CITY OF YELLOWKNIFE
WATER AND SEWER RATES REVIEW

Consultation Presentation

May 2023

INTRODUCTION: WHY REVIEW WATER AND SEWER RATES?

InterGroup Consultants was retained by the City of Yellowknife to conduct water and sewer utility rate structure review.

Current rate structure has been in place since the 1990's – since that time, there has been significant growth of trucked services. As well, best practices dictate that the rationale for utility rates should be reviewed every five years. It has been at least 20 years since a full review of the rate structure has been undertaken.

The current rate structure includes a degree of cross-subsidization, from piped services to the more expensive trucked services – is this degree of cross-subsidization appropriate?

The current rate structure also does not distinguish between water and sewer services, which leads to operational issues and is not reflective of best practices.

To address these issues, IG has reviewed rate structures and best practices in comparable jurisdictions, developed a detailed cost of service model for water and sewer services, and has identified options and principles to apply in landing on a rate structure that works for Yellowknife.

INTRODUCTION: OBJECTIVES OF THE REVIEW

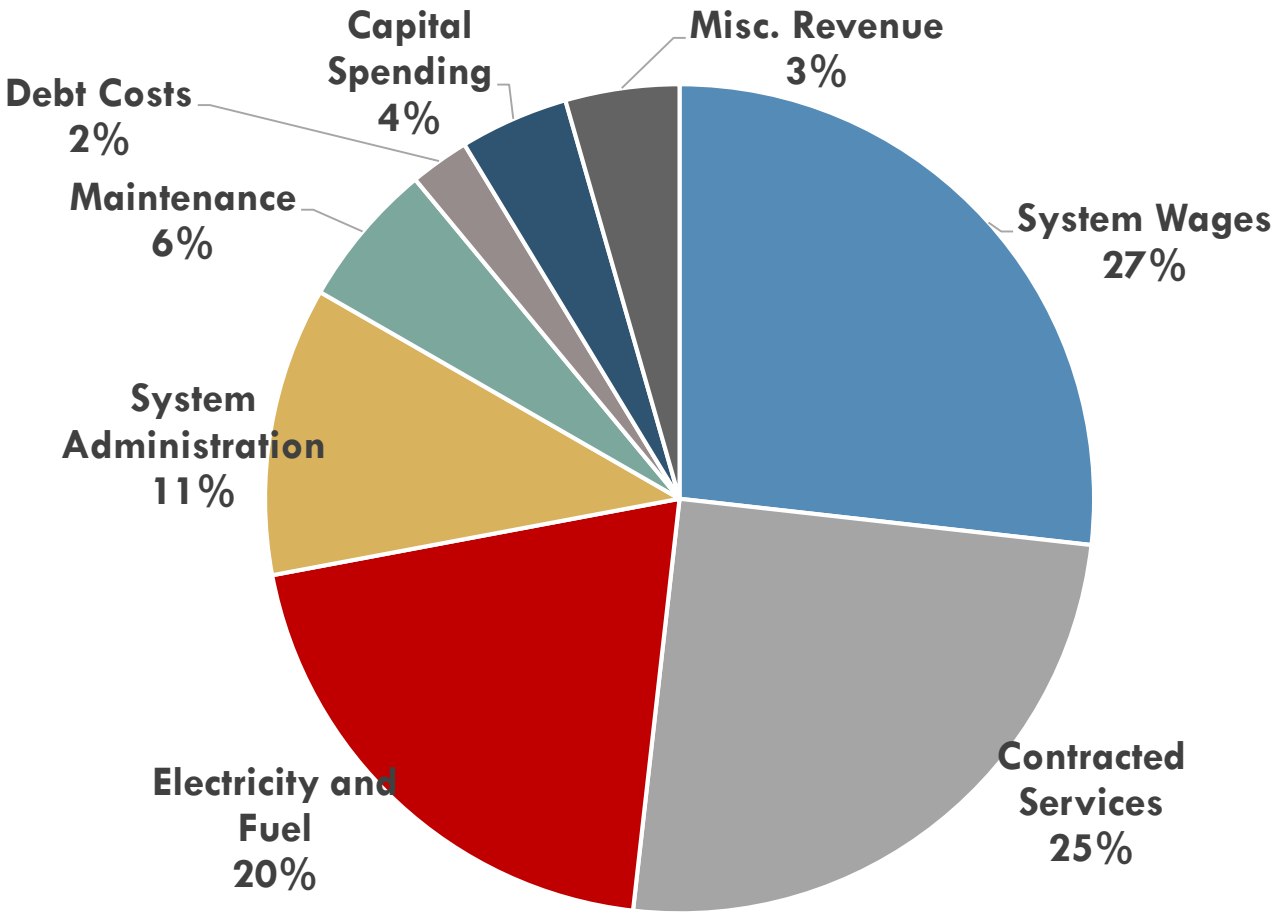
- Detailed review of current rate structure and the cost and revenue accounts.
- Development of a cost allocation methodology to establish separate cost of service model for water and sewer services.
- Development of water and sewer revenue requirements and load and revenue forecasts out to 2026.
- Differentiate between piped and trucked services and identify the level of cross-subsidization in place today.
- Develop scenarios with respect to rate and fee structures to inform a discussion with key stakeholders and City Council on the 'rate balance' that needs to be achieved between trucked and piped water and sewer services.
- Undertake a jurisdictional scan of identified municipalities that have a 'hybrid' trucked and piped system to further inform the rate balance discussion.
- Develop Over Strength Matter Regulations.
- Develop and Implement a public engagement plan.
- Based upon analysis and public and key stakeholder input, prepare a Final Report with options and recommendations for water and sewer fee structures and rates.
- Prepare Draft By-law Revisions.

PRESENTATION OVERVIEW

- Water and Sewer system costs.
- Revenue requirement to cover system costs.
- Cost allocation methodology to establish separate Cost of Service models for water and sewer, piped and trucked.
- A review of the 'cost of service analysis' and a discussion on the 'revenue to cost coverage ratio' for water and sewer, piped and trucked.
- Other Considerations: Best practices and Generally Accepted Utility Rate Design Principles.
- Options for Rate Re-Balancing, and the associated bill impacts.
- Summary and Other Recommendations.

2024 YELLOWKNIFE WATER AND SEWER SYSTEM COSTS

$9.970 MILLION



2024 YELLOWKNIFE WATER AND SEWER REVENUE REQUIREMENT

Line No.		Water	Sewer		
1	**Operation & Maintenance Expense**	**5,775,621**	**3,962,191**		
2	Wages and Employee Costs	1,604,727	1,325,644		
3	Supplies and Services	4,170,894	2,636,547		
	3(i) Contracted and general services	1,292,504	1,444,143		
	3(ii) Total Materials & supplies	354,508	102,921		
	3(iii) Maintenance	5,582	3,075		
	3(iv) Utilities - electricity	1,198,586	345,623		
	3(v) Utilities - fuel	617,663	54,379		
	3(vi) Vehicle O&M	86,051	70,406		
	3(vii) Administration Fee	616,000	616,000		
4	**Debt Costs for Major Capital**	**253,866**	**-**		
5	**Capital Spending**	**2,725,000**	**4,525,000**		
	5(i) Water & Sewer Infrastructure Replacement	1,725,000	1,725,000		
	5(ii) Other Capital	1,000,000	2,800,000		
6	**Total Revenue Requirement**	**8,754,487**	**8,487,191**	**$**	**17,241,678**
7	**Less: Non Rate Revenues**	**3,085,828**	**4,185,828**		
	7(i) External Capital Funding	1,836,000	2,936,000		
	7(ii) Non-Rate Revenue & Operating Grants	243,000	243,000		
	7(iii) Infrastructure Levy	1,006,828	1,006,828		
8	**Net Revenue Required**	**5,668,659**	**4,301,363**	**$**	**9,970,022**

2024 YELLOWKNIFE WATER AND SEWER REVENUE REQUIREMENT

NOTES:

- While the total revenue requirement – or cost – of operating the system is $17.2 million, utility rates only recover about $10 million.
- This is largely due to external capital funding secured by the City. It should be noted that the benefit of this external capital funding is shared amongst all customers. Therefore, no customers are paying the full cost of service.
- There is also an 'Infrastructure Levy', reflected on all customer bills and included in this table as a non-rate revenue. Best practices stipulate that this cost should, over time, be rolled into consumption rates.

OVERVIEW: COST ALLOCATION METHODOLOGY

- Reviewed chart of accounts, a line-by-line review of system expenses
- Allocated system costs between water and sewer services
    - For the most part, these costs were easily identified, with common costs such as administration allocated on a per unit basis
- Then allocated costs to piped and trucked services for both water and sewer
    - Again, for the most part, a straight-forward exercise.
- There are a few reasons to allocate costs to specific services:
    - Understanding the true cost of services supports informed decision making and system management
    - Many jurisdictions have specific water and sewer rates – consistent with best practices and the American Water Works Association Manual, the industry standard.
- A key is greater accuracy with respect to costs, ensuring that they fall into a range of reasonableness, balanced with simplicity of application. There are diminishing returns in terms of system management by tying every possible cost directly to a service.
- For additional detail regarding methodology, please refer to the full Interim Report.

COST OF SERVICE ANALYSIS (COSA)

What is a Cost of Service Analysis (COSA)?

- The primary purpose of a COSA is to develop a method to fairly allocate the revenue requirement among different customer classes.
- The study results are compared to revenues to calculate a revenue cost coverage ratio (RCC ratio).
- As one of our objectives was to forecast system costs out to 2026, InterGroup prepared the COSA for the City of Yellowknife based on the revenue requirement forecast for 2026.

COST OF SERVICE ANALYSIS

- The approach was based on American Water Works Association Manual, M1 Principles of Water Rates, Fees and Charges, 7th Edition ("AWWA Manual").
- The COSA involves three steps:
  - **Functionalization** - in this step revenue requirement is separated according to function [supply & treatment, pumping, transmission and distribution, admin general].
  - **Classify to base and extra capacity** - in this step the functionalized costs are classified into cost components according to the AWWA Manual approach (Base, Extra Capacity, which includes Maximum Day and Peak Hour demands, customer related and direct allocated – trucked and piped service).
  - **Allocation to customer classes** - this step the involves allocation of the costs to each customer class based on customer class characteristics appropriate for each type of classified cost.

COS RESULTS: COMBINED WATER AND SEWER

The following table summarizes total cost recovery by customer class for combined Water and Sewer services:

Customer Type	2026 Forecast		
	Revenue Forecast at Existing Rates ($000)	COS Results ($000)	RCC Ratio
	A	B	C=A/B
Piped Service	**8,850**	**8,191**	**108.0%**
Residential	4,073	3,942	103.3%
Multi-residential	1,573	1,284	122.5%
Commercial	3,105	2,557	121.4%
Bulk (incl. Unmetered)	99	94	104.4%
Community gardens/services/surface lines	0	313	0.0%
Trucked	**1,476**	**1,969**	**74.9%**
Total	**10,325**	**10,160**	**101.6%**

- **A RCC ratio of greater than 100% indicates current rates recover more than the costs to serve that customer class; while a RCC ratio of less than 100% indicates current rates do not recover the full costs of serving a customer class.**
- At 101.6 percent, the system as a whole is recovering enough revenue to offset costs.

COS RESULTS: WATER SERVICES

For water services, there is a minor over-collection of revenue, within the acceptable range. However, at about 120%, multi-residential and commercial customers and significantly over-paying while trucked services are under-paying at about 82%. Community Gardens/Services do not generate any revenue to offset costs to serve those accounts, but not considered material.

Customer Type	2026 Forecast		
	Revenue Forecast at 2023 Approved Rates ($000)	COS Results ($000)	RCC Ratio
Water Service	**A**	**B**	**C=A/B**
Piped Service	**5,310**	**4,804**	**110.5%**
Residential	2,444	2,264	107.9%
Multi-residential	944	771	122.4%
Commercial	1,863	1,531	121.7%
Bulk (incl. Unmetered)	59	56	106.0%
Community gardens/services/surface lines	0	182	0.0%
Trucked	**885**	**1,080**	**82.0%**
Total	**6,195**	**5,884**	**105.3%**

COS RESULTS: SEWER SERVICES

For sewer services, there is a minor shortfall in revenue, acceptable for modeling purposes. Notable is that trucked customers are paying about 66% of the cost of services received, again, being offset by higher rates to multi-residential and commercial customers.

Customer Type	2026 Forecast		
	Revenue Forecast at 2023 Approved Rates ($000)	COS Results ($000)	RCC Ratio
Sewer Service	**A**	**B**	**C=A/B**
Piped Service	**3,540**	**3,387**	**104.5%**
Residential	1,629	1,678	97.1%
Multi-residential	629	514	122.5%
Commercial	1,242	1,026	121.1%
Bulk (incl. Unmetered)	39	39	102.1%
Community gardens/services/surface lines	0	131	0.0%
Trucked	**590**	**889**	**66.4%**
Total	**4,130**	**4,276**	**96.6%**

COST OF SERVICE ANALYSIS SUMMARY

The results indicate the City fully recovers water and sewer costs at currently approved rates (overall RCC ratio is 101.6%). This indicates there is no requirement for a change in the overall revenue requirement to cover total system costs.

- Residential and bulk consumption customers are over-recovering the costs to serve those customers, however their RCC ratios are within the zone of reasonableness of 90%-110% (about 108% and 104%, respectively).
- Multi-residential and Commercial customers are over-paying their costs at about 122% and 121%, respectively, which is above the range of reasonableness of 90%-110%.
- Trucked service customers are only recovering 75% of the total cost of service (82% for water and 66% for sewer) allocated to these customers, which is significantly below the range of reasonableness of 90%-110%. A review of the line-by-line costs associated with trucked services indicates that this shortfall is largely the result of a shortfall in collection of contracted sewer pump out costs (about $300,000 shortfall) and the costs of the water delivery contract (about a $200,000 shortfall).

OTHER CONSIDERATIONS

- In addition to the COS analysis, InterGroup reached out to other jurisdictions with a hybrid system – there are very few. Based upon this analysis and consideration of industry best practices and the AWAA manual, the following considerations were established:

- The yellowknife water and sewer rate structure has evolved over a period of time to be very complicated, and it has been decades since a full review has been undertaken. Today, the industry standard is to have separate rates for water and sewer services.

- There are multiple fixed fee components – the demand charge, the access fee, the infrastructure levy, and the insurance charge. No other municipality takes this approach.

- The current rate structure utilizes the concept of *Equivalent Residential Unit (ERU)* that utilizes floor space in determining charges for commercial customers. For example, a business with a substantial amount of floor space that has one bathroom and utilizes very little water or sewer services will receive very sizeable utility bills. A dated practice.

- While there is cross-subsidization, the full revenue requirement to cover system costs is being collected through water and sewer rates and non-rate revenues.

- All customers are being subsidized by other government funding of about $3.8 million in the example of 2026 forecast. As well, there is about $2 million per year in non-rate revenue from the *Infrastructure Levy* found on utility bills.

OTHER CONSIDERATIONS: GENERALLY ACCEPTED UTILITY RATE PRINCIPLES

- ***Recover Full Cost of Providing Service:*** This ensures that the utility is sustainable in the long term and not underfunded or subsidized by other municipal revenues.
- ***Rates Should Reflect the Costs to Serve Customers***
- ***Rates and Fees Should be Easy to Understand:*** This speaks to the use of a complicated ERU noted above.
- ***Send a Price Signal to Consumers Regarding the Costs of Consumption: T***his principle is about using a combination of fixed and variable rates that results in charging higher users more than lower users.
- ***Ensure Administrative Efficiency and Simplicity***
- ***Implement Separate Rates and Fees for Water and Sewer Utilities***
- ***Unexpected Changes to Customers Bills Should be Minimized***

While these principles should guide the way forward, due to the complexity of the undertaking, as well as 'rate shock' for certain customers, it would be difficult to address all of these issues at once. Two options and the associated customer bill impacts were examined.

OPTIONS FOR RATE RE-BALANCING

Option 1: Full Rate Revision:

- Eliminate ERU (floor space component) from piped service Access Fee charges
  - Reduces commercial/ multi-residential revenue (due to ERU removal) but increases residential revenue (due to Access Fee increase). The access fee is increased to ensure it is covering all related costs identified in the cost of service study.
- Eliminate Infrastructure Levy from fixed fees based on ERU and increase volumetric rates to simplify the rate structure
- Change Insurance Premium (SCFA) from fixed fees based on ERU to volumetric rates
- Separate water and sewer rates

OPTIONS FOR RATE RE-BALANCING

Option 2: A Phased Approach

- Remove ERU to simplify the rate structure. This reduces commercial and multi-residential revenue (due to ERU removal) but increases residential revenue (due to Access Fee increase).
- Implement separate water and sewer rates.
- Set separate residential and commercial/multi-residential consumption rates to minimize the bill impacts from removal of ERU. Over time, consumption rates should be consistent across customer classes.
- Target 90% combined water/sewer utility RCC ratio for the trucked service.
- Reduce multi-residential and commercial classes rates, which have very high RCC ratios, with incremental revenue from other rate adjustments.

Under this option, in the interim period the ERU component of the access fee will be phased out. This option maintains a degree of cross-subsidization and takes some steps towards rate simplification – but also minimizes bill impacts on trucked customers.

TWO OPTIONS: ESTIMATED BILL IMPACTS

Customer Classes	Full Revision: Include Infrastructure Levy & Insurance Premium Revisions			Phased Approach: W&S Rate and Fee Changes Only		
	Annual %	Annual $ Impact	3 Year $ Impact	Annual %	Annual $ Impact	3 Year $ Impact
Residential Average Bill (12 M3)	0.0%	$0	$0	0.0%	$0	$0
Multi-Residential						
Average Bill (200 m3)	-2.6%	-$462	-$1,386	-1.7%	-$310	-$930
High Consumption (347 m3)	-22.4%	-$12,936	-$38,808	-5.6%	-$3,869	-$11,608
Commercial						
Average Bill (40 m3)	-5.1%	-$184	-$552	-2.8%	-$104	-$311
Low Consumption (3 M3)	-55.5%	-$1,899	-$5,697	-9.0%	-$515	-$1,546
High Consumption (1,348 m3)	0.4%	$517	$1,550	-1.4%	-$1,580	-$4,739
Trucked						
Average Bill (8 m3)	8.0%	$162	$486	5.0%	$111	$334
Low Consumption (5 m3)	6.7%	$118	$354	4.6%	$80	$241
High Consumption (130 m3)	10.7%	$1,336	$4,008	4.5%	$528	$1,583
Mid-Consumption (66 m3)	3.5%	$238	$714	3.6%	$245	$735

NOTES ON OPTIONS AND BILL IMPACTS

- Two options for rate revision were examined; a full rate revision and a phased approach.
- As can be seen, a full rate revision that reflects the actual cost of service would have a significant annual impact on some customers.
- One of the key recommendations of this study is that trucked water and sewer services will see their rates increase by about 5 percent per year for the next three years. For average use customers, this amounts to between $9 and $10 per month in 2024, 2025, and 2026. Once fully implemented, these trucked service customers will see their total bill increase by about $340 per year by 2026.
- As the average use volumes includes some high-use customers, it should be noted that for low-use trucked customers, the bill impact is lower – about 3.6 percent per year.
- Intergroup is recommending a phased approach.

REVENUE TO COST COVERAGE RATIOS: A PHASED APPROACH

Customer Type	2026 Forecast			COS Results ($000)	RCC Ratio
	Water	Sewer	Total		
	A	B	C=A+B	D	E=C/D
Piped Service	**5,354**	**3,199**	**8,553**	**8,191**	**104.4%**
Residential	2,503	1,570	4,073	3,942	103.3%
Multi-residential	948	527	1,475	1,284	114.9%
Commercial	1,840	1,053	2,893	2,557	113.2%
Bulk (incl. Unmetered)	62	49	111	94	117.5%
Community gardens/services/surface lines	0	0	0	313	0.0%
Trucked	**695**	**1,077**	**1,772**	**1,969**	**90.0%**
Total	**6,049**	**4,277**	**10,325**	**10,160**	**101.6%**

- Three-year implementation – largely addresses cross-subsidization – trucked services RCC increased to 90% of cost - but additional steps required in years 4 and 5 to truly simplify bills.
- No change in the residential class RCC ratio.
- Multi-residential and commercial class RCC ratios reduced to 114.9% and 113.2%
- Piped service still subsidizes trucked service, however the piped service RCC ratio reduced from 108.0% to 104.4%

SUMMARY

- This water and sewer rate structure review has provided the City with a detailed analysis of the water and sewer revenue requirement and detailed cost of service models for separate water and sewer utilities. This work will provide the City with useful planning and analysis tools to help manage the system into the future.

A review of peer municipalities provided a number of findings that pointed to the need for the City to simplify the current rate structure:

- None of the peer utilities reviewed include an ERU component in their water and sewer rate structure.
- None of the peer municipalities reviewed have multiple fixed fees in their rate structure.
- Most of the peer utilities charge both fixed and variable fees for water and sewer service.
- Most municipalities do not have different consumption rates by customer class.

While some of the utilities noted that there is a degree of cross-subsidization within their rate structure, they all acknowledged that this is not an ideal approach..

SUMMARY

InterGroup is recommending a phased approach as the resulting bill impacts are spread out over time:

- The first proposed step is to focus on rate rebalancing; implementation of separate water and sewer rates; adding rate premiums to trucked sewer service; and removing ERU from Access Fee charge. This 'phased approach' would be implemented over three years.
- In year four, the City should look at further simplifying rate structure by rolling the Infrastructure Levy into the water and sewer rates.
- The final phase – year five or six - should limit the rate structure components to only demand and consumption charges for both water and sewer utilities.

SUMMARY: OTHER RECOMMENDATIONS

This presentation has focused on options and bill impacts to customers. A number of other recommendations for system improvements are detailed in the Interim Report, found on the City's PlaceSpeak website:

- Develop additional sewage disposal charges for trucked customers requiring more than two trips per week, as covered by the existing City contract. Two options were presented; a volumetric component or a fixed fee. This issue will be further discussed with City contractors. It is important that customers requiring extra services pay for all of the costs associated with these services, and not just the additional transportation charge from extra call-outs.
- Develop a non-resident bill surcharge to capture those customers utilizing City water and sewer services but only paying the cost of the commodity and making no contribution towards infrastructure costs. For simplicity, it is proposed that a 10 percent surcharge be added to non-resident rates.
- Implement recommendations with to address the need for Over Strength matter regulations.
- Establish utility reserve accounts.

COMMENTS?

- The review of water and sewer rates is a complex undertaking. For the full methodology and discussion on all of the recommendations, please refer to the Interim Report.
- As a final note: Trucked services have always been subsidized by piped services – in a 2003 memorandum provided to the City of Yellowknife, InterGroup estimated that the RCC for trucked services was in the range of 68%.
- As the current approach has been in place for many years, Intergroup believes that addressing this issue requires a phased approach, over years.

1) Do you agree that water and sewer services and rates should move towards a true cost of service model over time, minimizing bill impacts?
2) Do you have any comments with regard to piped water and sewer services subsidizing trucked water and services? For example, do you believe that piped services should continue to subsidize trucked services? Why?
3) Do you have any other comments or questions regarding the water and sewer rate review?

Please let us know if you require additional information.

INTRODUCTION: WHY REVIEW WATER AND SEWER RATES?

InterGroup Consultants was retained by the City of Yellowknife to conduct water and sewer utility rate structure review.

Current rate structure has been in place since the 1990's – since that time, there has been significant growth of trucked services. As well, best practices dictate that the rationale for utility rates should be reviewed every five years. It has been at least 20 years since a full review of the rate structure has been undertaken.

The current rate structure includes a degree of cross-subsidization, from piped services to the more expensive trucked services – is this degree of cross-subsidization appropriate?

The current rate structure also does not distinguish between water and sewer services, which leads to operational issues and is not reflective of best practices.

To address these issues, IG has reviewed rate structures and best practices in comparable jurisdictions, developed a detailed cost of service model for water and sewer services, and has identified options and principles to apply in landing on a rate structure that works for Yellowknife.

INTRODUCTION: OBJECTIVES OF THE REVIEW

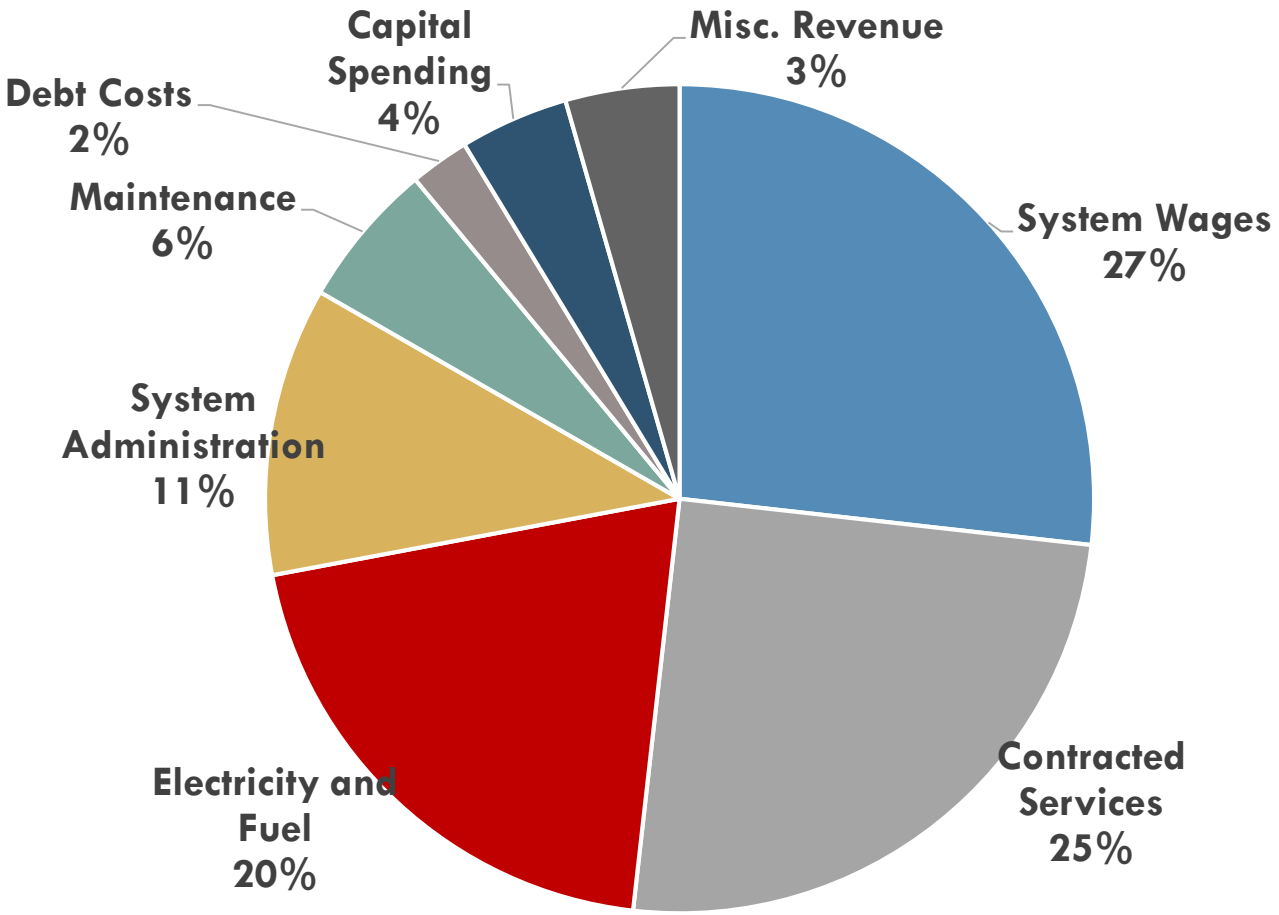
- Detailed review of current rate structure and the cost and revenue accounts.
- Development of a cost allocation methodology to establish separate cost of service model for water and sewer services.
- Development of water and sewer revenue requirements and load and revenue forecasts out to 2026.
- Differentiate between piped and trucked services and identify the level of cross-subsidization in place today.
- Develop scenarios with respect to rate and fee structures to inform a discussion with key stakeholders and City Council on the 'rate balance' that needs to be achieved between trucked and piped water and sewer services.
- Undertake a jurisdictional scan of identified municipalities that have a 'hybrid' trucked and piped system to further inform the rate balance discussion.
- Develop Over Strength Matter Regulations.
- Develop and Implement a public engagement plan.
- Based upon analysis and public and key stakeholder input, prepare a Final Report with options and recommendations for water and sewer fee structures and rates.
- Prepare Draft By-law Revisions.

PRESENTATION OVERVIEW

- Water and Sewer system costs.
- Revenue requirement to cover system costs.
- Cost allocation methodology to establish separate Cost of Service models for water and sewer, piped and trucked.
- A review of the 'cost of service analysis' and a discussion on the 'revenue to cost coverage ratio' for water and sewer, piped and trucked.
- Other Considerations: Best practices and Generally Accepted Utility Rate Design Principles.
- Options for Rate Re-Balancing, and the associated bill impacts.
- Summary and Other Recommendations.

2024 YELLOWKNIFE WATER AND SEWER SYSTEM COSTS

$9.970 MILLION



2024 YELLOWKNIFE WATER AND SEWER REVENUE REQUIREMENT

Line No.		Water	Sewer		
1	**Operation & Maintenance Expense**	**5,775,621**	**3,962,191**		
2	Wages and Employee Costs	1,604,727	1,325,644		
3	Supplies and Services	4,170,894	2,636,547		
	3(i) Contracted and general services	1,292,504	1,444,143		
	3(ii) Total Materials & supplies	354,508	102,921		
	3(iii) Maintenance	5,582	3,075		
	3(iv) Utilities - electricity	1,198,586	345,623		
	3(v) Utilities - fuel	617,663	54,379		
	3(vi) Vehicle O&M	86,051	70,406		
	3(vii) Administration Fee	616,000	616,000		
4	**Debt Costs for Major Capital**	**253,866**	**-**		
5	**Capital Spending**	**2,725,000**	**4,525,000**		
	5(i) Water & Sewer Infrastructure Replacement	1,725,000	1,725,000		
	5(ii) Other Capital	1,000,000	2,800,000		
6	**Total Revenue Requirement**	**8,754,487**	**8,487,191**	**$**	**17,241,678**
7	**Less: Non Rate Revenues**	**3,085,828**	**4,185,828**		
	7(i) External Capital Funding	1,836,000	2,936,000		
	7(ii) Non-Rate Revenue & Operating Grants	243,000	243,000		
	7(iii) Infrastructure Levy	1,006,828	1,006,828		
8	**Net Revenue Required**	**5,668,659**	**4,301,363**	**$**	**9,970,022**

2024 YELLOWKNIFE WATER AND SEWER REVENUE REQUIREMENT

NOTES:

- While the total revenue requirement – or cost – of operating the system is $17.2 million, utility rates only recover about $10 million.
- This is largely due to external capital funding secured by the City. It should be noted that the benefit of this external capital funding is shared amongst all customers. Therefore, no customers are paying the full cost of service.
- There is also an 'Infrastructure Levy', reflected on all customer bills and included in this table as a non-rate revenue. Best practices stipulate that this cost should, over time, be rolled into consumption rates.

OVERVIEW: COST ALLOCATION METHODOLOGY

- Reviewed chart of accounts, a line-by-line review of system expenses
- Allocated system costs between water and sewer services
    - For the most part, these costs were easily identified, with common costs such as administration allocated on a per unit basis
- Then allocated costs to piped and trucked services for both water and sewer
    - Again, for the most part, a straight-forward exercise.
- There are a few reasons to allocate costs to specific services:
    - Understanding the true cost of services supports informed decision making and system management
    - Many jurisdictions have specific water and sewer rates – consistent with best practices and the American Water Works Association Manual, the industry standard.
- A key is greater accuracy with respect to costs, ensuring that they fall into a range of reasonableness, balanced with simplicity of application. There are diminishing returns in terms of system management by tying every possible cost directly to a service.
- For additional detail regarding methodology, please refer to the full Interim Report.

COST OF SERVICE ANALYSIS (COSA)

What is a Cost of Service Analysis (COSA)?

- The primary purpose of a COSA is to develop a method to fairly allocate the revenue requirement among different customer classes.
- The study results are compared to revenues to calculate a revenue cost coverage ratio (RCC ratio).
- As one of our objectives was to forecast system costs out to 2026, InterGroup prepared the COSA for the City of Yellowknife based on the revenue requirement forecast for 2026.

COST OF SERVICE ANALYSIS

- The approach was based on American Water Works Association Manual, M1 Principles of Water Rates, Fees and Charges, 7th Edition ("AWWA Manual").
- The COSA involves three steps:
  - **Functionalization** - in this step revenue requirement is separated according to function [supply & treatment, pumping, transmission and distribution, admin general].
  - **Classify to base and extra capacity** - in this step the functionalized costs are classified into cost components according to the AWWA Manual approach (Base, Extra Capacity, which includes Maximum Day and Peak Hour demands, customer related and direct allocated – trucked and piped service).
  - **Allocation to customer classes** - this step the involves allocation of the costs to each customer class based on customer class characteristics appropriate for each type of classified cost.

COS RESULTS: COMBINED WATER AND SEWER

The following table summarizes total cost recovery by customer class for combined Water and Sewer services:

Customer Type	2026 Forecast		
	Revenue Forecast at Existing Rates ($000)	COS Results ($000)	RCC Ratio
	A	B	C=A/B
Piped Service	**8,850**	**8,191**	**108.0%**
Residential	4,073	3,942	103.3%
Multi-residential	1,573	1,284	122.5%
Commercial	3,105	2,557	121.4%
Bulk (incl. Unmetered)	99	94	104.4%
Community gardens/services/surface lines	0	313	0.0%
Trucked	**1,476**	**1,969**	**74.9%**
Total	**10,325**	**10,160**	**101.6%**

- **A RCC ratio of greater than 100% indicates current rates recover more than the costs to serve that customer class; while a RCC ratio of less than 100% indicates current rates do not recover the full costs of serving a customer class.**
- At 101.6 percent, the system as a whole is recovering enough revenue to offset costs.

COS RESULTS: WATER SERVICES

For water services, there is a minor over-collection of revenue, within the acceptable range. However, at about 120%, multi-residential and commercial customers and significantly over-paying while trucked services are under-paying at about 82%. Community Gardens/Services do not generate any revenue to offset costs to serve those accounts, but not considered material.

Customer Type	2026 Forecast		
	Revenue Forecast at 2023 Approved Rates ($000)	COS Results ($000)	RCC Ratio
Water Service	**A**	**B**	**C=A/B**
Piped Service	**5,310**	**4,804**	**110.5%**
Residential	2,444	2,264	107.9%
Multi-residential	944	771	122.4%
Commercial	1,863	1,531	121.7%
Bulk (incl. Unmetered)	59	56	106.0%
Community gardens/services/surface lines	0	182	0.0%
Trucked	**885**	**1,080**	**82.0%**
Total	**6,195**	**5,884**	**105.3%**

COS RESULTS: SEWER SERVICES

For sewer services, there is a minor shortfall in revenue, acceptable for modeling purposes. Notable is that trucked customers are paying about 66% of the cost of services received, again, being offset by higher rates to multi-residential and commercial customers.

Customer Type	2026 Forecast		
	Revenue Forecast at 2023 Approved Rates ($000)	COS Results ($000)	RCC Ratio
Sewer Service	**A**	**B**	**C=A/B**
Piped Service	**3,540**	**3,387**	**104.5%**
Residential	1,629	1,678	97.1%
Multi-residential	629	514	122.5%
Commercial	1,242	1,026	121.1%
Bulk (incl. Unmetered)	39	39	102.1%
Community gardens/services/surface lines	0	131	0.0%
Trucked	**590**	**889**	**66.4%**
Total	**4,130**	**4,276**	**96.6%**

COST OF SERVICE ANALYSIS SUMMARY

The results indicate the City fully recovers water and sewer costs at currently approved rates (overall RCC ratio is 101.6%). This indicates there is no requirement for a change in the overall revenue requirement to cover total system costs.

- Residential and bulk consumption customers are over-recovering the costs to serve those customers, however their RCC ratios are within the zone of reasonableness of 90%-110% (about 108% and 104%, respectively).
- Multi-residential and Commercial customers are over-paying their costs at about 122% and 121%, respectively, which is above the range of reasonableness of 90%-110%.
- Trucked service customers are only recovering 75% of the total cost of service (82% for water and 66% for sewer) allocated to these customers, which is significantly below the range of reasonableness of 90%-110%. A review of the line-by-line costs associated with trucked services indicates that this shortfall is largely the result of a shortfall in collection of contracted sewer pump out costs (about $300,000 shortfall) and the costs of the water delivery contract (about a $200,000 shortfall).

OTHER CONSIDERATIONS

- In addition to the COS analysis, InterGroup reached out to other jurisdictions with a hybrid system – there are very few. Based upon this analysis and consideration of industry best practices and the AWAA manual, the following considerations were established:

- The yellowknife water and sewer rate structure has evolved over a period of time to be very complicated, and it has been decades since a full review has been undertaken. Today, the industry standard is to have separate rates for water and sewer services.

- There are multiple fixed fee components – the demand charge, the access fee, the infrastructure levy, and the insurance charge. No other municipality takes this approach.

- The current rate structure utilizes the concept of *Equivalent Residential Unit (ERU)* that utilizes floor space in determining charges for commercial customers. For example, a business with a substantial amount of floor space that has one bathroom and utilizes very little water or sewer services will receive very sizeable utility bills. A dated practice.

- While there is cross-subsidization, the full revenue requirement to cover system costs is being collected through water and sewer rates and non-rate revenues.

- All customers are being subsidized by other government funding of about $3.8 million in the example of 2026 forecast. As well, there is about $2 million per year in non-rate revenue from the *Infrastructure Levy* found on utility bills.

OTHER CONSIDERATIONS: GENERALLY ACCEPTED UTILITY RATE PRINCIPLES

- ***Recover Full Cost of Providing Service:*** This ensures that the utility is sustainable in the long term and not underfunded or subsidized by other municipal revenues.
- ***Rates Should Reflect the Costs to Serve Customers***
- ***Rates and Fees Should be Easy to Understand:*** This speaks to the use of a complicated ERU noted above.
- ***Send a Price Signal to Consumers Regarding the Costs of Consumption: T***his principle is about using a combination of fixed and variable rates that results in charging higher users more than lower users.
- ***Ensure Administrative Efficiency and Simplicity***
- ***Implement Separate Rates and Fees for Water and Sewer Utilities***
- ***Unexpected Changes to Customers Bills Should be Minimized***

While these principles should guide the way forward, due to the complexity of the undertaking, as well as 'rate shock' for certain customers, it would be difficult to address all of these issues at once. Two options and the associated customer bill impacts were examined.

OPTIONS FOR RATE RE-BALANCING

Option 1: Full Rate Revision:

- Eliminate ERU (floor space component) from piped service Access Fee charges
  - Reduces commercial/ multi-residential revenue (due to ERU removal) but increases residential revenue (due to Access Fee increase). The access fee is increased to ensure it is covering all related costs identified in the cost of service study.
- Eliminate Infrastructure Levy from fixed fees based on ERU and increase volumetric rates to simplify the rate structure
- Change Insurance Premium (SCFA) from fixed fees based on ERU to volumetric rates
- Separate water and sewer rates

OPTIONS FOR RATE RE-BALANCING

Option 2: A Phased Approach

- Remove ERU to simplify the rate structure. This reduces commercial and multi-residential revenue (due to ERU removal) but increases residential revenue (due to Access Fee increase).
- Implement separate water and sewer rates.
- Set separate residential and commercial/multi-residential consumption rates to minimize the bill impacts from removal of ERU. Over time, consumption rates should be consistent across customer classes.
- Target 90% combined water/sewer utility RCC ratio for the trucked service.
- Reduce multi-residential and commercial classes rates, which have very high RCC ratios, with incremental revenue from other rate adjustments.

Under this option, in the interim period the ERU component of the access fee will be phased out. This option maintains a degree of cross-subsidization and takes some steps towards rate simplification – but also minimizes bill impacts on trucked customers.

TWO OPTIONS: ESTIMATED BILL IMPACTS

Customer Classes	Full Revision: Include Infrastructure Levy & Insurance Premium Revisions			Phased Approach: W&S Rate and Fee Changes Only		
	Annual %	Annual $ Impact	3 Year $ Impact	Annual %	Annual $ Impact	3 Year $ Impact
Residential Average Bill (12 M3)	0.0%	$0	$0	0.0%	$0	$0
Multi-Residential						
Average Bill (200 m3)	-2.6%	-$462	-$1,386	-1.7%	-$310	-$930
High Consumption (347 m3)	-22.4%	-$12,936	-$38,808	-5.6%	-$3,869	-$11,608
Commercial						
Average Bill (40 m3)	-5.1%	-$184	-$552	-2.8%	-$104	-$311
Low Consumption (3 M3)	-55.5%	-$1,899	-$5,697	-9.0%	-$515	-$1,546
High Consumption (1,348 m3)	0.4%	$517	$1,550	-1.4%	-$1,580	-$4,739
Trucked						
Average Bill (8 m3)	8.0%	$162	$486	5.0%	$111	$334
Low Consumption (5 m3)	6.7%	$118	$354	4.6%	$80	$241
High Consumption (130 m3)	10.7%	$1,336	$4,008	4.5%	$528	$1,583
Mid-Consumption (66 m3)	3.5%	$238	$714	3.6%	$245	$735

NOTES ON OPTIONS AND BILL IMPACTS

- Two options for rate revision were examined; a full rate revision and a phased approach.
- As can be seen, a full rate revision that reflects the actual cost of service would have a significant annual impact on some customers.
- One of the key recommendations of this study is that trucked water and sewer services will see their rates increase by about 5 percent per year for the next three years. For average use customers, this amounts to between $9 and $10 per month in 2024, 2025, and 2026. Once fully implemented, these trucked service customers will see their total bill increase by about $340 per year by 2026.
- As the average use volumes includes some high-use customers, it should be noted that for low-use trucked customers, the bill impact is lower – about 3.6 percent per year.
- Intergroup is recommending a phased approach.

REVENUE TO COST COVERAGE RATIOS: A PHASED APPROACH

Customer Type	2026 Forecast			COS Results ($000)	RCC Ratio
	Water	Sewer	Total		
	A	B	C=A+B	D	E=C/D
Piped Service	**5,354**	**3,199**	**8,553**	**8,191**	**104.4%**
Residential	2,503	1,570	4,073	3,942	103.3%
Multi-residential	948	527	1,475	1,284	114.9%
Commercial	1,840	1,053	2,893	2,557	113.2%
Bulk (incl. Unmetered)	62	49	111	94	117.5%
Community gardens/services/surface lines	0	0	0	313	0.0%
Trucked	**695**	**1,077**	**1,772**	**1,969**	**90.0%**
Total	**6,049**	**4,277**	**10,325**	**10,160**	**101.6%**

- Three-year implementation – largely addresses cross-subsidization – trucked services RCC increased to 90% of cost - but additional steps required in years 4 and 5 to truly simplify bills.
- No change in the residential class RCC ratio.
- Multi-residential and commercial class RCC ratios reduced to 114.9% and 113.2%
- Piped service still subsidizes trucked service, however the piped service RCC ratio reduced from 108.0% to 104.4%

SUMMARY

- This water and sewer rate structure review has provided the City with a detailed analysis of the water and sewer revenue requirement and detailed cost of service models for separate water and sewer utilities. This work will provide the City with useful planning and analysis tools to help manage the system into the future.

A review of peer municipalities provided a number of findings that pointed to the need for the City to simplify the current rate structure:

- None of the peer utilities reviewed include an ERU component in their water and sewer rate structure.
- None of the peer municipalities reviewed have multiple fixed fees in their rate structure.
- Most of the peer utilities charge both fixed and variable fees for water and sewer service.
- Most municipalities do not have different consumption rates by customer class.

While some of the utilities noted that there is a degree of cross-subsidization within their rate structure, they all acknowledged that this is not an ideal approach..

SUMMARY

InterGroup is recommending a phased approach as the resulting bill impacts are spread out over time:

- The first proposed step is to focus on rate rebalancing; implementation of separate water and sewer rates; adding rate premiums to trucked sewer service; and removing ERU from Access Fee charge. This 'phased approach' would be implemented over three years.
- In year four, the City should look at further simplifying rate structure by rolling the Infrastructure Levy into the water and sewer rates.
- The final phase – year five or six - should limit the rate structure components to only demand and consumption charges for both water and sewer utilities.

SUMMARY: OTHER RECOMMENDATIONS

This presentation has focused on options and bill impacts to customers. A number of other recommendations for system improvements are detailed in the Interim Report, found on the City's PlaceSpeak website:

- Develop additional sewage disposal charges for trucked customers requiring more than two trips per week, as covered by the existing City contract. Two options were presented; a volumetric component or a fixed fee. This issue will be further discussed with City contractors. It is important that customers requiring extra services pay for all of the costs associated with these services, and not just the additional transportation charge from extra call-outs.
- Develop a non-resident bill surcharge to capture those customers utilizing City water and sewer services but only paying the cost of the commodity and making no contribution towards infrastructure costs. For simplicity, it is proposed that a 10 percent surcharge be added to non-resident rates.
- Implement recommendations with to address the need for Over Strength matter regulations.
- Establish utility reserve accounts.

COMMENTS?

- The review of water and sewer rates is a complex undertaking. For the full methodology and discussion on all of the recommendations, please refer to the Interim Report.
- As a final note: Trucked services have always been subsidized by piped services – in a 2003 memorandum provided to the City of Yellowknife, InterGroup estimated that the RCC for trucked services was in the range of 68%.
- As the current approach has been in place for many years, Intergroup believes that addressing this issue requires a phased approach, over years.

1) Do you agree that water and sewer services and rates should move towards a true cost of service model over time, minimizing bill impacts?
2) Do you have any comments with regard to piped water and sewer services subsidizing trucked water and services? For example, do you believe that piped services should continue to subsidize trucked services? Why?
3) Do you have any other comments or questions regarding the water and sewer rate review?

Please let us know if you require additional information.