

APPENDIX

F

Alternative Evaluation, Costing
and Scoring

TABLE F1: PRELIMINARY COST ESTIMATE FOR CONSTRUCTION WORKS FOR PROJECT #1 (HELENE AND HIGH STREET AREA)

Item #	Item	Quantity	Unit	Unit Cost	Total Cost
1	General Requirements	1	LS	\$100,000	\$100,000
2a	Existing Road Removal	13,900	m ²	\$25	\$347,500
2b	Curb and Gutter Removal	2,780	m	\$25	\$69,500
2c	Sidewalk Removal	4,170	m ²	\$25	\$104,250
2d	MH Removals	33	ea	\$2,500	\$82,500
2e	Storm Sewer Removal	1,220	m	\$100	\$122,000
3a	New 375 mm STM	15	m	\$290	\$4,350
3b	New 450 mm STM	74	m	\$298	\$22,052
3c	New 525 mm STM	373	m	\$380	\$141,740
3d	New 600 mm STM	15	m	\$502	\$7,530
3e	New 675 mm STM	222	m	\$764	\$169,608
3f	New 750 mm STM	149	m	\$1,012	\$150,788
3g	New 825 mm STM	0	m	\$1,306	\$0
3h	New 900 mm STM	58	m	\$1,408	\$81,664
3i	New 975 mm STM	0	m	\$1,618	\$0
3j	New 1050 mm STM	0	m	\$1,860	\$0
3k	New 1200 mm STM	0	m	\$2,330	\$0
3l	New 1350 mm STM	0	m	\$2,996	\$0
3m	New 1500 mm STM	134	m	\$3,660	\$490,440
3n	New 1650 mm STM	129	m	\$4,386	\$565,794
3o	New 1800 mm STM	0	m	\$5,298	\$0
4a	New 1200 mm MH	5	ea	\$6,822	\$34,110
4b	New 1500 mm MH	16	ea	\$12,880	\$206,080
4c	New 1800 mm MH	4	ea	\$17,224	\$68,896
4d	New 2400 mm MH	2	ea	\$32,322	\$64,644
4e	New 3000 mm MH	5	ea	\$52,508	\$262,540
5	Catchbasins	27	ea	\$2,500	\$67,500
6	Road Base (525 mm gran A + B)	17,514	tonne	\$25	\$437,850
7	Road Asphalt (40 mm HL3 + 80 mm HL8)	4,170	tonne	\$85	\$354,450
8a	Concrete Curb	2,780	m	\$150	\$417,000
8b	Concrete Sidewalk	4,170	m ²	\$100	\$417,000
9	150 mm Roadway Subdrains	2,780	m	\$25	\$69,500
10	Driveway Asphalt Restorations	42	ea	\$2,500	\$105,000
11	Landscaping and Restoration	1	LS	\$100,000	\$100,000
Preliminary Cost Estimate Rounded Up					\$5,070,000
Engineering and Design Fees (10%)					\$510,000
Contingency (15%)					\$770,000
Total with Design and Contingency					\$6,350,000

LIST OF ASSUMPTIONS:

- General Requirements includes mobilization/demobilization and miscellaneous costs (ESC). Estimated based on total value.
- Costing for new storm sewers premised on 2x 2022 supply cost for concrete pipe (Class 100-D) to account for installation
- MHs based on 2x 2022 supply costing, based on average depth of 2.5 m. CBs assumed uniform cost.
- No costs for new storm laterals for private residences, if required
- No costs included for removal and replacement of Region of Peel watermains or sanitary sewers**
- No costs for other utility replacements or relocations, if required

TABLE F2: PRELIMINARY COST ESTIMATE FOR CONSTRUCTION WORKS FOR PROJECT #2 (MAPLE AND PINE AVENUE AREA)

Item #	Item	Quantity	Unit	Unit Cost	Total Cost
1	General Requirements	1	LS	\$100,000	\$100,000
2a	Existing Road Removal	14,000	m ²	\$25	\$350,000
2b	Curb and Gutter Removal	2,360	m	\$25	\$59,000
2c	Sidewalk Removal	3,540	m ²	\$25	\$88,500
2d	MH Removals	25	ea	\$2,500	\$62,500
2e	Storm Sewer Removal	1,320	m	\$100	\$132,000
3a	New 375 mm STM	0	m	\$290	\$0
3b	New 450 mm STM	0	m	\$298	\$0
3c	New 525 mm STM	0	m	\$380	\$0
3d	New 600 mm STM	112	m	\$502	\$56,048
3e	New 675 mm STM	0	m	\$764	\$0
3f	New 750 mm STM	67	m	\$1,012	\$68,061
3g	New 825 mm STM	0	m	\$1,306	\$0
3h	New 900 mm STM	143	m	\$1,408	\$201,940
3i	New 975 mm STM	0	m	\$1,618	\$0
3j	New 1050 mm STM	435	m	\$1,860	\$809,597
3k	New 1200 mm STM	570	m	\$2,330	\$1,329,018
3l	New 1350 mm STM	0	m	\$2,996	\$0
3m	New 1500 mm STM	29	m	\$3,660	\$107,813
3n	New 1650 mm STM	0	m	\$4,386	\$0
3o	New 1800 mm STM	0	m	\$5,298	\$0
4a	New 1200 mm MH	1	ea	\$6,822	\$6,822
4b	New 1500 mm MH	3	ea	\$12,880	\$38,640
4c	New 1800 mm MH	10	ea	\$17,224	\$172,240
4d	New 2400 mm MH	10	ea	\$32,322	\$323,220
4e	New 3000 mm MH	1	ea	\$52,508	\$52,508
5	Catchbasins	34	ea	\$2,500	\$85,000
6	Road Base (525 mm gran A + B)	17,640	tonne	\$25	\$441,000
7	Road Asphalt (40 mm HL3 + 80 mm HL8)	4,200	tonne	\$85	\$357,000
8a	Concrete Curb	2,360	m	\$150	\$354,000
8b	Concrete Sidewalk	3,540	m ²	\$100	\$354,000
9	150 mm Roadway Subdrains	2,360	m	\$25	\$59,000
10	Driveway Asphalt Restorations	80	ea	\$2,500	\$200,000
11	Landscaping and Restoration	1	LS	\$100,000	\$100,000
Preliminary Cost Estimate Rounded Up					\$5,910,000
Engineering and Design Fees (10%)					\$600,000
Contingency (15%)					\$890,000
Total with Design and Contingency					\$7,400,000

LIST OF ASSUMPTIONS:

- General Requirements includes mobilization/demobilization and miscellaneous costs (ESC). Estimated based on total value
- Costing for new storm sewers premised on 2x 2022 supply cost for concrete pipe (Class 100-D) to account for installation
- MHs based on 2x 2022 supply costing, based on average depth of 2.5 m. CBs assumed uniform cost.
- No costs for new storm laterals for private residences, if required
- No costs included for removal and replacement of Region of Peel watermain or sanitary sewers**
- No costs for other utility replacements or relocations, if required
- Costs based on 2022 dollars and tender rates; inflation and escalation costs to be re-checked in the future.

TABLE F3: PRELIMINARY COST ESTIMATE FOR CONSTRUCTION WORKS FOR PROJECT #3 (FOREST AND ROSEWOOD AVENUE AREA)

Item #	Item	Quantity	Unit	Unit Cost	Total Cost
1	General Requirements	1	LS	\$100,000	\$100,000
2a	Existing Road Removal	14,300	m ²	\$25	\$357,500
2b	Curb and Gutter Removal	2,180	m	\$25	\$54,500
2c	Sidewalk Removal	3,270	m ²	\$25	\$81,750
2d	MH Removals	23	ea	\$2,500	\$57,500
2e	Storm Sewer Removal	1,170	m	\$100	\$117,000
3a	New 375 mm STM	0	m	\$290	\$0
3b	New 450 mm STM	0	m	\$298	\$0
3c	New 525 mm STM	0	m	\$380	\$0
3d	New 600 mm STM	91	m	\$502	\$45,809
3e	New 675 mm STM	52	m	\$764	\$39,587
3f	New 750 mm STM	44	m	\$1,012	\$44,070
3g	New 825 mm STM	0	m	\$1,306	\$0
3h	New 900 mm STM	0	m	\$1,408	\$0
3i	New 975 mm STM	0	m	\$1,618	\$0
3j	New 1050 mm STM	312	m	\$1,860	\$580,011
3k	New 1200 mm STM	107	m	\$2,330	\$249,967
3l	New 1350 mm STM	0	m	\$2,996	\$0
3m	New 1500 mm STM	312	m	\$3,660	\$1,141,466
3n	New 1650 mm STM	0	m	\$4,386	\$0
3o	New 1800 mm STM	206	m	\$5,298	\$1,091,330
4a	New 1200 mm MH	0	ea	\$6,822	\$0
4b	New 1500 mm MH	1	ea	\$12,880	\$12,880
4c	New 1800 mm MH	5	ea	\$17,224	\$86,120
4d	New 2400 mm MH	6	ea	\$32,322	\$193,932
4e	New 3000 mm MH	4	ea	\$52,508	\$210,032
5	Catchbasins	48	ea	\$2,500	\$120,000
6	Road Base (525 mm gran A + B)	18,018	tonne	\$25	\$450,450
7	Road Asphalt (40 mm HL3 + 80 mm HL8)	4,290	tonne	\$85	\$364,650
8a	Concrete Curb	2,180	m	\$150	\$327,000
8b	Concrete Sidewalk	3,270	m ²	\$100	\$327,000
9	150 mm Roadway Subdrains	2,180	m	\$25	\$54,500
10	Driveway Asphalt Restorations	31	ea	\$2,500	\$77,500
11	Landscaping and Restoration	1	LS	\$100,000	\$100,000
Preliminary Cost Estimate Rounded Up					\$6,290,000
Engineering and Design Fees (10%)					\$630,000
Contingency (15%)					\$950,000
Total with Design and Contingency					\$7,870,000

LIST OF ASSUMPTIONS:

- General Requirements includes mobilization/demobilization and miscellaneous costs (ESC). Estimated based on total value.
- Costing for new storm sewers premised on 2x 2022 supply cost for concrete pipe (Class 100-D) to account for installation
- MHs based on 2x 2022 supply costing, based on average depth of 2.5 m. CBs assumed uniform cost.
- No costs for new storm laterals for private residences, if required
- No costs included for removal and replacement of Region of Peel watermains or sanitary sewers**
- No costs for other utility replacements or relocations, if required
- Costs based on 2022 dollars and tender rates; inflation and escalation costs to be re-checked in the future.

TABLE F4: CRITERIA SCORING FOR MITIGATION ALTERNATIVES

EVALUATION CATEGORY	EVALUATION CRITERIA	WEIGHT	DESCRIPTION	SCORING (0 TO 10)						WEIGHTED SCORING					
				PROJECT #1		PROJECT #2		PROJECT #3		PROJECT #1		PROJECT #2		PROJECT #3	
				DO NOTHING	CONSTRUCT	DO NOTHING	CONSTRUCT	DO NOTHING	CONSTRUCT	DO NOTHING	CONSTRUCT	DO NOTHING	CONSTRUCT	DO NOTHING	CONSTRUCT
Functionality	Effectiveness	15.0%	Overall effectiveness to improve drainage system performance	0	10	0	10	0	10	0.0	1.5	0.0	1.5	0.0	1.5
	Implementation	5.0%	Complexity or ease of construction	10	4	10	6	10	4	0.5	0.2	0.5	0.3	0.5	0.2
	Maintenance	5.0%	Complexity or ease of longer-term operations and maintenance	5	7	5	7	5	7	0.3	0.4	0.3	0.4	0.3	0.4
	Utilities	5.0%	Potential effects on public and private infrastructure (utilities)	5	5	5	5	5	5	0.3	0.3	0.3	0.3	0.3	0.3
Social Environment	Public Safety	5.0%	Potential for improved public safety	0	10	0	10	0	10	0.0	0.5	0.0	0.5	0.0	0.5
	Recreational Uses	5.0%	Potential impacts to public’s use of area for recreational purposes (trails and parks)	5	5	5	3	5	5	0.3	0.3	0.3	0.2	0.3	0.3
	Private Property Impacts	5.0%	Potential impact to adjacent private properties (business and residential) or land needs for the works	5	5	5	5	5	5	0.3	0.3	0.3	0.3	0.3	0.3
	Construction Effects	5.0%	Potential impacts during construction (noise, air quality, dust, etcetera)	5	3	5	3	5	3	0.3	0.2	0.3	0.2	0.3	0.2
Economic Environment	Construction Cost	5.0%	Capital cost for construction	10	3	10	3	10	3	0.5	0.2	0.5	0.2	0.5	0.2
	Maintenance Cost	5.0%	Long-term operations and maintenance costs	5	7	5	7	5	7	0.3	0.4	0.3	0.4	0.3	0.4
Cultural Environment	Archaeological Resources	5.0%	Potential impacts on identified archaeological resources	5	5	5	5	5	5	0.3	0.3	0.3	0.3	0.3	0.3
	Heritage Resources	5.0%	Potential effects on built heritage resources and cultural heritage	5	5	5	5	5	5	0.3	0.3	0.3	0.3	0.3	0.3
Natural Environment	Terrestrial Ecosystem	5.0%	Potential effects on terrestrial ecosystem	5	5	5	5	5	5	0.3	0.3	0.3	0.3	0.3	0.3
	Aquatic Ecosystem	5.0%	Potential effects on aquatic ecosystem	5	5	5	5	5	5	0.3	0.3	0.3	0.3	0.3	0.3
Climate Change	Climate Change Mitigation	10.0%	Expected production of greenhouse gas emissions and impacts on carbon sinks	5	3	5	3	5	3	0.5	0.3	0.5	0.3	0.5	0.3
	Climate Change Adaptation	10.0%	Resilience or vulnerability to changing climatic conditions	3	8	3	8	3	8	0.3	0.8	0.3	0.8	0.3	0.8
		100.0%								4.3	6.1	4.3	6.1	4.3	6.1