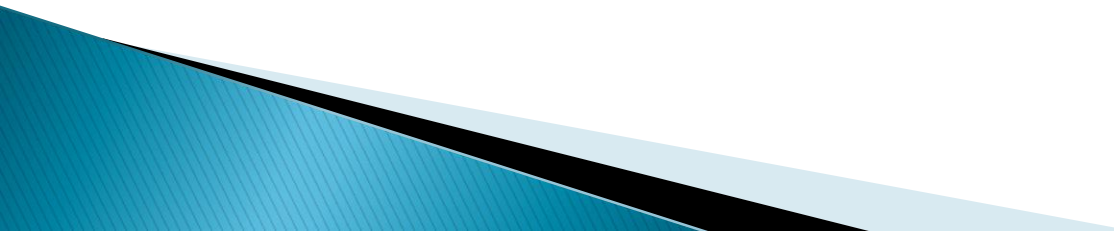


Preliminary Cost Estimate: Potable Water System for the Village of Kingston

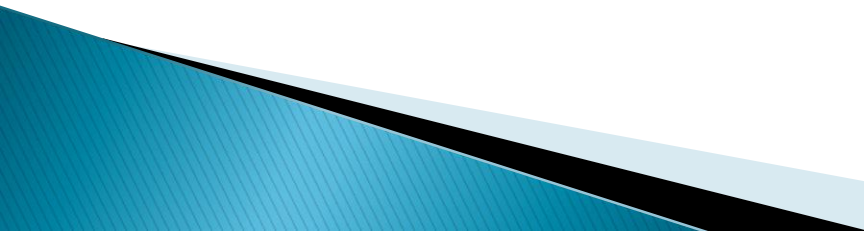
Prepared by Municipality of
the County of Kings

Disclaimer

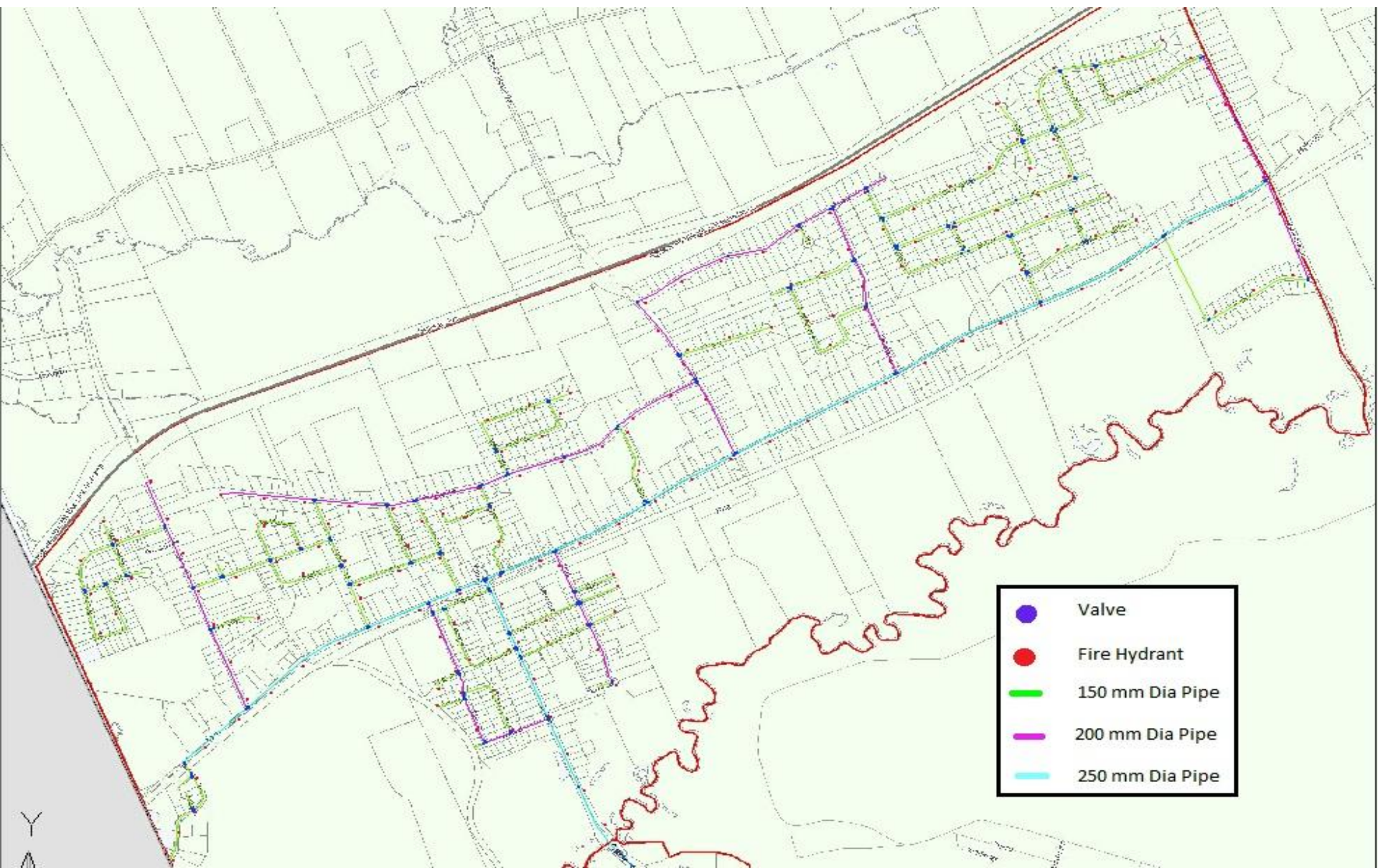
- ▶ This cost estimate is only preliminary. This estimate is simply to provide a general approximation of the costs associated with the installation of a water distribution and supply system.
 - ▶ An in-depth design/cost estimate completed by a qualified consultant is required to assess each of the feasibility of the proposed service scenarios.
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Supply Options

Three possible supply scenarios were identified:

- 1) **Connect to Greenwood System with minimal upgrades**
 - 2) **Add a secondary line from Greenwood's water towers**
 - 3) **Install an independent supply system for Kingston**
- 

Kingston Distribution System



Distribution System Cost Break Down

Item	Description	Estimate	Unit	Unit Price	Total
1	Watermain,Fittings, Installation, Environmental				
	<i>.1 150 mm PVC Pipe</i>	17015	m	\$275.00	\$4,679,195.97
	<i>.2 200 mm PVC Pipe</i>	7418	m	\$300.00	\$2,225,434.75
	<i>.3 250 mm PVC Pipe</i>	5721	m	\$325.00	\$1,859,375.00
2	Fire Hydrants	194	Ea	\$6,075.00	\$1,178,550.00
3	Valves				
	<i>.1 150 mm Gate Valve</i>	144	Ea	\$1,650.00	\$237,600.00
	<i>.2 200 mm Gate Valve</i>	67	Ea	\$2,250.00	\$150,750.00
	<i>.3 250 mm Gate Valve</i>	39	Ea	\$2,825.00	\$110,175.00
6	Service Fittings and Copper Pipe	1330	Ea	\$1,000.00	\$1,330,000.00
7	Booster Stations *	2	Ea	\$200,000.00	\$400,000.00
8	PRV *	2	Ea	\$122,325.00	\$244,650.00
9	Air Release Chambers*	5	Ea	\$7,500.00	\$37,500.00
10	Road Reinstatement				
	<i>.1 Type I Gravel</i>	15077	m3	\$13	\$196,004.43
	<i>.2 Type II Gravel</i>	19600	m3	\$12	\$235,205.32
	<i>.3 Asphalt</i>	15077	tonnes	\$125	\$1,884,657.99
				Subtotal	\$14,769,098.46
	*Estimate Assumed			25% Engineering and Contingency	\$3,692,274.61
				Total	\$18,461,373.07

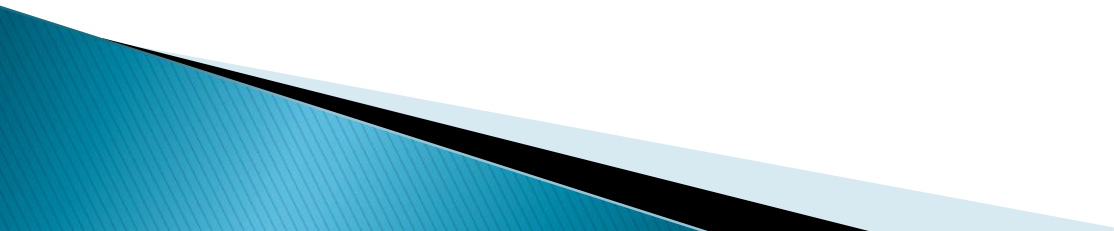
Scenario One

- ▶ To connect to the Greenwood System, *assuming it could meet demand*, the additional costs would be:

11	River Crossing With Bridge	2	Ea	\$100,000	<u>\$200,000.00</u>
12	Connection to Existing System	1	Ea	\$5,000.00	\$5,000.00

- ▶ Estimated Total Cost: **\$19,527,623.07**

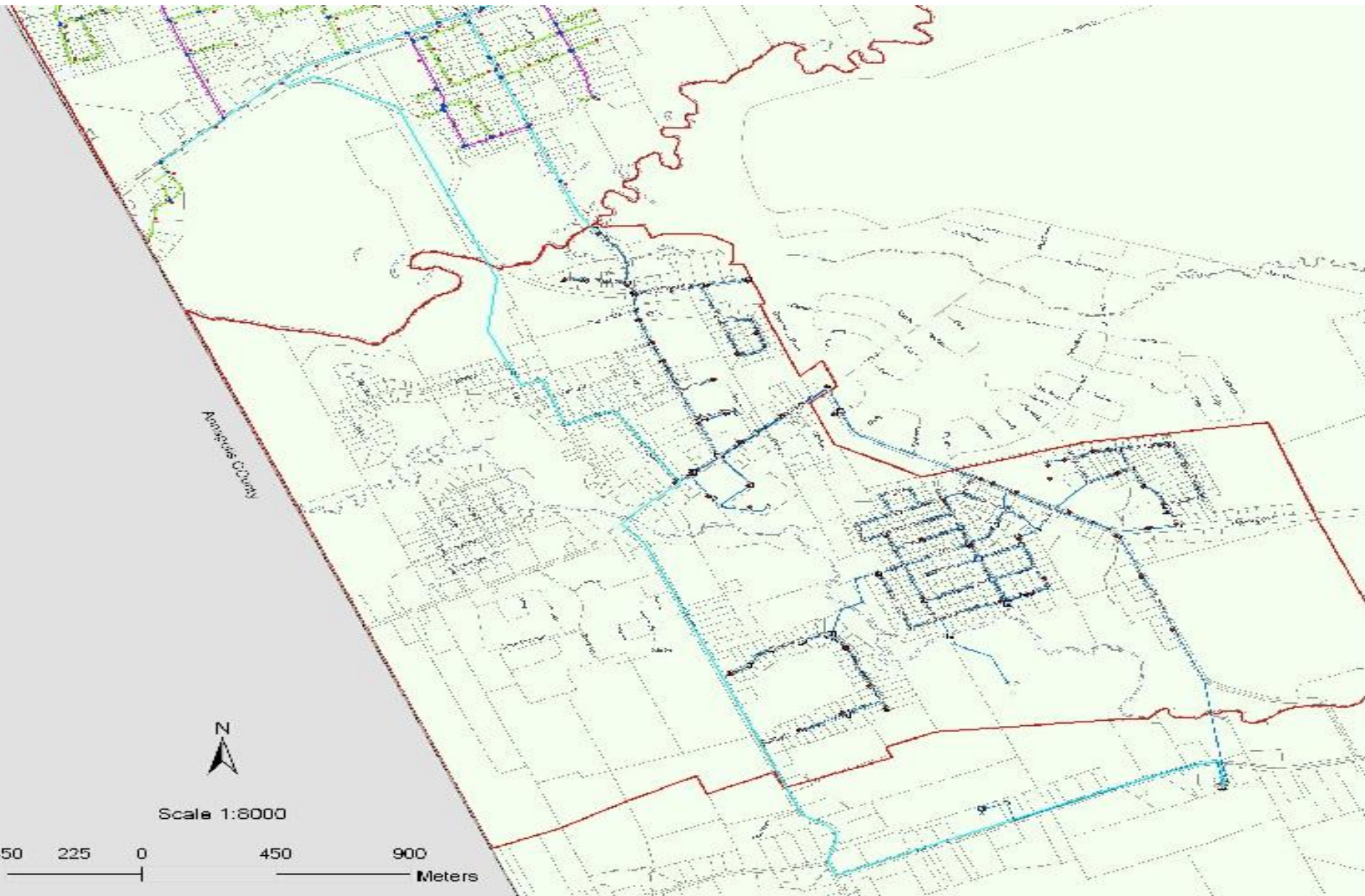
Scenario Two

- ▶ Scenario Two assumes the Greenwood System would supply Kingston, but would require upgrades to transmission system.
 - ▶ Assumes only minimal upgrades to Greenwood production and treatment systems
- 

Scenario Two

- ▶ Two routes for a secondary line from the Greenwood Water Towers were identified:
 - Route A routes the main west through Greenwood and under the transmission line.
 - Route B routes the main east around 14 Wing Greenwood

Route A



Route A Cost Break Down

Item	Description	Estimate	Unit	Unit Price	Total
1	Watermain,Fittings, Installation, Environmental				
	.3 250 mm PVC Pipe	6451	m	\$325.00	\$2,096,575.00
2	Valves				
	.3 250 mm Gate Valve	17	Ea	\$2,825.00	\$48,025.00
3	Connection to Existing System	1	Ea	\$5,000.00	\$5,000.00
4	Road Reinstatement				
	.1 Type I Gravel	2344	m3	\$13	\$30,472.00
	.2 Type II Gravel	3047	m3	\$12	\$36,566.40
	.3 Asphalt	2344	tonnes	\$125	\$293,000.00
5	River Crossing				
	.1 River Crossing Without Bridge	1	Ea	\$270,000	\$270,000.00
	.2 River Crossing with Bridge	3	Ea	\$100,000	\$300,000.00
				Subtotal	\$3,079,638.40
				25% Engineering and Contingency	\$769,909.60
				Total	\$3,849,548.00

Route B Cost Break Down

Item	Description	Estimate	Unit	Unit Price	Total
1	Watermain,Fittings, Installation, Environmental				
	.3 250 mm PVC Pipe	12252	m	\$325.00	\$3,981,778.70
2	Valves				
	.3 250 mm Gate Valve	31	Ea	\$2,825.00	\$87,575.00
3	Connection to Existing System	1	Ea	\$5,000.00	\$5,000.00
4	Road Reinstatement				
	.1 Type I Gravel	6086	m3	\$13	\$79,112.44
	.2 Type II Gravel	7911	m3	\$12	\$94,934.93
	.3 Asphalt	6086	tonnes	\$125	\$760,696.55
5	River Crossing With Bridge	3	Ea	\$100,000	\$300,000.00
				Subtotal	\$5,309,097.62
				25% Engineering and Contingency	\$1,327,274.40
				Total	\$6,636,372.02

Scenario Two

▶ Route A:

- Cost of Transmission Main: **\$3,849,548.00**
- Total Cost with infrastructure: **\$22,310,921.07**

▶ Route B:

- Cost of Transmission Main: **\$6,636,372.02**
- Total Cost with infrastructure: **\$25,097,745.10**

Scenario Three

- ▶ The installation of independent wells, water tower and treatment facilities in Kingston.

Item	Description	Estimate	Unit	Unit Price	Total
1	Storage Tank*	2	Ea	\$1,000,000	\$2,000,000.00
2	Treatment Facilities	1	Ea	\$500,000.00	\$500,000.00
3	Purchase Land	3	Lots	\$49,900.00	\$149,700.00
4	Clearing and Grubbing	32981	m2	\$3.13	\$103,229.21
5	Well Preparation*	3	Ea	\$100,000.00	\$300,000.00
6	Access Road	100	m	\$25.00	\$2,500.00
7	GUDI Studies*	1	L.S.	\$100,000.00	\$100,000.00
				Subtotal	\$3,155,429.21
	*Estimate Assumed			25% Engineering and Contingency	\$788,857.30
				Total	\$3,944,286.52

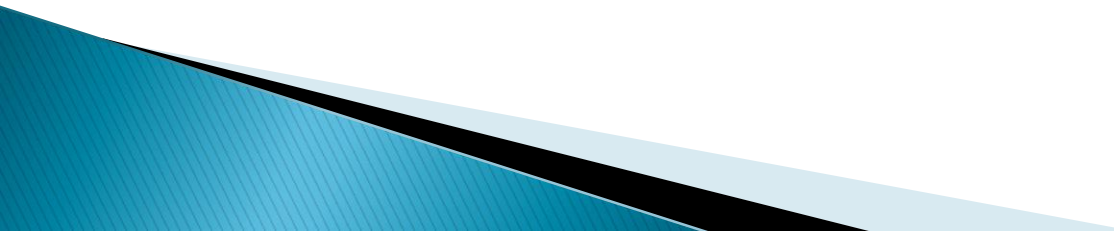
- ▶ Total cost w Distribution System: ~\$22,406,000

Summary

Scenario	Cost
One – <i>Provided Greenwood's system is adequate</i>	\$19,527,620
Two A – <i>Provided Greenwood's reservoirs and wells are adequate and land could be used</i>	\$22,310,900
Two B – <i>Provided Greenwood's reservoirs and wells are adequate</i>	\$25,098,000
Three	\$22,406,000

Additional Potential Expenses

1. Easements

- The Village may wish to acquire easements to eliminate dead ends in system on cul-de-sacs and dead end streets.
 - Looping would have greater infrastructure costs but lower maintenance costs.
 - May need easements for new transmission main
- 

Additional Potential Expenses

1. Maintenance

- Under Scenario Three, Kingston would be responsible for operation and maintenance of utility.

2. Greenwood Upgrades

- If upgrades to the Greenwood supply system were necessary, production and treatment costs shown in Scenario 3 may need to be added to Scenario Two costs.

3. HST

- HST has **not** been included in any of the cost estimates.

Summary

- ▶ Scenario One
 - Least expensive
 - Assumes that the Greenwood Utility system is adequate and treatment facilities only require minimal upgrades.
- ▶ Scenario Two
 - Route A is comparable in cost to Scenario Three
 - Route B is the most expensive.
 - Assumes that Greenwood Water Utility production and treatment facilities only require minimal upgrades.
- ▶ Scenario Three
 - Second most expensive option
 - Kingston would be independent of Greenwood.
 - Village responsible for operation/maintenance costs.

Recommendations

1. A qualified consultant should be retained to assess the viability of the scenarios presented and develop more detailed cost estimates.
 2. The scenarios were developed using the existing street network. Where practical, easements should be acquired to minimize the of “dead ends” in the system if the Village pursue this further.
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