Park Street, Glace Bay
Existing Underpass

*Gary Landry, **exp** Services Inc.*

Existing Underpass

Issues:

Limited access with steps present on both ends of the tunnel


North View


South View

Existing Underpass

Issues:

- **Walking surface subject to ice buildup during the winter.**
- **No barrier between the walking surface in the tunnel and the adjacent water flow channel.**

Existing Underpass

Issues:

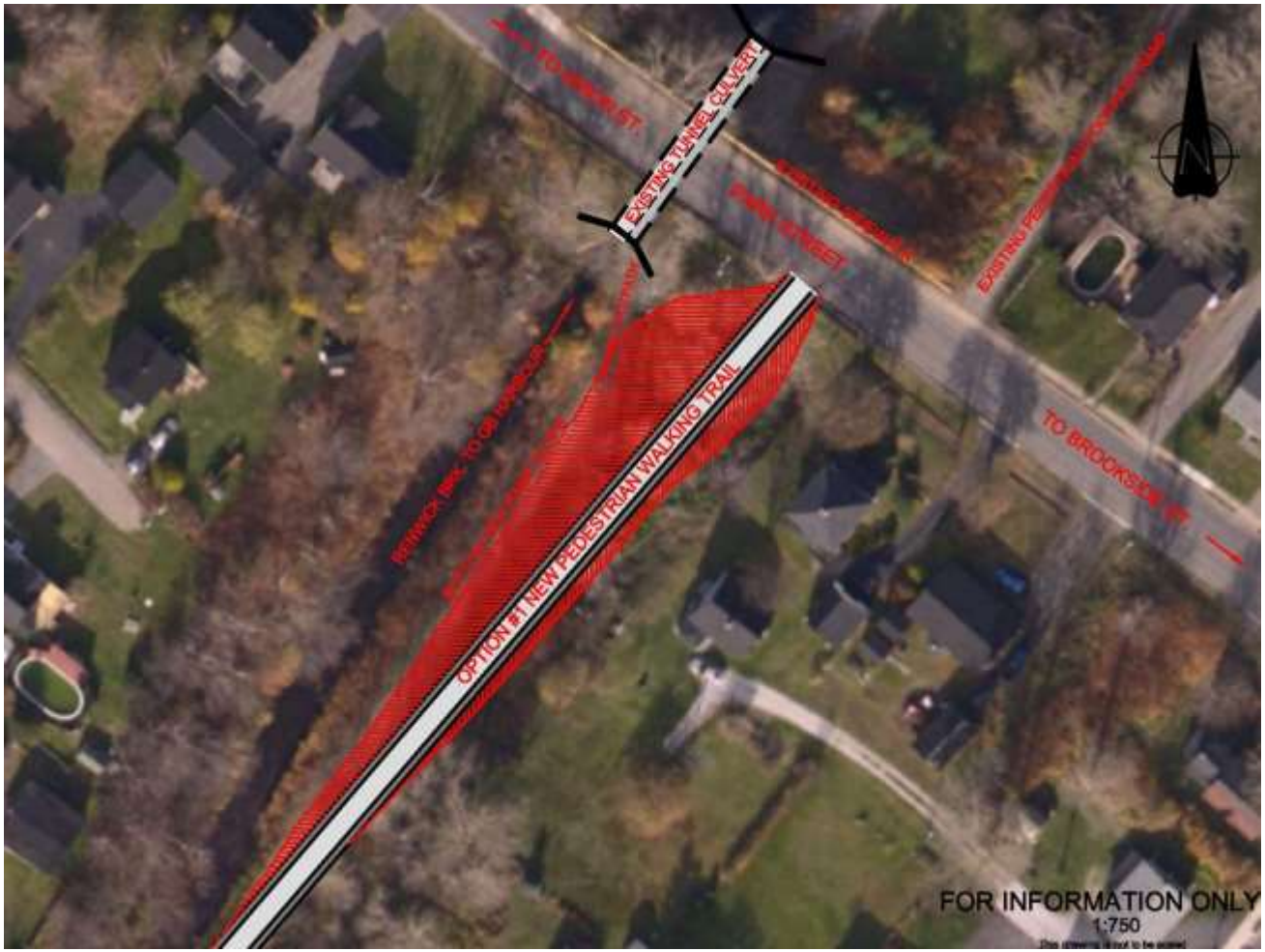
- **Walking surface often flooded during periods of high surface water runoff.**

- **No lighting.**

exp Services Inc.
was retained by the
Cape Breton Regional Municipality
to study the following
three options:

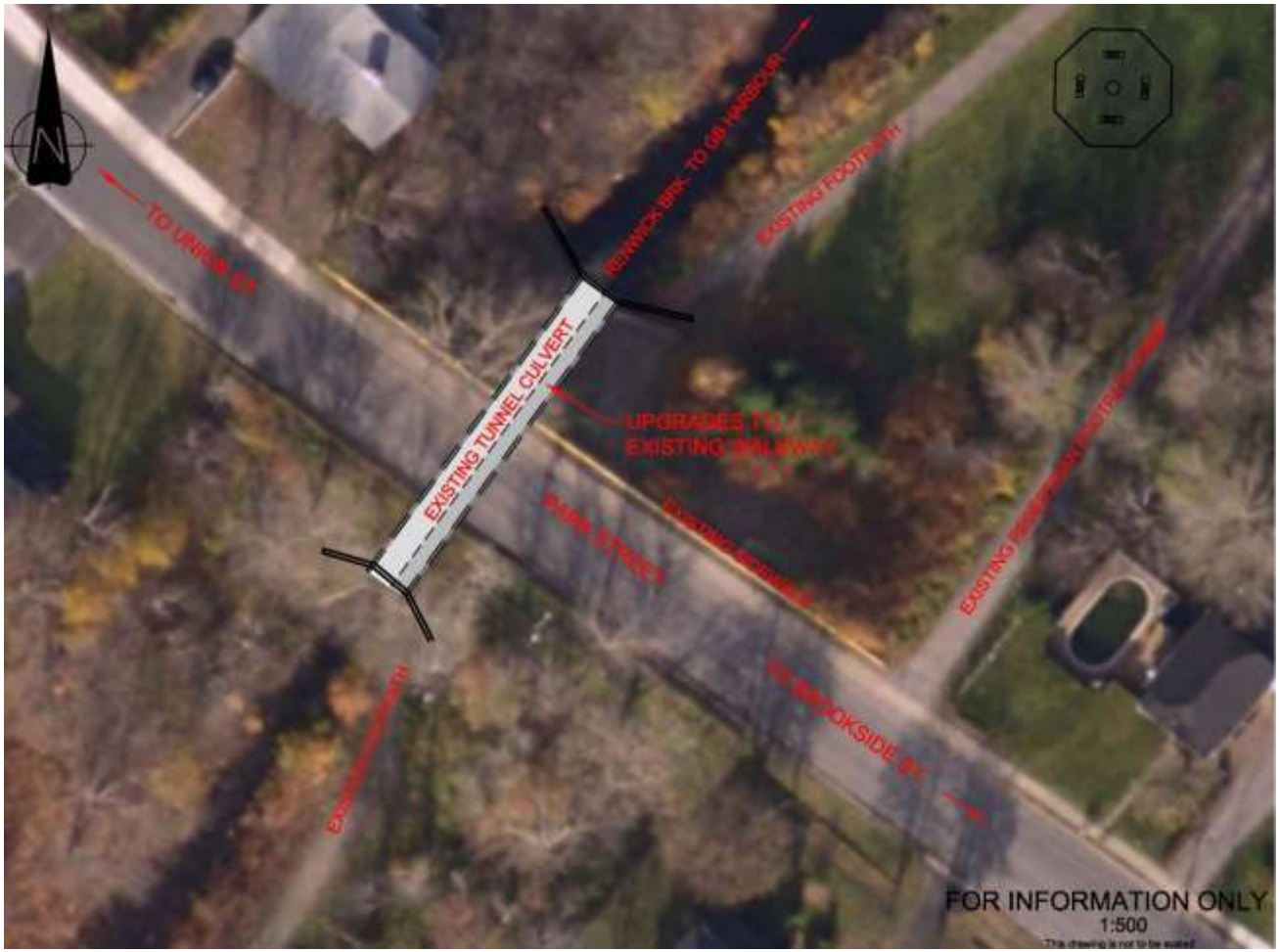
Option 1:

Construct a Wheelchair Accessible Ramp (South Side of Park Street)



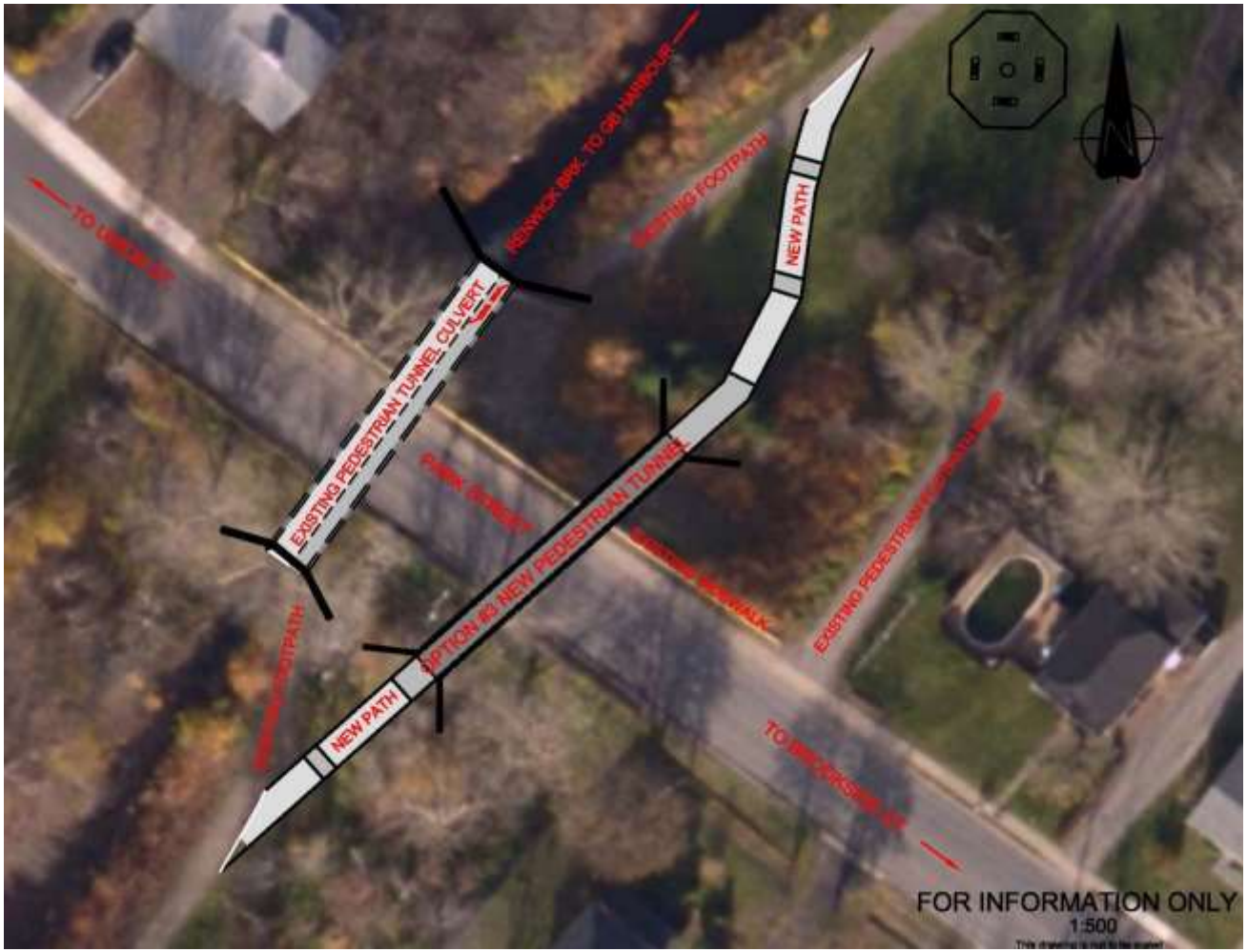
Option 2:

Perform Upgrades to the Existing Tunnel



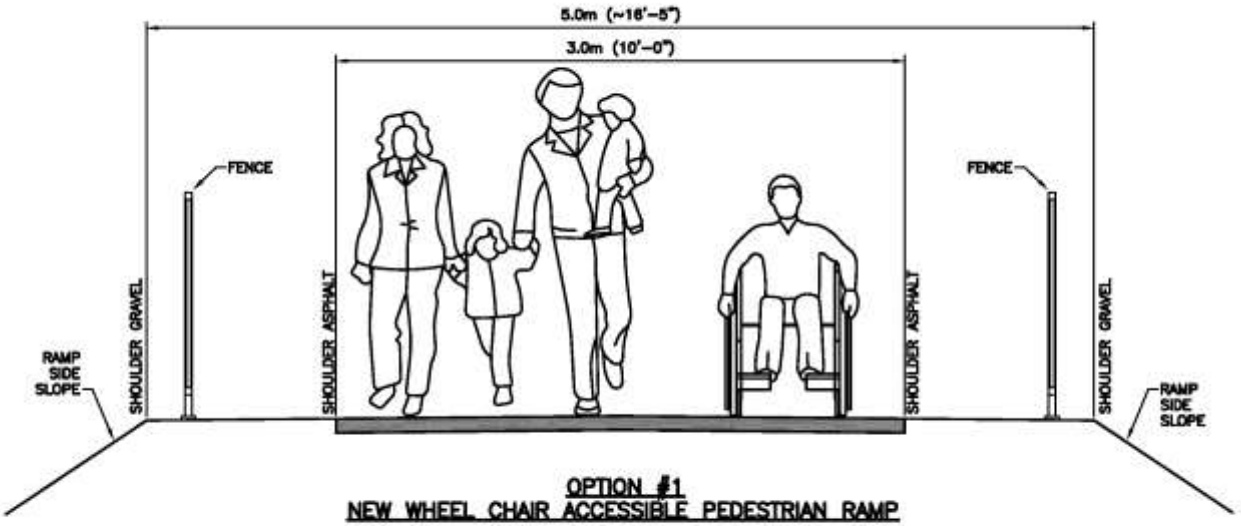
Option 3:

Construct a New Precast Culvert for Pedestrian Passage



Option 1:

Wheelchair Accessible Ramp (South Side of Park Street)



Option 1:

Wheelchair Accessible Ramp (South Side of Park Street)

Typical Cross-Section (3.0 m wide path)

Pros:

- User friendly for pedestrians, cyclists and wheelchair accessibility:
  - two cyclists can ride side-by-side;
  - a cyclist can pass two pedestrians; and
  - three pedestrians could walk side-by-side.
- Accessible all year round provided snow removed during the winter months.
- Installation of RA-5 pedestrian signal system will alert the motoring public on Park Street of public crossing.
- Improved overall width of path is 3.0 m compared to the existing walking path width of 1.321 m in the existing tunnel.

Option 1:

Wheelchair Accessible Ramp (South Side of Park Street)

Typical Cross-Section (3.0 m wide path)

Cons:

- Several property owners to be consulted with to obtain easement or partial land purchase.
- Minimal traffic disruption on Park Street for this option.
- This option brings users of the path closer to adjacent property owners.

Option 1:

Wheelchair Accessible Ramp (South Side of Park Street)

Cost Summary:

Park Street Walking Path
Option 1 - Wheelchair Accessible Ramp (South side of Park Street)

Item No.	Description	Unit of Measurement	Estimated Quantity	Estimated Unit Rate	Estimated Cost
Earthwork and Granular Material					
1	Clearing	LS	1	$1,800.00	$1,800.00
2	Grubbing	m^2	1,380	$4.00	$5,520.00
6	Common Fill (Borrow)	m^3	3,000	$10.00	$30,000.00
51	Gravels				
	.1 Type 1 Granular	tonne	190	$20.00	$3,800.00
	.2 Type 2 Granular	tonne	450	$19.00	$8,550.00
	.3 C4 Stone	tonne	80	$18.50	$1,480.00
	.3 Rip Rap (220 - 300 mm)	tonne	15	$30.00	$450.00
53	Asphalt Concrete				
	.1 Type C	tonne	70	$135.00	$9,450.00
62	Ditching Excavation	m^3	200	$13.00	$2,600.00
63	Geotextile	m^2	155	$4.00	$620.00
73	Fencing (1.2 m high)	m	180	$75.00	$13,500.00
Storm Sewer					
37	Culvert Pipe				
	.1 450 mm dia. Concrete Culvert Class 4	m	10	$300.00	$3,000.00
Landscaping					
70	Topsoil and Hydroseed	m^2	955	$7.00	$6,685.00
75	Erosion Control Blanket	m^2	955	$5.00	$4,775.00
Additional Items					
54	Concrete Curb and Gutter	m	15	$80.00	$1,200.00
55	Concrete Sidewalk	m^3	12	$80.00	$960.00
85	RA-5 Pedestrian Crosswalk	LS	1	$35,000.00	$35,000.00
86	Bollards	ea	4	$1,200.00	$4,800.00
87	Removal of Guardrail	LS	1	$1,000.00	$1,000.00
88	Closing off of Existing Tunnel	ea	2	$1,500.00	$3,000.00
90	Environmental Protection Allowance	LS	1	$2,000.00	$2,000.00
				10 % Contingency:	$14,019.00
				Subtotal:	$154,209.00
				HST (15%)	$23,131.35
				Total	$177,340.35

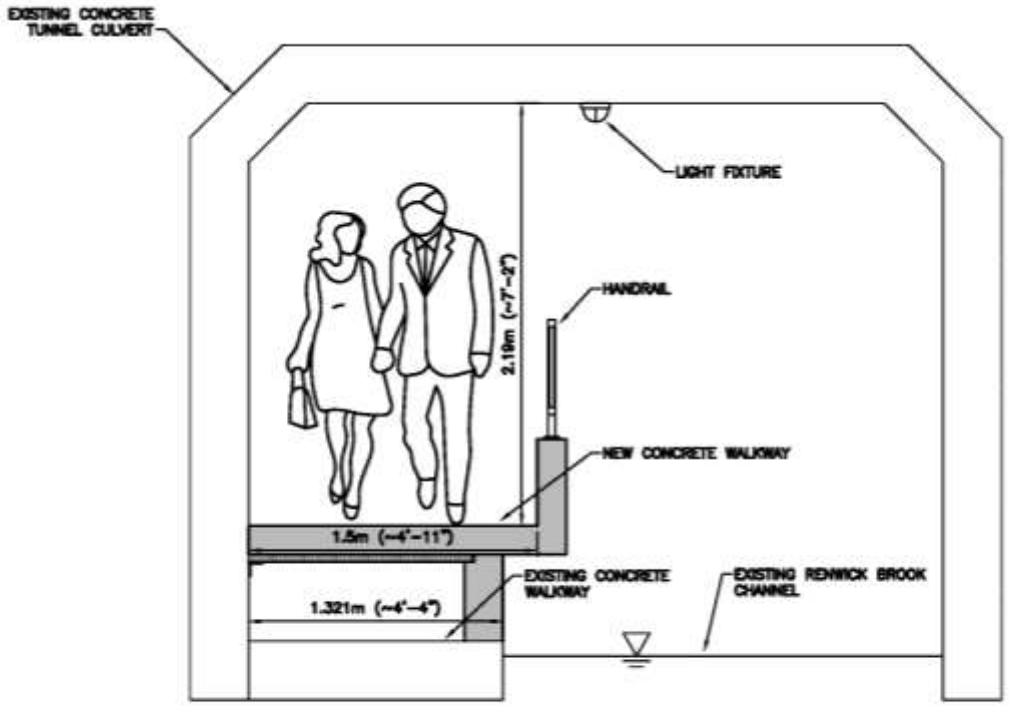
Notes:

1. There is no cost in for possible partial land purchases. The following is a breakdown of the approximate area of properties requiring purchase or easement agreements:

PID 15060601 (ECBC)	165.0 m^2
PID 15411473 (Glen Francis Sparrow)	442.5 m^2
PID 15411515 (Earl Wilson)	259.9 m^2
PID 15411523 (Earl Wilson)	762.9 m^2
PID 15411580 (Christine G. Oldford)	223.1 m^2
Total	1853.4 m^2

Option 2:

Upgrades to Existing Tunnel



OPTION #2
DETAIL SHOWING UPGRADES TO EXISTING TUNNEL WALKWAY

Option 2:

Upgrades to Existing Tunnel

Typical Cross-Section (1.5 m wide path)

Pros:

- Improved Access:
  - a cyclist can pass a pedestrian; and
  - two pedestrians can walk side-by-side.
- The risk of flooding the walking area is reduced.
- Barrier separates walking area from the water flow.
- Tunnel is illuminated.
- Least cost to improve access.

Option 2:

Upgrades to Existing Tunnel

Typical Cross-Section (1.5 m wide path)

Cons:

- Walking path width in tunnel has improved slightly, but remains below a desired minimum width of 2.5 m for comfortable lateral clearances for intended use.
- There still remains the potential for periodic flooding of the walking area in the tunnel during extended periods of rainfall, but the frequency of such events will be reduced due to the tunnel modifications.

Option 2:

Upgrades to Existing Tunnel

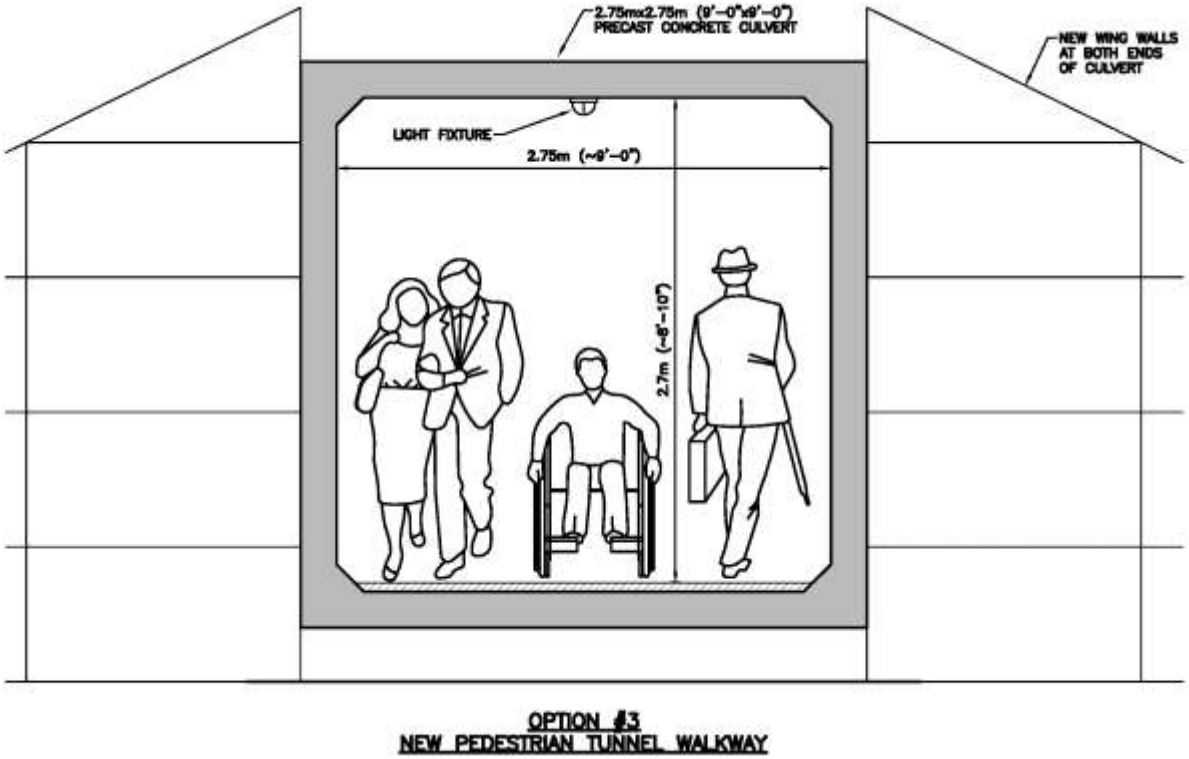
Cost Summary:

Park Street Walking Path
Option 2 - Upgrades to Existing Tunnel

Item No.	Description	Unit of Measurement	Estimated Quantity	Estimated Unit Rate	Estimated Cost
Sanitary Sewer					
27	New Catch Basin Cover	ea	2	$1,500.00	$3,000.00
28	Extend Existing Manholes	ea	2	$1,500.00	$3,000.00
Earthwork and Granular Material					
51	Gravels				
	.1 Type 1 Granular	LS	6 tonnes	$500.00	$500.00
	.2 Type 2 Granular	LS	12 tonnes	$500.00	$500.00
	.3 Rip Rap (220 - 300 mm)	LS	10 tonnes	$1,000.00	$1,000.00
Street Construction					
62	Cast-in-Place Concrete	m^3	20	$800.00	$16,000.00
63	Adhesive Anchors	ea	190	$25.00	$4,750.00
64	Concrete Repairs	LS	1	$12,000.00	$12,000.00
65	Concrete Infill	m^3	3	$300.00	$900.00
Landscaping					
70	Remove and Dispose of Steps	LS	1	$2,000.00	$2,000.00
Additional Items					
85	Steel Deck (galvanized)	m^2	55	$30.00	$1,650.00
87	Steel Angle (galvanized)	kg	270	$7.00	$1,890.00
88	Steel Handrail (galvanized)	m	40	$300.00	$12,000.00
89	Lighting	LS	1	$35,600.00	$35,600.00
90	Environmental Protection Allowance	LS	1	$2,000.00	$2,000.00
				10 % Contingency:	$9,679.00
			Subtotal:		$106,469.00
			HST (15%)		$15,970.35
			Total		$122,439.35

Option 3:

New Precast Culvert For Pedestrian Passage



Option 3:

New Precast Culvert For Pedestrian Passage

Typical Cross Section (2.7 m wide path)

Pros:

- New tunnel with a path width of 2.7 m is user friendly enabling:
  - two cyclists can ride side-by-side;
  - a cyclist can pass two pedestrians; and
  - three pedestrians could walk side-by-side.
- Improved access by avoiding the narrow existing tunnel and traffic movements on Park Street.
- No risk of flooding.
- Tunnel is illuminated.
- Minimal impact to adjacent property owners.

Option 3:

New Precast Culvert For Pedestrian Passage

Typical Cross Section (2.7 m wide path)

Cons:

- Most expensive option.
- Will result in closure of Park Street to facilitate the major excavation required to install precast culvert sections and re-route sewer system.
- Several property owners to be consulted with to obtain easements or partial land purchases.
- Re-alignment of a portion of the sanitary system is required.

Option 3:

New Precast Culvert For Pedestrian Passage

Cost Summary

Park Street Walking Path
Option 3 - New Precast Culvert for Pedestrian Passage

Item No.	Description	Unit of Measurement	Estimated Quantity	Estimated Unit Rate	Estimated Cost
Earthwork and Granular Material					
1	Clearing	LS	1	$2,000.00	$2,000.00
2	Grubbing	m^2	500	$4.00	$2,000.00
5	Mass Excavation - Unsuitable Material	m^3	2,000	$15.00	$30,000.00
51	Gravels				
	.1 Type 1 Granular	tonne	250	$20.00	$5,000.00
	.2 Type 2 Granular	tonne	460	$19.00	$8,740.00
	.3 Pit Run Granular	tonne	4,255	$18.00	$76,590.00
	.4 Rip Rap (220 - 300 mm)	tonne	220	$30.00	$6,600.00
53	Asphalt Concrete				
	.1 Type C	tonne	35	$160.00	$5,600.00
54	Curb and Gutter	m	50	$80.00	$4,000.00
55	Sidewalk	m^2	45	$80.00	$3,600.00
Water Main					
11	Support of 200 dia. Water Main	LS	1	$3,000.00	$3,000.00
Sanitary Sewer					
21	380 dia. Sanitary Pipe	m	35	$300.00	$10,500.00
23	Manhole	ea	1	$2,500.00	$2,500.00
25	Connection to Existing Manhole	ea	1	$1,000.00	$1,000.00
27	Remove 380 dia San. Pipe and Plug Manholes	LS	1	$3,000.00	$3,000.00
Storm Sewer					
31	300 dia. Storm Pipe (remove and reinstall)	m	30	$200.00	$6,000.00
Landscaping					
70	Topsoil and Hydroseed	m^2	770	$7.00	$5,390.00
73	Fencing (2.5 m high)	ea	2	$1,500.00	$3,000.00
Additional Items					
54	Precast Culvert and Seal Joints	LS	1	$155,000.00	$155,000.00
55	Precast T-Wall	LS	1	$35,000.00	$35,000.00
86	Bollards	ea	4	$1,200.00	$4,800.00
87	Removal/Reinstallation of Guardrail	LS	1	$3,000.00	$3,000.00
88	Power poles	ea	2	$1,500.00	$3,000.00
89	Lighting	LS	1	$40,600.00	$40,600.00
90	Environmental Protection Allowance	LS	1	$2,000.00	$2,000.00
				10 % Contingency:	$42,192.00
			Subtotal:		$464,112.00
			HST (15%)		$69,616.80
			Total		$533,728.80

Notes:

1. There is no cost in for possible partial land purchases. The following is a breakdown of the approximate area of properties requiring purchase or easement agreements:

PID 15060601 (ECBC)	106 m^2
PID 15411473 (Glen Francis Sparrow)	68 m^2
PID 15411440 (Muriel and Robert MacKay)	100 m^2
Total	274 m^2

Cost Comparison

Park Street Walking Path

Option 1 Wheelchair Accessible Ramp (South Side of Park Street)	Option 2 Upgrade to Existing Tunnel	Option 3 New Precast Culvert for Pedestrian Passage
$177,340.35 (includes HST)	**$122,439.35 (includes HST)**	**$533,728.80 (includes HST)**