City of Edmonton

Waste Services Utility

2021 Utility Rate Filing

December 4, 2020

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Executive Summary

Waste Services continues to progress toward a more environmentally sustainable future with a focus on waste reduction across all sectors and the City's shared leadership as stewards of the environment. Key initiatives and priorities for the upcoming business planning cycle, including the 25-year Waste Strategy implementation, will allow Waste Services to contribute to the City's Corporate Outcome and the 90 percent residential diversion goal established in Waste Management Policy C527.

Over the next four years, Waste Services will follow the guiding principles described in the City's Reimagine report, ConnectEdmonton, and the new City Plan. Additionally, Waste Services will manage the risk to diversion targets for the regulated business sector through a balanced portfolio of activities, maximize the promotion of policy, regulation, partnerships and market creation for the non-regulated business sector, and promote waste reduction through increased citizen engagement, education and enforcement to meet the evolving waste system requirements and planned changes. The focus will be on the following:

- Waste Strategy in Action - Applying a Zero Waste Framework, emphasis will be placed on waste reduction, reuse, recycling, composting, materials recovery and waste to energy across all waste streams. Starting in 2021, approximately 236,000 households will move to a four stream program with separate food scraps collection, seasonal yard waste collection and garbage volume limits as part of the Edmonton Cart Rollout. Following the citywide distribution of carts, Single Unit customers will be transitioned to variable rates (based on garbage cart size) to incentivize good waste behaviours and give customers an element of control over their monthly rate.

- Service Delivery Transformation - Wastes Services' Customer Experience team will drive transformation to successfully move to a customer-centric model utilizing proven methodologies and industry-leading practices such as journey mapping, customer feedback management, citizen engagement, business performance metrics and full service and product lifecycle management.

- Innovation and Asset Optimization - The Edmonton Waste Management Centre is a unique collection of waste processing and research facilities. A variety of projects are underway to optimize processes on the site including the Advanced Energy Research Facility, Clover Bar Landfill gas management and groundwater diversion system. Partnerships are also being explored through the Alberta Clean Energy Technology Accelerator (ACETA) and a waste to energy trial with the municipality of St. Albert.

- Fiscal Accountability - Edmonton expects to face many challenges in the coming years as a result of the COVID-19 pandemic. Operating in a new fiscal reality means significant gaps between providing expected service levels and the availability of financial resources. Waste Services continues to strive towards achieving the financial indicators set out in Waste Management Utility Fiscal Policy C558A, as adopted by City Council in 2014. The focus will be to provide stable and consistent rate increases while achieving cash and debt to net asset targets to ensure the Utility is financially sustainable over the long term. The Utility is proposing a zero percent rate increase in 2021 while delivering significant and transformational change in the delivery of its service.

- Fiscal Management - Waste Services has conducted a thorough risk assessment accounting for both short term and long term operational, capital and financial impacts. Risks will continue to be monitored and updated in the Risk Register. Performance metrics will continue to be refined to aid in the management of the business in conjunction with the Enterprise Performance Management initiative. Additionally, measures will be developed to monitor the climate impact of the 25-year Waste Strategy and the commercial collection wind down is expected to be completed by the end of 2021.

The Waste Services Utility is well positioned for the transformational changes in the coming years as a result of the 25-year Waste Strategy. Stable and consistent utility rate increases remain the key goal with a focus on waste reduction and alignment to the Zero Waste Framework for all sectors in the City of Edmonton.

1.0 Introduction

Waste Services is an essential part of the City Plan and supports Climate Resilience through innovation and partnership. Waste Services' goal is to support and encourage Edmontonians, businesses and institutions in their waste management practices, while demonstrating shared leadership as stewards of the environment.

Waste Services has developed an integrated 25-year Strategic Outlook to ensure Edmontonians receive maximum environmental benefits while minimizing the cost increases of managing solid waste. The City's Reimagine Report (CR_8379) highlights many challenges that Edmonton expects to face in the coming years related to the COVID-19 pandemic. Waste Services has realigned its strategic deliverables in consideration of these needs which include the potential for increased residential waste and a resurgence in single-use products, making diverting waste from landfill more challenging. With Edmonton's population growth also expected to slow, it could result in a reduced growth in customer count and a lower tolerance for increased waste utility rates.

Over the next four years, significant changes to the waste management program will be delivered as part of the transition to a zero waste future. The City will lead by example by implementing source separated organics at City of Edmonton facilities and buildings, setting an example for the Industrial, Commercial and Institutional sector to follow. The Waste Reduction Roadmap, which will be presented to City Council in Spring 2021, will prioritize new waste prevention and reduction initiatives across all sectors. Additionally, new regional partnerships will allow for increased organic waste processing and diversion.

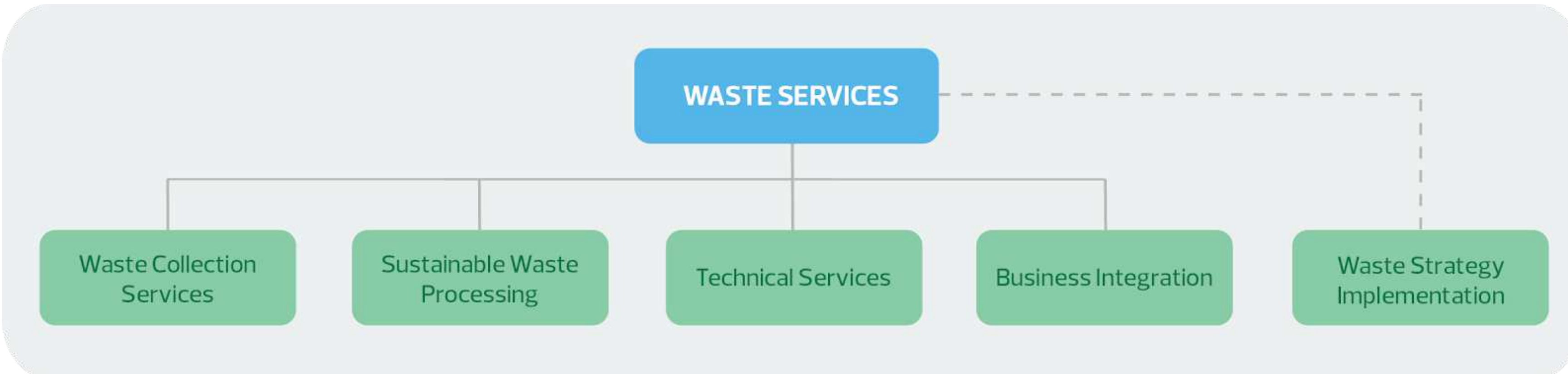
Stable and consistent utility rate increases remain a focus for the next four years and will be augmented through the introduction of cart rates for single unit customers. The 2021-2024 Business Plan highlights the service delivery transformations and the revenue potential of waste byproducts and assets to support the goal of a stable and consistent rate. The Service Delivery Transformation will be achieved through technology, process optimization and reimagined services. It will enhance operational efficiency, while enhanced employee engagement and a continued focus on safety culture will improve productivity and retain top talent.

Waste Services will continue to make transformational impacts through the 25-year Waste Strategy. Essential service will be maintained for Edmontonians through a full cost recovery approach and the citizen experience will be improved to support adaptation of new waste management systems for the City.

2.0 Organizational Structure

Waste Services' organizational structure is fully aligned to the Corporate Business Plan and consists of five sections (Figure 1).

Figure 1: Waste Services Organizational Structure



Waste Collection Services
Waste Collection Services provides efficient and effective waste collection and drop-off services including an Assisted Waste Collection program for residents with mobility restrictions. Residents have access to a number of facilities where large items can be dropped off for recycling, reuse or disposal including Eco Stations, Community Recycling Depots, Big Bin Events and the Reuse Centre.

Sustainable Waste Processing
Sustainable Waste Processing receives and sorts residential and non-residential waste at the Edmonton Waste Management Centre, a unique collection of advanced processing and research facilities. This integrated site, located on 233 hectares, is designed to process more than 500,000 tonnes of waste per year. Facilities and operations are either owned and operated by the City or run on a contract basis. The focus of these facilities is to recover valuable resources and to minimize the amount of waste going to landfill.

Technical Services

Technical Services is dedicated to the engineering, technical support, innovation and environmental compliance of waste processing and collection operations. The area provides oversight for capital projects and large operational investments to ensure waste operations are compliant, effective and efficient. This section also manages regulatory compliance and the Clover Bar Landfill post-closure operations.

Business Integration

Business Integration is responsible for defining Branch strategy, facilitating operational direction, resource allocation, financial governance and branch-wide alignment to corporate directives. Key areas of focus include performance management, monitoring and reporting, contract management, workforce development, utility rate filing and billing. This area is also responsible for the branch’s communications, education, outreach and volunteer programs that keep residents engaged in sustainable waste practices and waste reduction efforts.

Waste Strategy Implementation

A new Waste Strategy Implementation section was formed in 2019 to ensure coordinated delivery of the 25-year Waste Strategy. This section leads research, public engagement, business case development, program and service design, project management and change management in coordination with all other sections of the branch to guide the transformation of Edmonton's Waste System to a Zero Waste Framework.

3.0 Methodology and Key Assumptions

The following subsections provide the methodology and key assumptions for the 2021 Utility Rate Filing. The 2021 Rate Filing is based on the August 31, 2020 forecast incorporating significant changes up to September 30, 2020. The assumptions used to develop this Rate Filing include City Council approved corporate budget guidelines and forecasts from the City's Chief Economist.

- **Housing Starts and Consumer Price Index**

	2021	2022	2023
Housing Starts	7,254	7,299	7,895
Consumer Price Index	1.80%	1.80%	1.70%

- **Employee Benefits**
The 2020-2022 Operating Budget amounts were calculated by the City of Edmonton's Capital and Operating Budget System (COBS) which allocates benefit dollars by employee. The 2021 Rate Filing includes an update for any recent benefit rate increases for the Local Authorities Pension Plan, Canada Pension Plan, Employment Insurance, Major Medical and Dental Plan, Group Life Insurance and Health Care Spending Account.

- **Cost of Debt**
Debt servicing calculations use the cost of debt rate forecast provided by the City's Corporate Budget Office and are based on actual Alberta Capital Finance Authority borrowing rates up to the third quarter of 2020. The rates are calculated to be mid-year estimates. An additional 0.25 percent increment is added per year starting in 2021.

Term	2021	2022	2023
5 Year	1.35%	1.60%	1.85%
10 Year	1.84%	2.09%	2.34%
15 Year	2.28%	2.53%	2.78%
20 Year	2.51%	2.76%	3.01%
25 Year	2.66%	2.91%	3.16%

Other assumptions include the following:

- Waste Services Utility Staff Vacancy - unless otherwise stated, the typical expected staff vacancy is four percent for all staff.

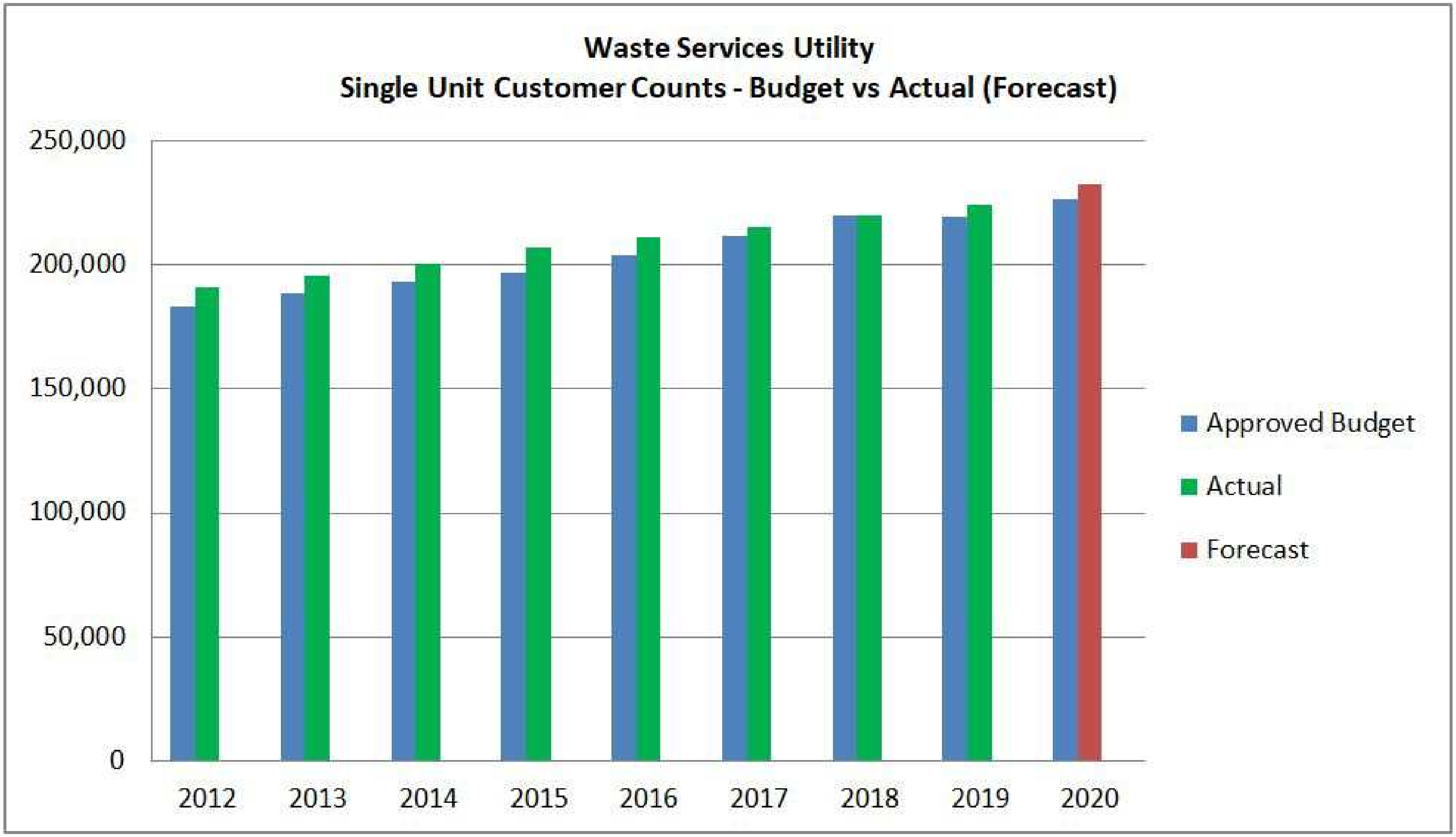
- Full-time Equivalent - a full-time equivalent (FTE) is defined as the hours (and associated personnel costs) one full time employee would work in a year. For example, if a position is funded for one year, it is equivalent to 1.0 FTE, whereas a position funded for six months is equivalent to 0.5 of an FTE. Funding for a new position may be adjusted in the first year to reflect the timing between approval of a new position and hiring, with full funding for the position beginning the following year.

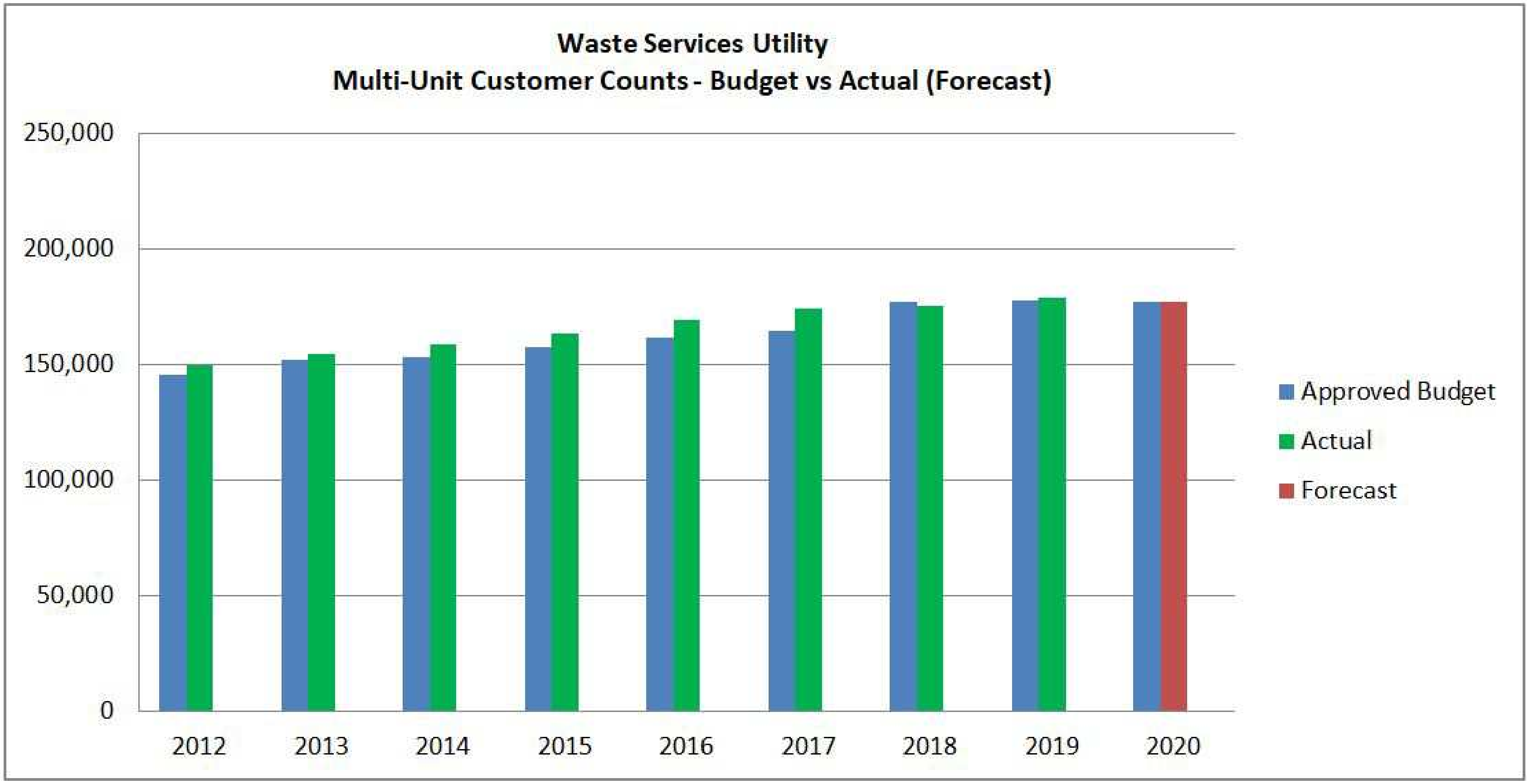
- Customer Growth - The customer counts are based on historical trends and the anticipated household starts as projected by the City's Chief Economist. The 2020 forecast housing starts were reduced based on the anticipated impacts of COVID-19 however, the actual growth in housing starts as of September 30, 2020 has been higher than anticipated. Projected customer growth in 2021 has been adjusted to account for this increase. The proposed customer billing base is represented in the figures below:

	2019 Actual	2020 Forecast	2021 Proposed	2022 Forecast
Single Unit	224,129	232,643	236,711	240,792
Multi-Unit	178,751	177,383	178,342	180,850

- Cart Adoption - Starting in 2021, approximately 236,000 households will move to a four stream program with separate food scraps collection, seasonal yard waste collection and garbage volume limits as part of the Edmonton Cart Rollout. Following the citywide distribution of carts, Single Unit customers will be transitioned to variable rates in October 2021 (based on their choice of garbage cart size). The 2021 variable rates are designed based on the following assumptions around anticipated choice of garbage cart by customers:
  - 75% of the households are anticipated to select a 240 litre garbage cart;
  - 24% of households are anticipated to select a 120 litre garbage cart; and
  - 1% or a smaller proportion of the households are anticipated to select a 360 litre garbage cart.

  The forecasted assumption around anticipated choice of garbage cart was based on the ratios considered as part of Single Unit Waste Set-Out Business Case (CR_7173), and updated due to the introduction of the 360 litre cart. In the event the actual choice of garbage cart size varies significantly from the assumptions above, cart rates in 2022 will be adjusted to reflect the actual choice of garbage carts.


Waste Services Utility
Single Unit Customer Counts - Budget vs Actual (Forecast)
250,000
200,000
150,000
100,000
50,000
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
Approved Budget
Actual
Forecast



A review of customer accounts was completed as part of the 2017 Cost of Service Study (COSS). Through this review a number of households were identified as receiving service as if they were a single unit customer but were being charged the multi-unit rate. In 2019, the Waste Services Bylaw was updated to allow for customers to be charged in alignment with their service type. Waste Services undertook a project to review these accounts to determine the appropriate classification and service type. Based on this project, approximately 9,500 of these households were reclassified from the multi-unit rate to the single unit rate beginning in 2020 and approximately 15,900 will be reclassified in spring 2021. To avoid rate shock for these customers, Waste Services intends to adjust the rates from the multi-unit rate to the single unit rate over a period of five years.

4.0 Operational Performance

The four performance goals below summarize Waste Services' performance measures.

GOAL	PERFORMANCE MEASURE	ACTUALS	FORECAST	TARGETS	
		2019	2020	2021	2022
Customer Excellence	Curbside Diversion Rate (Weight Based)*	13%	13%	37%	65%
Customer Excellence	Number of Missed Collections per 10,000	2	2	2	2
Customer Excellence	Measure of Waste Reduction	To be presented with the Waste Reduction Roadmap in Q2 2021			
Operational Excellence	Single Unit Residential Diversion Rate	23%	17%	40%	60%
Operational Excellence	Year-Over-Year Reduction in Collection Cost (City Crews)	-3%	-2%	-1%	-2%
Operational Excellence	Average Processing Cost per Tonne[1]	$230	$245	$261	$272
Operational Excellence	Number Reportable Environmental Incidents	20	20	<20	<20

[1] Average Processing Cost per Tonne has been updated from the 2021-2023 Business Plan to reflect forecasted cost for 2020, 2021 and 2022.

GOAL	PERFORMANCE MEASURE	ACTUALS	FORECAST	TARGETS	
		2019	2020	2021	2022
Financial Accountability	Annual Net Income ($000s)	(14,007)[2]	12,870	5,280	9,998
	Stable Rates	2.5%	0.3%	0.0%	0.0%
	Debt to Net Assets Ratio	83.4%	79.3%	77.7%	76.0%
	Cash Position ($000s)[3]	89,603	62,311	31,107	36,521
Organizational Excellence	Employee Satisfaction Rate (Glint Survey)	69	71	72	73
	Resignation Rate (Trailing 12 Months)	3.64%	5.5%	<5.0%	<5.0%
	Lost Time Frequency Rate (Trailing 12 Months)	3.23	<3.75	<3.75	<3.75
	Adherence to Legislative Preventative Maintenance Schedule	N/A	100%	100%	100%

[2] Net loss primarily due to a non-cash adjustment of $20,567 to increase the solid waste closure and post closure liability of the Clover Bar Landfill. 2019 net loss excludes $1,434 in cost related to amortization of contributed assets which is excluded for rate making purposes.
[3] Higher cash position is required to fulfill obligations for the Clover Bar Landfill and Bremner Lagoon liabilities. Closure activities for the Clover Bar Landfill are expected to be completed by 2022.

5.0 Landfill Closure and Related Liabilities

The Utility's landfills include a Class II and Class III landfill which are currently being prepared for complete closure and reclamation in accordance with operating approval from Alberta Environment and Parks (AEP). The Clover Bar Landfill (Class II) reached full capacity and was closed in August 2009, while the Class III landfill, originally established for the 1987 tornado debris, ceased operations in 2008.

Pursuant to the Alberta Environmental Protection and Enhancement Act, the Utility is required to fund the closure of its landfill site and provide for post-closure care of the site. Closure and post-closure activities include the final clay cover, landscaping, surface and groundwater monitoring, leachate control, landfill gas management and visual inspection. The minimum period for post-closure care is 25 years and the landfill closure and post-closure care plans are based on engineering assessment of current ground conditions, leachate levels, geology, and various other environmental and regulatory conditions. The costs to close and maintain solid waste landfill sites are based on estimated future expenses, adjusted for inflation and discounted to current dollars. These costs are reported as a liability on the Statement of Financial Position in accordance with Canadian Public Sector Accounting Standards (PSAS). Future events, such as changes to regulatory requirements, may result in changes to the estimated cost and will be recognized prospectively as an adjustment to the reported liability, when applicable.

The following table summarizes the estimated liability and expected disbursements required to complete closure activities:

(in thousands of dollars)

Line #		Reference	2020 Forecast	2021 Proposed	2022 Forecast
1	Reported Landfill Liability - Opening Balance		$ 45,589	**$ 40,764**	$ 17,202
2	Less: Estimated Disbursements for Closure Activities		4,825	**23,562**	1,320
3	**Landfill Liability - Estimated Ending Balance**		$ 40,764	**$ 17,202**	$ 15,882
4	Cash Balance after Disbursements	Sch. 7.0	$ 62,311	**$ 31,107**	$ 36,521
5	Less: Target Cash Position (Pay As You Go + Risk)	Sch. 7.0	13,744	**15,449**	16,620
6	**Cash Over Target**	Sch. 7.0	$ 48,567	**$ 15,658**	$ 19,901

The reported liability for landfill closure and post-closure care on the Statement of Financial Position as at December 31, 2019 was $45.6 million. The Utility anticipates closure activities such as design and construction of stormwater management, leachate collection, landfill gas collection, final clay cover, landscaping, etc. to be completed by the end of 2022. From the time of final closure, the minimum period for post-closure care is expected to be 25 years and includes operating and maintenance activities such as final cover inspection and maintenance, landfill gas collection and flare system maintenance, leachate monitoring, treatment and disposal, etc. Significant changes to cost estimates in the future may result in a future adjustment to the landfill liability and subsequently the annual landfill provision.

By the end of 2022, an estimated $29.6 million out of the $45.6 million liability is expected to be spent for landfill closure activities, see line # 2 in the table above. The remaining $15.8 million at the end of 2022 is expected to be spent for landfill post-closure activities over a period of 25 years starting in 2023, see line # 3 in the table above. The Utility through its 2020 rate filing received approval to collect $1.3 million annually for 25 years to fully fund the landfill liability. Collecting the required sum over the full term of the post-closure activities will minimize the impact to ratepayers and allow the Utility to maintain stable, consistent rate increases.

The restricted cash balance maintained by the Utility for the landfill liability as at December 31, 2019 was $25.7 million. The restricted cash balance for 2020 is estimated to be at $22.2 million after accounting for the collection of $1.3 million through rates and estimated disbursement of $4.8 million for closure activities during the year ($25.7M + $1.3M - $4.8M). The restricted cash balance in 2021 is estimated to be fully depleted after accounting for the collection of $1.3 million through rates and estimated disbursement of $23.5 million for closure activities during the year ($22.2M + $1.3M - $23.5M). However, as can be observed from line #4 and line #6 of the table above, the Utility's projected cash position in each year after accounting for landfill disbursements and Pay As You Go cash required to fund capital expenditures is positive and sufficient to fulfill its estimated landfill obligations.

6.0 Financial Rate Impacts

The financial rate impacts below represent the incremental change to the Utility Rate from the previous year. The resulting rate impacts reflect the services and processes required to support the Waste Services Utility's mission, values and strategic initiatives. The rate impacts have been grouped into three categories: Operating Impacts, Capital Impacts on Operating and Other Impacts.

	2019 Approved	2020 Approved	2021 Proposed	2022 Forecast
Operating Impacts	$ 1.83	$ 2.24	$ 0.52	$ (0.84)
Capital Impacts on Operating	0.82	0.39	0.72	0.57
Other Impacts				
Non-rate revenue	0.50	1.22	0.45	(0.02)
Increase Customer Base	(0.57)	(0.57)	(0.64)	(0.78)
City of Edmonton Short Term Loan	(0.33)	-	-	-
Rate of Return	(1.10)	(3.14)	(1.05)	1.07
SUBTOTAL	(1.50)	(2.49)	(1.24)	0.27
TOTAL RATE IMPACTS	$ 1.15	$ 0.14	$ -	$ -

Operating Impacts

The increase in Operating Impacts from the 2020 budget includes one-time and ongoing costs related to the rollout of the Source Separated Organics Program. This includes temporary staff, additional materials, goods and supplies and external services. The program was planned to be implemented in 2020 but was delayed to 2021 due to COVID-19.

Capital Impacts

The increase in the capital impact for 2021, relative to the 2020 budget, is mainly driven by additional “in-service” dates of assets, resulting in increased amortization in 2021.

Other Impacts

- Non-rate Revenue impact is the result of increased revenue from other program revenue which includes revenues generated from third parties operating at the Edmonton Waste Management Centre based on agreements, such as sharing of third party sales revenues. Also included in this category are revenues generated from environmental initiatives such as the Sale of Landfill Gas credits.
- Based on current economic conditions and housing starts, the customer base is forecast to grow in 2021. This growth allows regulated revenue to be allocated over a larger base therefore controlling the per unit Residential Customer Rate increase. The greater number of residential waste collection pick-ups will generate higher regulated revenue which will be used to offset the associated residential waste collection operational costs.
- To address non-regulated program losses and achieve target cash balances, the Waste Services Utility was given authorization through the 2015 Operating Budget process to draw on a short-term loan from the City of Edmonton beginning in 2015. This ensures non-regulated losses are covered by the loan as opposed to regulated revenues and assists in reducing non-regulated rate increases.
- Approval of the Waste Management Utility Fiscal Policy C558A resulted in changes to the rate revenue calculation. A requirement for Pay As You Go (PAYG) funding is now included as part of the rate revenue calculation to ensure sufficient cash is generated to meet the Utility's current and future capital needs. The Rate of Return is calculated to achieve a Net Income position to meet cash and/or PAYG targets. This places greater emphasis on long-term planning and the financial sustainability of the Utility.

7.0 Financial Indicators & Risk Allowance

The Waste Management Utility Fiscal Policy C558A was adopted by City Council on September 23, 2014. The updated policy focuses on four Financial Indicators used to monitor the financial health of the Utility as illustrated below:

		Actual	Budget	Forecast	Proposed				Forecast			
		2019	2020	2020	2021	2022	2023	2024	2025	2026	2027	2028
1	**Rate Sufficient to Meet Expenditures and Cash Flow**											
	Net Income ($000s)	$ (14,007)	$ 6,571	$ 12,870	$ 5,280	$ 9,998	$ 13,795	$ 16,583	$ 16,041	$ 17,943	$ 20,251	$ 24,265
	Target: Positive Net Income	*No*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
2	**Cash Position ($000s)**											
	Pay As You Go Requirement	19,861	10,472	10,472	11,894	12,983	14,870	4,401	8,850	14,573	19,357	19,744
	Risk Allowance	3,366	3,272	3,272	3,555	3,637	2,938	2,815	2,589	3,215	3,343	3,593
	Target Cash Position	23,227	13,744	13,744	15,449	16,620	17,808	7,216	11,439	17,788	22,700	23,337
	Actual Cash Balance	89,603	86,013	62,311	31,107	36,521	42,055	51,096	58,566	77,414	93,567	108,150
	Actual Cash >= Target	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
	Cash Over Target ($000s)	*66,376*	*72,269*	*48,567*	*15,658*	*19,901*	*24,247*	*43,880*	*47,127*	*59,626*	*70,867*	*84,813*
3	**Residential Customer Rate Impacts**											
	Single Unit											
	Monthly Billing Increase	$ 1.15	$ 0.14	$ 0.14	-	-	$ 0.85	$ 0.87	$ 0.88	$ 0.90	$ 0.76	$ 0.62
	Impact of Customer Rate	*2.5%*	*0.3%*	*0.3%*	*0.0%*	*0.0%*	*1.8%*	*1.8%*	*1.8%*	*1.8%*	*1.5%*	*1.2%*
	Monthly Hand Collection Rate	$ 47.08	$ 47.22	$ 47.22	$ 47.22	$ 47.22	$ 48.07	$ 48.94	$ 49.82	$ 50.72	$ 51.48	$ 52.10
	Multi Unit											
	Monthly Billing Increase	$ 0.75	$ 0.09	$ 0.09	-	-	$ 0.55	$ 0.56	$ 0.57	$ 0.58	$ 0.49	$ 0.40
	Impact of Customer Rate	*2.5%*	*0.3%*	*0.3%*	*0.0%*	*0.0%*	*1.8%*	*1.8%*	*1.8%*	*1.8%*	*1.5%*	*1.2%*
	Monthly Unit Rate	$ 30.60	$ 30.69	$ 30.69	$ 30.69	$ 30.69	$ 31.23	$ 31.79	$ 32.36	$ 32.94	$ 33.43	$ 33.83
	Target: Stable, consistent rate increases	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
4	**Financing of Capital Investments**											
	Debt to Net Assets Ratio	83.4%	78.1%	79.3%	77.7%	76.0%	75.7%	76.1%	74.2%	73.0%	71.0%	67.7%
	Target: May vary between 50% and 70%	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*Yes*

7.1 Cart Rates

Single Unit Residential Curbside customers will transition from the monthly Hand Collection Rate of $47.22 to new variable cart rates based on the size of their garbage (black) cart following the implementation of cart-based collection to all single unit customers. Cart rates will be in effect beginning in October 2021, following cart size selection, cart distribution and updating the customer billing system with customer cart size information. The following table outlines the proposed cart rates.

2021 Cart Rates (effective October 2021)

Garbage Cart Size (in litres)	Monthly Rate
120 L	$43.32
240 L	$48.32
360 L	$58.32

Compared to the Residential Curbside Hand Collection Rate: customers who select a 120 litre garbage cart will see a $3.90 reduction in their monthly waste utility rates; customers selecting a 240 litre garbage cart will see their monthly rates increase by $1.10; and customers who select a 360 litre garbage cart will see their monthly rates increase by $11.10. Effective October 1, 2021 the difference between the 120 litre rate and the 240 litre rate will be $5.00 per month and the difference between the 240 litre rate and the 360 litre rate will be $10 per month. The cart rates provide financial incentives for customers who embrace waste reduction and waste sorting behaviours that reduce the amount of garbage they generate and help to achieve the City's waste diversion targets.

Waste Services worked with a third party consultant to develop a customer cost model that allocates costs to the single unit customer class based on the size of the garbage cart selected. The utility rate model has been updated accordingly and is in alignment with the proposed rate differential as discussed in the City Council approved Single Unit Waste Set-Out Business Case (CR_7173). Subsequent to the approval of this Business Case, Waste Services has modified its Excess Waste program to be more responsive to customer needs by introducing a larger, 360 litre garbage (black) cart for those customers that require special consideration for persistent excess waste. The proposed rate differential between the 360 litre cart and the 240 litre cart is $10 in order to recover costs as well as provide a financial incentive to minimize waste generation at the household level.

In order to meet the Utility's revenue requirement, rates were designed based on the anticipated proportion of customers selecting a particular size of garbage cart. As cart size selection will be available for residents beginning in December 2020 and continuing into 2021, the actual cart size adoption rate is not known at the time of rate filing. The anticipated cart size adoption ratios used to calculate rates in this rate filing are based on the ratios considered as part of Single Unit Waste Set-Out Business Case (CR_7173), and updated due to the introduction of the 360 litre cart. The following table outlines the assumed cart size adoption ratio.

Garbage Cart Size (in litres)	Assumed Adoption Percentage
120 L	24%
240 L	75%
360 L	1%

7.2 General Comments for Financial Indicators

Target: Rates Sufficient to Meet Expenditures

The proposed and forecasted years all meet the requirement of generating sufficient net income to cover operating expenses.

Target: Cash Position

The target cash position for Waste Services includes capital funding to meet Pay As You Go (PAYG) requirements for the next fiscal year plus a risk allowance to mitigate exposure, such as volatility of the markets for recyclable commodities, as outlined in the Waste Management Utility Fiscal Policy C558A. As the Utility moves to citywide implementation of source separation of organics and invests in necessary upgrades for the Material Recovery Facility (MRF) and Refuse Derived Fuel Facility (RDF) to improve efficiency, the PAYG requirement is expected to remain high at $11.9 million in 2021. The calculation of the risk exposure includes the following identified risks (in thousands of dollars):

	2019 Approved	2020 Approved	2021 Proposed	2022 Forecast
Recyclable Market	$ 475	$ 475	$ 475	$ 475
Landfill gas, 3rd party	500	500	500	500
REVENUE RISKS	975	975	975	975
Anaerobic Digestion Facility	250	475	475	-
Leachate Removal and Treatment	500	-	-	-
Operational Impacts Agreements/Strategic Changes	1,641	1,822	2,105	2,662
EXPENDITURE RISKS	2,391	2,297	2,580	2,662
TOTAL RISK ALLOWANCE	**3,366**	**3,272**	**3,555**	**3,637**

The allowance for operational impacts and strategic changes include provision for operational risks associated with the citywide cart rollout and implementation of source separated organics.

After accounting for the PAYG requirements and risk allowance, the cash balance is positive in all years due to the significant cash reserves held for both the Landfill Post Closure Liability and the Bremner Lagoon Liability.

Target: Low, Stable and Consistent Rate Increases

As the Utility moves toward financial sustainability, achieving stable and consistent rate increases has been given a high priority. The target will be achieved with a proposed zero percent rate increase in 2021. In order to achieve this target, the Utility will focus on service delivery transformations, monetization of waste byproducts, enhanced asset optimization and operational efficiencies.

Target: Debt to Net Assets Ratio

The Utility has recommitted itself to enhanced asset management and thoughtful replacement of damaged and underperforming assets through ongoing prioritization of capital projects. When coupled with significant strategic program changes to be implemented in 2021, this heightened focus on increasing the productivity of all of Waste's assets results in the target for the Debt to Net Asset Ratio being achieved in 2028.

The Utility concluded a review of its fiscal policy during 2020 and will be recommending updates to the fiscal policy including changes to the Debt to Net Assets ratio as a financial indicator under a separate report in December 2020 (CR_7840).

8.0 Utility Summary Schedule

(in thousands of dollars)

Line #		Reference	2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Operations and Maintenance	Schedule 9.0	$ 201,473	$ 175,271	$ 165,534	**$ 174,279**	$ 8,745	5.3%	$ 170,834
2	Amortization of Non-Contributed Assets	Schedule 10.0	21,023	24,214	23,075	**26,376**	3,301	14.3%	28,435
3	Debt Interest	Schedule 10.0	8,978	9,159	8,659	**9,074**	415	4.8%	9,217
4	Intra-municipal Recoveries	Schedule 9.8	(3,564)	(4,697)	(4,825)	**(3,877)**	948	(19.6%)	(3,925)
5	Grants	Schedule 9.0	3,600	1,000	1,000	**-**	(1,000)	(100.0%)	-
6	Amortization of Regulatory Asset	Schedule 9.0	1,309	3,249	3,249	**3,906**	657	20.2%	3,906
	TOTAL EXPENSES		232,819	208,196	196,692	**209,758**	13,066	6.6%	208,467
7	Non-Rate Revenue	Schedule 11.1	30,842	20,930	17,504	**15,234**	(2,270)	(13.0%)	15,442
8	Rate Revenue	Schedule 11.0	187,970	193,837	192,058	**199,804**	7,746	4.0%	203,023
	TOTAL REVENUES		218,812	214,767	209,562	**215,038**	5,476	2.6%	218,465
	NET INCOME/(LOSS)	Schedule 13.0	$ (14,007)	$ 6,571	$ 12,870	**$ 5,280**	$ (7,590)	(59.0%)	$ 9,998

Line 1 - Operations and Maintenance

The increase in operations and maintenance from the 2020 Forecast primarily reflects expected costs related to the implementation of the Source Separated Organics program in 2021. The implementation of the program was delayed until 2021 due to COVID-19. As a result of the delay, 2020 program costs of approximately $4.2 million were not expected to be incurred and on April 27, 2020, the Utility passed those savings to ratepayers by reducing its operating expenses and rate revenue for 2020 by $4.2 million. Other increases include increased utility costs required for the Refuse Derived Fuel Facility and Anaerobic Digestion Facility, and anticipated cost increases due to customer growth.

This will be partially offset by decreased Fleet repair and maintenance costs due to replacement of aging fleet and reduction of costs related to the wind down of the Commercial Collection business.

Line 2 - Amortization of Non-Contributed Assets

Increases in amortization result from upcoming commissioning of Materials Recovery Facility (MRF) renewal, Source Separated Organics Program initiatives, site infrastructure and facilities projects, and vehicle and equipment purchases.

Line 6 - Amortization of Regulatory Asset

A deferral account was approved in the Utility's 2019 Rate Filing to allow the Utility to recover the incurred Edmonton Composting Facility expenses through customer rates over a reasonable time period in order to minimize the rate impact and to maintain stable and consistent rate increases.

Amortization of the regulatory asset represents the annual amount of the deferral balance recovered through Utility rates in a given period. The increase from 2020 to 2021 represents additions to the deferral account for the Edmonton Composting Facility additional write-down of unsalvageable equipment. Please refer to schedule 10.2 for additional details.

Line 7 - Non-Rate Revenue

Decrease in non-rate revenue includes a reduction in Commercial Collection revenue as a result of the strategic decision to exit the non-regulated line of business; and decrease in grant revenue as all project milestones are expected to be fully achieved by the end of 2020; partially offset by increases to Eco Station revenue.

Line 8 - Rate Revenue

Increase in rate revenue is primarily driven by Pay As You Go requirements to support capital, additional requirement to fund landfill liability, deferral account increases related to Edmonton Composting Facility (ECF) decommissioning and equipment write-down, and additional requirements to implement the Source Separated Organics program.

Further detailed analysis of proposed expenditures and revenues are provided in subsequent schedules.

9.0 Operations and Maintenance

(in thousands of dollars)

Line #		Reference	2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Personnel	Schedule 9.1	$ 50,873	$ 50,143	$ 48,365	**$ 51,228**	$ 2,863	5.9%	$ 51,046
2	Materials, Goods & Supplies	Schedule 9.2	3,089	4,476	3,147	**2,986**	(161)	(5.1%)	3,259
3	External Services	Schedule 9.3	103,599	80,334	75,592	**81,581**	5,989	7.9%	78,700
4	Fleet Services	Schedule 9.4	19,133	17,497	17,101	**16,104**	(997)	(5.8%)	16,145
5	Shared Services	Schedule 9.5	9,616	9,901	9,887	**10,024**	137	1.4%	9,172
6	Intra-municipal Services	Schedule 9.6	5,248	4,820	4,709	**5,351**	642	13.6%	5,392
7	Utilities	Schedule 9.7	4,419	6,210	4,421	**5,144**	723	16.4%	5,252
8	Other Expenses		5,496	1,890	2,312	**1,861**	(451)	(19.5%)	1,868
	TOTAL O&M EXPENSES		201,473	175,271	165,534	**174,279**	8,745	5.3%	170,834
9	Intra-municipal Recoveries	Schedule 9.8	(3,564)	(4,697)	(4,825)	**(3,877)**	948	(19.6%)	(3,925)
	RECOVERIES		(3,564)	(4,697)	(4,825)	**(3,877)**	948	(19.6%)	(3,925)
10	Amortization of Non-Contributed Assets	Schedule 10.0	21,023	24,214	23,075	**26,376**	3,301	14.3%	28,435
11	Amortization of Regulatory Asset	Schedule 10.2	1,309	3,249	3,249	**3,906**	657	20.2%	3,906
12	Debt Interest	Schedule 10.0	8,978	9,159	8,659	**9,074**	415	4.8%	9,217
	EXPENSES BEFORE ONE-TIMES		229,219	207,196	195,692	**209,758**	14,066	7.2%	208,467
13	Grants		3,600	1,000	1,000	**-**	(1,000)	(100.0%)	-
	NET EXPENSES		$ 232,819	$ 208,196	$ 196,692	**$ 209,758**	$ 13,066	6.6%	$ 208,467

Line 8 - Other Expenses

Other expenses primarily include insurance premiums associated with waste collection and processing facilities at EWMC and Eco Stations, bad debt expense and service charges for credit/debit card processing at EWMC scalehouse and Eco Stations.

Impact on Bad Debts due to COVID-19 and Utility Bill Payment Deferral Program

In response to the COVID-19 pandemic, on March 20, 2020, City Council approved a 90-day utility bill payment deferral program for Waste Services and EPCOR water, wastewater and drainage customers. This bill payment deferral program allowed customers in need to defer their utility bill payment without interest or penalty, for 90 days, ending on June 18, 2020. Since EPCOR provides the billing function for Waste Services on behalf of the City of Edmonton, with one consolidated bill being provided by EPCOR to customers for electricity, water and waste services, a coordinated approach was implemented and communicated by EPCOR and Administration for the 90-day deferral program.

Approximately 12 percent of EPCOR's customers, including Waste Services customers, enrolled in the deferral program by the end of the 90 day period on June 18, 2020. The enrolled customers are required to repay the deferred amounts during the period June 19, 2020 to June 18, 2021.

The Utility self-financed its portion of the deferred payments during the program. As of September 30, 2020, approximately $1 million in deferred payments pertaining to waste customers remain outstanding to be collected. It is anticipated that the majority of these customers with outstanding payments will either pay their balance in full or will sign up to make payment arrangements with EPCOR to repay their outstanding balance by June 18, 2021. The average bad debts experienced over the past three years was approximately $650,000 or 0.3 percent of rate revenues. Given the current economic environment with high unemployment rates, the Utility may experience increased bad debts as compared to the past. The Utility will continue to monitor the outstanding deferred bill payment balance and book a provision for bad debts in its 2020 year end financial statements. In the event, the incremental bad debts exceed $500,000, the Utility will establish a deferral account in its 2022 rate filing to track and recover the incremental bad debt costs and carrying cost at its short-term interest rate.

Line 13 - Grants

Grants reflected are flow through, received from Alberta Innovates Energy and Environment Solutions and disbursed to the owner of the Edmonton Waste to Biofuels and Chemical Facility upon achievement of contractual milestones. The net operating impact of these grants is zero with the offset in grant revenue (Schedule 11.1). No additional grant for this facility is expected in 2021. For additional details, please refer to the schedule for each line.

9.1 Personnel

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Wages	$ 36,896	$ 37,027	$ 36,182	**$ 38,117**	$ 1,935	5.3%	$ 37,706
2	Overtime	1,240	1,259	756	**1,423**	667	88.2%	1,436
3	Allowances and Benefits	12,737	11,857	11,427	**11,688**	261	2.3%	11,904
	TOTAL PERSONNEL	$ 50,873	$ 50,143	$ 48,365	**$ 51,228**	$ 2,863	5.9%	$ 51,046

Personnel costs include Wages, Overtime, Employment Allowances and Benefits. The City of Edmonton's Capital and Operating Budget System (COBS) utilizes the City's payroll system as the source for the personnel budget for both wages and benefits, thereby providing a reliable and consistent source of information. Vacant positions are set at mid-range with family benefits. Included in the 2021 Proposed Budget is an assumption of a vacancy discount of four percent for all positions.

Line 1 - Wages

The change in wages from the 2020 Forecast primarily reflects increases related to temporary staff required for the Source Separated Organics Program rollout in 2021-2022. Implementation of the program was delayed due to COVID-19 until 2021.

Line 2 - Overtime

Overtime is expected to increase over the 2020 forecast primarily to support the implementation of the Source Separated Organics Program rollout in 2021-2022 and due to the additional requirements for the seasonal grass, leaf and yard waste collection.

Line 3 - Allowances and Benefits

Benefits mainly consist of Local Authorities Pension Plan (LAPP), Canada Pension Plan, Employment Insurance, Major Medical and Dental Plan, Group Life Insurance and Health Care Spending Account.

9.2 Materials, Goods & Supplies

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Collection Services	$ 534	$ 1,320	$ 1,265	**$ 1,261**	$ (4)	(0.3%)	$ 951
2	Organics	27	305	205	**201**	(4)	(2.0%)	201
3	Integrated Processing & Transfer Operations	166	164	144	**133**	(11)	(7.6%)	133
4	Haul and Landfill Operations	33	16	16	**70**	54	337.5%	70
5	Construction and Demolition Facility	149	-	-	**-**	-	-	-
6	Other	2,180	2,671	1,517	**1,321**	(196)	(12.9%)	1,904
	TOTAL MATERIALS, GOODS & SUPPLIES	$ 3,089	$ 4,476	$ 3,147	**$ 2,986**	$ (161)	(5.1%)	$ 3,259

Line 6 - Other

Other includes cost to support the implementation of the Source Separated Organics Program in 2021. In addition, Other includes hired equipment and direct materials required for the Aggregate Program. The decrease in Other from the 2020 Forecast is primarily related to an adjustment to the delivery of the litter collection service as part of the reimagining of City services in 2021.

9.3 External Services

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Waste Collection Services	$ 23,849	$ 27,137	$ 24,604	**$ 27,281**	$ 2,677	10.9%	$ 27,295
2	Materials Recovery Facility	9,965	8,620	9,366	**9,232**	(134)	(1.4%)	6,735
3	Organics	15,432	13,980	9,180	**8,981**	(199)	(2.2%)	8,998
4	Integrated Processing & Transfer Operations	12,157	7,133	8,617	**8,905**	288	3.3%	9,018
5	Haul and Landfill Operations	16,762	14,520	15,147	**15,450**	303	2.0%	15,603
6	Construction and Demolition Facility	2,109	-	-	**-**	-	-	-
7	Customer Billing Services	4,290	4,100	4,112	**4,511**	399	9.7%	4,511
8	Other	19,035	4,844	4,566	**7,221**	2,655	58.1%	6,540
	TOTAL EXTERNAL SERVICES	$ 103,599	$ 80,334	$ 75,592	**$ 81,581**	$ 5,989	7.9%	$ 78,700

Line 1 - Waste Collection Services

Collection Services external contracts include single and multi-unit residential garbage and recycling collection as well as costs for contracted equipment, services at Eco Stations and other Collection Services programs.

Contract work is anticipated to increase due to population growth and increased waste volume. Current contracts are adjusted annually using a cost index that includes CPI, fuel and labour to better reflect annual changes in direct operating costs. In addition, the increase includes additional cost to support phased implementation of the Source Separated Organics Program which was due to begin in 2020 but delayed due to COVID-19. The program in 2021 includes additional costs for assisted waste collection, and seasonal grass, leaf and yard waste collection.

Line 2 - Materials Recovery Facility

The Materials Recovery Facility (MRF) sorts and processes recyclables collected through the blue bag and recycling depot programs. A small reduction from the 2020 Forecast is the result of a planned upgrade to the plant, resulting in anticipated lower operating costs. Operational efficiencies and cost savings from the upgrade is anticipated to be realized in 2022.

Line 3 - Organics

Contracted organics costs include operations and maintenance cost for the High Solids Anaerobic Digestion Facility (HSADF) which is anticipated to start commissioning in Q4 2020, allowing for approximately 40,000 tonnes per year of organic material to be processed and diverted from landfill. In addition, the forecasted cost in 2021 includes cost for processing organics under a number of distributed off site processing contracts with the private sector, allowing for an additional 60,000 tonnes per year to be processed and diverted from landfill for the next five years (starting in Spring 2021). Through successful contract negotiations and utilizing a competitive Request for Proposal (RFP) process, the Utility has managed to reduce its contracted cost for organics processing.

Line 4 - Integrated Processing & Transfer Operations (IPTF)

Feedstock for waste-to-biofuels or waste-to-energy applications is prepared at the Refuse Derived Fuel facility, located within the IPTF. Higher demand for the product results in higher contract costs for the IPTF. Waste Services pays a contractually agreed upon fee to the Waste to Biofuels and Chemicals Facility for the conversion of feedstock into alcohol fuels. The fee includes a tipping fee for the delivery of acceptable feedstock to the facility.

Line 5 - Haul and Landfill Operations

Hauling and Landfill Operations represents the contract fees for all of Waste Services Utility operations. The increase from the 2020 Forecast is related to additional hauling tonnage related to regional organics and the closure of the MRF for plant upgrades. These costs are partially offset by reductions in hauling costs related to feedstock going to the Waste to Biofuels facility and expected tonnage processed at the HSADF.

Line 6 - Construction and Demolition Facility

The Construction and Demolition Facility was operated by City staff with significant additional contracted services including the provision of labour, equipment maintenance services and supplements to the Utility’s operations to meet peak demands in grinding and crushing of wood. The wood grinding operation required extensive contract work to mitigate the risk of fire and to prepare feedstock for the Waste to

Biofuels Facility. The decrease in Construction and Demolition (C&D) costs reflects Council's direction to exit the City's current C&D business line and to secure an operational partner. A third party began operation of the C&D service in 2020.

Line 7 - Customer Billing Services

Waste Services has a contract with EPCOR for the provision of customer billing and collection services. EPCOR replaced its billing system with a modern cloud based system in 2020, and the new system is expected to provide a more streamlined billing service.

Line 8 - Other

The increase in Other contract costs from the 2020 forecast is primarily related to additional one-time operating costs for education and outreach, social marketing, digital strategy and communications to support the implementation of the Source Separated Organics Program in 2021. Contract costs related to Community Relations and Program Management, Administrative Services, and other facilities such as Eco Stations, Edmonton Waste Services Centre Operations, Advanced Energy Research Facility, Research & Development and Environmental are also included under Other.

9.4 Fleet Services

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Fleet Reserve Contribution	$ 44	$ 81	$ 81	**$ 66**	$ (15)	(18.5%)	$ 66
2	Fuel	4,286	4,222	3,482	**4,110**	628	18.0%	4,150
3	Direct Charge & Repairs	14,803	13,194	13,538	**11,928**	(1,610)	(11.9%)	11,929
	TOTAL FLEET SERVICES	$ 19,133	$ 17,497	$ 17,101	**$ 16,104**	$ (997)	(5.8%)	$ 16,145

As Fleet Services recovers 100 percent of branch costs, a portion of indirect branch overhead is charged to Waste Services. The indirect overhead is allocated through work order fees, vendor work charges and fuel surcharges. The remaining overhead costs are recovered through shop rates on shop labour hours. Indirect overhead includes branch administration, training, engineering, procurement, safety, client relations and facility and equipment maintenance. Estimates for Fuel and Direct Charges & Repairs are estimated by Fleet Services in consultation with Waste Services and aligned with Fleet Services four-year operating budget.

Waste Services Utility is moving towards management of their vehicle and equipment replacement which has resulted in a decrease to the reserve contribution to the Fleet Services Replacement Reserve. This results in Waste Services purchasing vehicles through its own capital program rather than through Fleet Services. As older equipment purchased by Fleet gets replaced, the remaining reserve contribution will continue to decline.

The increase in fuel from the 2020 Forecast reflects an anticipated increase in consumption related to additional equipment for the Source Separated Organics Program.

The decrease in Direct Charge & Repairs from 2020 Forecast reflects anticipated normal level of repairs due to replacement of aging fleet.

9.5 Shared Services

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Corporate Allocation (Central Management)	$ 1,697	$ 2,002	$ 2,002	**$ 2,155**	$ 153	7.6%	$ 2,080
2	Communications & Public Engagement	479	480	480	**482**	2	0.4%	436
3	Financial Services	2,071	1,968	1,968	**1,865**	(103)	(5.2%)	1,589
4	Safety	118	149	149	**181**	32	21.5%	192
5	Customer Information Services	559	563	563	**565**	2	0.4%	511
6	Human Resources	1,019	1,020	1,020	**1,027**	7	0.7%	931
7	Law	284	287	287	**291**	4	1.4%	265
8	Corporate Procurement and Supply Service:	496	547	533	**587**	54	10.1%	578
9	Information Technology	2,120	2,095	2,095	**2,071**	(24)	(1.1%)	1,846
10	Real Estate & Housing	773	790	790	**800**	10	1.3%	744
	TOTAL SHARED SERVICES	$ 9,616	$ 9,901	$ 9,887	**$ 10,024**	$ 137	1.4%	$ 9,172

The City of Edmonton employs a Shared Services model whereby support services required for the operations of all City businesses are provided through centralized areas of expertise. This approach takes advantage of efficiencies gained through economies of scale and opportunities to provide more robust systems and services (e.g. technology related services). The Waste Management Utility Fiscal Policy C558A requires that the Utility operate under a full cost approach thus requiring the Utility to pay for its portion of shared services.

In its 2020 rate filing, the Utility committed to initiating a benchmarking study to validate the reasonableness of shared service costs allocated to the Utility. The study was to be initiated during the second quarter of 2020 however, in light of COVID-19, the study was postponed to be undertaken in the future as some of the jurisdictions expressed their reluctance to participate due to resource constraints. The increase from the 2020 forecast primarily reflects cost for 2.0 FTEs from IIS - Facilities Planning and Design to support the development of the Organics Processing Facilities project; partially offset by reduction in charges from Financial Services.

9.6 Intra-Municipal Services

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Communications & Public Engagement	$ 970	$ 727	$ 808	**$ 808**	-	-	$ 809
2	Financial Services	-	67	-	**-**	-	-	67
3	Human Resources	218	136	136	**135**	(1)	(0.7%)	135
4	Law	481	56	56	**364**	308	550.0%	371
5	Corporate Procurement and Supply Services	361	364	331	**330**	(1)	(0.3%)	330
6	Transportation Operations	106	83	83	**83**	-	-	83
7	Facilities and Landscape Infrastructure	-	1,870	1,870	**1,852**	(18)	(1.0%)	1,853
8	Other	3,112	1,517	1,425	**1,779**	354	24.8%	1,744
	TOTAL INTRA-MUNICIPAL SERVICES	$ 5,248	$ 4,820	$ 4,709	**$ 5,351**	$ 642	13.6%	$ 5,392

Intra-Municipal Services are charges for on-demand services provided through other City of Edmonton programs which are not incorporated in shared services charges. These are direct charges for services such as dedicated support for communication and engagement initiatives, on demand building repairs and maintenance, posting of vacant positions to job sites and security services for special events.

Line 4 - Law

The increase in direct charges from the 2020 Forecast is related to an increase in security costs at the Edmonton Waste Management Centre.

Line 8 - Other

Other includes costs primarily related to Aggregates and health and safety. The increase in Other costs from the 2020 forecast is primarily related to Aggregates crushing. Increase in Aggregates costs are fully offset by higher Aggregates revenues reported on line 7 Other Program Revenues under Schedule 11.1.

9.7 Utilities

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Power	$ 2,931	$ 4,268	$ 2,595	**$ 3,097**	$ 502	19.3%	$ 3,203
2	Natural Gas	1,119	1,372	1,375	**1,533**	158	11.5%	1,534
3	Water	92	159	153	**154**	1	0.7%	154
4	Other	277	411	298	**360**	62	20.8%	361
	TOTAL UTILITIES	$ 4,419	$ 6,210	$ 4,421	**$ 5,144**	$ 723	16.4%	$ 5,252

Power, natural gas and water estimates are provided by Urban Form and Corporate Strategic Development, Economic and Environmental Sustainability. Estimates are based on historical consumption and future forecasted rates for current service levels. Service level changes are applied to the estimates to determine the budget numbers for each utility.

Line 1 - Power

Increase in power costs as a result of:	2021
Commissioning of the High Solids Anaerobic Digestion Facility	$ 230
Residential Collection and Eco Stations	210
Refuse Derived Fuel Facility (production of feedstock)	62
Total	$ 502

Line 2 - Natural Gas

The increase in natural gas from the 2020 Forecast reflects the increase related to the Anaerobic Digester which will be commissioned by the end of 2020 and the Refuse Derived Fuel facility as requirements for feedstock is expected to increase.

9.8 Intra-Municipal Recoveries

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Litter Collection Recovery	$ (1,923)	$ (1,922)	$ (1,922)	**$ (850)**	$ 1,072	(55.8%)	$ (850)
2	Landfill Disposal Fees	(198)	(200)	(777)	**(470)**	307	(39.5%)	(470)
3	Charges to Capital	(1,443)	(2,575)	(2,126)	**(2,557)**	(431)	20.3%	(2,605)
	TOTAL INTRA-MUNICIPAL RECOVERIES	$ (3,564)	$ (4,697)	$ (4,825)	**$ (3,877)**	$ 948	(19.6%)	$ (3,925)

Intra-Municipal Recoveries are billings to other areas within the City of Edmonton for services provided by the Waste Services Utility. These recoveries include direct charges such as litter collection charged to Capital City Clean-Up and charges to other City of Edmonton areas for disposal of waste at the Edmonton Waste Management Centre.

Line 1 - Litter Collection Recovery

The decrease in Litter Collection Recovery from the 2020 forecast is related to an adjustment to the delivery of the litter collection service as part of the reimagining of City services in 2021.

Line 2 - Landfill Disposal Fees

The change in landfill disposal fees from the 2020 forecast is related to reduced tip fees from the wind down of the Commercial Collection program.

Line 3 - Charges to Capital

As in-house engineers work on capital projects, a portion of their time is capitalized to the project(s) instead of being charged to operating expenses.

10.0 Amortization and Interest Expense

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	2022 Forecast
1	Amortization of Non-Contributed Assets	$ 21,023	$ 24,214	$ 23,075	**$ 26,376**	$ 28,435
2	Amortization of Contributed Assets	1,434	1,412	1,362	**1,326**	1,249
	TOTAL AMORTIZATION OF ASSETS	$ 22,457	$ 25,626	$ 24,437	**$ 27,702**	$ 29,684
3	Long-Term Interest - Existing Borrowing	$ 8,978	$ 8,192	$ 8,523	**$ 8,962**	$ 9,131
4	Long-Term Interest - Proposed Borrowing	-	857	-	**-**	-
		8,978	9,049	8,523	**8,962**	9,131
5	Short-Term Interest	-	110	136	**112**	86
	TOTAL INTEREST EXPENSE	$ 8,978	$ 9,159	$ 8,659	**$ 9,074**	$ 9,217
	COST OF DEBT					
6	Long-Term Debt Principal Repayment - Existing Borrowing	$ 19,105	$ 17,755	$ 18,251	**$ 20,174**	$ 21,804
7	Long-Term Debt Principal Repayment - Proposed Borrowing	-	1,679	-	**-**	-
		19,105	19,434	18,251	**20,174**	21,804
8	Short-Term Debt Principal Repayment	676	1,428	1,760	**1,820**	1,883
	TOTAL PRINCIPAL REPAYMENTS	$ 19,781	$ 20,862	$ 20,011	**$ 21,994**	$ 23,687
9	Long-Term Debt Balance - Existing Borrowing	$ 211,793	$ 202,994	$ 205,720	**$ 230,007**	$ 245,206
10	Long-Term Debt Balance - Proposed Borrowing	12,178	46,222	44,461	**37,003**	13,515
	TOTAL LONG-TERM DEBT BALANCE	$ 223,971	$ 249,216	$ 250,181	**$ 267,010**	$ 258,721
	MID-YEAR LONG-TERM DEBT BALANCE	$ 227,435	$ 235,823	$ 237,076	**$ 258,596**	$ 262,866

Amortization expense represents the amount of asset life used during a given operating period. The rate of amortization is dependent upon the asset class, each with a predetermined estimated useful life based upon historical experience. Waste Services Utility's assets are divided into 47 different classes with useful lives varying between three years and extending up to 60 years. Amortization expense is calculated using the straight-line method which incurs half year expenses in the first and last year of the asset's life.

Interest expense includes both interest for Alberta Capital Financing Authority (ACFA) debentures related to capital projects, as well as interest on short-term loans from the City of Edmonton. Projected rates are provided by the City of Edmonton Budget Office and are based on recent ACFA rates and economic conditions (see section 3.0 Methodology and Key Assumptions).

Line 1 - Amortization of Non-Contributed Assets

The annual increases in amortization result from upcoming commissioning of Materials Recovery Facility (MRF) renewal, Source Separated Organics Program initiatives, site infrastructure and facilities projects, and vehicle and equipment purchases. The majority of existing assets will not reach the end of their useful life for several more years.

Line 2 - Amortization of Contributed Assets

Amortization of Contributed Assets represents the amount of benefit from assets which were received or funded by third parties. The amortization from contributed assets decreases the amount of total amortization expense for the Waste Services Utility. Amortization of Contributed Assets are the benefits received from the Advanced Energy Research Facility funded by Alberta Innovates - Energy and Environment Solutions, and Edmonton Waste Management Centre Site 440 infrastructure. A large portion of Site 440 construction was funded by an external third party.

Lines 5 and 8 - Short-Term Interest and Short-Term Debt Principal Repayments

Refer to Schedule 10.1 for additional details.

10.1 Short-Term Loan from the City of Edmonton

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	2022 Forecast	2023 Forecast	2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast	2028 Forecast
1	**Loan To Cover Non-Regulated Program Losses and Maintain Cash Flow**											
	Beginning Balance	$ 4,947	$ 7,236	$ 9,067	**$ 7,307**	$ 5,487	$ 3,604	$ 1,650	-	-	-	-
	Draw	4,796	-	-	**-**	-	-	-	-	-	-	-
	Principal	676	1,428	1,760	**1,820**	1,883	1,954	1,650	-	-	-	-
	Interest	74	110	136	**112**	86	59	31	-	-	-	-
	Ending Balance	$ 9,067	$ 5,808	$ 7,307	**$ 5,487**	$ 3,604	$ 1,650	-	-	-	-	-

Line 1 - Loan to Cover Non-Regulated Program Losses and Maintain Cash Flow

To address non-regulated program losses and achieve target cash balances, the Waste Services Utility was given authorization through the 2015 Operating Budget process to draw on a short-term loan from the City of Edmonton beginning in 2015. This ensures that non-regulated losses are covered by the loan as opposed to regulated revenues and assists in reducing non-regulated rate increases. Principal and Interest (1.5%) are paid annually for ten years from the first draw in 2015. Interest payments are reflected entirely within non-regulated program expenses. As of December 31, 2019, a draw of $9.07 million was made against this loan to cover losses related to the non-regulated business lines.

Moving forward, modest profits are anticipated to be generated by the remaining two non-regulated business lines (Commercial Self-Haul and Aggregates Recycling), as shown on schedule 13.1. A portion of the future profits may need to be earmarked for the development of the Industrial, Commercial and Institutional (ICI) waste reduction initiatives. Loan repayment options shall be brought forward under a separate report in December 2020.

10.2 Deferral Account Balances

(in thousands of dollars)

Line #		Recovery Period (Years)	2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	2022 Forecast
1	**Opening Deferral Balance (Regulatory Asset)**		-	$ 14,404	$ 14,404	**$ 26,670**	$ 26,051
	Additions						
2	2017 Initial Impairment of ECF Structure (Previously Approved)	12	$ 15,713	-	-	-	-
3	2019 Impairment of ECF Equipment	8	-	5,015	5,015	-	-
4	2019 ECF Deconstruction *	8	-	10,500	10,500	-	-
5	2020 Impairment of Unsalvagable ECF Equipment	5				**$ 3,287**	
6	**Deferral Additions During the Year**		$ 15,713	$ 15,515	$ 15,515	**$ 3,287**	-
7	**Deferral Balance Including Additions**		15,713	29,919	29,919	**29,957**	26,051
8	Amortization of Regulatory Asset - 2017 Impairment (Line 2)	12	1,309	1,309	1,309	**1,309**	1,309
9	Amortization of Regulatory Asset - 2019 Impairment (Line 3)	8	-	627	627	**627**	627
10	Amortization of Regulatory Asset - ECF Deconstruction (Line 4)	8	-	1,313	1,313	**1,313**	1,313
11	Amortization of Regulatory Asset - 2020 Impairment (Line 5)	5				**657**	657
12	**Total Amortization of Regulatory Asset**		$ 1,309	$ 3,249	$ 3,249	**$ 3,906**	$ 3,906
13	**Closing Deferral Balance (Regulatory Asset)**		$ 14,404	$ 26,670	$ 26,670	**$ 26,051**	$ 22,145

*In the 2019 Rate Filing, an estimated provision of $1.5 million was included for demolition cost in the approved deferral account balance of $15.7 million (on line 2). The required deferral account addition for deconstruction cost (on line 4) has therefore been reduced by $1.5 million for calculating rates from the current deconstruction cost estimate of $12 million.

The Waste Services deferral account is a rate regulated accounting mechanism which allows the Utility to minimize rate volatility for ratepayers, by recovering approved cost from ratepayers over a period of time compared to when the costs are actually incurred. This results in the Utility recording a regulatory asset for the deferral account balances, which is amortized over a reasonable time period to allow the Utility to recover costs from ratepayers while ensuring rate stability.

Lines 2-5: Impairment of ECF & Deconstruction Cost

Line 2 - During 2017, structural issues associated with the Aeration Hall roof were identified resulting in an initial financial impairment of $15.7 million. Waste Services received approval to create a deferral account for this impairment through its 2019 Rate Filing to minimize impact to ratepayers.

Lines 3 and 4 - In spring 2019, it was concluded that the facility was no longer safe to continue operating and to begin the shut down process to permanently decommission the facility. This decision was based on structural scan and in collaboration with external structural engineers. As a result, there was an additional impairment related to unsalvageable equipment of $5 million. In addition, the facility deconstruction cost was estimated at $12 million. Waste Services received approval to incorporate the 2019 impairment and deconstruction cost as additions to the previously approved deferral account balances through its 2020 rate filing to minimize impact to ratepayers.

Line 5 - One of the options explored for interim organics processing in 2019 and prior to the commencement of ECF deconstruction work included the possibility of salvaging equipment worth $3.3 million from the aeration hall during the deconstruction of the ECF and repurposing those salvaged assets for processing organics as part of the interim solution. As a result, the impairment recorded during 2019 excluded $3.3 million worth of equipment that was expected to be repurposed for interim organics. During the course of deconstruction it became clear that the option to salvage the equipment was cost prohibitive and increasingly challenging to achieve the desired outcome. An impairment of $3.3 million will be recorded at the end of 2020 related to these equipment. The additional impairment cost on line 5 related to these assets have been incorporated as additions to the previously approved deferral account balances in this rate filing to minimize impact to ratepayers.

Lines 8 - 11: Amortization of Regulatory Asset

The amortization of the regulatory asset represents the annual amount of the deferral balance recovered through Utility rates. The amortization period used for the regulatory asset closely matches the remaining useful life of the original asset, and in the case of decommissioning costs a reasonable time period that minimizes rate impact while balancing inter-generational equity. The Utility will monitor its deferral account balances for appropriate additions or adjustments to the amortization periods when justified.

11.0 Revenue Requirement

(in thousands of dollars)

Line #		Reference	2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	2022 Forecast
1	**O&M Expenses and Grants**	Schedule 9.0	$ 205,073	$ 176,271	$ 166,534	**$ 174,279**	$ 170,834
2	Intra-municipal Recoveries	Schedule 9.0	(3,564)	(4,697)	(4,825)	**(3,877)**	(3,925)
	Net Operations and Maintenance Expenses		201,509	171,574	161,709	**170,402**	166,909
3	Amortization of Non-Contributed Assets	Schedule 9.0	21,023	24,214	23,075	**26,376**	28,435
4	Amortization of Regulatory Asset	Schedule 10.2	1,309	3,249	3,249	**3,906**	3,906
5	Debt Servicing - Total Interest	Schedule 9.0	8,978	9,159	8,659	**9,074**	9,217
	Total Net Expense		232,819	208,196	196,692	**209,758**	208,467
6	**Return on Rate Base**	Schedule 11.3	(14,007)	6,572	12,871	**5,280**	9,998
	Total Revenue Requirement		218,812	214,768	209,563	**215,038**	218,465
7	Less Non-Rate Revenues	Schedule 11.1	30,842	20,931	17,505	**15,234**	15,442
	TOTAL RATE REVENUE REQUIRED		$ 187,970	$ 193,837	$ 192,058	**$ 199,804**	$ 203,023

Waste Services Utility Fiscal Policy C558A was adopted by City Council on September 23, 2014. As per this policy, "At a minimum, the projected total revenue generated will be equal to the projected expenses for the year, including sufficient cash to meet the cash flow requirements of the Utility." Costs associated with Contributed Capital, such as amortization, are excluded as these are not eligible to be funded through regulated utility rates.

11.1 Non-Rate Revenue

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Program Revenues - Tip Fees	$ 6,240	$ 5,890	$ 5,176	**$ 5,151**	$ (25)	(0.5%)	$ 5,272
2	Program Revenues - C&D Waste	1,795	-	90	**270**	180	200.0%	270
3	Program Revenues - Materials Recovery Facility	1,806	1,775	1,225	**1,257**	32	2.6%	1,257
4	Program Revenues - Commercial Collection	7,436	2,342	4,430	**-**	(4,430)	(100.0%)	-
5	Program Revenues - Eco Stations	2,658	3,410	2,819	**3,700**	881	31.3%	3,766
6	Program Revenues - Organics Operation	4,493	-	-	**-**	-	-	-
7	Program Revenues - Other	1,291	5,063	1,674	**3,755**	2,081	124.3%	3,825
8	Investment Earnings	1,514	1,450	1,090	**1,101**	11	1.0%	1,052
9	Grants	3,609	1,000	1,000	**-**	(1,000)	(100.0%)	-
	TOTAL NON-RATE REVENUE	$ 30,842	$ 20,930	$ 17,504	**$ 15,234**	$ (2,270)	(13.0%)	$ 15,442

Line 1 - Tip Fees Revenue

Tip Fee Revenues are generated by private haulers disposing of waste materials at the Edmonton Waste Management Centre (EWMC).

Line 2 - Construction and Demolition (C&D) Waste Revenue

Processing of C&D waste and operations of the C&D facility is provided by a third-party based on the strategic direction to exit the C&D non-regulated business line. The revenues forecasted for C&D relate to royalties received from the third-party operating the facility.

Line 3 - Materials Recovery Facility Revenue

Materials Recovery Facility (MRF) revenue from the sale of recyclable materials are highly influenced by both the commodities market and the US exchange rate. MRF revenues are anticipated to be lower due to lower market demand of materials.

Line 4 - Commercial Collection Revenue

Commercial Collection is anticipated to be fully wound down in 2021 based on the strategic direction to exit this business line.

Line 5 - Eco Stations Revenue

Continued growth in Eco Station usage results in an anticipated revenue increase in 2021 and beyond.

Line 6 - Organics Operation Revenue

Biosolids and dewatering revenues have been eliminated starting in 2020 due to the closure and deconstruction of the Edmonton Composting Facility.

Line 7 - Other Program Revenue

Other Program Revenue includes revenues generated from third parties operating at the Edmonton Waste Management Centre based on agreements, which includes sharing of third party sales revenues. Also included in this category are revenues generated from environmental initiatives such as Aggregates crushing and the Sale of Landfill Gas credits.

Line 8 - Investment Earnings

Investment earnings include short-term interest payments received on existing cash balances. Interest earned is expected to decline in the coming years due to the current economic environment with lower rates and as the amount of restricted cash held for the Landfill Post Closure Liability and the Bremner Lagoon Liability are reduced.

Line 9 - Grants

Grants reflected are flow through, received from Alberta Innovates Energy and Environment Solutions and are disbursed to the owner of the Edmonton Waste to Biofuels and Chemical Facility upon achievement of contractual milestones. The net operating impact of these grants is zero with the offset in grant expense (Schedule 9.0). No additional grant for the Edmonton Waste to Biofuels and Chemical facility is expected in 2021.

11.2 Calculation of Rate Base

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	2022 Forecast
1	**Investments in Tangible Capital Assets**					
	Gross Book Value - Non Contributed	$ 517,180	$ 531,207	$ 605,809	**$ 663,584**	$ 688,994
	Gross Book Value - Contributed	28,863	31,463	29,463	**30,013**	30,123
	Gross Book Value - All Assets	546,043	562,670	635,272	**693,597**	719,117
	Accumulated Depreciation - Non Contributed	253,056	212,195	290,336	**319,999**	348,434
	Accumulated Depreciation - Contributed	8,726	10,137	10,088	**11,414**	12,663
	Accumulated Depreciation - All Assets	261,782	222,332	300,424	**331,413**	361,097
	Net Book Value - Non Contributed	264,124	319,012	315,473	**343,585**	340,560
	Net Book Value - Contributed	20,137	21,326	19,376	**18,599**	17,460
	Net Book Value - All Assets	$284,261	$340,338	$334,849	**$362,184**	$358,020
	Mid-Year Non-Contributed Assets	267,156	297,331	291,944	**329,529**	342,072
2	Cash Flow Requirement					
	One Month Operations	19,558	16,938	14,991	**16,351**	16,208
	RATE BASE AT MID YEAR	$ 286,714	$ 314,269	$ 306,935	**$ 345,880**	$ 358,280

11.3 Return on Rate Base

(in thousands of dollars)

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	2022 Forecast
1	**Mid-Year Rate Base**	$ 286,714	$ 314,269	$ 306,935	**$ 345,880**	$ 358,280
	Mid-Year Capital Structure					
2	Debt	79.1%	75.0%	77.2%	**74.8%**	73.4%
3	Equity	20.9%	25.0%	22.8%	**25.2%**	26.6%
	Cost Rates					
4	Debt	3.1%	2.9%	2.8%	**2.6%**	2.5%
5	Equity	(4.9%)	2.1%	4.2%	**1.5%**	2.8%
	Weighted Average Cost of Debt	1.5%	2.7%	3.1%	**2.3%**	2.6%
	Return on Rate Base					
6	Debt	8,978	9,049	8,523	**8,962**	9,131
7	Equity	(14,007)	6,571	12,870	**5,280**	9,998
	Total Return	$ (5,029)	$ 15,620	$ 21,393	**$ 14,242**	$ 19,129

Return on Rate Base is the net income/(loss) as a percentage of the Mid-Year Rate Base. The positive return on rate base is indicative of Waste Services Utility's increased focus on working towards financial sustainability and the need to meet Pay As You Go capital requirements.

12.0 Capital Budget and Forecast Plan - Capital Project Summary

As part of the 25-year Waste Strategy and the 2021 Business Plan, the Utility has placed greater emphasis on delivering strategic program changes through focused prioritization and realignment of its capital plan. In an effort of continuous improvement and response to audit recommendations, significant improvements have been made in the capital program over the past few years. Aligned with the City's Project Development and Delivery Model (PDDM), a comprehensive branch program and project management process was developed and is utilized from project initiation, justification (business case development), prioritization, budget development and expenditure tracking, to project delivery and close-out. Emphasis is placed to ensure sustainability and growth in assets, and to meet the regulatory requirements through proper program planning and delivery.

In the current budget cycle, a total of $186.5 million has been allocated for 16 capital profiles, including funding for the significant, multi-year, critical profiles such as Source Separated Organics, Organic Processing Facility, and Vehicle and Equipment Replacement while ensuring rate stability.

Moving forward, the branch's capital program will continue with the best practice developed, appropriately balancing the growth, process efficiency improvement, rehabilitation, and regulatory requirement needs. A risk-based, process safety, and process reliability focused asset management philosophy will also be incorporated into future capital planning. In order to facilitate the development and maturity of this asset management philosophy, approximately 2% of the asset replacement value has been incorporated into the capital plan starting in 2023 to perform proactive maintenance and repair based on asset condition assessment, safety, security and environmental requirements.

(in thousands of dollars)

Line #	Capital Projects	Current Budget Cycle 2019	2020	2021	2022	2019-2022 Total	Forecast 2023	2024	2025	2026	2027	2028	2019-2028 Total
	Branch-wide												
1	Facilities & Infrastructure Planning & Design	13	355	**-**	-	368	-	-	-	-	-	-	368
2	Facilities & Infrastructure Project Delivery	2,673	6,449	**4,730**	2,429	16,281	4,975	7,500	7,000	7,000	7,000	7,000	56,756
3	Waste Services Infrastructure Planning and Design (IIS)	1,931	116	**985**	896	3,928	500	500	500	500	500	500	6,928
4	Waste Services Project Delivery (IIS)	73	12,616	**1,087**	-	13,776	33,099	48,939	34,194	5,500	5,000	-	140,508
5		**4,690**	**19,536**	**6,802**	**3,325**	**34,353**	**38,574**	**56,939**	**41,694**	**13,000**	**12,500**	**7,500**	**204,560**
	Collection Services Facilities												
6	Collection Facilities and Infrastructure	2,267	-	**-**	-	2,267	-	-	-	-	-	-	2,267
7	Mayfield (NW) Eco Station	1	-	**-**	-	1	-	-	-	777	6,075	6,925	13,778
8		**2,268**	**-**	**-**	-	**2,268**	**-**	**-**	**-**	**777**	**6,075**	**6,925**	**16,045**
	Sustainable Waste Processing Facilities												
9	Cure Site Land Use & Development	247	118	**52**	-	417	-	-	-	-	-	-	417
10	Groundwater Diversion System	2,440	5,760	**-**	-	8,200	-	-	-	-	-	-	8,200
11	Organics Processing Facilities (OPF)	51	11,374	**2,335**	-	13,760	-	-	-	-	-	-	13,760
12	Advanced Energy Research Facility (AERF) Upgrade	-	600	**550**	110	1,260	-	-	-	-	-	-	1,260
13	Refuse Derived Facility Enhancements	-	4,150	**2,350**	-	6,500	-	-	-	-	-	-	6,500
14	Materials Recovery Facility (MRF) Renewal	395	490	**8,687**	6,563	16,135	-	-	-	-	-	-	16,135
15		**3,133**	**22,492**	**13,974**	6,673	**46,272**	**-**	**-**	**-**	**-**	**-**	**-**	**46,272**
	Vehicles & Equipment												
16	Waste Containers	1,240	1,171	**1,057**	1,137	4,605	938	3,500	3,600	3,700	3,778	3,827	23,948
17	WM Services Equipment Acquisition	5,130	16,011	**11,432**	10,998	43,571	10,483	14,370	3,901	7,574	11,518	11,932	103,349
18		**6,370**	**17,182**	**12,489**	**12,135**	**48,176**	**11,421**	**17,870**	**7,501**	**11,274**	**15,296**	**15,759**	**127,297**
	Waste Program Changes												
19	Source Separated Organics Program	12	24,265	**25,059**	2,158	51,494	-	-	-	-	-	-	51,494
20		12	24,265	**25,059**	2,158	**51,494**	-	-	-	-	-	-	**51,494**
21	**Total Recommended Profiles**	**16,473**	**83,475**	**58,324**	**24,291**	**182,563**	**49,995**	**74,809**	**49,195**	**25,051**	**33,871**	**30,184**	**445,668**
	Profiles Pending Approval												
22	Landfill Gas to Renewable Natural Gas (RNG)	-	-	**-**	4,000	4,000	1,000	1,000	-	-	-	-	6,000
23	Multi-Unit Program Development	-	-	**-**	-	-	2,000	-	-	-	-	-	2,000
24		-	**-**	**-**	4,000	**4,000**	**3,000**	**1,000**	**-**	**-**	**-**	**-**	**8,000**
25	**Grand Total**	**$16,473**	**$83,475**	**$58,324**	**$28,291**	**$186,563**	**$52,995**	**$75,809**	**$49,195**	**$25,051**	**$33,871**	**$30,184**	**$453,668**

Lines 1 and 2 - Facilities & Infrastructure Planning and Design and Project Delivery Composite

These composite profiles provide capital funding for planning and design and project delivery, which will be managed internally by Waste Services. The scope of the Facilities and Infrastructure profiles includes the capital maintenance, renewal and upgrade of existing assets due to new or increased waste streams, safety concerns, and design improvements that increase the efficiency of Waste Services' operations. This also includes implementation of an asset management program to deliver sustainable waste services and maintain optimal service levels. Projects were prioritized using a branch-wide process that identifies and ranks projects based on strategic criteria such as environmental impact, health and safety, and alignment to strategy. All projects managed by IIS and some of the larger projects managed by Waste Services will follow the Project Development & Delivery Model (PDDM) process.

Projects anticipated to be undertaken in this budget cycle include, but are not limited to:

- Accessory projects to the Refuse Derived Fuel Facility to enhance process efficiencies
- Anaerobic Digestion Facility humidifier project to optimize processing conditions
- Tip floor enhancements to include a new shredder and conveyor for efficient processing of Source Separated Organics
- EWMC building infrastructure renewals such as lighting upgrades and new data lines
- EWMC site fire protection upgrades to address risk identified by a third-party consultant

Lines 3 and 4 - Waste Services Planning and Design and Project Delivery Composite (IIS Managed)

These composite profiles provide capital funding for planning and design and for project delivery for projects managed by Integrated Infrastructure Services (IIS). The profiles provide a budget to support concept level planning for major capital initiatives in accordance with the City's Project Development & Delivery Model (PDDM). The PDDM is a framework to manage all capital infrastructure projects and represents best practice in project management from industry and comparable municipalities. This process ensures that sufficient information is prepared in advance of the capital budget approval process to support informed investment decisions, provides adequate resources for planning and design and provides an overall framework to guide the management of Waste Services' capital projects. Projects have been identified and prioritized based on strategic criteria such as environmental impact, health and safety and alignment with branch and corporate goals.

Projects anticipated to be undertaken in this budget cycle include, but are not limited to, the following:

- Post commissioning upgrades to the Anaerobic Digestion Facility to enhance safety and efficiency, such as a process to further reduce pathogens.
- EWMC site security upgrade to improve safety and security standards based on corporate security audit recommendations.

These composite profiles also include approximately $100 million in funding for the delivery of the Organics Processing Facilities (OPF) project starting in 2023.

Line 9 - Cure Site Land Use and Development

This profile was carried forward from 2015-2018 budget cycle and allows for the procurement and development of an external cure site for composting activities. Due to realignment of priorities and requirements, this profile is not anticipated to incur further costs beyond 2021.

Line 11 - Organics Processing Facilities (OPF)

This approved stand alone profile provides funding for the OPF business case and includes funding for various activities required for the project as per City's Public Private Partnership (P3) Policy C555. Activities such as project development, request for qualification, request for proposal and other P3 procurement activities required prior to contract award are included under this profile.

Council approval will be requested along with a revised project and funding plan before entering into a contract with the successful proponent. It is anticipated that this approval will be requested during the 2nd half of 2021. A subsequent budget adjustment will also be requested at that time to allocate the remaining project delivery funds to this stand alone profile.

Line 12 - Advanced Energy Research Facility (AERF) Upgrade

Provincial grant funding from the Climate Change Innovation and Technology Framework (CCITF) will be used to upgrade the research and development equipment and infrastructure at the AERF. This work has been established and approved under a separate stand alone profile to facilitate cost and grant tracking.

Line 13 - Refuse Derived Facility Enhancements

This profile was approved in May 2020 with the goal of building an alternative load-out system and structure to enhance the reliability of the RDF facility, and provide alternative opportunities and further improve waste diversion. This project provides the critical infrastructure required to recover waste for conversion to biofuels.

Line 14 - Materials Recovery Facility (MRF) Renewal

This stand alone profile was approved by Council in October 2020 and supports the replacement of various process equipment and building components that will extend the life, improve efficiencies, and increase the capacity of the MRF.

Lines 16 and 17 - Waste Containers and Waste Services Equipment Acquisition

These composite profiles provide capital funding for Waste Containers and Mobile Equipment. The objective of these profiles is to replace existing assets at the end of their useful lives and provide funding for growth assets to support the current market conditions and the changing needs of Waste Services customers. This entails the purchase of steel bins and litter baskets as well as carts required to support the initial rollout of the residential Source Separated Organics (SSO) Program in 2021. The equipment acquisition profile supports the purchase and capital refurbishment of Collections and Sustainable Waste Processing equipment such as waste collection vehicles, highway tractors and trailers, and compost turners.

Line 19 - Source Separated Organics Program

This profile was approved by Council in September 2019 and supports major changes to the current waste collection program and the way single unit residents set out their waste for collection. The capital procurement includes household carts and associated accessories, automated collection and crew maintenance vehicles, a cart storage yard and processing equipment for the citywide program rollout. Due to COVID-19 the implementation of this program was delayed until 2021.

Line 22 - Landfill Gas to Renewable Natural Gas (RNG)

This new stand alone profile includes the estimated capital required to collect, process and convert landfill gas into renewable natural gas (RNG). A separate capital profile has been included in this rate filing for rate forecasting purposes however, no funds will be committed until a detailed business case is brought forward for approval in spring 2021. For further details, please see the Capital Profile in Appendix B.

Line 23 - Multi-Unit Program Development

The development of a roadmap to establish and deliver a Multi-Unit residential diversion management plan is currently underway. A provision has been included in this capital plan related to the Multi-Unit sector. A detailed business case and associated capital profile will be brought forward for approval in 2021.

12.1 Capital Project Financing Summary

(in thousands of dollars)

		4 Year Capital Budget					Forecast						
Line #	Source of Financing	2019	2020 Forecast	2021 Proposed	2022	2019 - 2022 Total	2023	2024	2025	2026	2027	2028	2019 - 2028 Total
1	Self Liquidating Debentures	$9,335	$44,579	**$37,054**	$16,287	$107,255	$40,012	$60,939	$29,794	$6,200	$9,298	$827	$254,325
2	Pay As You Go Requirement	7,138	26,056	**10,472**	11,894	55,560	12,983	14,870	4,401	8,851	14,573	19,357	130,595
3	Existing Cash	-	12,240	**10,248**	-	22,488	-	-	15,000	10,000	10,000	10,000	67,488
4	Provincial Grants & Partnership	-	600	**550**	110	1,260	-	-	-	-	-	-	1,260
	Total Capital Project Financing	**$16,473**	**$83,475**	**$58,324**	**$28,291**	**$186,563**	**$52,995**	**$75,809**	**$49,195**	**$25,051**	**$33,871**	**$30,184**	**$453,668**

Line 1 - Self Liquidating Debentures

Self Liquidating Debentures are coordinated through the City of Edmonton and drawn from the Alberta Capital Financing Authority. The cost of debt varies according to economic conditions and length of term (see Section 3.0). Details on debt servicing costs are provided in Schedule 10.0.

Line 2 - Pay As You Go Requirement

With the approval of Waste Management Utility Fiscal Policy C558A on September 23, 2014, Pay As You Go (PAYG) requirements are incorporated into the Financial Indicators calculation for Target Cash Position as illustrated in Section 7.0 Financial Indicators. This term is used to identify the portion of a given capital project which is funded by cash (equity). The Pay As You Go Requirement for the succeeding year is used in calculating a given year's target cash position.

Line 3 - Existing Cash

Existing cash balances are used to fund capital expenditures when feasible after taking into account target cash position requirements and cash requirements to meet post-closure liability requirements. Utilizing existing cash helps the Utility to reduce PAYG and debt requirements, thereby allowing the Utility to maintain stable, consistent rate increases while managing the Utility’s Debt to Net Assets Ratio.

Line 4 - Provincial Grants & Partnership

Provincial grant funding for equipment and infrastructure upgrades to the Advanced Energy Research Facility is provided by the Climate Change Innovation and Technology Framework (CCITF).

13.0 Segmented Reporting - Program Revenues and Expenses

(in thousands of dollars)

WASTE COLLECTION SERVICES

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Personnel	$ 27,903	$ 26,818	$ 25,099	**$ 26,415**	$ 1,316	5.2%	$ 26,377
2	Materials, Goods & Supplies	950	1,852	1,241	**695**	(546)	(44.0%)	960
3	External Services	26,543	32,643	25,304	**30,484**	5,180	20.5%	31,595
4	Fleet Services	9,328	9,367	9,162	**7,491**	(1,671)	(18.2%)	7,515
5	Shared Services	-	-	-	**-**	-	-	-
6	Intra-municipal Services	1,775	1,685	1,685	**1,938**	253	15.0%	1,956
7	Utilities	480	856	511	**858**	347	67.9%	858
8	Other Expenses	658	1,430	1,247	**1,386**	139	11.1%	1,387
	SUBTOTAL	67,637	74,651	64,249	**69,267**	5,018	7.8%	70,648
9	Intra-municipal Recoveries	(702)	(1,135)	(1,185)	**(767)**	418	(35.3%)	(767)
	TOTAL O&M EXPENSES	66,935	73,516	63,064	**68,500**	5,436	8.6%	69,881
10	Amortization of Non-Contributed Assets	5,538	6,932	6,402	**9,046**	2,644	41.3%	10,342
11	Debt Interest	3,550	1,237	922	**1,441**	519	56.3%	1,851
	EXPENSES BEFORE ONE-TIME	76,023	81,685	70,388	**78,987**	8,599	12.2%	82,074
12	Grant Payment	-	-	-	**-**	-	-	-
13	Grant Revenue	-	-	-	**-**	-	-	-
14	Program Revenues	(11,123)	(8,612)	(9,101)	**(4,432)**	4,669	(51.3%)	(4,497)
15	Rate Revenues	(64,900)	(73,073)	(61,287)	**(74,555)**	(13,268)	21.6%	(77,577)
	NET INCOME/(NET LOSS)	-	-	-	**-**	-	-	-

SUSTAINABLE WASTE PROCESSING

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Personnel	$22,970	$23,325	$23,264	**$24,814**	$1,550	6.7%	$24,668
2	Materials, Goods & Supplies	895	2,624	(567)	**2,291**	2,858	(504.1%)	2,300
3	External Services	77,055	47,693	50,286	**51,098**	812	1.6%	47,105
4	Fleet Services	9,804	8,129	7,939	**8,612**	673	8.5%	8,630
5	Shared Services	9,616	9,901	9,887	**10,024**	137	1.4%	9,172
6	Intra-municipal Services	3,473	3,135	3,023	**3,413**	390	12.9%	3,435
7	Utilities	3,939	5,354	3,910	**4,286**	376	9.6%	4,392
8	Other Expenses	4,837	460	1,064	**477**	(587)	(55.2%)	482
	SUBTOTAL	132,589	100,621	98,806	**105,015**	6,209	6.3%	100,184
9	Intra-municipal Recoveries	(1,617)	(3,561)	(1,167)	**(3,111)**	(1,944)	166.6%	(3,158)
	TOTAL O&M EXPENSES	130,972	97,060	97,639	**101,904**	4,265	4.4%	97,026
10	Amortization of Non-Contributed Assets	15,485	17,282	16,673	**17,330**	657	3.9%	18,093
11	Amortization of Regulatory Asset	1,309	3,249	3,249	**3,906**	-	-	3,906
12	Debt Interest	5,427	7,922	7,737	**7,632**	(105)	(1.4%)	7,366
	EXPENSES BEFORE ONE-TIME	153,193	125,513	125,298	**130,772**	5,474	4.4%	126,391
13	Grant Payment	3,600	1,000	1,000	**-**	(1,000)	(100.0%)	-
14	Grant Revenue	(3,609)	(1,000)	(1,000)	**-**	1,000	(100.0%)	-
15	Program Revenues	(16,110)	(11,319)	(7,403)	**(10,799)**	(3,396)	45.9%	(10,944)
16	Rate Revenues	(123,067)	(120,765)	(130,765)	**(125,253)**	5,512	(4.2%)	(125,445)
	NET INCOME/(NET LOSS)	$ (14,007)	$ 6,571	$ 12,870	**$ 5,280**	$ (7,590)	(59.0%)	$ 9,998

Note: Program and Rate Revenues sufficient to achieve a net income of zero are transferred from Sustainable Waste Processing to Collection Services. The net income for Waste Services is therefore wholly contained within Sustainable Waste Processing.

13.1 Revenues and Expenses by Regulated and Non-Regulated Program

(in thousands of dollars)

REGULATED PROGRAMS

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Personnel	$ 43,667	$ 46,922	$ 44,304	**$ 49,157**	$4,853	11.0%	$ 48,965
2	Materials, Goods & Supplies	2,049	3,018	1,809	**2,141**	332	18.4%	2,414
3	External Services	95,563	76,821	70,769	**77,723**	6,954	9.8%	74,805
4	Fleet Services	14,787	15,695	15,302	**14,809**	(493)	(3.2%)	14,849
5	Shared Services	9,616	9,901	9,887	**10,024**	137	1.4%	9,172
6	Intra-municipal Services	5,114	4,817	4,727	**5,170**	443	9.4%	5,210
7	Utilities & Others	9,338	7,850	6,495	**6,870**	375	5.8%	6,971
	SUBTOTAL	180,134	165,024	153,293	**165,894**	12,601	8.2%	162,386
8	Intra-municipal Recoveries	(1,881)	(835)	(964)	**(298)**	666	(69.1%)	(298)
	O & M EXPENSES	178,253	164,189	152,329	**165,596**	13,267	8.7%	162,088
9	Amortization of Non-Contributed Assets	19,846	23,230	21,909	**25,671**	3,762	17.2%	27,850
10	Amortization of Regulatory Asset	1,309	3,249	3,249	**3,906**	657	20.2%	3,906
11	Debt Interest	8,904	8,927	8,303	**8,846**	543	6.5%	9,021
	EXPENSES BEFORE ONE-TIME	208,312	199,595	185,790	**204,019**	18,229	9.8%	202,865
12	Grant Payment	(2,732)	(784)	(784)	**-**	784	(100.0%)	-
13	Grant Revenue	2,741	784	784	**-**	(784)	(100.0%)	-
14	Program Revenues	11,122	11,062	6,492	**9,233**	2,741	42.2%	9,307
15	Rate Revenues	187,968	193,838	192,052	**199,806**	7,754	4.0%	203,024
	NET INCOME/(LOSS)	$ (9,213)	$ 5,305	$ 12,754	**$ 5,020**	$ (7,734)	(60.6%)	$ 9,466

NON-REGULATED PROGRAMS

Line #		2019 Actual	2020 Budget	2020 Forecast	2021 Proposed	YoY $ Variance	YoY % Variance	2022 Forecast
1	Personnel	$ 7,206	$ 3,222	$ 4,060	**$ 2,072**	$ (1,988)	(49.0%)	$ 2,082
2	Materials, Goods & Supplies	1,040	1,458	1,338	**845**	(493)	(36.8%)	845
3	External Services	8,036	3,514	4,822	**3,859**	(963)	(20.0%)	3,895
4	Fleet Services	4,346	1,801	1,799	**1,294**	(505)	(28.1%)	1,295
5	Shared Services	-	-	-	**-**	-	-	-
5	Intra-municipal Services	134	3	(18)	**181**	199	(1105.6%)	181
6	Utilities	577	250	236	**137**	(99)	(41.9%)	150
	SUBTOTAL	21,339	10,248	12,237	**8,388**	(3,849)	(31.5%)	8,448
7	Intra-municipal Recoveries	(1,683)	(3,861)	(3,862)	**(3,579)**	283	(7.3%)	(3,627)
	TOTAL O&M EXPENSES	19,656	6,387	8,375	**4,809**	(3,566)	(42.6%)	4,821
8	Amortization of Non-Contributed Assets	1,177	984	1,166	**705**	(461)	(39.5%)	585
10	ECF Deferred Cost	-	-	-	**-**	-	-	-
9	Debt Interest	74	232	356	**228**	(128)	(36.0%)	196
	EXPENSES BEFORE ONE-TIME	20,907	7,603	9,897	**5,742**	(4,155)	(42.0%)	5,602
10	Grant Payment	(868)	(216)	(216)	**-**	216	(100.0%)	-
11	Grant Revenue	868	216	216	**-**	(216)	(100.0%)	-
12	Program Revenues	16,111	8,869	10,013	**6,002**	(4,011)	(40.1%)	6,134
14	Rate Revenues	-	-	-	**-**	-	-	-
	NET INCOME/(NET LOSS)	$ (4,796)	$ 1,266	$ 116	**$ 260**	$144	124.1%	$ 532

To address non-regulated program losses and achieve target cash balances, the Waste Services Utility was given authorization through the 2015 Operating Budget process to draw on a short-term loan from the City of Edmonton beginning in 2015. This ensures that non-regulated losses are covered by this loan as opposed to regulated revenues and assists in reducing non-regulated rate increases.

13.2 Regulated Activities Expense Changes

(in thousands of dollars)

	Regulated Activities	2020 Forecast	Customer Growth	Consumption	Inflation	New Activities (Note 1)	Activities No Longer Required (Note 2)	2021 Proposed
1	Personnel	$ 44,304	-	627	$ 901	$ 3,325	-	$ 49,157
2	Materials, Goods & Supplies	1,809	25	(6)	33	280	-	2,141
3	External Services	70,769	868	688	1,274	4,125	-	77,723
4	Fleet Services	15,302	-	(493)	-	-	-	14,809
5	Shared Services	9,887	-	137	-	-	-	10,024
6	Intra-municipal Services	4,727	-	443	-	-	-	5,170
7	Utilities & Other Expenses	6,495	-	258	117	-	-	6,870
	SUBTOTAL	153,293	893	1,654	2,324	7,730	-	165,894
8	Intra-municipal Recoveries	(964)	-	-	-	-	666	(298)
	O & M EXPENSES	$ 152,329	$ 893	$ 1,654	$ 2,324	$ 7,730	$ 666	$ 165,596

Line 1 - Personnel

Inflation reflects the merit and benefit increases for current positions and consumption reflects the expected return of seasonal and permanent positions unfilled in 2020 due to COVID 19. New Activities is related to temporary staff requirements for the Source Separated Organics Program under Note 1.

Line 2 - Materials Goods & Supplies

New Activities is related to material requirements for cart maintenance costs related to the Source Separated Organics Program under Note 1. Consumption costs are related to increased volume from the Anaerobic Digestion Facility (ADF).

Line 3 - External Services

Increase in the number of customers represents the additional costs to provide service to a larger customer base. Consumption is related to higher hauling requirements from regional organics and the closure of the MRF for upgrades and increased volumes at Eco Stations. New Activities is related to external services costs for the digital strategy, communications and collections for the Source Separated Organics Program under Note 1.

Other contract costs include Community Relations and Program Management, Administrative Services, and other facilities such as Eco Stations, Edmonton Waste Services Centre Operations, Advanced Energy Research Facility, Research & Development and Environmental.

Line 4 - Fleet Services

Consumption costs reflect a decrease in standard repairs due to replacement of aging fleet.

Line 6 - Intra-municipal Services

Consumption represents additional security needs at the Edmonton Waste Management Centre and additional safety costs.

Line 7 - Utilities & Other Expenses

Consumption represents the increases to power associated with the Refuse Derived Fuel Facility and Anaerobic Digestion Facility.

Note 1: New activities are for the citywide rollout of the Source Separated Organics Program. This involves major changes to the current waste collection program and the way single unit residents set out their waste for collection. This program was expected to be rolled out in 2020 but was delayed due to the impacts of COVID 19.

Note 2: Activities no longer required include a reduction in intra-municipal recoveries for a decrease in tip fees at the Integrated Processing & Transfer Facility due to the wind-down of the Commercial Collections business line.

14.0 Historical Trends

(in thousands of dollars)

Line #		Reference	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Forecast	2021 Proposed
1	Operations and Maintenance	Schedule 9.0	$ 121,371	$ 131,901	$ 141,496	$ 155,604	$ 164,316	$ 180,709	$ 172,553	$ 201,473	$ 165,534	**$ 174,279**
2	Amortization of Non-Contributed Assets	Schedule 10.0	16,099	17,074	17,466	19,227	20,310	20,779	22,308	21,023	23,075	**26,376**
4	Debt Interest	Schedule 10.0	10,124	10,104	9,852	9,750	9,588	9,369	9,274	8,978	8,659	**9,074**
5	Intra-municipal Recoveries	Schedule 9.8	(8,806)	(11,649)	(11,501)	(13,680)	(14,932)	(10,972)	(4,437)	(3,564)	(4,825)	**(3,877)**
6	Grants	Schedule 9.0	3,700	3,700	4,000	2,005	2,000	-	1,500	3,600	1,000	**-**
7	Amortization of Regulatory Asset	Schedule 9.0	-	-	-	-	-	-	-	1,309	3,249	**3,906**
	TOTAL EXPENSES		142,488	151,130	161,313	172,906	181,282	199,885	201,198	232,819	196,692	**209,758**
8	Non-Rate Revenue	Schedule 11.1	25,394	26,538	28,379	27,037	28,772	35,880	39,302	30,842	17,504	**15,234**
9	Rate Revenue	Schedule 11.0	113,325	122,403	133,177	148,611	163,010	174,780	180,030	187,970	192,058	**199,804**
	TOTAL REVENUES		138,719	148,941	161,556	175,648	191,782	210,660	219,332	218,812	209,562	**215,038**
	NET INCOME/(LOSS)	Schedule 13.0	$ (3,769)	$ (2,189)	$ 243	$ 2,742	$ 10,500	$ 10,775	$ 18,134	$ (14,007)	$ 12,870	**$ 5,280**

Waste Services Utility Customer Counts

	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Forecast	2021 Proposed	2022 Forecast
Single Unit	190,952	195,525	200,475	206,576	211,145	214,900	219,973	224,129	232,643	**236,711**	240,792
Multi Unit	149,989	154,850	158,821	163,636	169,386	174,196	175,519	178,751	177,383	**178,342**	180,850
Total	340,941	350,375	359,296	370,212	380,531	389,096	395,492	402,880	410,026	**415,053**	421,642

Includes the reclassification of 9,533 customers from Multi-Unit to Single Unit in 2021. Refer to Sec 3.0 for additional information.

All Customer Counts shown represent December 31 balances. For budget and forecast purposes the utility rates are calculated using a phased-in increase to Customer Counts over a given year to ensure representation of consistent growth. As a result, mid-year customer counts are used in these calculations.

Appendix A: Waste Services Utility Operating Business Cases

There are no Waste Services Operating Business Cases for the 2021 Utility Rate Filing.

Appendix B: Waste Services Utility Budget Adjustments & Capital Profiles

The following new capital profiles provide additional information for the initiatives noted under Schedule 12.0 Capital Budget and Forecast Plan:

- Landfill Gas to Renewable Natural Gas (RNG)

CAPITAL PROFILE REPORT

PROFILE NAME:	**LANDFILL GAS TO RENEWABLE NATURAL GAS (RNG)**		**UNFUNDED**
PROFILE NUMBER:	**22-81-2053**	PROFILE STAGE:	**Entry - Create Profile**
DEPARTMENT:	**Utilities**	PROFILE TYPE:	**Standalone**
LEAD BRANCH:	**Waste Management Services**	LEAD MANAGER:	**Michael Labrecque**
PROGRAM NAME:		PARTNER MANAGER:	
PARTNER:		ESTIMATED START:	**January 2022**
BUDGET CYCLE:	**2019-2022**	ESTIMATED COMPLETION:	**December 2024**

Service Category: **Utilities** **Major Initiative:**

GROWTH	RENEWAL
100	

PREVIOUSLY APPROVED:	-
BUDGET REQUEST:	6,000
TOTAL PROFILE BUDGET:	6,000

PROFILE DESCRIPTION

The main purpose of this initiative is to upgrade LFG into RNG via pressure swing adsorption. This proposed technology is appealing for the following two reasons:

- It is proven, mature and reliable; and
- It demonstrates a high conversion yield (up to 98% of methane is conserved during LFG to RNG conversion).

As of 2018, LFG collection flow rates averaged 1,750 standard cubic metres per hour (Sm3/hr), representing an LFG collection efficiency of approximately 49% of the estimated generation. LFG generation within the Landfill is estimated to range from 3,200 Sm3/h in 2024 to 2,550 Sm3/h in 2040, declining modestly annually since the Landfill is now closed and no longer accepting new waste.

The Project will enhance the existing and collapsing LFG collection system infrastructure by upgrading the existing vertical gas collection wells, rehabilitation of gas header and introduction of approximately 100 additional wells and new header with a decent condensate management system to capture more than 75% of the currently generated gas. Proposed enhancements to capture 75 percent of its generating capacity, will provide approximately 2,400 Sm3/h of LFG in 2024 and 1,900 Sm3/hr of LFG by 2040. The collected gas will be sent to the gas utilization facility where it will be upgraded to RNG by removing the carbon dioxide, trace gases, and other impurities using an upgrading technology such as Pressure Swing Adsorption. The end product will be a stream of RNG that is primarily methane and meets natural gas pipeline quality standards as set by the local gas distributor. The RNG will be transferred from the RNG facility to the gate/measurement station (Injection Station) operated by ATCO; the local owner of natural gas pipeline infrastructure with over 64,500 kilometers of natural gas pipelines in Alberta. The Injection Station will include the equipment necessary to monitor flow, verify RNG quality, and to add the necessary odorant before it enters the pipeline system. From Injection Station the RNG will be fed into the natural gas grid through on-site interconnection piping, directly displacing an equivalent volume of fossil fuel-based natural gas and reducing the emissions intensity of the natural gas for the purchaser. The RNG system is being designed for a treatment capacity of 2,000 Sm3 LFG/hr, with the excess LFG being directed to flare to manage methane.

The opportunity is attractive for the following reasons:

- It is financially viable with significant revenue projection for as long as the landfill releases collectable amount of gas
- Generates commodity for which high market demand exists for a prolonged period of time
- Offsets GHG, aligns well with City’s action on Climate Resilience
- Utilizes well-established technology (low project operational risk)
- Can qualify for a currently available provincial funding.

PROFILE BACKGROUND

The City of Edmonton Clover Bar Class II Landfill (CBLF) operates under the Alberta Environmental Protection and Enhancement Act Approval No. 47140-02-00 (Approval). The Approval requires the City to actively manage its LFG emissions so that both LFG fugitive emissions and subsurface migration are minimized.

An active LFG collection system was installed in 1992 as part of a third-party agreement. This agreement between Capital Power and the City expires in 2024.

In 2018, through a series of value engineering workshops and meetings managed by Technical Services of Waste Services Branch, it was recommended that upon expiration of the current agreement with Capital Power, the beneficial use of LFG should be re-evaluated for the best interest of the City. The future of the LGF management has since been on Technical Services’ radar. The technical experts in the group have been actively seeking opportunities for the new era of LFG management to commence post September 1, 2024.

PROFILE JUSTIFICATION

Control of Environmental Liability
A key component of the budget for the Project is the expansion and upgrading of the existing LFG collection system on-Site. The current system is aged and generally in need of significant repairs. In some cases, the need for major overhaul has been identified. The City is planning a $6.3 million upgrade to the LFG collection and control system, which will include LFG collection field expansion and upgrade over the entire landfill surface, estimated to improve LFG collection efficiency from 49% today to approximately 75% at completion, and a new flare system, which will operate with higher efficiency and reliability than the current flare. The upgraded system will support the optimization of LFG well field operation and its subsurface escape into the environment.

Contribution to Emission Reduction in Energy Sector
At the current spot price of electricity in Alberta, revenue generation from LFG combustion is marginal. For many landfills, the revenue margin may be so small that landfill owners and operators opt to simply flare LFG instead of trying to produce power. With the envisioned RNG upgrading technology, the produced RNG has significantly higher market value than electricity, and targets reductions in Alberta's largest energy supply fuel: natural gas. The opportunities presented, namely the financial return and high demand for RNG, will support the business cases for the beneficial use of LFG and biogas over simply flaring the gases to reduce emissions.

A special note of consideration is deserved for the comparison between utilizing LFG (or biogas) for the generation of renewable electricity versus the generation of RNG. As the electricity is generated from the degradation of organic waste, which quickly replenishes, it is considered a renewable source of electricity alongside common technologies such as wind and solar. There has been relatively widespread adoption of combusting LFG (or biogas) in engines or steam turbines to produce renewable electricity, which can either be utilized on site or sold to the electric grid. This is the status quo situation since 2005 at the Clover Bar Landfill, where electricity has been generated from collected LFG and injected into the power grid.
However, emissions reductions are not needed only in our electricity sector. Based on end-use energy demand data in Alberta from 2016, electricity consumption accounts for only 7% of Alberta's energy consumption whereas natural gas accounts for 55% of Alberta's energy consumption.
Natural gas, thus, forms an extremely significant part of Alberta's energy emissions. Being a province with long, cold winters, heat generation constitutes a large part of our energy demand. Given that natural gas-based heating systems are more widely used than electricity-based heating systems, it becomes even more critically important that we support and encourage efforts for emissions reductions not only in the electricity system, but also in our natural gas system.
Based on technology available today, the emissions intensity of the natural gas system can be reduced by two options: RNG and low-carbon hydrogen. The RNG upgrading technology that will be commercially deployed by the proposed Project has the full potential to become a catalyst for significant adoption of RNG from waste and wastewater across Alberta. This would lead to notable emissions reductions across the natural gas network, positively impacting Alberta's overall emissions from energy potentially more significantly than projects that expand renewable electricity generation. The feedstock required – organic waste, sewage, etc. – is created constantly, at increasing rates as our population expands along with our consumer centric lifestyle. This Project would change the narrative around such waste away from that of a nuisance end-product that needs treating and disposal, towards that of a useful feedstock for generating renewable fuel that can be used to power our homes, businesses, and industries.

STRATEGIC ALIGNMENT

The project is well positioned with the Corporate Strategic Alignment Goals as evidenced by the following:
- GHG reduction from LFG capture and utilization supports preservation and sustainability of Edmonton's environment and City's commitment to climate resilience
- Financial profitability of the project ensures Edmonton's financial sustainability

ALTERNATIVES CONSIDERED

Currently, 49 percent of the LFG is collected, thermally destroyed (flared) or beneficially used to produce electricity, through an aged system. At the current spot price of electricity in Alberta, revenue generation from LFG combustion is marginal, even at a loss. For many landfills, the revenue margin may be so small that landfill owners and operators opt to simply flare the LFG instead of trying to produce power. With the envisioned RNG upgrading technology, the produced RNG has significantly higher market value than electricity, and targets reductions in Alberta's largest energy supply fuel: natural gas. The opportunities presented, namely the financial return and high demand for RNG, will support the business cases for the beneficial use of LFG and biogas over simply flaring the gases to reduce emissions.

COST BENEFITS

The Project produces two key, revenue-generating outputs:
- RNG, to be injected and blended into the local natural gas system
- GHG emissions offsets, to be quantified, reported and verified annually thus producing offsets eligible under Alberta's existing Carbon Competitiveness Incentive Regulation (CCIR) and the new Technology Innovation and Emissions Reductions Regulation (TIER), or a voluntary offset program.

KEY RISKS & MITIGATING STRATEGY

Key risks & mitigation strategy:
Fluctuating LFG quality & quantity
-Measure LFG quality & quantity on at least a monthly basis to assess fluctuation & degradation in flow
-Additional LFG sampling efforts required in order to minimize risk to the City
-Ensure RNG upgrader has built in capacity to turn down LFG flows
Failure to meet RNG injection specifications (due to high nitrogen, oxygen or CO_2)
-Implement a robust biogas upgrading technology capable of exceeding RNG injection specification requirements
-Enhance operational planning
-Improve collection efficiency
Revenue fluctuation
-Secure long-term contracts for a guaranteed RNG Price
-Consider the worst case scenario for all cost benefit analyses
-Start discussions with off-takers earlier in the project

RESOURCES

Waste Services together with its IIS counterparts will be in charge of design and construction of the LFG collection system at the Clover Bar Landfill and a Flare on the City owned land within EWMC.

CONCLUSIONS AND RECOMMENDATIONS

Waste Services recommends approval of this capital project. The total project cost is estimated at approximately $23.2 million, including $10 million grant funding from ERA. When operational in 2023, the Project is estimated to produce the following financial and environmental benefits:

- 325,500 GJ of RNG annually at an average cost of $4.91 per GJ
- $14,848,778.17 of net profit by 2040 to the City at an average sale price of $16 / GJ of RNG
- 149,500 tCO2e per year of GHG emission reduction, thus helping achieve the corporate goal for the City of 50% GHG reduction target
- 2,540,500 tCOe of cumulative GHG emission reduction by 2040.

CAPITAL PROFILE REPORT

PROFILE NAME: **Landfill Gas to Renewable Natural Gas (RNG)**

UNFUNDED

PROFILE NUMBER: **22-81-2053**

PROFILE TYPE: **Standalone**

BRANCH: **Waste Management Services**

CAPITAL BUDGET AND FUNDING SOURCES (000's)

		Prior Years	2020	2021	2022	2023	2024	2025	2026	2027	2028	Beyond 2028	Total
APPROVED BUDGET	Approved Budget												
	Original Budget Approved	-	-	-	-	-	-	-	-	-	-	-	-
	Current Approved Budget	-	-	-	-	-	-	-	-	-	-	-	-
BUDGET REQUEST	Budget Request	-	-	-	4,000	1,000	1,000	-	-	-	-	-	6,000
	Revised Funding Sources (if approved)												
	Self-Liquidating Debentures	-	-	-	4,000	1,000	1,000	-	-	-	-	-	6,000
	Requested Funding Source	-	-	-	4,000	1,000	1,000	-	-	-	-	-	6,000
REVISED BUDGET (IF APPROVED)	Revised Budget (if Approved)	-	-	-	4,000	1,000	1,000	-	-	-	-	-	6,000
	Requested Funding Source												
	Self-Liquidating Debentures	-	-	-	4,000	1,000	1,000	-	-	-	-	-	6,000
	Requested Funding Source	-	-	-	4,000	1,000	1,000	-	-	-	-	-	6,000

CAPITAL BUDGET BY ACTIVITY TYPE (000's)

REVISED BUDGET (IF APPROVED)	Activity Type	Prior Years	2020	2021	2022	2023	2024	2025	2026	2027	2028	Beyond 2028	Total
	Other Costs	-	-	-	4,000	1,000	1,000	-	-	-	-	-	6,000
	Total	-	-	-	4,000	1,000	1,000	-	-	-	-	-	6,000

OPERATING IMPACT OF CAPITAL

Type of Impact:

Branch:	Rev	Exp	Net	FTE	Rev	Exp	Net	FTE	Rev	Exp	Net	FTE	Rev	Exp	Net	FTE
Total Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-