



# Township of King 2020 Water and Wastewater Rate Study

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Council Meeting  
January 11, 2021

# Areas of Discussion

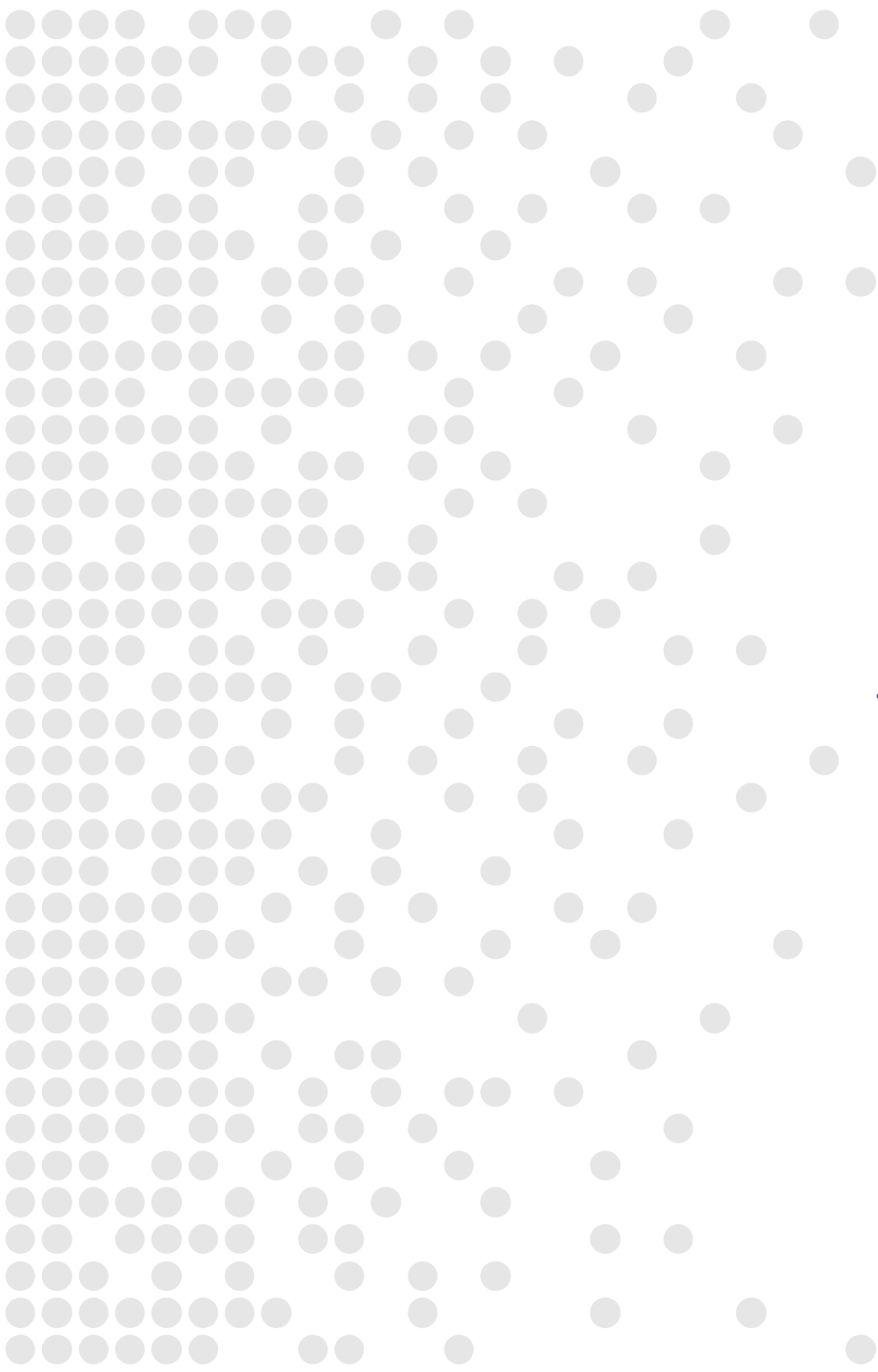


- Study Purpose
- Legislation
- Existing and Forecasted Customers and Volumes
- Capital Needs and Financing
- Lifecycle Costs (Existing Infrastructure)
- Operating Expenditures
- Rates
- Observations

# Study Purpose



- The information provided herein reflects the findings from the June 15, 2020 Water and Wastewater Rate Study undertaken for the Township of King.
- The analysis was based on assumptions established as of the early part of 2020.
- The study examined the following:
  - Identified all current and future water and wastewater system capital needs and cost recovery options
  - Estimated future operating costs over the next 10 years
  - Recommended new rates to recover the cost of the water and wastewater system.



# Legislation

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## Township of King

# Legislation Overview



Since Walkerton, new legislation has been passed by the Province to enhance the provision of services. These include the following:

- Safe Drinking Water Act
- Sustainable Water and Sewage Systems Act
- O.Reg. 453/07 - Safe Drinking Water Act
- Clean Water Act
- Water Opportunities Act

## Further Requirements:

- Municipal Infrastructure Strategy
- Infrastructure for Jobs and Prosperity Act, 2015

# Water Opportunities Act, 2010



- The Act provides for the following elements:
  - Foster innovative water, wastewater and stormwater technologies, services and practices in the private and public sectors;
  - Prepare Water Conservation Plans to attain water conservation targets to be established by regulations; and
  - Prepare Sustainability Plans for Water, Wastewater and Stormwater Services.

# Water Opportunities Act, 2010

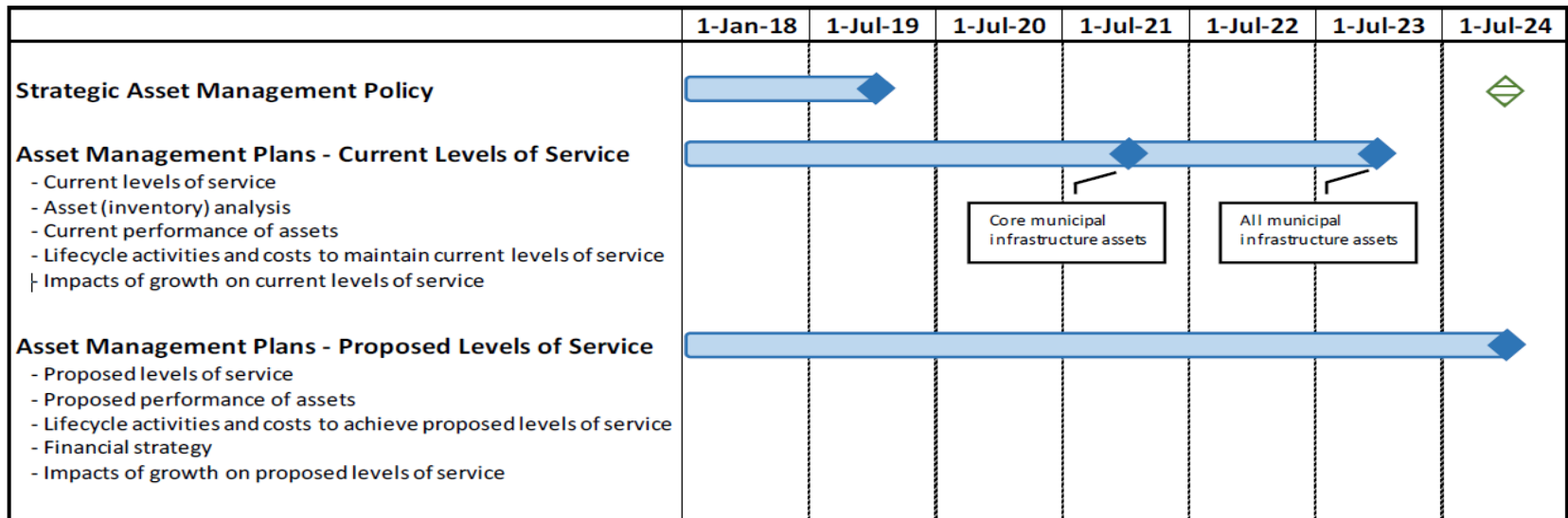


- The Financial Plan shall include:
  - An asset management plan for the physical infrastructure
  - A financial plan
  - For water, a conservation plan
  - An assessment of risks that may interfere with the future delivery of the municipal service, including, if required by the regulations, the risks posed by climate change and a plan to deal with those risks
  - Strategies for maintaining and improving the municipal service to ensure future demand can be satisfied, consider technologies to improve the service and potential increased co-operation with other municipal service providers.
- ❖ The rate study would provide inputs required to complete the Financial Plan required for licensing approval

# Infrastructure for Jobs and Prosperity Act (IJPA), 2015

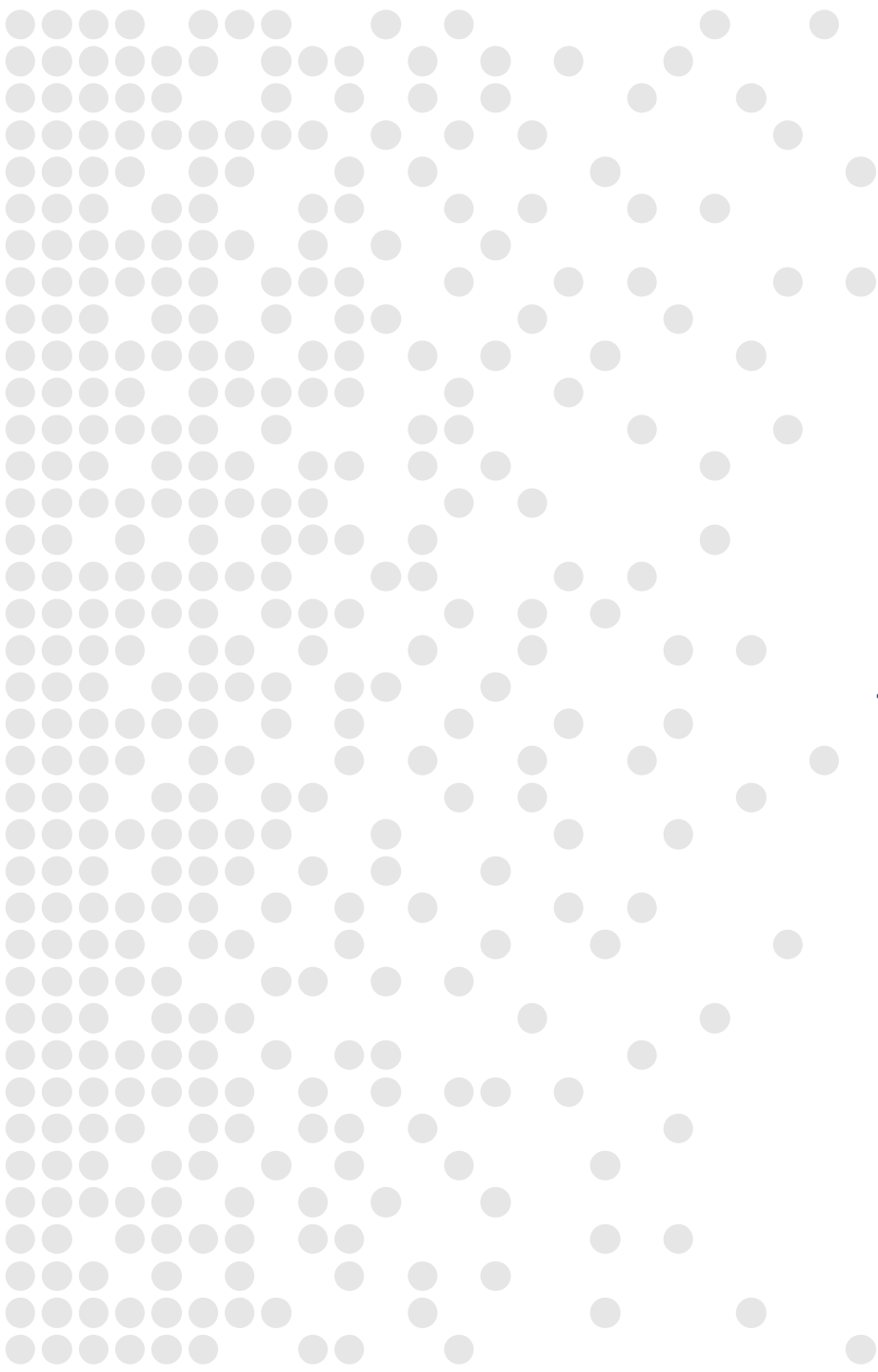


- On December 27, 2017, the Province of Ontario released Ontario Regulation 588/17 under IJPA and has 3 phases that municipalities must meet:
  - Every municipality in Ontario will have to prepare a strategic asset management policy by July 1, 2019. Municipalities will be required to review their strategic asset management policies at least every five years, and make updates as necessary



Deadline for completion  
 Update





# Existing and Forecasted Customers and Volumes

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Township of King

# 2020 Rates



2020 - Water Billing Rates		
Base Charge - Monthly		
5/8" & 3/4"		\$19.94
1"		\$29.32
1 ½"		\$37.70
2"		\$60.74
3"		\$140.00
4"		\$140.00
6"		\$140.00
8"		\$140.00
10"		\$140.00
Volume Charge - Increasing Block/Tier		
\$	1.750	Tier 1 per m <sup>3</sup>
\$	3.000	Tier 2 per m <sup>3</sup>
\$	3.900	Tier 3 per m <sup>3</sup>

per Month Block/Tier Limits	
up to 24.33 m <sup>3</sup>	Tier 1 per m <sup>3</sup>
24.34 m <sup>3</sup> to 35 m <sup>3</sup>	Tier 2 per m <sup>3</sup>
over 35 m <sup>3</sup>	Tier 3 per m <sup>3</sup>

Flat Rate per Month	
83.49	Per Month

Bulk Metered Rate per cubic meter (m <sup>3</sup> )	
3.00	per m <sup>3</sup>

2020 - Wastewater Billing Rates		
Base Charge - Monthly		
5/8 & 3/4"		\$30.34
1"		\$42.50
1 ½"		\$54.65
2"		\$88.04
3"		\$140.00
4"		\$140.00
6"		\$140.00
8"		\$140.00
10"		\$140.00
Volume Charge		
\$	2.40	per m <sup>3</sup>

# Water Users (as of the June 2020 Study)



<b>Metered</b>	<b>Water</b>	<b>Wastewater</b>
5/8" & 3/4"	4,182	3,812
1"	1,036	1,027
1 1/2"	7	7
2"	21	19
3"	7	7
4"	-	-
6"	4	4
8"	3	3
10"	2	2
<b>Total</b>	<b>5,262</b>	<b>4,881</b>

<b>Non-Metered</b>	<b>Water</b>	<b>Wastewater</b>
Non-Metered	3	2
<b>Total</b>	<b>3</b>	<b>2</b>



# Water Forecast Users and Billable Volumes

Have assumed an average of 250 m<sup>3</sup> per customer for future flows.

Water Customer Forecast	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Existing	5,262	5,262	5,262	5,262	5,262	5,262	5,262	5,262	5,262	5,262	5,262
New - Growth	51	238	510	782	1,054	1,326	1,558	1,749	1,940	2,131	2,298
<b>Total</b>	<b>5,313</b>	<b>5,500</b>	<b>5,772</b>	<b>6,044</b>	<b>6,316</b>	<b>6,588</b>	<b>6,820</b>	<b>7,011</b>	<b>7,202</b>	<b>7,393</b>	<b>7,560</b>

Water Volume Forecast (m <sup>3</sup> )	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Tier 1</b>											
Existing	1,006,091	1,006,091	1,006,091	1,006,091	1,006,091	1,006,091	1,006,091	1,006,091	1,006,091	1,006,091	1,006,091
New	12,750	59,500	127,500	195,500	263,500	331,500	389,500	437,250	485,000	532,750	574,500
<b>Subtotal Tier 1</b>	<b>1,018,841</b>	<b>1,065,591</b>	<b>1,133,591</b>	<b>1,201,591</b>	<b>1,269,591</b>	<b>1,337,591</b>	<b>1,395,591</b>	<b>1,443,341</b>	<b>1,491,091</b>	<b>1,538,841</b>	<b>1,580,591</b>
<b>Tier 2</b>											
Existing	108,058	108,058	108,058	108,058	108,058	108,058	108,058	108,058	108,058	108,058	108,058
New	-	-	-	-	-	-	-	-	-	-	-
<b>Subtotal Tier 2</b>	<b>108,058</b>	<b>108,058</b>	<b>108,058</b>	<b>108,058</b>	<b>108,058</b>	<b>108,058</b>	<b>108,058</b>	<b>108,058</b>	<b>108,058</b>	<b>108,058</b>	<b>108,058</b>
<b>Tier 3</b>											
Existing	323,784	323,784	323,784	323,784	323,784	323,784	323,784	323,784	323,784	323,784	323,784
Adjustment for Reduced Volumes	(8,283)	(14,199)	(14,199)	(14,199)	(14,199)	(14,199)	(14,199)	(14,199)	(14,199)	(14,199)	(14,199)
New	-	-	-	-	-	-	-	-	-	-	-
<b>Subtotal Tier 3</b>	<b>315,501</b>	<b>309,585</b>	<b>309,585</b>	<b>309,585</b>	<b>309,585</b>	<b>309,585</b>	<b>309,585</b>	<b>309,585</b>	<b>309,585</b>	<b>309,585</b>	<b>309,585</b>
<b>Total</b>	<b>1,442,400</b>	<b>1,483,234</b>	<b>1,551,234</b>	<b>1,619,234</b>	<b>1,687,234</b>	<b>1,755,234</b>	<b>1,813,234</b>	<b>1,860,984</b>	<b>1,908,734</b>	<b>1,956,484</b>	<b>1,998,234</b>

# Wastewater Forecast Users and Billable Volumes

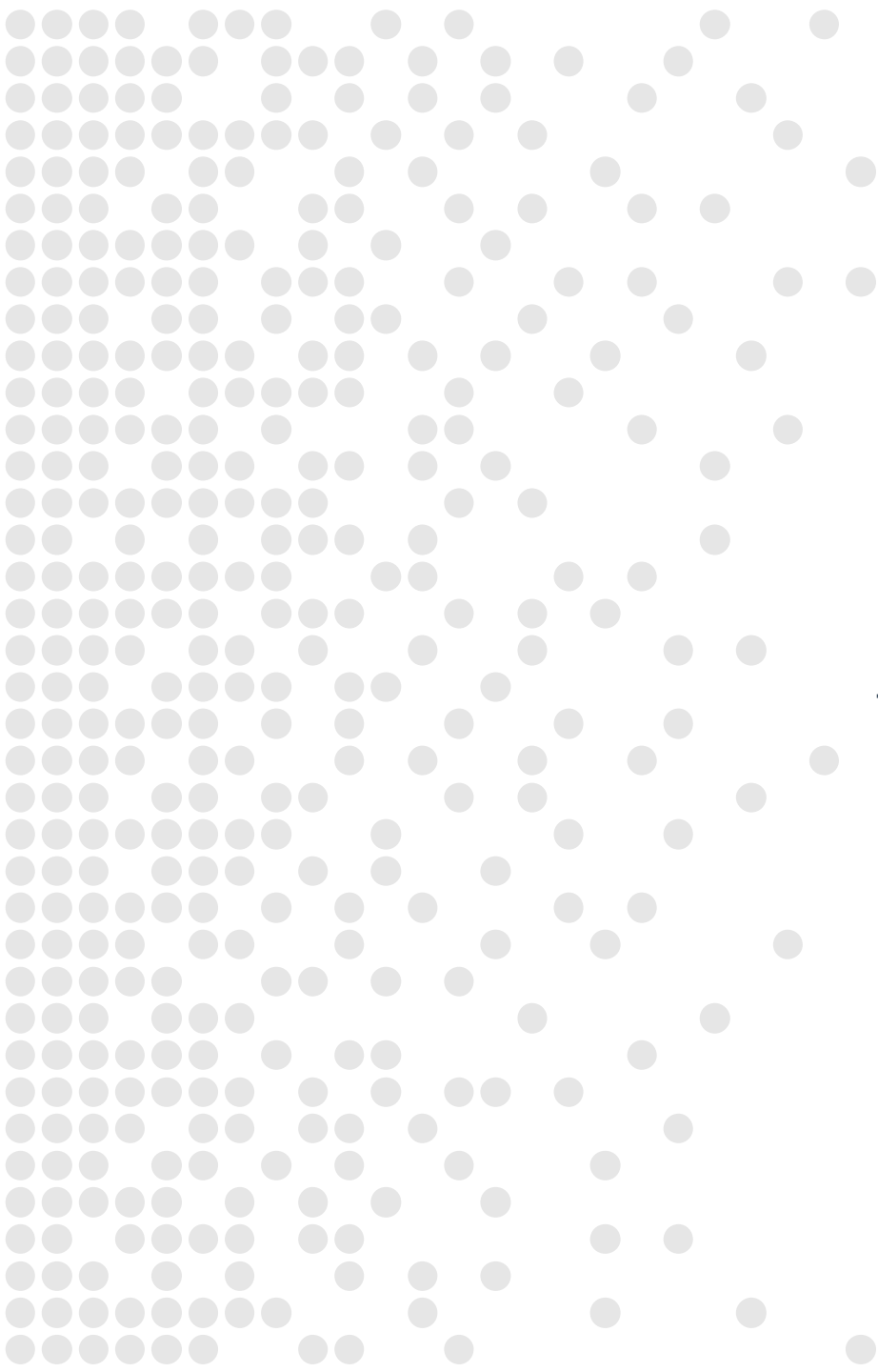


Have assumed an average of 250 m<sup>3</sup> per customer for future flows.

Wastewater Customer Forecast	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Existing	4,881	4,881	4,881	4,881	4,881	4,881	4,881	4,881	4,881	4,881	4,881
New - Growth	51	238	510	782	1,054	1,326	1,558	1,749	1,940	2,131	2,298
<b>Total</b>	<b>4,932</b>	<b>5,119</b>	<b>5,391</b>	<b>5,663</b>	<b>5,935</b>	<b>6,207</b>	<b>6,439</b>	<b>6,630</b>	<b>6,821</b>	<b>7,012</b>	<b>7,179</b>

Wastewater Flows Forecast (m <sup>3</sup> )	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Existing	1,437,933	1,437,933	1,437,933	1,437,933	1,437,933	1,437,933	1,437,933	1,437,933	1,437,933	1,437,933	1,437,933
Reduction (based on Water)	(8,283)	(14,199)	(14,199)	(14,199)	(14,199)	(14,199)	(14,199)	(14,199)	(14,199)	(14,199)	(14,199)
New	12,750	59,500	127,500	195,500	263,500	331,500	389,500	437,250	485,000	532,750	574,500
<b>Total</b>	<b>1,442,400</b>	<b>1,483,234</b>	<b>1,551,234</b>	<b>1,619,234</b>	<b>1,687,234</b>	<b>1,755,234</b>	<b>1,813,234</b>	<b>1,860,984</b>	<b>1,908,734</b>	<b>1,956,484</b>	<b>1,998,234</b>

Note: Above flows are water flows on which the wastewater billing will be calculated



# Capital Needs and Financing

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Township of King

# Capital Infrastructure



- Works were identified based on an initial evaluation of asset management replacement needs.
- The timings of the capital works for water and wastewater were delayed in the early part of the forecast given the significant deficits in the capital reserves.

# Water Capital System Needs (2021-2030)

2021-2030 (Inflated \$)



Description	Forecast 2021-2030	Years Undertaken
<b>Capital Expenditures</b>		
<b>King City:</b>		
King City - Fisher Street water services (145m of 6" DI; 7 services)	147,000	2024
King City - Elizabeth Gr, Clearview Cres, Patricia Dr, Clearview Heights (1650m of 6" CI)	1,267,000	2024 - 2026
King City - Bennet Dr & Forde Cres (950m of 6" CI)	735,000	2026
King City - Hollingsworth Dr, Kingslynn Dr, Patton St (1230m of 6" DI)	1,002,000	2028
King City - King Rd (from Warren Rd to Banner Ln) (700m of 8" CI)	601,000	2028
King City - Dew St, King Blvd, William St (880m of 6" DI)	731,000	2029
King City - Manitou Dr, Martin St, Hambly Ave, Norman Dr (2230m of 6" DI)	1,890,000	2030
King City - Kings Cross 8 Subdivision (2550m of 6" DI)	-	
King City - DiNardo KX 1 Subdivision (1215m of 8" DI)	1,086,000	2030
<b>Schomberg:</b>		
Schomberg - Brownsville Crt, Western Ave, Elmwood/Castlewood Ave (1440m of 6" DI and AC)	1,097,000	2024 - 2025
Schomberg - Southeast Schomberg (2350m of 6" DI)	1,865,000	2026 - 2027
Schomberg - Schomberg Industrial Area (1070m of 8" DI)	937,000	2029
<b>Nobleton:</b>		
Nobleton - Parkview Dr, Crestview Rd, Janet Ave, Lynwood Cres, Elizabeth Dr (1720m of 6" AC)	1,387,000	2027 - 2028
Nobleton - Noblewood Dr, Greenside Dr, Forestave Cres (1145m of 6" CI)	951,000	2029
<b>Fleet:</b>		
#600-18 - 3/4 Ton 4x4 Ford	35,000	2028
#602-19 - 1/2 Ton 4X4 Ford	30,000	2029
#606-13 - Water Van Mercedes	77,000	2027
#607-18 - 1/2 Ton 4x4 Ford	30,000	2030
#609-16 - 3/4 Ton 4x4 Chevrolet	35,000	2028
<b>Total Capital Expenditures</b>	<b>13,903,000</b>	



# Wastewater Capital System Needs (2021-2030)

2021-2030 (Inflated \$) – Page 1 of 2



Description	Forecast 2021-2030	Years Undertaken
<b>Capital Expenditures</b>		
Alex Campbell	5,000	2021
Proctor Rd.	10,000	2022
Keele St.	11,000	2023
Burton Grove	11,000	2023
Martin St.	11,000	20224
Bluff Trail	11,000	2026
Alex Campbell	11,000	2026
Proctor Rd.	94,000	2028
<b>Nobleton:</b>		
Nobleton Sewers Phase 2 - Contract Area 3	10,260,000	2021 - 2023
Nobleton Concurrent Road Works	2,179,000	2021 - 2022
<b>Sanitary Pumping Station Upgrades</b>		
SCADA system	437,000	2021 - 2028
Private Sewer Camera Program	402,000	2024 - 2030
<b>Other Sanitary Infrastructure Replacement</b>		
King North - Phase 1	348,000	2030
King North - Phase 2 - Stage 1	602,000	2030
King Dufferin - Phase 1	529,000	2030
Hickory Hill	509,000	2030
Valley King - Phase 1	598,000	2030
Nobleridge - Phase 1, 2, 3	850,000	2030
Nobleridge - Phase 4	317,000	2030
Nobleton Grand King Estates	370,000	2030

# Wastewater Capital System Needs (2021-2030)

2021-2030 (Inflated \$) – Page 2 of 2



Description	Forecast 2021-2030	Years Undertaken
King North - Phase 2 - Stage 2	112,000	2030
King Dufferin - Phase 2	245,000	2030
King South	211,000	2030
Osmington	460,000	2030
Dew Street	120,000	2030
King's Den	52,000	2030
Mary Lake Estates	430,000	2030
Valley King - Phase 2	95,000	2030
King Station	280,000	2030
Kingsview Manor	297,000	2030
Nobleridge - Phase 5 & Block 194	817,000	2030
Nobleridge - Block 192	95,000	2030
Via Moto	185,000	2030
<b>Fleet:</b>		
#600-18 - 3/4 Ton 4x4 Ford	35,000	2028
#602-19 - 1/2 Ton 4X4 Ford	30,000	2029
#604-12 - 3/4 Ton 4x4 (+ Plow)	62,000	2022
#607-18 - 1/2 Ton 4x4 Ford	30,000	2030
#609-16 - 3/4 Ton 4x4 Chevrolet	35,000	2028
<b>Total Capital Expenditures</b>	<b>21,156,000</b>	

# Water D.C. Related Capital (2020 D.C. Study)



Water Capital			
Prj.No	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2020\$)
	<b>King City:</b>		
1	Jane Street - King Road 1,000 meters North	2028	1,681,700
2	Jane Street - King Road 1,000 meters South	2028	1,681,700
	<b>Spine Servicing</b>		
3	15th SR Keele to Dufferin - (Seneca and KEG) 300mm	2021-2022	3,084,433
4	Dufferin St - Railway Crossing to 15th SR (Seneca and KEG, CDS) 300mm	2021-2022	2,382,037
5	Taves Trail Ext. - Keele to End (KEG) 300mm	2021-2022	374,102
6	Watermain – Keele St w/s - 15th to existing termination	2021-2022	117,800
	<b>Outstanding DC Credits</b>		
7	19T-08K02 - King Road - Charles to Jane	Credit	935,675
8	Highway #27 - Well #4 - Oliver Emmerson (Tribute) 300mm	Credit	194,400
9	Keele Street - Norman Drive to 15th SR (increase existing 250mm to 300mm+)	Credit	800,000
10	Highway #27, Main St to Dr. Kay (upsizing 250mm to 300mm)	Credit	468,000
	<b>Total</b>		<b>11,719,847</b>

# Wastewater D.C. Related Capital (2020 D.C. Study)



King City			
Prj.No	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2020\$)
1	King Road and Keele Street Sewer Upgrade (WW-K-1)	2021	1,701,000
	<b>Spine Services</b>		
2	Pumping Station B (East) - King East Group	2022	5,628,910
	<b>Outstanding Credits</b>		
3	Kingsview 19T-08K02 (SS Pumping Station A West)	Credit	3,100,850
	<b>Total</b>		<b>10,430,760</b>

Nobleton			
Prj.No	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2020\$)
1	Holden Drive 115 m North of MacTaggart Drive to Sheardown Drive	2022	1,042,100
2	Chamberlain Court - Sheardown Drive Cul-de-Sac	2021	246,300
3	Easement Chamberlain Court to Hwy #27	2021	215,300
4	Gilbert Fuller Drive Cul-de-Sac Road bend	2024	95,200
5	Woodhill Avenue Cul-de-Sac to Gilbert Fuller Dr	2024	155,800
6	Gilbert Fuller Drive to Woodhill Avenue Road bend	2024	286,700
7	Easement Gilbert Fuller Drive to Pumping Station	2024	295,000
8	Hawthorne Valley Rd Cul-de-Sac to Woodhill Avenue	2024	792,300
	<b>From Master Plan</b>		
9	King Road and Hwy 27 Sewer Upgrade (WW-N-1)	2022	1,701,000
10	Wellar Avenue Sewer Upgrade (WW-N-2)	2022	1,691,000
	<b>Outstanding DC Credits</b>		
11	19T-05K03 - Road and concurrent works - Noblewood Drive & Hollywood Cres	Credit	88,986
	<b>Total</b>		<b>6,928,819</b>



# Capital Financing Options

- ✓ Reserves
- ✓ Operating Budget Transfers (Funding Reserves)
- ✓ Grants
  - Development Charges
  - Debt
  - Municipal Act (Part 12)

**For the D.C.-related capital, it is assumed that the developers will directly construct/fund the works and acquire D.C. credits.**

# Reserve Balance

As of December 31, 2019



<b>Reserve</b>	<b>Dec. 31 2019</b>
<b>Water</b>	
Capital Reserve	<b>(299,446)</b>
Development Charges Reserve Fund	<b>652,867</b>
Lifecycle Reserve	<b>172,098</b>
<b>Wastewater</b>	
Capital Reserve	<b>(2,781,886)</b>
Development Charges Reserve Fund - King City	<b>2,060,903</b>
Development Charges Reserve Fund - Nobleton	<b>791,867</b>
Lifecycle Reserve	<b>100,918</b>
I & I Reserve	<b>182,310</b>

Note: based on the proposed capital in 2020, the water capital reserve was estimated to be at a deficit of \$1.8 million by the end of 2020.



# Proposed Capital Financing Programs

2021-2030 (Inflated \$)

Capital Financing	Water 2021-2030	Wastewater 2021-2030
Provincial/Federal Grants	-	-
MCFA	-	5,260,000
Tax Supported	-	2,179,000
Development Charges Reserve Fund	-	-
Non-Growth Related Debenture Requirements	-	-
Growth Related Debenture Requirements	-	-
Operating Contributions	-	-
Lifecycle Reserve Fund	4,588,000	-
Water Reserve	9,315,000	-
Wastewater Reserve	-	13,717,000
<b>Total Capital Financing</b>	<b>13,903,000</b>	<b>21,156,000</b>

Note: for the purposes of these calculations, the MCFA funding was assumed to be 100% of the application.



## Lifecycle Costs (Existing Infrastructure)

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Township of King



# Lifecycle Infrastructure Costs



- The age of the water system dates back to the early 1970's;
- The age of the wastewater system date back to the mid 1980's;
- Total value of existing water infrastructure is \$94.3 million;
- Total value of existing wastewater infrastructure is \$84.8 million;
- This provides for a “per customer” investment by the Township of \$17,930 for water and \$17,365 for wastewater.

# Summary of Water and Wastewater Asset Inventory



Asset	Total Replacement Value	Suggested amount to be included in 10-year forecast based on estimated life	Amount included in 10-year forecast	Net Replacement for Future Lifecycle	Annual Lifecycle Replacement
<b>Water</b>					
Linear Assets	92,670,277	121,111	} 13,765,210	80,582,827	2,879,292
Water Meters	1,133,760	1,055,178			8,029
Vehicles	544,000	544,000			-
<b>Total Water</b>	<b>94,348,037</b>	<b>1,720,289</b>	<b>13,765,210</b>	<b>80,582,827</b>	<b>2,887,321</b>
<b>Wastewater</b>					
Linear Assets	84,632,486	-	} 21,908,500	62,850,986	2,157,233
Vehicles	127,000	127,000			-
<b>Total Wastewater</b>	<b>84,759,486</b>	<b>127,000</b>	<b>21,908,500</b>	<b>62,850,986</b>	<b>2,157,233</b>
<b>Total</b>	<b>179,107,523</b>	<b>1,847,289</b>	<b>35,673,710</b>	<b>143,433,813</b>	<b>5,044,555</b>

Investment per customer is \$17,930 for water and \$17,365 for wastewater



# Operating Expenditures

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Township of King

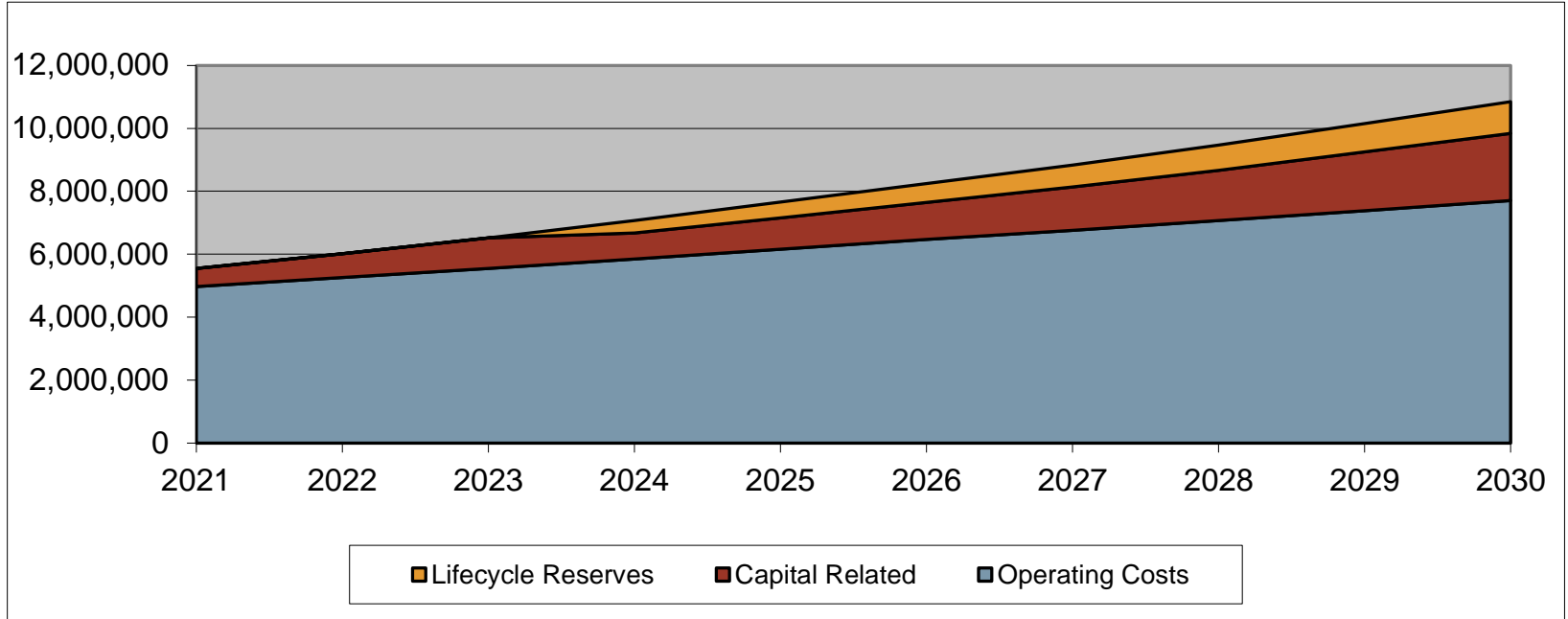
# Operating Budgets (2021 – 2030)



- Operating expenditures are increasing over the forecast to recognize:
  - Inflationary impacts:
    - 2% per year for most operating expenditures
  - Regional Purchases:
    - Expenditures related to the purchase of treated water from York Region have been increased by 3% annually
    - Expenditures related to the purchase of wastewater treatment from York Region have been increased by 2% annually

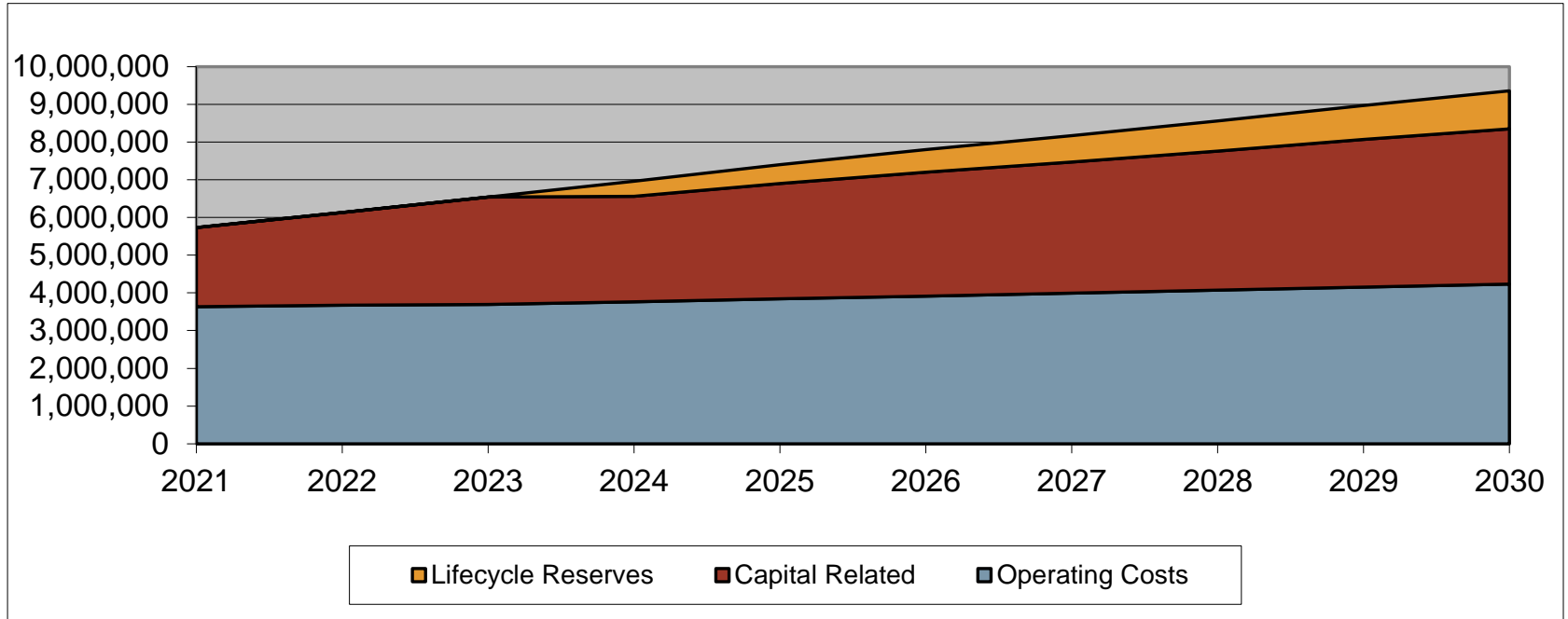
**Note: the actual Regional water and wastewater rates for 2020 and 2021 were frozen due to COVID-19. This will be reflected in a subsequent update to the rate study.**

# Water Operating Budget

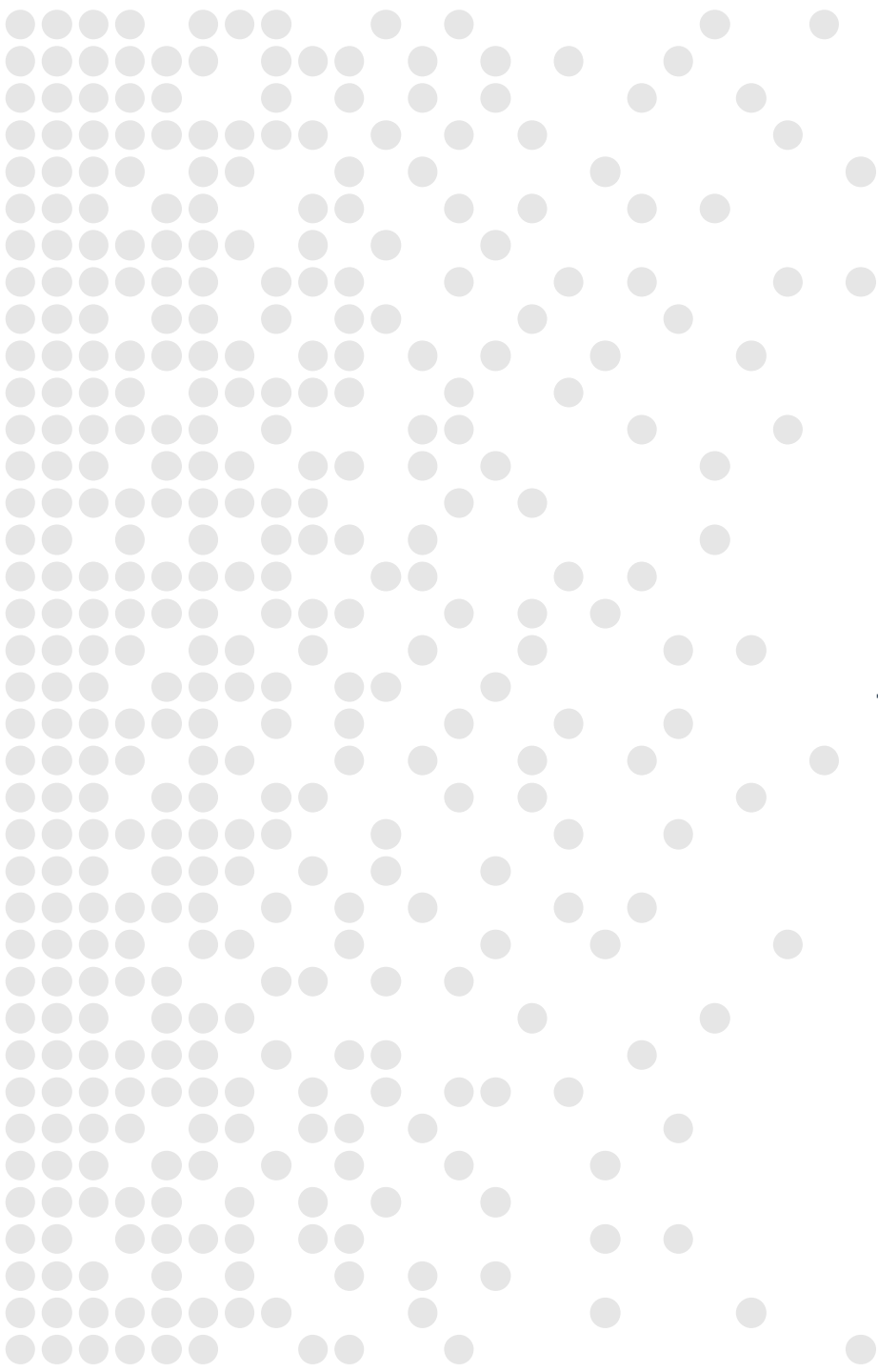


Description	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Operating Costs	4,966,773	5,254,518	5,544,885	5,847,895	6,164,284	6,470,457	6,763,815	7,069,117	7,386,862	7,700,966
Capital Related	578,020	760,456	977,318	823,968	989,668	1,170,759	1,369,723	1,598,896	1,860,513	2,143,908
Lifecycle Reserves	0	0	0	400,000	500,000	600,000	700,000	800,000	900,000	1,000,000
<b>Total</b>	<b>5,544,792</b>	<b>6,014,973</b>	<b>6,522,203</b>	<b>7,071,863</b>	<b>7,653,952</b>	<b>8,241,215</b>	<b>8,833,538</b>	<b>9,468,012</b>	<b>10,147,376</b>	<b>10,844,874</b>

# Wastewater Operating Budget



Description	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Operating Costs	3,629,297	3,673,607	3,689,767	3,763,600	3,838,700	3,915,400	3,993,700	4,073,400	4,154,800	4,237,800
Capital Related	2,102,935	2,456,545	2,850,416	2,798,876	3,058,486	3,284,276	3,472,700	3,688,216	3,912,517	4,116,697
Lifecycle Reserves	0	0	0	400,000	500,000	600,000	700,000	800,000	900,000	1,000,000
<b>Total</b>	<b>5,732,232</b>	<b>6,130,152</b>	<b>6,540,183</b>	<b>6,962,476</b>	<b>7,397,186</b>	<b>7,799,676</b>	<b>8,166,400</b>	<b>8,561,616</b>	<b>8,967,317</b>	<b>9,354,497</b>



# Water and Wastewater Rates

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Township of King

# Proposed Rate Structure and Forecast



- The present rate structure for water (base monthly charge and a 3-Tier increasing block volume rate) and wastewater (base monthly charge and a constant volume rate) is continued
- For customers with a 5/8", 3/4", and 1" meters, the base charges are proposed to be combined using a weighted average between those meter sizes for both water and wastewater, starting in 2021



# Residential Water Rate Forecast



Based on Annual Volumes of 250 m<sup>3</sup>

Description	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Monthly Base Rate	\$19.94	\$22.46	\$23.13	\$23.83	\$24.54	\$25.28	\$26.04	\$26.82	\$27.62	\$28.45	\$29.30
Tier 1 (Up to 73 m <sup>3</sup> per Quarter)	\$1.75	\$1.86	\$1.97	\$2.09	\$2.22	\$2.35	\$2.49	\$2.64	\$2.80	\$2.97	\$3.15
Tier 2 (Over 73 m <sup>3</sup> to 105 m <sup>3</sup> per Quarter)	\$3.00	\$3.18	\$3.37	\$3.57	\$3.78	\$4.01	\$4.25	\$4.51	\$4.78	\$5.07	\$5.37
Tier 3 (Over 105 m <sup>3</sup> per Quarter)	\$3.90	\$4.13	\$4.38	\$4.64	\$4.92	\$5.22	\$5.53	\$5.86	\$6.21	\$6.58	\$6.97
<b>Annual Base Rate Bill</b>	<b>\$239.32</b>	<b>\$269.50</b>	<b>\$277.59</b>	<b>\$285.91</b>	<b>\$294.49</b>	<b>\$303.33</b>	<b>\$312.43</b>	<b>\$321.80</b>	<b>\$331.45</b>	<b>\$341.40</b>	<b>\$351.64</b>
Tier 1 Volume	250	250	250	250	250	250	250	250	250	250	250
Tier 2 Volume	0	0	0	0	0	0	0	0	0	0	0
Tier 3 Volume	0	0	0	0	0	0	0	0	0	0	0
<b>Annual Volume Bill</b>	<b>\$437.50</b>	<b>\$465.00</b>	<b>\$492.50</b>	<b>\$522.50</b>	<b>\$555.00</b>	<b>\$587.50</b>	<b>\$622.50</b>	<b>\$660.00</b>	<b>\$700.00</b>	<b>\$742.50</b>	<b>\$787.50</b>
<b>Total Annual Bill</b>	<b>\$676.82</b>	<b>\$734.50</b>	<b>\$770.09</b>	<b>\$808.41</b>	<b>\$849.49</b>	<b>\$890.83</b>	<b>\$934.93</b>	<b>\$981.80</b>	<b>\$1,031.45</b>	<b>\$1,083.90</b>	<b>\$1,139.14</b>
<b>% Increase - Base Rate</b>		13%	3%	3%	3%	3%	3%	3%	3%	3%	3%
<b>% Increase - Volume Rate</b>		6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
<b>% Increase - Total Annual Bill</b>		9%	5%	5%	5%	5%	5%	5%	5%	5%	5%

# Residential Wastewater Rate Forecast



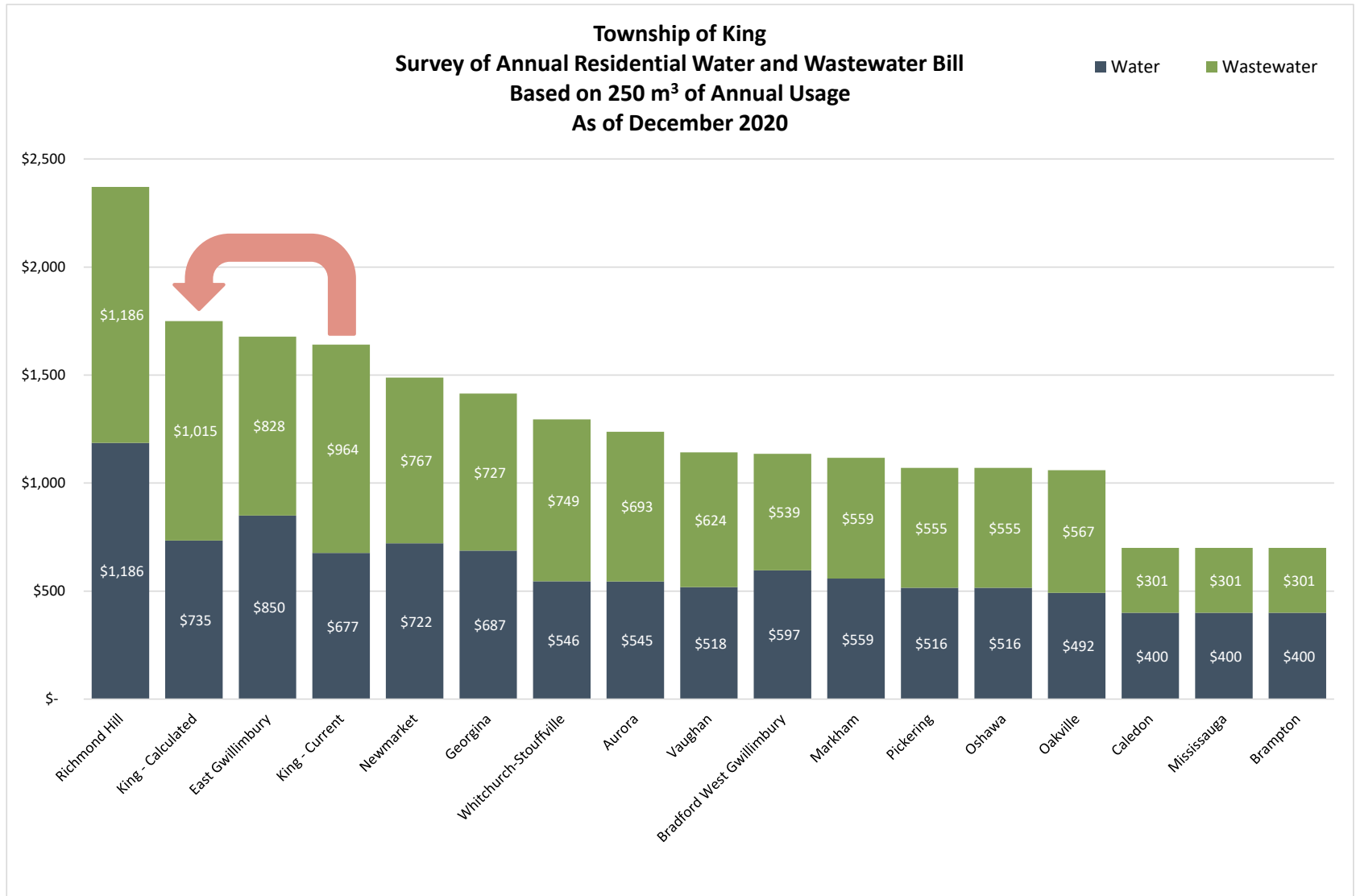
Based on Annual Volumes of 250 m<sup>3</sup>

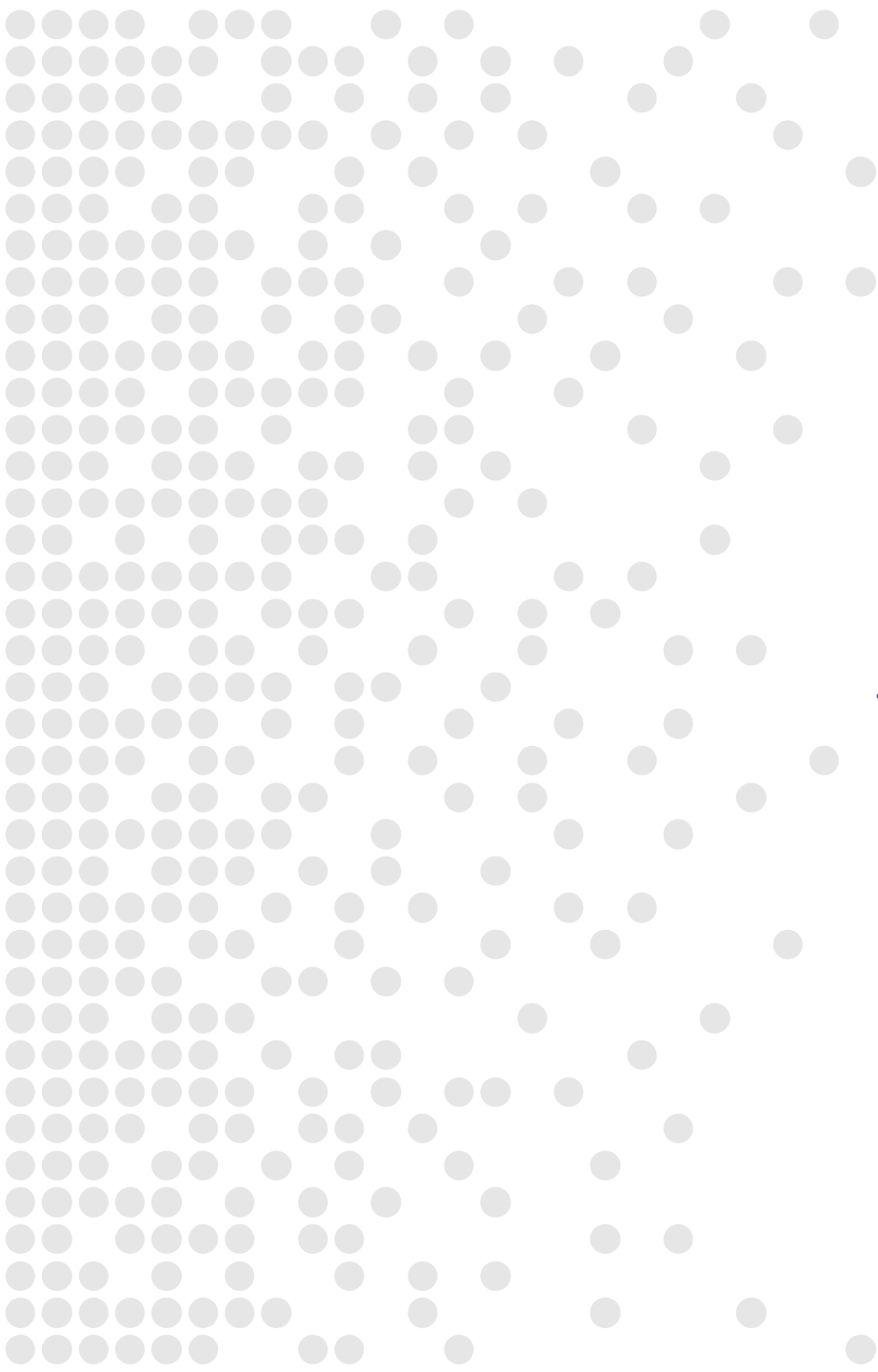
Description	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Monthly Base Rate	\$30.34	\$33.58	\$34.25	\$34.94	\$35.63	\$36.35	\$37.07	\$37.81	\$38.57	\$39.34	\$40.13
Constant Rate	\$2.40	\$2.45	\$2.50	\$2.55	\$2.60	\$2.65	\$2.70	\$2.75	\$2.81	\$2.87	\$2.93
<b>Annual Base Rate Bill</b>	<b>\$364.08</b>	<b>\$402.94</b>	<b>\$411.00</b>	<b>\$419.22</b>	<b>\$427.60</b>	<b>\$436.16</b>	<b>\$444.88</b>	<b>\$453.78</b>	<b>\$462.85</b>	<b>\$472.11</b>	<b>\$481.55</b>
Volume	250	250	250	250	250	250	250	250	250	250	250
<b>Annual Volume Bill</b>	<b>\$600.00</b>	<b>\$612.50</b>	<b>\$625.00</b>	<b>\$637.50</b>	<b>\$650.00</b>	<b>\$662.50</b>	<b>\$675.00</b>	<b>\$687.50</b>	<b>\$702.50</b>	<b>\$717.50</b>	<b>\$732.50</b>
<b>Total Annual Bill</b>	<b>\$964.08</b>	<b>\$1,015.44</b>	<b>\$1,036.00</b>	<b>\$1,056.72</b>	<b>\$1,077.60</b>	<b>\$1,098.66</b>	<b>\$1,119.88</b>	<b>\$1,141.28</b>	<b>\$1,165.35</b>	<b>\$1,189.61</b>	<b>\$1,214.05</b>
<b>% Increase - Base Rate</b>		11%	2%	2%	2%	2%	2%	2%	2%	2%	2%
<b>% Increase - Volume Rate</b>		2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
<b>% Increase - Total Annual Bill</b>		5%	2%	2%	2%	2%	2%	2%	2%	2%	2%

# Comparison of Residential Annual Water and Wastewater Bill



Based on Annual Volumes of 250 m<sup>3</sup>





## Key Observations

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### Township of King

# Key Observations from the Rate Study



- The water and wastewater capital reserves are in significant deficits
- The municipality has invested \$179 million for in water and wastewater infrastructure. The capital program provides for 20% of the assets to be replaced or enhanced over the next 10 years
- On a per customer basis, the above investment in infrastructure translates to approximately \$35,300 (does not include infrastructure from the Region)
- Average Water Consumption per King customer is 40% higher than many other municipalities