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Waste Services Containers Business Case

City Operations | Waste Services
City of Edmonton

Capital Profile: CPP# CM-81-2005
Project Number: CP# / OP# TBD

Project Owner: Doug Spark
Project Sponsor: Michael Labrecque

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Change History

Version #	Date	Author	Description
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Document Approval

SUBMITTED BY:

Version #	Submitter Name	Title	Submission Date
5.0	Stephanie Zhang	Team Lead Business Strategy Planning & Performance	10/12/2018

REVIEWED BY:

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5.0	Ryan Kos, General Supervisor, Business Strategy Planning & Performance		10/12/2018
5.0	Cameron Grayson, Director Business Integration		10/12/2018
5.0	Keith Knoblauch Operational Controller Business Financial Analytics		10/12/2018

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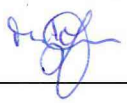
5.0	Doug Spark, Acting Director, Waste Collection Services		10/12/2018
5.0	Michael Labrecque, Branch Manager, Waste Services		10/12/2018

1. Executive Summary

1.1. Waste Containers

The Waste Container Capital Profile # CM-81-2005 supports the replacement of existing assets and growth to support the current market conditions and the changing needs of Waste Services customers. An outcome of this profile is to provide funding for the purchase of front load, side load, roll-off containers and litter baskets used in the Waste Services' residential and non-residential collection programs. This profile also provides funding for purchasing the carts required to support the residential Source Separated Organics (SSO) pilot program in 2019.

The four-year total capital projection is approximately $9.1 million. Out of this, approximately $2.8 million is for growth, $2.5 million is for replacement of containers and $1.5 million for purchasing new plastic carts for the SSO pilot program. The remaining is for buying accessories for the containers and plastic carts. Front load containers, used primarily at multi-family sites, comprise the largest portion of the container capital profile by volume and asset value, and will be the main focus of this business case.

Alternatives identified and reviewed in this business case include:

Alternative 1: Continue funding through capital

Alternative 2: Refurbishment of containers currently in Waste Services inventory

Taking full consideration of the effectiveness, efficiency, and risks, Alternative 1-**Continue Funding Through Capital**, is recommended. This alternative will continue to manage the inventory of containers to achieve maximum life while reducing the cost of service delivery and retaining the potential to earn a return on rate base for Waste Services.

2. Background

2.1. Problem / Opportunity

Waste Services has inventory of approximately 13,400 containers, each with an average life cycle of 15-years that require replacement at the end of their useful life. New containers are also required to match growing demands in residential and non-residential services due to conditions such as an increase in construction of new condos and multi-unit apartment buildings, new community commercial program partners, and an increase in number of litter basket locations across the City to better serve the public. Waste containers for both replacement and growth need to be purchased on a regular basis in order to maintain inventory levels and availability of stock on site to meet the demand requests.

Photo: Sample of front load containers in inventory

2.2. Current Situation

Waste Services provides waste collection services for the multi-unit residential sector in the City. Part of this service includes the provision of waste and recycling containers. A waste or recycling container, is defined as a metal or plastic container used to temporarily store both refuse and recycling waste at various locations such as multi-unit residences, Eco-Stations, the Edmonton Waste Management Centers (EWMC), etc. Waste Services currently has the following container asset inventory, inclusive of those currently in use and in storage:

Waste Containers	Total Inventory, as of May 2018	Programs
Front Load Containers	10,790	Multi-Family Refuse and Recycling Collection Program Commercial Refuse and Recycling Collection Program
Side Load Containers	485	Community Recycling Depot

		Program
Roll-off Containers	207	Eco Stations, big bin events, Edmonton Waste Management Center and Commercial Program
Litter Baskets	1,885	Litter Basket Collection Program

Waste Services operates a container maintenance program that intakes containers for service, replace parts and accessories along with pick up for painting and/or minor repairs when required. Containers that are still structurally sound may be repaired to extend their service life. However, some containers are damaged by fire or have other structural failures that require early replacement. The current weighted average age of Waste Services containers is nine years and is outlined in Appendix A. If this profile is not approved for funding, at the end of 2022 the weighted average age of the containers is projected to be 13 years, which is very close to their end of asset life age of 15 years.

In August 2018, Administration submitted a report on the Source Separated Organics (SSO) Pilot[1] which was approved by Utility Committee and Council for implementation in 2019. This pilot program will test multiple options for source separating kitchen organic waste from the regular curbside garbage collection stream. This implementation requires one time purchase of plastic carts for the program in 2019.

3. Initiative Description

3.1. Initiative Description

Waste container assets are required for continued collection of waste in Edmonton. The City of Edmonton owns front load containers for the multi-unit sector, side load containers for the Community Recycling Depots and Eco-stations, litter baskets, and roll-off containers for big bin events, EWMC and the Commercial Waste Collection program. Waste Services maintains an inventory of waste containers for the replacement of in-service containers that are either damaged beyond economic repair or that reach the end of their useful life. The inventory of waste containers is also used to supply new containers to new developments throughout the budget cycle. Containers are purchased each year gradually to ensure an even expenditure patterns and average lifecycle of containers.

3.2. Urgency of Need

New containers are needed on an ongoing basis as Waste Services retains a limited inventory.

[1] CR_5832 Source Separated Organics Pilot

Waste Services currently has a capital funding profile to purchase the required inventory, and to maintain proper growth and replacement of container assets and accessories required for proper functioning of these containers. It is critical that this profile is approved at this time to ensure continuity of container and accessory replacement. Once approved, this profile will replace approximately 654 steel containers in 2019. This profile also provides funding for the one-time purchase of carts required for SSO pilot program in 2019.

3.3. Anticipated Outcomes

Outcomes/Deliverables	Estimated Timeline
Maintain high levels of customer service delivered in both an efficient and effective way through different waste collection services that use current and new equipment to deliver excellent service to Waste clients.	85 percent satisfaction with multi-unit services in 2017. Waste Services will continue to monitor the satisfaction in this sector on an ongoing basis.
Maintain an effective infrastructure to meet the service demands for both growth and replacement	Ongoing
Ensure a competitive market for services provided to commercial customers	Reviewed constantly and on an ongoing manner as contracts are tendered for various services with different timelines
Provide carts for the SSO pilot project	Spring 2019
Capitalize on opportunities to reduce cost to operate	Ongoing

3.4. Scope

The scope of this business case encompasses the purchase of waste container inventory stock for both replacement and growth in the 2019-2022 capital budget cycle . Included in this are the following types of container assets:

1. Front load steel containers
2. Side load steel containers
3. Roll-off steel containers
4. Litter baskets
5. Plastic carts for the SSO pilot program

3.5. Out of Scope

The following containers are out of scope for this business case:

1. Private sector containers
2. ETS waste containers/baskets
3. Parks and Recreational Services waste containers/baskets
4. Eco station containers provided by on-site contractor

3.6. Critical Success Factors

Critical success factors include:

- Timely acquisition of required containers.
- Timely tender process as majority of containers are fabricated metal products that are directly impacted by local labour rates, global metal prices and any tariffs affecting the Canadian market.
- Adherence to container maintenance program plan.

4. Strategic Alignment

Waste Services is committed to advancing Council's vision and goals. Council's Strategic Plan and the Corporate Business Plan will provide a blueprint to coordinate activities and efforts between the goas and the corporation to make an impact towards achieving the vision. As these are developed, Waste Services will work collaboratively to ensure the strategic direction of the Branch is in alignment with that of the department, corporation, Council and citizens. This profile aligns with the following new strategic goals of the City of Edmonton:

Healthy City	Urban Places	Regional Prosperity	Climate Resilience
Edmonton is a neighbourly city with community and personal wellness that embodies and promotes equity for all Edmontonians.	Edmonton neighbourhoods are more vibrant as density increases, where people and businesses thrive and where housing and mobility options are plentiful.	Edmonton grows prosperity for our Metro Region by driving innovation, competitiveness and relevance for our businesses at the local and global level.	Edmonton is a city transitioning to a low-carbon future, has clean air and water and is adapting to a changing climate.

This profile aligns to the City of Edmonton's Waste Management Policy C527 which commits to delivering sustainable waste management service exceeding provincial waste diversion and processing standards.This profile also aligns with Waste Services integrated 25-year strategic outlook that will help to ensure Edmontonians receive maximum economic and environmental benefits while minimizing the cost increases of managing solid waste. Besides these, this profile

is aligning with the SSO pilot program that addresses the separation of kitchen organic waste from regular garbage initiative, that will be piloted in 2019 by Waste Services.

5. Context Analysis

The City of Edmonton is unique in its approach to multi-unit waste services in North America. In the majority of Canadian municipalities, multi-unit residential waste is treated as Industrial, Commercial and Institutional (ICI) Waste and collection services are provided by the private sector. The City of Edmonton includes multi-unit waste residences in its residential collection program and administers the distribution of containers to collect waste from various streams (namely garbage and recycling) for all multi-unit residential building sites.

Currently, approximately 70 percent of waste collection and 50 percent of recycling collection services are delivered by contractors and the remainder is serviced directly by Waste Services. Waste Services administers the distribution of waste containers for all the sites both for the City and the contractors.

In 1995, Waste Services began providing waste collection services to the multi-unit residential sector. For the first five years of the program, contractors provided the containers along with hauling and disposal as part of the service. From 2000-2002, Waste Service began transitioning to City-owned containers for multi-unit residential collection services as a result of service issues and disruptions during the handover process between contractors. An example of issues experienced with this process would be when a contract ended, the previous contractor would remove their containers and the new contractor would deliver their own for the start of the new contract. This switch out typically did not go smoothly and the contractor would not remove their containers in a timely fashion causing the new service provider to be unable to deliver their containers to site and begin collection services. Residents were negatively impacted by missed collections, multiple containers or no containers at all. If the timing of exchange of containers during this period is un-coordinated, sites can go without a container for a period of time.

This led to a noticeable decrease in customer satisfaction and increase of litter on the ground. There was little incentive for the outgoing service provider to rush or cooperate with the new contractor causing disruption in service in these locations.

A comparison between the cost in 2000/2001 (contractor provided containers) and 2006 (City provided containers) shows a 33 percent reduction in cost when the City provides containers.

This was largely due to eliminating the cost of container exchange for the contractors, and increased competition due to the reduced start up cost for new competitors. The most significant benefit of having Waste Services provide the containers was the elimination of the service disruption described above.

Not all containers in use are owned by Waste Services. In an event, when the switching of containers and contractors does not negatively impact operations, the containers may be provided under the contract. The Eco Station program is an example of this process. The

contractor providing hauling services is responsible for providing the roll-off containers. The option to purchase containers or lease in this instance was evaluated during the tender review when contractors were required to supply a hauling cost with and without supplying containers. At that time, it was operationally effective and cost efficient to have the contractor supply the containers.

Waste Services currently operates a container maintenance program to retain them in working condition. Container accessories are serviced on an as-needed basis. Damaged containers are either reported by the building or by the Waste Services collection crews. The damage is inspected and reported by the Waste inspectors, the container repair is carried out by the container maintenance crew. If the damage is irreparable, the container is replaced and the damaged containers brought back to the Waste Services lot and re-assessed. At this point if the damage is too extensive the container is salvaged for any usable item and the rest is scrapped.

In 2019, Waste Services will review both its non-residential waste strategy[2] and approach to waste collection and diversion programs in the multi-unit sector. Inclusive in this review is the provision of waste collection for non-residential customers. This review will determine how best to improve the financial results and waste diversion statistics in these sectors. Any impact of this review on the procurement and provision of waste containers for this sector will result in an amendment to this business case.

6. Alternatives

Several options were reviewed for this business case and these are outlined below:

Option Description	Advantages	Disadvantages	Further Consideration
1. Continue funding through capital	• Reduced operating costs, consistent program • Little impact to resident	• City responsible for capital and operating expenses	Yes
2. Refurbishment of the containers in inventory	• Extended container life • Increased maintenance of the containers	• Life of the container can be enhanced for limited time only after which they have to be replaced. • An increase in inventory is required.	Yes
3. Lease containers	• Reduces capital spending and container	• Not all types of containers are available to lease	No, Not all waste containers have available leasing

[2] CR_ 6217 Industrial, Commercial and Institutional Sector Strategic Review Report.

	maintenance cost	• Leasing costs are high, offsetting reduced capital cost	options currently. It is not economically or administratively feasible to manage waste container assets through multiple financing approaches. Waste Services will revisit this option in the future if leasing of all waste container types becomes feasible
4. Developers of new multi-unit properties supply the containers	• Reduce the capital required for growth	• Increased costs related to ensuring containers comply with the Waste Management Bylaw • Capital cost of waste containers is shifted to multi-unit properties	No, requires unnecessary and excessive administration to ensure compliance
5. Discontinue providing containers for multi-unit waste management service contract area	• Reduces capital and maintenance costs	• Increases contract costs that negatively impacts residents during contract renewal • This alternative does not address all of the containers in service • Will be administratively burdensome and cost prohibitive when a contractor is changed	No, current contract savings and resident satisfaction support Waste Services existing model
6. Redistribute existing containers to high volume sites and collect smaller sites by hand	• Reduced capital cost for the containers	• Inefficient process that leads to high labor cost • It generates additional litter and public nuisance issues if collected manually	No, current contract savings and resident satisfaction support Waste Services existing model

Based on the information provided above, Waste Services is recommending the following potential alternatives:

Alternative 1: Continue funding through capital: All services remain the same and Waste Services continue to supply the waste containers to multi-family units and the purchase of these

containers is funded through the Capital profile.

Alternative 2: Refurbishment of containers currently in Waste Services inventory: All services remain the same and the damaged containers are refurbished through contract to enhance their life and usage. Refurbishment includes structural repair work such as welding needed to extend the useful life of the waste containers, which will be done on top of the container maintenance program currently in place.

The shortlisted alternatives identified above were further analyzed for their respective advantages and disadvantages. A detailed list of this provided in the tables below:

Alternative 1: Continue funding through capital	
Advantage	**Disadvantage**
• Limited impact to residents • No disruption in service during contract changes • No change to Waste Services programs, contracts or services • Maintain high level of standards in the type and quality of bins provided.	• City responsible for capital and operating expenses

Alternative 2: Refurbishment of containers currently in Waste Services inventory	
Advantage	**Disadvantage**
• Life of the container can be extended by maintenance program in place	• Refurbishment only increases the life of the container by maximum of 5-10 years after which they have to be replaced • Higher inventory is needed to maintain the same number of containers • New contract will need to be in place which will increase the operating expenses • The need for resources to manage and monitor refurbishment process. • Cost of refurbishment is more expensive than new purchases.

7. Organizational Change Impact

This profile is a continuation of the current practice and no organizational changes in the Waste Services structure is anticipated.

7.1. Stakeholder Impact

The table below identifies the stakeholders and the potential impacts for the two alternatives recommended by Waste Services.

Stakeholder Requirement	Alternative 1 (Capital Funding)	Alternative 2 (Refurbished Containers)
Stakeholder 1: Waste Services (internal)		
To maintain adequate container inventory in place for both growth and replacement	Yes	Yes
To secure adequate capital budget approved for the purchase of inventory required for both growth and replacement	Yes	Yes
Stakeholder 2: Multi-unit properties (external)		
To limit disruption in services when lease/contract expires	Yes	Yes
To maintain multi-family waste rates/limit increase in the costs for waste services	Yes	Yes
Stakeholder 3: Residents (external)		
To limit disruption in services when contract expires	Yes	Yes
Stakeholder 4: Commercial Customers (external)		
To limit disruption in services when lease/contract expires	Yes	Yes
To maintain commercial hauling waste rates/fees increase in the costs for waste services	Yes	Yes
Stakeholder 5: Waste Services Contractors (external)		
To decrease service disruptions when contract expires	Yes	Yes

Stakeholder 6: Corporate Communication (internal)		
To generate high quality communication information for public education and engagement	Yes	Yes
Stakeholder 7: Legal (internal)		
To provided informed legal advice to Waste Services during tendering process	Yes	Yes
Stakeholder 8: City Council (internal)		
To increase transparency, accuracy, reliability of project schedule and budget estimates	Yes	Yes
To enhance the ability to provide political direction and have access to accurate project information	Yes	Yes
Stakeholder 9: Fleet Services (internal)		
To maintain adequate fleet resources are in place for both growth and replacement	Yes	Yes
To secure adequate capital budget approved for the purchase of additional fleet required for both growth and replacement	Yes	Yes

7.2. Business and Operational Impact

The table below identifies the business and operational impacts for the two alternatives considered for this business case by Waste Services.

Business & Corporate Impact & Description	Alternative 1 (Capital Funding)	Alternative 2 (Refurbished Containers)
Corporate Communication (internal)		
Resource demands for preparing communication information	Yes	Yes
Corporate Finance (internal)		

Resource demands for providing finance support	Yes	Yes
Fleet Services (internal)		
Resource demands for maintaining adequate fleet for multi-unit residence container pick up	Yes	Yes
Waste Services contractor (external)		
Provide contracted goods or services under the City's administration	Yes	Yes
Waste Services (internal)		
Increase in cost for services	No	Yes
Need for additional resources (labour, equipment and facility)	No	Yes
Need for additional storage capacity	No	No
Service disruptions when contract expires	No	Yes
Increase resource demands to meet tender requirements	No	Yes
Multi-unit properties (external)		
Service disruptions when contract expires	No	No
Increased setup costs	No	Yes
Residents (external)		
Service disruptions when contract expires or containers are picked up for refurbishment	No	Yes

This evaluation indicates that Alternative 1- Capital Funding has the least impacts and has the best alignment with Waste Services strategic goals. Alternative 2 has the potential for a negative customer service impact.

8. Cost Benefits

8.1. Tangible Benefits

The following tangible benefits are anticipated to be realized:

- Increased accuracy of forecasting capital expenditure to make informed capital decisions
- Increased adherence to budget and inventory schedules estimates

8.2. Intangible Benefits

The following intangible benefits are anticipated to be realized:

- Structured process to evaluate readiness, scope and prioritization will improve project management practices within the organization
- Increased awareness and having controls in place for growth-based needs of the consumer
- Better inventory management practices in place to enhance business area's accountability

8.3. Costs

Each alternative has been evaluated based on the financial cost below which indicates the demand for both the containers and the accessories required for these containers over the 2019-2022 business plan period.

8.3.1 Assumptions

The following assumptions are applied to all of the evaluated alternatives for the financial analysis:

1. This business case provides bins for both multi-unit residential and commercial waste programs.
2. Only front load, side load and roll-off containers may be refurbished, litter containers would be purchased.
3. There is no change in current service delivery methods.
4. The multi-unit growth rate of 3 percent was used for forecasting the growth and replacement container numbers for the financial analysis.
5. An average inflation rate of 1.9 percent projected by the City of Edmonton Corporate Budget Office was used as Consumer Price Index (CPI) for analysis. The final capital numbers are estimates and may fluctuate based on market demand.
6. A 25 percent steel tariff was added to the base cost of steel containers due to the recent tariff imposed on Canada by USA.
7. An 8 percent steel price inflation has been added to the 2018 base price for all steel containers and accessories to compensate for the increase in price demand of our current vendor.
8. A 15 percent price increase in the container price is anticipated to be realized with the

renewal of this contract in 2020.

9. A container inventory will be maintained by Waste Services which will be approximately 10 percent of the total number of containers on customer sites. The excess inventory above the 10 percent will be then used to meet the increasing demands in the years these inventory shortages occur.
10. Replacement will not be required for Side-Load and Roll-Off containers as they tend to last longer than front-load containers and none are anticipated to require replacement within the 2019 - 2022 capital budget period.

Additional assumptions were made for each alternative which have been captured under financial costs for them respectively.

8.3.2 Financial Costs

Alternative 1: Continue Funding through Capital:

Cost Items	2019	2020	2021	2022	4 year Forecast
Waste Container Capital Cost	$3,074,089	$1,930,098	$1,998,480	$2,070,059	$9,072,726
Operating Cost[3]	$10,168	$13,229	$13,815	$14,429	$51,643

Assumptions: Following assumptions were made for this alternative:

1. A 10 percent contingency has been added to the final capital cost numbers to allow for unforeseen event in the future.
2. All containers have a 15 year useful life.
3. Plastic carts costs are added to the capital costs for the SSO pilot program once in 2019.
4. There are no operating expenses required to maintain the plastic carts purchased in 2019 at this time.
5. Up to 17,600 carts will be purchased for the SSO pilot program.

Discussion: Capital cost for growth and replacement of the waste containers for the next 4 years is approximately $9.1 million for this alternative.

Alternative 2: Refurbishment of Waste Containers in inventory:

[3] Operating Costs includes incremental costs related to waste container maintenance.related to the additional containers purchased through this profile.

Cost Items	2019	2020	2021	2022	4 year Forecast
Waste Container Capital Cost	$4,070,812	$3,053,424	$3,147,125	$3,244,922	$13,516,283
Operating Cost[1]	$11,077	$14,392	$15,008	$15,654	$56,131

Assumptions: Following assumptions were made for this alternative:

1. 100 percent of the replaced containers in the alternative 1 will be refurbished in alternative 2.
2. The refurbishment costs are based of 2012 tender document received by Waste Services. CPI index has been applied to it for forecasting purposes to obtain the 2018 base cost numbers resulting in an estimated refurbishment cost of $6,650.00 per container.
3. Refurbishment for litter baskets is same as growth as new baskets are purchased to replace the ones broken hence same numbers used for calculation
4. A 20 percent contingency has been added to the final numbers for capital cost for cost analysis to allow for unforeseen event in the future to count for an event when the containers can not be refurbished and need to be replaced in the 4 year period.
5. Refurbishment of waste containers extends the useful life by five to ten years and will need to be replaced after this period.
6. Replacement schedule for refurbished bins has not been accounted for due to lack of information at this point.
7. Plastic carts costs are added to the capital costs for the SSO pilot program once in 2019.
8. There is no operating expenses required to maintain the plastic carts purchased in 2019 at this time.
9. Up to 17,650 carts will be purchased for the SSO pilot program. Approximately half of these carts will be utilized for the organic waste collection program and the remaining for the residual waste program. Further details on the type of the carts purchased will be informed by the results of the 2018 public engagement.

Discussion: Capital cost for growth and replacement of the waste containers for this alternative is approximately $13.5 million. Out of this approximately, $1.5 million is the capital cost for the SSO pilot program.The total capital cost for this alternative is higher than the capital cost for alternative 1 because of higher contract prices for refurbishment. Analyses of this alternative were completed using tender documents from 2012 and it was observed that welding work costs on an old container were higher due to multiple charges, such as pick-up and delivery of containers and labor, than purchasing a new container. A new tender needs to be put in place for this alternative which may be a time consuming process and may affect the current service level provided to customers by Waste Services. The refurbishment process may enhance the asset life by five or more years but eventually these containers will have to be replaced and this

has not been accounted for in the analysis.

Four Year Total Summary:

Four year Total ($)	Alternative 1 (Capital Funding)	Alternative 2 (Refurbished containers)
Waste Container Capital	$9,072,726	$13,516,283
Operating Cost	$51,643	$56,131
Net Present Value [4]	**$7,783,331**	**$11,484,806**

A financial comparison of the both the alternatives is outlined in Appendix B. Financial analysis for revenue generation comparison between the alternatives is outlined in Appendix C.

9. Resourcing

Alternative 1: Continue Funding through Capital:

Waste Services is not expected to incur any additional resource costs for new FTE's and equipment under this alternative.

Alternative 2: Refurbishment of Containers currently in inventory:

Waste Services will not incur any additional resourcing and equipment costs because they will be part of the contractor tender for this alternative.

10. Key Risk(s) and Mitigation Strategy

The risks and mitigation strategies for the outlined alternatives are summarized below.

RISK(S)	IMPACT	MITIGATION STRATEGY
Escalation in container pricing	Medium	• Managed by adding contingency and increased contractual cost

[4] *Note 1: Net present value includes the full 15 years of operating costs over the useful life of the containers, as shown in Appendix A.*

		percentages within the business case financial analysis • Achieve lowest possible cost through open and transparent competitive tendering process.
Limited numbers of manufacturing companies to provide containers	Medium	• Waste Services will work with Corporate Procurement and Supply Services to adopt better tendering strategies and improve tender process to ensure specifications and timelines are well managed by both the City and all manufacturers and leasing companies.
Delay in issuing tender and getting contract signed	Medium	• Waste Services operational model will require adjustments to reflect the new supply and demand in the future
Capital funding is not approved at the amount requested	Low	• Waste Services will maintain assets in serviceable condition to manage short term requirements
Limited space for storing waste containers	Low	• Site planning and low inventory strategy will be adopted to reduce the likelihood of occurrence
Change in growth rate leading to increased inventory need in the year than what was budgeted	Low	• Contingency planned in the financial analysis will reduce the financial impact of the risk
Risk of natural disasters like fire etc.	Low	• Current inventory in stock will be used to replenish the lost containers • Additional container orders will be placed based on the demand at that time
Change in strategic business direction resulting in increased requirement of a certain type of container in the future	Low	• Waste Services will align with new corporate strategy in an event it changes in the future

11. Conclusion and Recommendations

11.1. Conclusion

Waste Services provides waste collection services to both residential and non-residential sectors in the City of Edmonton. This is achieved through both City staff and contract services. Waste and recycling is collected at multi-unit residential, commercial, Eco-Stations and big bin events by use of containers which are provided by the City at all these sites except the Eco-Stations. Capital funding is required to replace these containers after their useful life of 15 years, and for additional containers that are required to service additional multi-unit buildings. This business case analyzes two different alternatives: either the City continues to fund the containers needed for growth and replacement or contracts out and refurbishes the old containers to increase their asset life for 5-10 more years. Financial analysis shows that Alternative 1 (funding through capital) has a lower financial impact of approximately $9.1 million than Alternative 2 (refurbishment of containers in Waste Services inventory), where the capital impact is approximately $13.5 million.. This business case indicates that Alternative 1 has the least overall impact on Waste Services through comprehensive risk and impact analyses.

11.2. Recommendations

Based on the preceding analyses, Alternative 1, Funding Through Capital is recommended. This alternative will continue to manage the inventory of containers to achieve maximum life while reducing the cost of service delivery and retaining the potential to earn a return on rate base for Waste Services.

11.3. Project Responsibility and Accountability

The Project Sponsor is the Branch Manager of Waste Services. The overall capital program is managed by the Director of Technical Services is responsible for the capital program which includes the procurement of the containers. The Director of Collection Services is responsible for the operation and maintenance of the containers.

12. Implementation Approach

When containers are required and funding is secured, purchases of new containers are made through existing contracts. Containers will be purchased on time to maintain the inventory needed to provide current and future demands. The table below identifies the scheduled growth and replacement schedule for 2019-2022 budget cycle as recommended to continue funding

through capital.

Steel Containers Required	2019	2020	2021	2022	2019-2022 Total (Qty)
Replacement	375	467	468	468	**1,778**
Growth	284	363	372	382	**1,401**
Total (Qty)	**659**	**830**	**840**	**850**	**3,179**

Additionally, approximately 17,647 plastic carts will be purchased in 2019 under this profile for the SSO pilot program in 2019.

The General Supervisor (GS) of Collections, reporting to the Director of Collections, is responsible for inspection, maintenance and procurement of containers. Waste services is currently working on improving its inventory management system to incorporate best industry practices for tracking, managing and reporting on waste containers in the future. This will enable the branch to purchase containers on time and maintain appropriate level of inventory. This will also help Waste Services to measure performance of the container program by measuring if adequate inventory is in place and the timeliness of container inspection and the procurement process.

13. Review and Approval Process

The following review and approval process was followed for this business case:

Review Step	Reviewer
Review 1	Team Lead of Business Integration, General Supervisor of Business Integration and General Supervisor of Waste Collection Services
Review 2	Operational Controller for Waste Services, Director of Business Integration, Director of Waste Collection Services and Branch Manager Waste Services
Review 3	Deputy City Manager
Review 4	Communications
Review 5	Utility Advisor; City Manager
Review 6	Utility Committee report presented

13.1. Business Case Sign-off

The business case will be approved (signed and dated) by the Waste Services Branch Manager and the Deputy City Manager prior to submission to Utility Committee and the Council.

14. Appendices

Appendix A: Average weighted life of waste containers
Appendix B: Financial analysis summary comparison for the alternatives
Appendix C: Comparison of Revenue Requirement of alternatives

Appendix A: Weighted Average Age of Waste Containers

	Existing Assets up to December 31, 2017						
Asset Type	SUM of Purchase Amount	SUM of 2018 Accumulated Deprec	SUM of 2018 Ending NBV	SUM of 2018 Annual Amortization	Current Weighted Average Age in 2018	Weighted Average Age in 2022 (without proposed replacement)	Weighted Average Age in 2022 (with proposed replacement)
Front/side/roll off bins	13,860,323	8,604,192	5,256,129	667,858	9	13	10
Litter baskets	132,612	40,632	91,980	8,841	4	8	4
Grand Total	**13,992,935**	**8,644,824**	**5,348,109**	**676,699**			

The projected weighted average age of waste containers, as at December 31, 2018, is nine years. The expected useful life of waste containers is 15 years, indicating that approximately 30 percent of their useful life is remaining. If this profile is not funded, the weighted average age of waste containers in 2022 is projected to be 13 years. However, if proposed replacements are approved, the average age of all waste containers will be reduced to approximately ten years. Purchasing the replacement containers over the 2019-2022 budget cycle will help to smooth out annual expenditure requirements of future replacements.

Appendix B: Costs- Financial Analysis Summary Comparison (Waste Services Waste Containers Renewal Capital Profile):

Waste Services Vehicle & Equipment (2019-2022)	Alternative 1 - Status Quo	Alternative 2- Refurbishment of Waste Containers currently in Inventory	Alternative 2 Net Change from Status Quo
Total Capital Cost	($9,072,726)	($13,516,283)	($4,443,557)
Total Revenues	$0	$0	$0
Total Operating and Maintenance Costs	($264,252)	($284,896)	($20,645)
Total Lease Costs	$0	$0	$0
Project Net Inflows (Outflows)	($9,336,978)	($13,801,180)	($4,464,202)
WACC Discount Rate	5.41%	5.41%	n/a
Net Present Value	($7,783,331)	($11,484,806)	($3,701,475)

Note: The above table demonstrates the full life-cycle costing approach of the four year capital requirements. The operating and maintenance costs shown here include the impact of the capital over the 15 year useful life of the containers.

Appendix C: Comparison of Revenue Requirement of Alternatives (Waste Services Waste Containers Renewal Capital Profile):

Cost Comparison & Revenue Requirement

	Alternatives	
Reference	ALTERNATIVE 1- Continue funding through Capital	Alternative 2- Refurbishment of Waste Containers currently in Inventory
Base Year	2018	2018
In-Service Year	All	All

Cumulative Revenue Requirement (from base year)	ALTERNATIVE 1- Continue funding through Capital	Alternative 2- Refurbishment of Waste Containers currently in Inventory
CPV @ Yr 5	2,497,678	3,612,495
CPV @ Yr 10	5,237,314	7,677,292
CPV @ Yr 15	7,093,913	10,426,423

Capital Cost Summary (Base Year Dollars)	ALTERNATIVE 1- Continue funding through Capital	Alternative 2- Refurbishment of Waste Containers currently in Inventory
Equipment	7,925,327	10,845,355
Building	0	0
Other (engineering/PM/etc)	0	0
Total base costs	**7,925,327**	**10,845,355**
Add: contingency, inflation		
Contingency	792,533	2,169,071
Inflation	354,866	501,857
Total Capital	**9,072,726**	**13,516,283**

Economic Assumptions

Inflation (compounded each	1.90%	
Contingency	10.00%	20.00%

Operating and maintenance analysis is based on 15 years to capture the full life cycle costs of the assets

Assumes borrowing required at 84% (based on current Utility split) at 4% interest rate

Assumes 20 % contingency for alternative 2 due to unforeseen event in the future wherein containers can not be refurbished and need to be replaced.

Revenue Requirement Summary (Cumulative Present Value)

		Alternatives	
Year	Calendar Year	ALTERNATIVE 1- Continue funding through Capital	Alternative 2- Refurbishment of Waste Containers currently in Inventory
0	2018	$0	$0
1	2019	$204,836	$268,986
2	2020	$605,736	$827,023
3	2021	$1,148,315	$1,613,202
4	2022	$1,819,717	$2,605,794
5	2023	$2,497,678	$3,612,495
6	2024	$3,129,015	$4,549,730
7	2025	$3,716,286	$5,421,309
8	2026	$4,261,915	$6,230,844
9	2027	$4,768,198	$6,981,757
10	2028	$5,237,314	$7,677,292
11	2029	$5,671,324	$8,320,523
12	2030	$6,072,185	$8,914,363
13	2031	$6,441,748	$9,461,572
14	2032	$6,781,770	$9,964,766
15	2033	$7,093,913	$10,426,423

Waste Container Renewal Business Case
Cost Impact
Cumulative Present Value of Revenue Requirement