



2023 Water and Wastewater Rate Review



**DFA Infrastructure
International Inc**

**Presentation to Council
March 6, 2023**

Background

- In 2021 the Town of Grimsby commenced a review of how wastewater costs are recovered from users
- The current practice of the Town is to recover wastewater costs through a connection-based Sewer Levy Special Area Rate (SAR)
- The Town endorsed for 2023 a Hybrid Levy and Fee Model for the recovery of wastewater costs
- DFA was retained to update both the Water and Wastewater rates and charges, giving consideration to the hybrid levy and fee model for wastewater cost recovery

AGENDA

- **Part 1 – Study Approach**
- **Part 2 – Full Cost Assessment**
- **Part 3 – Projected Rates**



PART 1

Study Approach

Study Approach

- Study Period from 2023-2032 was considered, with new calculated rates and charges for both water and wastewater commencing in 2023
- Full cost of services over the forecast period was developed from information provided by Town staff
- Operating expenditures (operating and maintenance costs, regional water supply and wastewater treatment costs, repayment of long-term debt and contributions for capital asset replacement) were projected to 2032

Study Approach

- Operating expenditures were offset with non-rate revenues (Admin and Miscellaneous Fees and Charges, Leachate Treatment Charges, Water Meter Sales etc.)
- Net costs to be recovered from customers were calculated for each year
- Capital asset replacement requirements were based on the Town's 2023-2032 Capital plan and the 2022 Asset Management Plan's annual funding recommendations

Study Approach

- Growth related capital needs are as identified from the City's 2022-2032 Capital Plan and the 2022 Development Charges (DC) Study
- Net non-growth capital was financed from Regional grants, external contributions and from cash from the operating and capital reserves
- Net growth-related capital was financed by development charge (DC) cash balances when available (growth-related long-term debt considered only when DC balances were not available). Repayment of growth-related long-term debt to be serviced from future DC receipts)

Study Approach

- Customer and consumption growth was projected to 2032 based on current customers and consumption patterns, and growth projections contained in the 2022 Development Charges Study
- Current water rate structure of a single base charge with uniform volumetric rate is maintained for projected water rates and charges
- Proposed wastewater rate structure is considered where 50% of net wastewater costs are recovered from a connection-based special area sewer tax levy, and 50% of net wastewater costs are recovered from a uniform volumetric rate based on projected water consumption of wastewater customers



PART 2

Full Cost Assessment

Full Cost of Managing the Town's Water and Wastewater Systems

Full cost assessment identifies future costs in the following key areas:

- Operating & Maintenance (O&M) Cost projections
- Debt Principal and Interest Repayment projections
- Regional Charges (Water purchase and wastewater treatment)
- Capital Asset Replacement Contribution projections

Non-rate revenues (annual revenues generated from admin and miscellaneous fees and charges reduce the overall net costs to be recovered from water and wastewater customers)

Long-Term Capital Needs and Financing - Water System

Description	2023 - 2032 Water Capital Forecast									
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Total Capital Expenditures	\$ 4,109,000	\$ 2,217,590	\$ 2,262,900	\$ 2,330,787	\$ 2,400,710	\$ 5,776,199	\$ 2,623,321	\$ 2,702,021	\$ 2,783,081	\$ 2,866,574
Capital Financing										
External Contributions	\$ 32,000									
Growth Related Debenture Requirements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,836,325	\$ -	\$ -	\$ -	\$ -
Water Capital Replacement Reserve Fund	\$ 4,067,000	\$ 2,196,990	\$ 2,262,900	\$ 2,330,787	\$ 2,400,710	\$ 2,939,874	\$ 2,623,321	\$ 2,702,021	\$ 2,783,081	\$ 2,866,574
Water Operating Reserve	\$ 10,000	\$ 20,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capital Financing	\$ 4,109,000	\$ 2,217,590	\$ 2,262,900	\$ 2,330,787	\$ 2,400,710	\$ 5,776,199	\$ 2,623,321	\$ 2,702,021	\$ 2,783,081	\$ 2,866,574

- Water Capital Forecast aligns with the Town's 2023 10-year Water Capital Budget (to be presented for approval March 21, 2023)
- No gap between 10-year water capital funding and 10-year water capital expenditures
- Growth-related debt identified in 2028 to be serviced by water development charge receipts

Long-Term Capital Needs and Financing - Wastewater System

Description	2023 - 2032 Wastewater Capital Forecast									
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Total Capital Expenditures	\$ 750,000	\$ 3,818,828	\$ 3,933,393	\$ 4,051,395	\$ 5,017,068	\$ 2,849,032	\$ 3,022,538	\$ 7,326,998	\$ 3,206,611	\$ 3,302,809
Capital Financing										
Regional Grant (Baker Rd PPCP Projects)	\$ 162,500	\$ 972,114	\$ 1,001,277	\$ 1,031,316	\$ 1,062,255	\$ 1,094,123	\$ 1,160,755	\$ 1,195,578	\$ 1,231,445	\$ 1,268,388
Storm Water Reserve Fund	\$ 37,500	\$ 1,372,800	\$ 346,112	\$ 359,956	\$ 1,251,749	\$ 389,329	\$ 421,098	\$ 437,942	\$ 455,460	\$ 473,678
Development Charges	\$ 12,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Growth Related Debenture Requirements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,739,669	\$ -	\$ -
Wastewater Capital Reserve Fund	\$ 450,000	\$ 1,473,914	\$ 2,586,003	\$ 2,660,122	\$ 2,703,064	\$ 1,365,580	\$ 1,440,685	\$ 2,953,809	\$ 1,519,706	\$ 1,560,742
Wastewater Operating Reserve	\$ 87,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capital Financing	\$ 750,000	\$ 3,818,828	\$ 3,933,392	\$ 4,051,394	\$ 5,017,068	\$ 2,849,032	\$ 3,022,538	\$ 7,326,998	\$ 3,206,611	\$ 3,302,808

- Wastewater Capital Forecast aligns with the Town's 2023 10-year wastewater capital budget (to be presented for approval March 21, 2023)
- No gap between 10-year wastewater capital funding and 10-year wastewater capital expenditures
- Growth-related debt identified in 2030 to be serviced by wastewater development charge receipts
- Stormwater capital fully funded by the stormwater reserve fund (no impact on wastewater rates)

Full Cost of Managing the Town's Water System

2023 Water Cost of Service		
Cost Category	Annual Cost	Percent
Total O&M Costs	\$ 2,993,132	38%
Water Purchases - Regional Charges	\$ 2,770,444	35%
Transfer to Capital Reserves	\$ 2,230,000	28%
Total Operating Revenue	\$ (113,350)	-1%
Total	\$ 7,880,225	100%

2032 Water Cost of Service		
Cost Category	Annual Cost	Percent
Total O&M Costs	\$ 3,629,028	33%
Water Purchases - Regional Charges	\$ 4,542,543	42%
Transfer to Capital Reserves	\$ 2,909,644	27%
Total Operating Revenue	\$ (135,476)	-1%
Total	\$10,945,739	100%

2023-2032 Average Annual Water Cost of Service		
Cost Category	Annual Cost	Percent
Total O&M Costs	\$ 3,314,820	35%
Water Purchases - Regional Charges	\$ 3,595,362	38%
Transfer to Capital Reserves	\$ 2,556,445	27%
Total Operating Revenue	\$ (124,126)	-1%
Total	\$ 9,342,502	100%

- Operating & Maintenance (O&M) Cost and Operating Revenue projections are increasing annually at approximately 2% per year
- Regional Charges (Water purchases) are increasing at approximately 5% per year
- Capital Asset Replacement Contribution projections are increasing at approximately 3% per year

Full Cost of Managing the Town's Wastewater System

2023 Wastewater Cost of Service		
Cost Category	Annual Cost	Percent
Total O&M Costs	\$ 1,614,880	25%
Wastewater Treatment - Regional Charges	\$ 3,566,934	54%
Transfer to Capital Reserves	\$ 1,500,000	23%
Total Operating Revenue	\$ (125,000)	-2%
Total	\$ 6,556,814	100%

2032 Wastewater Cost of Service		
Cost Category	Annual Cost	Percent
Total O&M Costs	\$ 2,157,688	17%
Wastewater Treatment - Regional Charges	\$ 8,473,522	67%
Transfer to Capital Reserves	\$ 2,192,019	17%
Total Operating Revenue	\$ (149,387)	-1%
Total	\$12,673,842	100%

2023-2032 Average Annual Wastewater Cost of Service		
Cost Category	Annual Cost	Percent
Total O&M Costs	\$ 1,918,638	21%
Wastewater Treatment - Regional Charges	\$ 5,709,658	61%
Transfer to Capital Reserves	\$ 1,828,340	20%
Total Operating Revenue	\$ (136,872)	-1%
Total	\$ 9,319,764	100%

- Operating & Maintenance (O&M) Cost and Operating Revenue projections are increasing annually at approximately 2% per year
- Regional Charges (Wastewater Treatment) are increasing at approximately 10% per year
- Capital Asset Replacement Contribution projections are increasing at approximately 3% per year

Reserve and Reserve Funds

Water Service										
Water Reserve and Reserve Funds										
Reserve and Reserve Fund	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Replacement Reserve Fund	\$ 3,311,603	\$ 3,514,903	\$ 3,705,683	\$ 3,904,319	\$ 4,111,102	\$ 3,859,187	\$ 3,995,082	\$ 4,135,557	\$ 4,280,762	\$ 4,430,851
Development Charges Reserve Fund	\$ 557,960	\$ 656,995	\$ 761,059	\$ 870,353	\$ 985,088	\$ 1,105,480	\$ 1,032,189	\$ 960,024	\$ 884,068	\$ 805,336
Operating Stabilization Reserve	\$ 988,469	\$ 987,098	\$ 998,949	\$ 1,025,100	\$ 1,064,044	\$ 1,044,739	\$ 1,009,041	\$ 1,050,575	\$ 1,095,317	\$ 1,116,350
Total Water Funds Available	\$ 4,858,031	\$ 5,158,996	\$ 5,465,690	\$ 5,799,772	\$ 6,160,234	\$ 6,009,407	\$ 6,036,312	\$ 6,146,156	\$ 6,260,148	\$ 6,352,537

Wastewater Service										
Wastewater Reserve and Reserve Funds										
Reserve and Reserve Fund	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Replacement Reserve Fund	\$ 16,080,310	\$ 16,574,004	\$ 16,036,137	\$ 15,481,573	\$ 14,943,852	\$ 15,806,707	\$ 16,695,554	\$ 16,176,127	\$ 17,163,663	\$ 18,224,032
Development Charges Reserve Fund	\$ 320,973	\$ 398,544	\$ 480,837	\$ 568,080	\$ 660,513	\$ 758,386	\$ 861,960	\$ 971,508	\$ 890,984	\$ 808,570
Operating Stabilization Reserve	\$ 862,365	\$ 862,365	\$ 862,365	\$ 887,365	\$ 937,365	\$ 1,012,365	\$ 1,087,365	\$ 1,162,365	\$ 1,237,365	\$ 1,312,365
Total Wastewater Funds Available	\$ 17,263,648	\$ 17,834,913	\$ 17,379,339	\$ 16,937,018	\$ 16,541,730	\$ 17,577,458	\$ 18,644,879	\$ 18,310,000	\$ 19,292,012	\$ 20,344,967

- Capital Replacement Reserve Funds to be used to fund the rehabilitation and renewal of all capital assets. Should be maintained at a level to sustain asset replacement needs when considering annual contribution level and external funding
- Development Charges Reserve Funds support the funding of growth-related capital as outlined in the Town's development charges study
- Operating Stabilization Reserves to be used to ensure stable and predictable rate, provide for operating emergencies and to fund one-time operating projects. Should be maintained at 10-15% of Operating Expenditures

Customer and Volume Demands of Water and Wastewater Systems

- The cost of service can depend on the number and type of customers and corresponding water demand (wastewater generation)
- Variable costs such as chemical use and hydro costs can increase depending on the level of water consumption/wastewater generated
- Water rate structure comprised of a fixed (base charge) per customer plus a consumption charge based on the metered volume of water consumed
- Proposed starting in 2023, the wastewater rate structure will recover 50% of the wastewater costs through a wastewater volumetric rate

As such, forecasting customer growth and annual water consumption volumes (billed wastewater volumes) is essential to projecting future costs, revenue requirements and rates

Customer and Volume Projections

Customer Projections										
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Water	10,440	10,506	10,572	10,639	10,705	10,771	10,837	10,903	10,928	10,952
Wastewater	10,420	10,486	10,552	10,619	10,685	10,751	10,817	10,883	10,908	10,932

Volume Projections (Cubic Metres)										
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Water	2,776,177	2,802,565	2,828,952	2,855,339	2,881,727	2,908,114	2,934,501	2,960,889	2,983,151	3,005,414
Wastewater	2,667,475	2,693,863	2,720,250	2,746,637	2,773,025	2,799,412	2,825,799	2,852,187	2,874,449	2,896,712

- The 2022 Customer and Consumption information was provided by the Town
- Annual customer growth is as noted in the Town's 2022 Development Charges Study
- Annual growth in volumes is calculated by multiplying the average consumption for a customer class by the annual growth in customers in that class



PART 3

Projected Rates

Current Rate Structure

- Current water rate structure for the Town consists of a fixed charge per customer plus a uniform consumption rate
- The Uniform Volumetric Consumption Rate is a single block water rate that is applied to each customer's metered consumption regardless of the type of customer
- The current practice of the Town is to recover wastewater costs through a connection-based Sewer Levy Special Area Rate (SAR)
- The Town endorsed for 2023 a Hybrid Levy (50% cost recovery) and Uniform Volumetric Fee (50% cost recovery) Model for the recovery of wastewater costs

2022 Water and Wastewater Rates and Charges

2022 Water Rates and Charges			
Annual Base Charge (per customer)		Uniform Volumetric Rate (per cubic Metre)	
\$	313.80	\$	1.48

2022 Wastewater Special Area Rates (per \$1,000 of Assessed Property Value)	
Residential	1.28824
Multi-Residential	2.53783
Commercial	2.23497
Commercial - Excess/Vacant	1.89972
Industrial	3.38807
Industrial - Excess/Vacant	2.87986
Pipelines	2.19271
Farm/Managed Forests	0.32206

2022 Builders Flat Fee	
Per New Unit	\$ 242.21

City of Hamilton Water Sales	
Per Cubic Metre	\$ 2.79

Projected Water Rates, Charges and Revenues

Projected Annual Uniform Water Rates & Revenues										
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Annual % Increase	4.0%	3.0%	3.0%	3.0%	3.0%	2.0%	3.0%	4.0%	3.0%	3.0%
Annual charge	\$ 326.35	\$ 336.14	\$ 346.23	\$ 356.61	\$ 367.31	\$ 374.66	\$ 385.90	\$ 401.33	\$ 413.37	\$ 425.78
Number of Accounts	10,440	10,506	10,572	10,639	10,705	10,771	10,837	10,903	10,928	10,952
Total Base Charge Revenue	\$ 3,407,180	\$ 3,531,615	\$ 3,660,449	\$ 3,793,834	\$ 3,931,929	\$ 4,035,332	\$ 4,181,900	\$ 4,375,704	\$ 4,517,197	\$ 4,663,241

Projected Annual Uniform Water Rates & Revenues										
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Annual % Increase	4.0%	3.0%	3.0%	3.0%	3.0%	2.0%	3.0%	4.0%	3.0%	3.0%
Rates	\$ 1.54	\$ 1.59	\$ 1.63	\$ 1.68	\$ 1.73	\$ 1.77	\$ 1.82	\$ 1.89	\$ 1.95	\$ 2.01
Consumption	2,776,177	2,802,565	2,828,952	2,855,339	2,881,727	2,908,114	2,934,501	2,960,889	2,983,151	3,005,414
Total Volumetric Revenue	\$ 4,273,092	\$ 4,443,119	\$ 4,619,501	\$ 4,802,468	\$ 4,992,255	\$ 5,138,727	\$ 5,340,915	\$ 5,604,498	\$ 5,816,038	\$ 6,035,225

Projected Annual Water Revenues and Expenses										
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Base Charge Revenues	\$ 3,407,180	\$ 3,531,615	\$ 3,660,449	\$ 3,793,834	\$ 3,931,929	\$ 4,035,332	\$ 4,181,900	\$ 4,375,704	\$ 4,517,197	\$ 4,663,241
Builders Flat Rate Revenue	\$ 16,650	\$ 17,150	\$ 17,664	\$ 18,194	\$ 18,740	\$ 19,115	\$ 19,689	\$ 20,476	\$ 7,890	\$ 8,126
City of Hamilton Water Sales	\$ 183,303	\$ 188,802	\$ 194,466	\$ 200,300	\$ 206,309	\$ 210,435	\$ 216,748	\$ 225,418	\$ 232,181	\$ 239,146
Volumetric Revenues	\$ 4,273,092	\$ 4,443,119	\$ 4,619,501	\$ 4,802,468	\$ 4,992,255	\$ 5,138,727	\$ 5,340,915	\$ 5,604,498	\$ 5,816,038	\$ 6,035,225
Total Water Revenues	\$ 7,880,226	\$ 8,180,685	\$ 8,492,080	\$ 8,814,796	\$ 9,149,233	\$ 9,403,609	\$ 9,759,251	\$ 10,226,097	\$ 10,573,305	\$ 10,945,739
Total Water Expenses	\$ 7,880,225	\$ 8,180,685	\$ 8,492,081	\$ 8,814,796	\$ 9,149,232	\$ 9,403,610	\$ 9,759,251	\$ 10,226,096	\$ 10,573,305	\$ 10,945,739
Annual Surplus/(Deficit)	\$ 0	\$ 0	\$ (0)	\$ 0	\$ 0	\$ (0)	\$ 0	\$ 0	\$ (0)	\$ (0)

- Annual percent rates increase for the Builders Flat Rate and per cubic metre charge for Water Sales to the City of Hamilton will be consistent with the annual percent increases shown above
- Any surpluses or deficits resulting from the rate increases are offset with transfers to or from the Operating Reserve

Projected Wastewater Rates, Charges and Revenues

Projected Annual Tax Rates & Revenues										
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Annual % Increase	N/A	-19.6%	5.9%	6.5%	6.5%	6.6%	6.3%	6.5%	6.6%	6.7%
Special Area Rates (per \$1,000 of assessment)	0.89353176	0.71853039	0.76126209	0.81070827	0.86328145	0.91994118	0.97813314	1.04157731	1.11014750	1.18438888
Weighted Taxable Assessment (\$1,000)	\$ 4,892,058	\$ 4,940,979	\$ 4,990,389	\$ 5,040,292	\$ 5,090,695	\$ 5,141,602	\$ 5,193,018	\$ 5,244,948	\$ 5,297,398	\$ 5,350,372
Total SAR Revenue	\$ 4,371,209	\$ 3,550,243	\$ 3,798,994	\$ 4,086,207	\$ 4,394,703	\$ 4,729,972	\$ 5,079,463	\$ 5,463,019	\$ 5,880,893	\$ 6,336,921

Projected Annual Uniform Wastewater Rates & Revenues										
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Annual % Increase	N/A	7.2%	6.0%	6.5%	6.5%	6.6%	6.4%	6.6%	6.8%	6.9%
Rates	\$ 1.23	\$ 1.32	\$ 1.40	\$ 1.49	\$ 1.58	\$ 1.69	\$ 1.80	\$ 1.92	\$ 2.05	\$ 2.19
Billed Wastewater Flows	1,778,317	2,693,863	2,720,250	2,746,637	2,773,025	2,799,412	2,825,799	2,852,187	2,874,449	2,896,712
Total Volumetric Rate Revenue	\$ 2,185,605	\$ 3,550,243	\$ 3,798,994	\$ 4,086,207	\$ 4,394,703	\$ 4,729,972	\$ 5,079,463	\$ 5,463,019	\$ 5,880,893	\$ 6,336,921

Projected Annual Wastewater Revenues and Expenses										
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
SAR Revenues	\$ 4,371,209	\$ 3,550,243	\$ 3,798,994	\$ 4,086,207	\$ 4,394,703	\$ 4,729,972	\$ 5,079,463	\$ 5,463,019	\$ 5,880,893	\$ 6,336,921
Volumetric Rate Revenues	\$ 2,185,605	\$ 3,550,243	\$ 3,798,994	\$ 4,086,207	\$ 4,394,703	\$ 4,729,972	\$ 5,079,463	\$ 5,463,019	\$ 5,880,893	\$ 6,336,921
Total Wastewater Revenues	\$ 6,556,814	\$ 7,100,487	\$ 7,597,987	\$ 8,172,413	\$ 8,789,406	\$ 9,459,943	\$ 10,158,927	\$ 10,926,039	\$ 11,761,786	\$ 12,673,842
Total Wastewater Expenses	\$ 6,556,814	\$ 7,100,487	\$ 7,597,987	\$ 8,172,413	\$ 8,789,406	\$ 9,459,943	\$ 10,158,927	\$ 10,926,039	\$ 11,761,786	\$ 12,673,842
Annual Surplus/(Deficit)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

- Due to the proposed May 1 implementation of the new rate structure, to ensure that all wastewater costs are collected in 2023, 1/3rd of total costs will be recovered from the new Volumetric Wastewater Rate, with the 2/3rd balance of costs to be recovered from the Connection-Based Special Area Tax Rate
- From 2024 onwards, 50% of wastewater costs will be recovered from the SAR and 50% will be recovered from the wastewater rate

Customer Impacts

Water - Residential Customer Impact				
Component	2022 Charge	2023 Charge	\$ Change	% Change
Base Charge	\$ 313.80	\$ 326.35	\$ 12.55	4.0%
Volumetric Rate ¹	\$ 286.20	\$ 297.65	\$ 11.45	4.0%
Total Water	\$ 600.00	\$ 624.00	\$ 24.00	4.0%

1 - Assumed 193.38 cubic metres of water consumed per year)

Wastewater - Residential Customer Impact					
Component	2022 Charge	2022 Restated	2023 Charge	\$ Change	% Change
Special Area Rate ²	\$ 569.40	\$ 379.79	\$ 394.94	\$ 15.15	4.0%
Volumetric Rate ¹	\$ -	\$ 150.86	\$ 158.45	\$ 7.58	5.0%
Total Wastewater	\$ 569.40	\$ 530.65	\$ 553.39	\$ 22.74	4.3%

1 - Assumed two-thirds of 193.38 cubic metres of billed wastewater flows per year)

2 - Assumed a residential property with an assessed value of \$422,000

- A typical residential customer will see their 2023 wastewater charge reduce by 2.8%
- A typical residential customer who consumes less than 213 cubic metres of water per year (175 cubic metres from May 1 to December 31) will see a reduction in their wastewater charge
- Depending on a customer's assessed property value and tax class, the breakeven consumption value will vary



QUESTIONS?



2023 Water and Wastewater Rate Review



**DFA Infrastructure
International Inc**

**Presentation to Council
March 6, 2023**