Primary	ST	Crossride	Geo-8X	9	0.009
277	Polyline	0.00			Multi-Use Path	Primary	ST	Crossride	Geo-8X	11	0.011
313	Polyline	0.00			Multi-Use Path	Primary	ST	Crossride	Geo-8X	16	0.016
270	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Geo-8Z	103	0.103
271	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Geo-8Z	112	0.112
274	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Geo-8Z	56	0.056
276	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Geo-8Z	98	0.098
278	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Geo-8Z	55	0.055
312	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	ExAsph	Geo-8Z	100	0.100

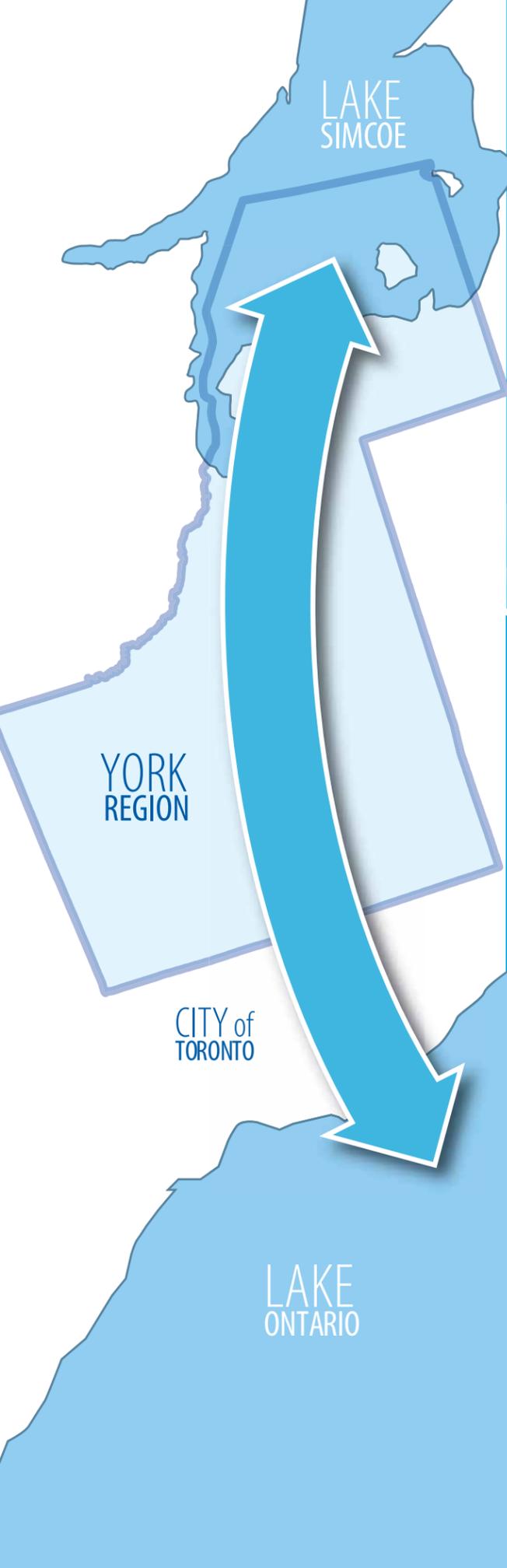
## Route Data Tab

279	Polyline	0.00			Multi-Use Path	Primary	ST	Geo-9	57	0.057
0	Polyline	0.00	On	Solid	Signed Route	Primary	EX	Mar-10	539	0.539
213	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-1A	132	0.132
214	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-1B	55	0.055
302	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-1B	68	0.068
121	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-1C	251	0.251
215	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-1X	19	0.019
216	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-1X	28	0.028
120	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-2A	137	0.137
217	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-2X	33	0.033
218	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-2X	14	0.014
86	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-3A	160	0.160
230	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-3A	12	0.012
219	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-4A	298	0.298
221	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-4A	182	0.182
4	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-4B	489	0.489
318	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-4B	172	0.172
220	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-4X	24	0.024
222	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-4X	20	0.020
224	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-4X	23	0.023
82	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-5C	35	0.03
83	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-6A	243	0.243
85	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-6A	124	0.124
223	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-6X	20	0.020
225	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-6X	18	0.018
84	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-7A	92	0.092
40	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-7B	124	0.124
226	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-7X	30	0.030
317	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-8A	64	0.064
2	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-8B	166	0.166
303	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-8B	31	0.031
227	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Mar-8X	31	0.031
1	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	Mar-9Z	1,106	1.106
168	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-1Y	17	0.017
108	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-1Z	129	0.125
109	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-1Z	3,025	3.025
177	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	New-2A	190	0.494
172	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-2R	303	0.303
178	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-2R	328	0.328
289	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-2R	73	0.073
290	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-2R	39	0.030
315	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-2R	29	0.029
316	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-2B	0	0.000
291	Polyline	0.00	Off	Solid	Multi-Use Path	Secondary	EX	New-2R	160	0.160
169	Polyline	0.00	Off	Solid	Trail Connection	Primary	ST	New-2T	19	0.019
321	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-2X	343	0.343
292	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-2Z	149	0.149
106	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-3T	139	0.139
107	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	New-3Z	2,969	2.969
260	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	New-3Z	153	0.153
267	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-10A	91	0.091
48	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-10B	726	0.726
194	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-10B	354	0.354
196	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-10B	462	0.462
197	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-10B	371	0.371
192	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-10X	37	0.037
195	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-10X	21	0.021
198	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-10X	26	0.026
199	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-10X	20	0.020
300	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-10X	17	0.017
92	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	Ric-11	848	0.848
91	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	Ric-12	1,642	1.642
90	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-13A	263	0.263
154	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-13A	243	0.243
153	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-13X	26	0.026
127	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-14A	25	0.025
89	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	Ric-14Z	299	0.299
305	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-15A	67	0.067
47	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-15B	442	0.442
234	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-15C	23	0.023
129	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-15D	395	0.395
235	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-15E	18	0.018
45	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-15F	665	0.665
132	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-15G	64	0.064
131	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-15H	171	0.171
133	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-15I	124	0.124
126	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-15X	36	0.036
128	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-15X	21	0.021
130	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-15X	23	0.023
136	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-16A	19	0.019
135	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-16B	149	0.149
61	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-16C	458	0.458
137	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-16C	509	0.509
139	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-16C	67	0.067
140	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-16C	372	0.372
142	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-16C	47	0.047
231	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-16C	21	0.021
236	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-16C	18	0.018
143	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-16D	299	0.299
134	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-16X	29	0.029

## Route Data Tab

138	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Crossride Ric-16X	24	0.024
141	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Crossride Ric-16X	24	0.024
123	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph Ric-17A	491	0.491
152	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0AsphKS Ric-17B	99	0.099
150	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph Ric-17C	345	0.345
208	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0AsphKS Ric-17D	105	0.105
233	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph Ric-17E	109	0.109
306	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph Ric-17E	9	0.009
301	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0AsphKS Ric-17F	63	0.063
122	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph Ric-17G	41	0.041
146	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph Ric-17G	395	0.395
148	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph Ric-17G	257	0.257
307	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph Ric-17G	14	0.014
144	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Crossride Ric-17X	33	0.033
145	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Crossride Ric-17X	38	0.038
147	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Crossride Ric-17X	29	0.029
149	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Crossride Ric-17X	25	0.025
151	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Crossride Ric-17X	29	0.029
304	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	3.0AsphKS Ric-1A	27	0.027
297	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	3.0Asph Ric-1B	228	0.228
101	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	3.0AsphKS Ric-1C	357	0.357
190	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	LT	Crossride Ric-1X	31	0.031
99	Polyline	0.00	On	Solid	Signed Route	Primary	ST	Ric-2	229	0.229
97	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-3	98	0.098
96	Polyline	0.00	On	Solid	Signed Route	Primary	ST	Ric-4	164	0.164
95	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-5	11	0.011
98	Polyline	0.00	On	Solid	Signed Route	Primary	ST	Ric-6	471	0.470
94	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Ric-7A	35	0.340
298	Polyline	0.00	On	Solid	Multi-Use Path	Primary	ST	3.0Asph Ric-7B	817	0.817
264	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	EX	Crossride Ric-7X	15	0.015
263										
191	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	Crossride Ric-8X	18	0.018
93	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph Ric-9A	3,188	3.188
261	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph Ric-9A	25	0.025
262	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0Asph Ric-9A	140	0.140
193	Polyline	0.00	Off	Solid	Multi-Use Path	Primary	ST	3.0AsphBC Ric-9B	191	0.191
299	Polyline	0.00	Off	Solid	Trail Connection	Primary	ST	Ric-9T	1,439	1.439
	Polyline	0		Solid	Multi-Use Path	Primary	LT	OP-1	0.00	0.387
	Polyline	0		Solid	Signed Route	Primary	LT	OP-2	0.00	1.767
	Polyline	0	Off	Solid	Multi-Use Path	Primary	LT	Geo-7B	59.46	0.018
	Polyline	0	Off	Solid	Multi-Use Path	Primary	LT	Geo-7B	59.46	0.031
	Polyline	0		Solid	Multi-Use Path	Primary	EX	ExCross New-1Y	0	0.014
331	Polyline	0	Off	Solid	Multi-Use Path	Primary	LT	ModDes Mar-5A	24	0.0242229
337	Polyline	0	Off	Solid	Multi-Use Path	Primary	LT	ModDes Mar-5B	32	0.032
338	Polyline	0	Off	Solid	Multi-Use Path	Primary	ST	3.0Apsh Aur-1B	29	0.0286663





## APPENDIX B

LAKE TO LAKE CYCLING  
ROUTE & WALKING TRAIL  
SIGNING



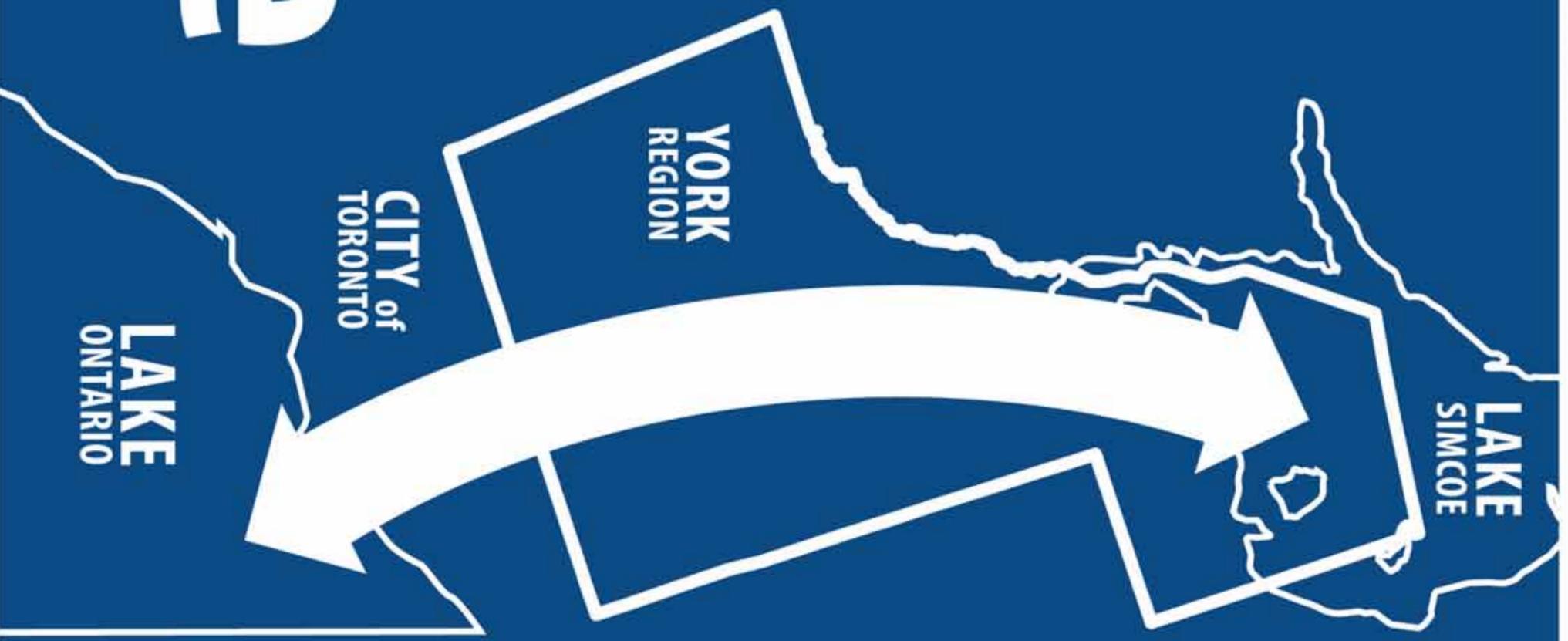
300 mm

  
*York Region*



# Lake to Lake Route

450 mm



**GEORGINA**

Blue: R-0, G-75, B-133

300 mm



300 mm

GEORGINA

Route

Lake to Lake

Blue: R-0, G-75, B-133

300 mm



# KM

To view a map of the  
Lake to Lake Route  
scan the following



# 1000

## GEORGINA

300  
mm

Blue: R-0, G-75, B-133

300 mm

  
*York Region*



**Lake to  
Lake Route**

**GEORGINA**

300  
mm

Blue: R-0, G-75, B-133

300 mm



# Lake to Lake Route

**GEORGINA**

300  
mm

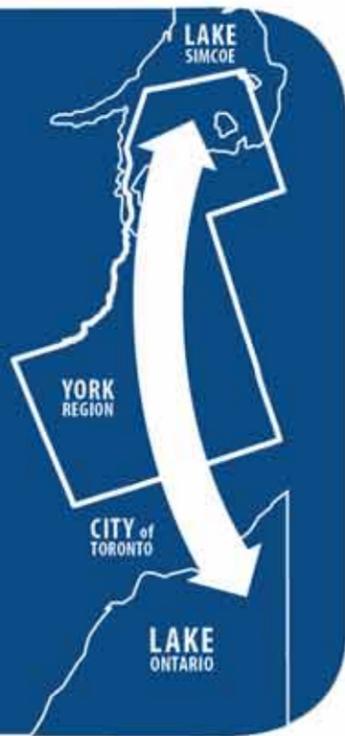
Blue: R-0, G-75, B-133

600 mm

150 mm

**1.5**

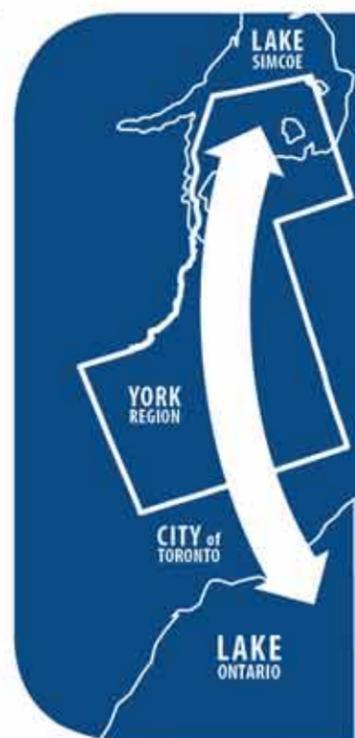
**Richmond  
Green CC**



Blue: R-0, G-75, B-133

600 mm

150 mm



**Richmond Green**  
Community Centre

**1.5 KM**

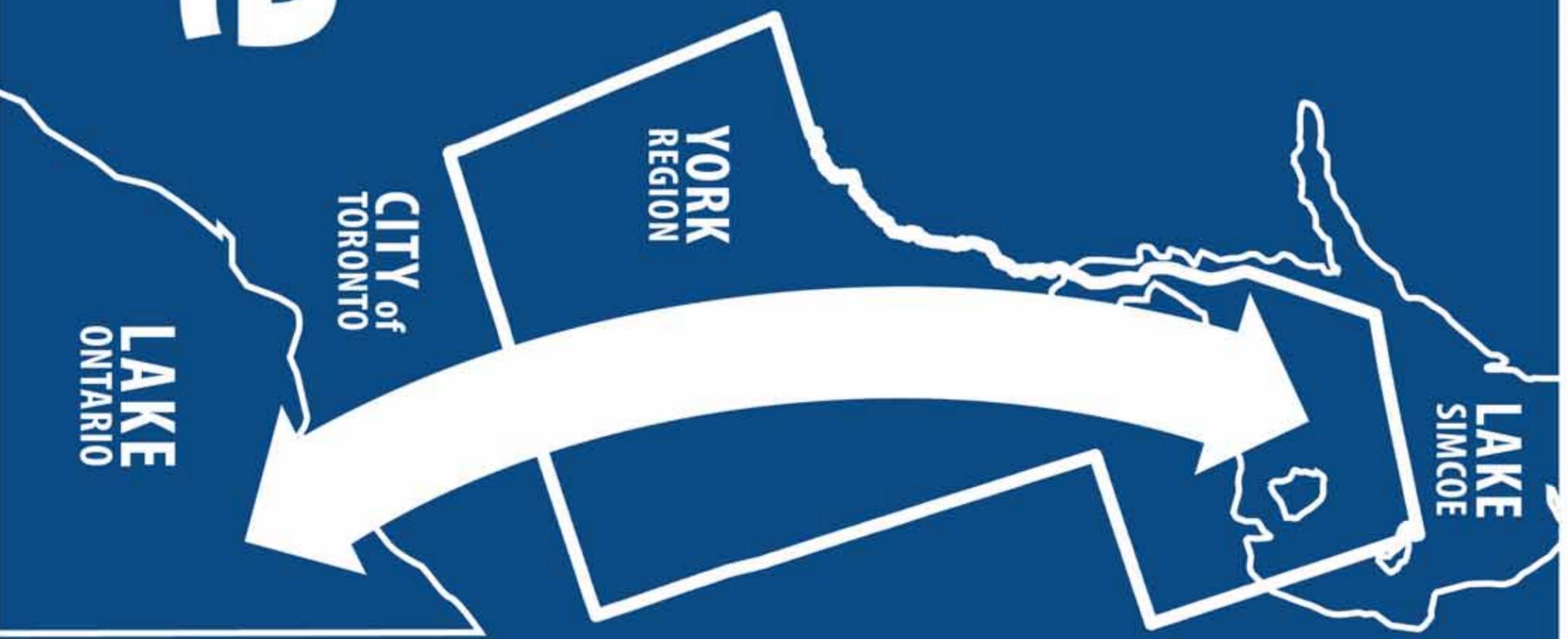


300 mm

 **TORONTO**



# to Lake Route



450 mm

Blue: R-0, G-75, B-133

300 mm



300 mm

Blue: R-0, G-75, B-133

300 mm

 **TORONTO**



# KM

To view a map of the  
Lake to Lake Route  
scan the following



# 100

300  
mm

Blue: R-0, G-75, B-133

300 mm

 **TORONTO**



**Lake to  
Lake Route**

300  
mm

Blue: R-0, G-75, B-133

300 mm

 **TORONTO**



**Lake to  
Lake Route**

300  
mm