



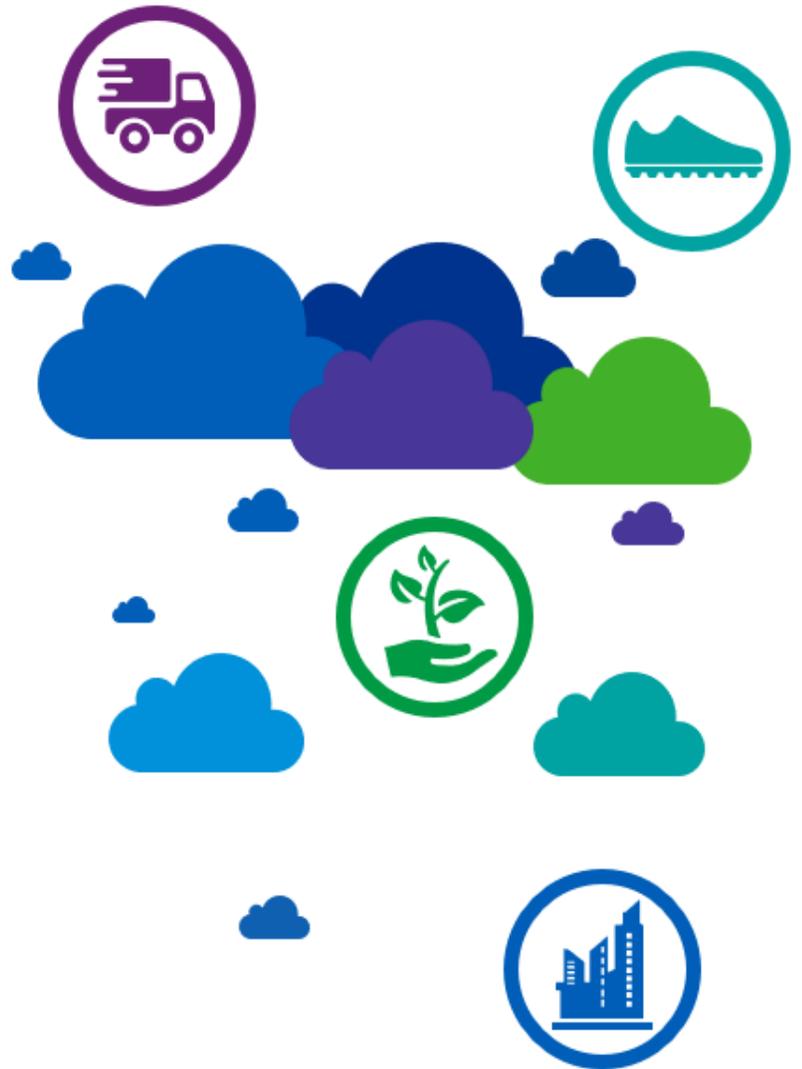
Reimagine Services

Business Case: Fleet Size
Optimization

CITY OF EDMONTON

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MAY, 2021



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Opportunity Summary

For a municipality, an optimal fleet size is the fewest number of vehicles and equipment needed to deliver services reliably and efficiently. Having a fleet that is too large can lead to higher capital and operating costs, while a fleet that is too small can cause degradation in service levels.

This opportunity explored ways to optimize the City's fleet by assessing light and select heavy-duty vehicles. This includes evaluating whether the right fleet sourcing strategy was in place through an evaluation of the City's current approach to rentals versus ownership.

This opportunity considered a change in decision making around how to supply the City's fleet with a lower cost mix of rental and owned assets. Decisions should be driven by a central and common understanding of breakeven points where purchasing vehicles would be more economical than continuing with rentals.

Based on analysis of the City's use of rentals, and the nature of operations in each of its branches, analysis identified that Parks and Road Services have highly seasonal fleet requirements. However, there is limited seasonality in the fleet requirements in other branches.

While the City lacks accurate data related to daily fleet requirements for each City branch, it was assumed (and agreed to with the City) that branches, without a lot of seasonal fluctuations in their work, would require a lower reserve or "spare" capacity. For these branches, an analysis of the stated spares capacity (20%) was completed against the average availability of vehicles to determine if the spares ratio could be reduced. This analysis identified opportunities to reduce the City's fleet by 10 vehicles, and share an additional 13 vehicles within the City to offset vehicle rental costs there.

Analysis was also conducted to estimate which of the City's rented vehicles were being rented for longer than their estimated breakeven point. It identified an opportunity to replace some rented vehicles with owned vehicles to achieve an estimated internal rate of return of approximately 11%. This would require a potential estimated capital investment of \$7.1 million to procure additional vehicles. This option establishes total potential estimated lifecycle savings of \$4.7 million but would require a payback period of seven years.



Recommendation: Fleet Size Optimization

Based on the analysis completed, **the City should consider changing how decisions are made regarding the addition of fleet assets.**

Specific changes for the City to consider includes a new decision-making model that encourages a consistent, City-wide approach to:

- Determining the levels of spares;
- Making rent versus own decisions; and
- Identifying opportunities to share spares of a common type across City departments.

It is estimated that this opportunity could deliver potential cumulative savings between \$0.6 to \$0.7 million over five years and potential annual savings of approximately \$0.1 million by year 5.

The main impacts of this opportunity are changes to decision making for existing staff. In particular, responsibility for light- and medium-duty rentals would be transferred from Corporate Procurement and Supply Services to the Fleet and Facility Services Branch. This directly aligns with a recommendation from a draft Program and Service Review on Fleet Services performed by the City in 2020. It would also support Fleet and Facility Services with the ability to perform consistent cost analysis when making decisions to optimize the fleet. This opportunity should also be considered in parallel with the Reimagine Services Lifecycle Business Case as it addresses the potential impacts of changes in reliability due to the possible extension of the City's fleet lifecycle.

Opportunity Background & Context

OPPORTUNITY AND CURRENT SITUATION

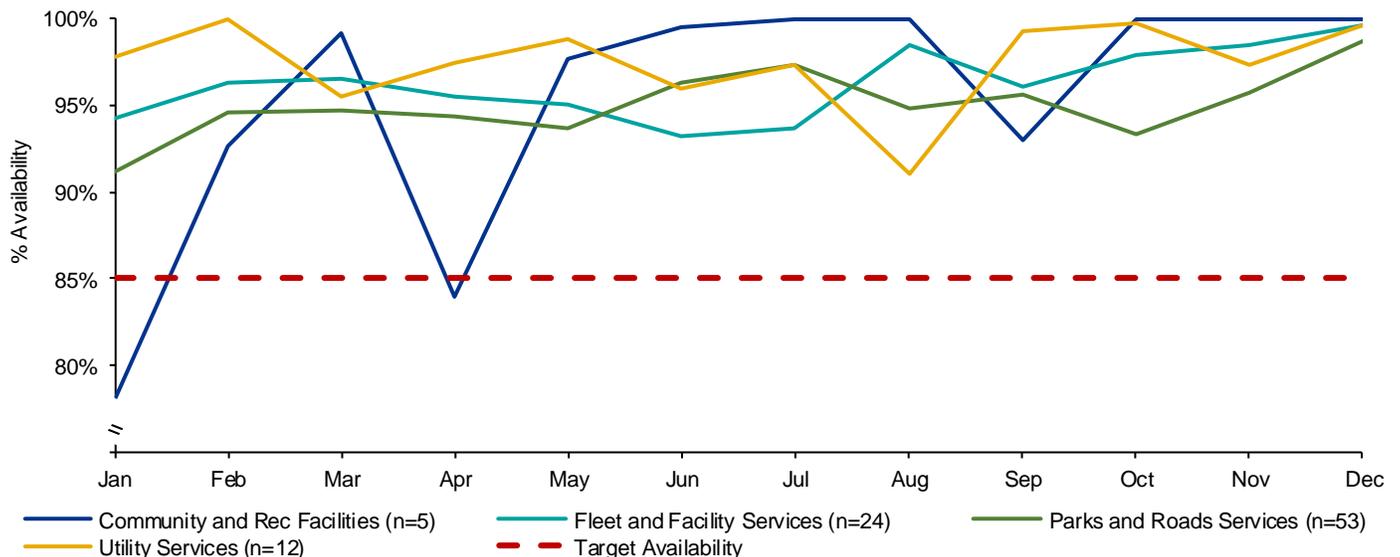
For a municipality, the optimal fleet size is the fewest vehicles and equipment needed to deliver services reliably and efficiently. Having a fleet that is too large can lead to higher capital and operating costs while a fleet that is too small can cause degradation in service levels.

Considerations for the type of fleet are also critical as this supports the right vehicle being available for the right application. It also considers how to ensure that the right spare vehicle is available to support gaps due to maintenance and repair downtime or surges in demand due to seasonality requirements.

Based on a jurisdictional scan of other Canadian cities,¹ the City does appear to have a comparable number of fleet assets per capita. The total number of assets for the City also includes spare fleet. The City has an informal policy of maintaining 20% of their fleet as spares, which covers downtime due to maintenance in addition to surges in demand due to seasonality.

Analysis was completed to understand the actual availability of the City's fleet, and whether it justifies a spare ratio of 20%. The Fleet and Facility Services branch currently measures themselves against a target availability of 85%. Figure 1 shows an example of the availability of ¾ ton trucks at the City, and highlights that there are instances where certain vehicle branches have higher than targeted availability.

Figure 1: Fleet Availability – ¾ Ton Trucks (2020)



Source: Based on information provided by the City

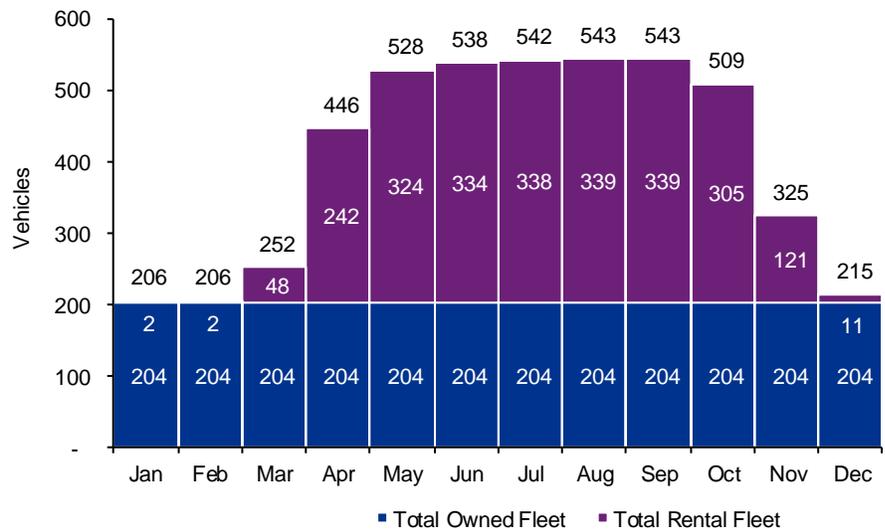
¹ Jurisdiction scan was completed with Calgary, Ottawa, and Winnipeg. See Table 2.

To better understand the degree to which these spares support seasonal surges in demand, further analysis was completed to determine which branches increase their capacity during peak seasons using rentals. Rentals are not currently included in availability data from the City but provide good insights into the fleet size and requirements of different departments during peak seasons.

Through this analysis, it was identified that Parks and Road Services (PARS) accounts for 75% of total rentals.² The seasonality of PARS rentals are highlighted in Figure 2. It appears that they increase their available fleet capacity to support surges in demand that occur from April to October. This presents opportunities to evaluate the cost effectiveness of some of this rental activity and whether offsetting rental units through additional owned units would be more economical.

For the branches that do not require rentals to support surges in seasonal demand but continue to have a high availability, there may be opportunities to review a reduction in their stated spare capacity. This would continue to provide allowances for maintenance but remove any excess fleet. This opportunity could also evaluate fleet sharing between branches, where fleet categories and application requirements align.

Figure 2: Rent vs. Own Histogram on Rented Assets (2019) – Parks and Roads Services



Source: Prepared by KPMG with information provided by the City of Edmonton

Data Consideration – Book Outs

To improve future analysis around fleet size optimization, book-out data would be required as a key input. Book-outs provide the historical usage of specific pieces of fleet based on application and timing. Specifically, book-outs provide insight into which units are used more often, by which operators, and for what purpose (e.g., book-outs would identify the number of times each ¾ ton truck was used for encampment clean or turf rehab over the last month). This information would support a better understanding of the needs of fleet owners and support the determination of the City’s optimal fleet mix.

CITY CONTEXT

This business case aligns with the City’s strategy and objectives as shown in Table 1.

Table 1: Alignment to City Strategy

City Context	Alignment
City of Edmonton Corporate Business Plan	The City’s Corporate Business Plan highlights that improvements to project and asset management would be made through actions to, “Conduct life cycle analyses on the City’s vehicle fleet to improve management of capital costs.”

² Rent vs. buy analysis was performed on data from 2019. There was an estimated 25% increase in rental volume in 2020 compared to 2019. This is primarily due to the safety measures in place during COVID-19 (e.g., PARS may normally send 4 team members per truck, but social distancing mandated 2 team members per truck).

City Context	Alignment
	<p>This opportunity supports the evaluation of the lifecycle cost of fleet, including the appropriate points when a rental or owned unit supports an optimal total cost of ownership.</p> <p>The Corporate Business Plan also identifies a supporting objective to, “<i>Manage the Corporation for our Community.</i>”</p> <p>A key element of this objective is “Financial Management.” In the current capital constrained environment, the City risks making suboptimal decisions around its fleet. This opportunity seeks to identify where more optimal decisions can be made around fleet size through considering the right mix of rented and owned assets.</p>
Program and Service Review (PSR)	<p>In September 2020, a Program and Service Review (PSR) recommended that the responsibility for light- and medium- duty rentals should be transferred from Corporate Procurement and Supply Services to the Fleet Branch.</p> <p>This transfer could be expected to support the coordination of similar rental assets and improved usage monitoring, consistent cost analysis, and enabling the longer-term objectives for the City fleet, such as right sizing and improved utilization.</p>

Source: Based on information provided by the City.

LEADING AND COMPARATIVE PRACTICES

A jurisdictional scan was completed to identify where Edmonton compared to other municipalities. In order to create a like-for-like comparison of fleet based on publicly available information across jurisdictions, the sub-total of fleet excluded emergency services vehicles, transit vehicles, and vehicle attachments.

As Table 2 highlights, for known assets per capita, Edmonton is generally on par with peer comparator cities. Considering this comparison along with the availability and rental rates for the City, the opportunity may exist to evaluate the right approach to supplying the fleet between rentals and ownership in order to optimize both the cost and fleet size.

Table 2: Fleet Counts by Type of Asset

Type	Edmonton	Calgary	Ottawa	Winnipeg
Light Fleet	673	1,549	937	N/A
Heavy Fleet	434	1,045	460	N/A
Specialized Equipment	1,194	1,290	769	N/A
Sub-Total Municipal Fleet Vehicles	2,301	3,884	2,166	2,273
Municipal Fleet Vehicles per Capita (1,000 residents)	2.4	3.0	2.2	3.0
City Owned Emergency Services Vehicles	850 Police 153 Fire N/A Medical	1,200 Police > 88 Fire N/A Medical	1,200 Police N/A Fire N/A Medical	> 400 Police 53 Fire 36 Medical

Type	Edmonton	Calgary	Ottawa	Winnipeg
Transit Vehicles (Buses, DATS, Auxiliary)	1,139	1,224	> 978	640
Attachments	1,487	N/A	N/A	N/A
Total Known Fleet Assets	5,930	> 6,396	> 4,344	3,402
Total Fleet Assets per Capita (1,000 residents)	4.6	5.0	4.3	4.5

Sources: Fleet types and numbers gathered from publicly available information for Edmonton, Calgary, Ottawa, and Winnipeg. Population from municipal census results, 2019.

Note: Breakdown by type is not available for Winnipeg. Efforts were made to adequately categorize and match the most recent values based on publicly available information. Attachments are excluded from Fleet Assets per Capita as that information is unknown for comparators.

ENVIRONMENTAL CONSIDERATIONS

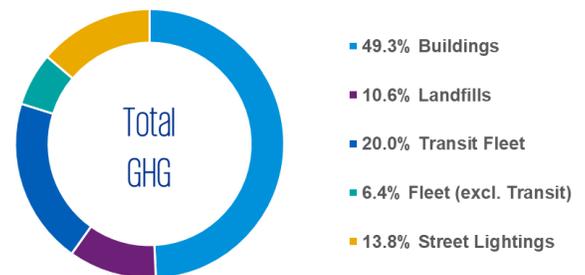
The “Greenhouse Gas Management Plan for Civic Operations 2019-2030,” outlines the impacts of City operations on Greenhouse Gas (GHG) emissions and identifies scenarios for carbon reduction. This plan aligns with Edmonton’s long-term goal of carbon-neutrality as set out in the Global Covenant of Mayors, the Edmonton Declaration and the 1.5 degree scenario.³

In reviewing Fleet’s impact on GHG emissions, Figure 3 identifies that Fleet (excluding Transit) contributes 6.4% of the City’s emissions. To support a carbon neutral scenario for the City, it is proposed within the GHG Management Plan that carbon offsets are purchased to address emissions from vehicle fleets.⁴

Evaluation of the optimal fleet size could further support progress towards a carbon neutral scenario as it considers the optimal mix of rental and owned assets. This would support the City in holding only the units that they need and therefore ensuring that carbon offsets reflect the fleet that is required.

Future leasing and rentals could also consider opportunities to include electric vehicles. Although they currently have a higher total cost of ownership for purchase, they could potentially be used to supplement shorter-term vehicle requirements. The offset of a potentially higher rental cost should be weighed against the carbon offset requirements.

Figure 3: City of Edmonton GHG Emissions by Sector



Source: City of Edmonton GHG Management Plan.

³ Greenhouse Gas Emissions Reduction. Accessed April 2021 at https://www.edmonton.ca/city_government/documents/PDF/GHGMgmtPlan2019-2030CivicOps-SummaryReport.PDF

⁴ Greenhouse Gas Emissions Reduction. Accessed April 2021 at https://www.edmonton.ca/city_government/documents/PDF/GHGMgmtPlan2019-2030CivicOps-SummaryReport.PDF

Options

This opportunity evaluates two options that determine how the City might rationalize or optimize its fleet size for light and select heavy-duty vehicle classes.

Option	Option 1: Rationalize Spares	Option 2: Optimize Fleet
Description	<p>Evaluates opportunities to redistribute fleet where possible to reduce the cost of rentals as well as determine where surplus fleet might exist.</p> <p>This option includes:</p> <ul style="list-style-type: none"> – Reutilizing surplus fleet to offset rental demand; and – Disposing of surplus fleet that have no rental demand at the City. 	<p>Evaluates opportunities to redistribute fleet where possible to reduce the cost of rentals as well as determine where surplus fleet might exist. In addition to this analysis, opportunities to purchase additional fleet are also identified.</p> <p>This option includes:</p> <ul style="list-style-type: none"> – Reutilizing surplus fleet to offset rental demand; – Disposing of surplus fleet that have no rental demand at the City; and – Identifying rental units that are uneconomic for the City and purchase those configurations.

Governance Consideration – Centralized Decision Making

In order to fully realize the benefit of this opportunity, consideration would need to be given to centralizing decision-making related to vehicle leases, acquisitions and allocations. Currently, as highlighted in the Fleet Services Program and Service Review performed by the City in 2020, Corporate Procurement and Supply Services has responsibility for light- and medium- duty rentals. This impacts the ability of FFS to evaluate the best approach to matching availability with demand through rental and owned assets. Similarly, the City does evaluate its fleet requirements across all departments, and make decisions related to the need for new vehicles, or the reallocation of existing vehicles to optimize the size of the fleet at a City-wide level.

Impact Assessment

SERVICE IMPACT

Vehicles required to meet service demands would be expected to remain constant as any reductions in the spare ratios would address excess availability. There could be a risk associated with the proposed changes under the Reimagine Services Fleet Lifecycle Business Case as longer vehicle lifecycles could reduce the reliability of vehicles and lead to a reduction in availability. Should availability decrease, the need for spares could be expected to increase. This opportunity could mitigate the risk of an increased need for spares through analyzing how many assets could be removed while retaining an availability of 90%, as opposed to implementing a general 10% cut to spares.

In the case of PARS, there could be an increase in the number of permanent fleet units to support the delivery of service levels.

DELIVERY IMPACT

To support decision making around the optimal mix to meet fleet demand using rentals and owned assets, clear governance roles and responsibilities would need to be established. In September 2020, a draft Program and Service Review recommended that the responsibility for light- and medium- duty rentals be transferred from Corporate Procurement and Supply Services to the Fleet and Facility Services Branch. This transfer could be expected to support the coordination of similar rental assets and improved usage monitoring, consistent cost analysis, and enabling the longer-term objectives for the City fleet, such as right sizing and improved utilization.

Additionally, future analysis around fleet optimization would be better supported through more formalized data collection and aggregation processes for data such as rentals, vehicle book-outs and critical spares.

VIABILITY

The effectiveness of this approach to optimizing the fleet size could be impacted by the City's current decentralized fleet governance model and limited insight into book-outs. In order to enable the right outcomes that balances financial considerations with book-out requirements, FFS requires clear decision authority.

GBA+ IMPACTS AND MITIGATIONS

This opportunity is focused on fleet asset management and is not expected to increase or reduce barriers to more vulnerable populations.

FINANCIAL IMPACTS

To estimate the current spare capacity at the City, analysis was performed to understand opportunities where the City could reduce their spare capacity on units while maintaining a high availability. The analysis highlighted an opportunity for the City to reduce a total of 23 units across 7 asset classes.

In parallel, a rent vs. buy analysis was completed to understand the City's rental activity to support seasonal surges in demand and if it would be more economical to purchase additional assets. The results of the rent vs. buy analysis estimates are shown in Table 3.

It is estimated that the City could dispose of up to 13 assets that appear to be surplus assets, reutilize 10 of assets to offset rental demand, and purchase approximately 158 assets that to replace rental units that are being rented by the City

past their economic break-even point. See **Appendix B: Financial Projections** for further information on financial projections associated with the analysis, as well as a notice to reader and significant assumptions.

Table 3: Net Change in Vehicles Projection Summary

Option	Projected Assets to Dispose	Projected Assets to Reutilize	Projected Assets to Acquire
Option 1: Rationalize Spares	13	10	-
Option 2: Optimize Fleet	13	10	158

Source: Based on data and analysis provided by the City and assumptions outlined in Appendix B.

Note: This considers the net impact of the rent vs. buy analysis + the spare capacity analysis.

Overall, Option 1 would be expected to provide the City with an estimated potential benefit of \$0.6 million over the lifecycle of the assets. Option 2 would generate an estimated potential internal rate of return of approximately 11% over 11 years and estimated potential net savings of \$4.7 million over the lifecycle of the assets. To achieve these returns, a potential estimated capital investment of \$7 million would be required to procure the 158 vehicles. In addition to this acquisition cost, the projected cost of ownership also includes maintenance, repair, and disposal costs over the lifecycle of the asset. The estimated payback period associated with this investment would occur between the 6th and 7th year of the useful life of this cohort of vehicles. This is highlighted in Table 4.

Table 4: Net Opportunity over Asset Lifecycle Projection Summary (thousands)

Option	Projected Cost of Ownership of Purchased Assets	Estimated Potential Savings from Reduced Rentals	Estimated Potential Net Savings Over the Asset Lifecycle
Option 1: Rationalize Spares	\$71	\$545	\$616
Option 2: Optimize Fleet	\$(10,758)	\$15,453	\$4,695

Source: Based on data and analysis provided by the City and assumptions outlined in Appendix B.

Note: Table considers the net impact of the rent vs. buy analysis + the reduction analysis; Projected Cost of Ownership includes acquisition, maintenance, repair, and disposal; Asset lifecycle based on estimations of currently established intervals by the City.

Table 5 provides an example of the potential savings associated with the previous analysis using the largest volume asset categories in the City's rental fleet. In 2019, the City rented 114 Half Ton Trucks and the analysis estimates that there could be potential savings of \$1.4 million over the lifecycle of these trucks if the City were to reutilize 6 existing units, and purchase 63 half ton trucks instead of renting them.

Table 5: Option 2 Projection – Half Ton Trucks (thousands)

Lifecycle Year	Projected Cost of Ownership of Purchasing 63 Half Ton Trucks	Estimated Potential Savings from Reduced Rentals of 63 Half Ton Trucks	Estimated Potential Net Savings over the Asset Lifecycle of 63 Half Ton Trucks
0	\$(2,558)		\$(2,558)
1	\$(58)	\$499	\$442
2	\$(97)	\$509	\$412
3	\$(112)	\$520	\$408
4	\$(159)	\$530	\$371
5	\$(160)	\$541	\$381
6	\$(239)	\$551	\$312
7	\$(212)	\$562	\$351
8	\$(220)	\$574	\$353
9	\$(250)	\$585	\$335
10	\$27	\$597	\$624
Total	\$(4,038)	\$5,469	\$1,430

Source: Based on data and analysis provided by the City and assumptions outlined in Appendix B.

Note: Table considers the net impact of the rent vs. buy analysis + the reduction analysis; Projected Cost of Ownership include acquisition, maintenance, and disposal; Analysis considers only those asset categories that have been rented by the City in 2019; Asset lifecycle based on estimations of currently established intervals by the City.

RISKS

There is a high level of risk associated with this opportunity, due to the quality of data available to inform decision making and capital availability. Some key risks are described in Table 6. Additional risks and mitigations can be found in **Appendix C: Risk Analysis**.

Table 6: Key Risks and Mitigations

Potential Risk	Potential Mitigation
<p>Data Availability</p> <p>There is a risk that incomplete information or a lack of formalized data related to rental information, vehicle book-outs and critical spares would make decision making related to fleet optimization less effective.</p>	<p>The probability of this risk occurring may be reduced through the formalization of processes that support data collection and aggregation at the City.</p>
<p>Available Capital</p> <p>There is a risk that the capital would not be available to make more optimal purchasing decisions around fleet.</p>	<p>The impact of this risk occurring may be reduced through better understanding comparative practices around rental vs. own decisions. There may be additional best practices that support these decisions.</p>
<p>Performance Risk</p> <p>There is a risk that, as owners of the proposed new fleet, the burden of addressing performance related issues and malfunctions transfers from their rental vendor, Driving Force, to the City.</p>	<p>The probability of this risk occurring may be reduced through the formalization of processes that support data collection and aggregation at the City</p>
<p>Reliability Risk</p> <p>There is a risk that the proposed changes under Reimagine Services Lifecycle Business Case would decrease the reliability of vehicles and lead to a reduction in availability, therefore increasing the need for spares.</p>	<p>The impact of this risk could be reduced by analyzing how many assets could be removed while retaining an availability of 90%, as opposed to implementing a general 10% cut to spares.</p>

Source: Based on information provided by the City and assumptions outlined in Appendix B.

Opportunity Assessment

OVERALL ASSESSMENT OF OPPORTUNITY AGAINST CRITERIA

The below table summarizes the opportunity assessment of both options against the criteria identified in this business case where green, grey and red represent a positive, neutral and negative impact respectively.

Table 7: Opportunity Assessment

Options	Impact						Implementation			
	Service	Delivery	GBA+	Financial	Risk	Estimated Potential Net Five-Year Benefit (Millions)	Time	Cost	Risk	Estimated Potential Implementation Cost (Millions)
Option 1: Rationalize Spares	●	●	●	●	●	\$0.6	●	●	●	\$0
Option 2: Optimize Fleet	●	●	●	●	●	\$(0.9) to \$(1.0)	●	●	●	\$7.1

Source: Prepared by KPMG using City of Edmonton data and outlined assumptions.

CONCLUSION AND RECOMMENDATION

Based on analysis of the current and potential new approach, **the City should consider optimizing how it manages its fleet size to reduce the number of spares within the City fleet and the use of rental vehicles for extended periods.**

Recommended Action 1

The City should consider reducing its fleet to address excess spares and look at opportunities for fleet sharing across branches.

Changes under this would include identifying opportunities to share spares across common vehicle types as well as reduce spare vehicles. The analysis identified opportunities to reduce the City's fleet by 10 vehicles, and share an additional 13 vehicles within the City to offset vehicle rental costs.

Recommended Action 2

The City should consider addressing Fleet governance roles and responsibilities through the implementation of the draft Program and Service Review (2020) recommendations.

Changes under this would include transferring the responsibility of light- and medium- duty rentals from Corporate Procurement and Supply Services to FFS. This transfer could be expected to support the coordination of similar rental assets and improved usage monitoring, consistent cost analysis, and enabling the longer-term objectives for the City fleet, such as right sizing and improved utilization.

Recommended Action 3

The City should consider implementing formalized data collection processes to support better decision making.

Changes under this would include formal requirements by business units to have established data collection and aggregation processes for data such as rental information, vehicle book-outs and critical spares. This could also include a process by which the business unit is responsible for defining their vehicle requirements based on service drivers and having FFS act as a subject matter expert to optimize the mix of rentals vs. owned.

Appendix A: GBA+ Assessment

EVALUATION SUMMARY

What is the overall GBA+ assessment?

This opportunity is focused on asset management and does not increase or reduce barriers to more vulnerable populations.

What are the main groups that could be affected (including those with no vulnerabilities), and what impacts are noted?

The expected impacts of this opportunity are internal; Edmontonians are not expected to see an impact in terms of barriers or service. The main groups involved with this idea are Fleet and business areas that use the vehicles and equipment to deliver services.

What do we know about the people who would be affected by this change?

-2. Very little known about them or their characteristics

-1. Some general idea of numbers or types of people affected

0. Good idea of overall numbers and some other aspects (e.g., time / nature of needs)

+1. Good information on the numbers of people affected and some key characteristics

+2. Good information on numbers, demographics groups, and contact lists (e.g., email / phone lists)

What impact would there be from this change on the staff members of the City or other agencies who may be from these groups?

Operational impacts are expected for staff which could include changes to practice and decision making. No changes in numbers or types of staff roles are anticipated.

What equity measures could we use or implement to improve or positively mitigate impact for one or more of the groups identified?

As this idea focuses on shifting the approach for fleet size and the mix of rentals and owned units, no meaningful opportunities have been identified to improve or positively mitigate impact for specific groups.

How confident we are in the information we are basing our decisions on? What could we do to check or confirm our assumptions?

There is a reasonable degree of certainty that impacts would be limited to operational and practice changes for existing staff roles.

IMPACT OF THIS CHANGE ON PEOPLE BY KEY IDENTIFIED VULNERABILITIES

Consider how you would expect this change to affect people with various types of characteristics that may give rise to vulnerabilities:

Personal Characteristics	-2 Could create new barriers	-1 Could exacerbate existing barriers	0 Limited effect or impact unknown	+1 Could reduce existing barriers	+2 Substantially improved access
People who are not physically strong or confident in their movements			0		
People with vulnerable people with them			0		
People who currently have very limited or no income			0		
People who may experience fear or distress due to threats or violence			0		
People with additional language or communication needs			0		
People who may find mainstream activities unwelcoming or not appropriate for their needs			0		
Total Score	0 Limited effect or impact unknown				

Appendix B: Financial Projections

NOTICE

The financial projections contained in this document provide future-oriented financial information. The projections are based on a set of circumstances and the City's assumptions as of April 2021. Significant assumptions are included in the document and must be read to interpret the information presented. Should events differ from the stated assumptions, actual results will differ from the financial projections and such differences may be material.

The financial information and assumptions contained herein has been prepared to assist readers in deciding whether or not to proceed with their own in-depth investigation and evaluation of the options presented, and does not purport to contain all the information readers may require. Readers should conduct their own investigation and analysis of the options.

KPMG accepts no responsibility or liability for loss or damages to any party as a result of decisions based on the information presented. Parties using this information assume all responsibility for any decisions made based on the information.

FIVE-YEAR PROJECTIONS

The five-year projections highlight the potential savings associated with either Option 1 or Option 2. High and low scenarios are also presented below and specifically relate to the level of desired availability, once assets are removed or reutilized as part of Option 1. Specifically, the high availability scenario relates to the level of potential surplus that the City could dispose of or reutilize and still retain an availability of 90%, this is the primary scenario used for this opportunity. The low availability scenario relates to the potential surplus units that City could dispose of or reutilize and still retain an availability of 85%. Table 8 shows the projected financial impact associated with rationalizing the fleet based on a retained availability of 90%.

Table 8: Option 1 Opportunity Projections (in thousands) – Potential High Availability Scenario

Lifecycle Year	Projected Potential Disposal of Assets	Projected Potential Acquisition of Assets from Rent vs. Buy	Estimated Potential Savings Associated with a Reduction in Rental Payments	Estimated Potential Maintenance Costs associated with New Units	Estimated Potential Net Financial Impact
0	\$71	-	-	-	\$71
1	-	-	\$104	-	\$104
2	-	-	\$107	-	\$107
3	-	-	\$109	-	\$109
4	-	-	\$111	-	\$111
5	-	-	\$114	-	\$114
Total	\$71	-	\$545	-	\$616

Source: Based on data and analysis provided by the City and outlined assumptions.

Note: Total Ownership Costs include acquisition, maintenance, and disposal; Analysis considers only those asset categories that have been rented by the City of Edmonton in 2020; Asset lifecycle based on estimations of currently established intervals by the City of Edmonton; Analysis assumes a maximum five year useful life on reutilized assets.

Table 9 estimates the potential projected savings associated with Option 2, across the lifecycle years. This includes the rent vs. buy analysis to understand when it may become too expensive to continue renting as well as the considerations for the potential fleet reductions resulting from the analysis on surplus spare units.

Table 9: Option 2 Opportunity Projections (in thousands) – Potential High Availability Scenario

Lifecycle Year	Projected Potential Disposal of Assets	Projected Potential Acquisition of Assets from Rent vs. Buy	Estimated Potential Savings Associated with a Reduction in Rental Payments	Estimated Potential Maintenance Costs associated with New Units	Estimated Potential Net Financial Impact
0	\$71	\$(7,081)	-	-	\$(7,010)
1	-	-	\$1,466	\$(154)	\$1,313
2	-	-	\$1,496	\$(262)	\$1,234
3	-	-	\$1,526	\$(304)	\$1,222
4	-	-	\$1,556	\$(406)	\$1,150

Lifecycle Year	Projected Potential Disposal of Assets	Projected Potential Acquisition of Assets from Rent vs. Buy	Estimated Potential Savings Associated with a Reduction in Rental Payments	Estimated Potential Maintenance Costs associated with New Units	Estimated Potential Net Financial Impact
5	-	-	\$1,587	\$(465)	\$1,122
6	-	-	\$1,503	\$(534)	\$969
7	-	-	\$1,533	\$(560)	\$973
8	-	-	\$1,564	\$(628)	\$936
9	-	-	\$1,595	\$(642)	\$953
10	\$924	-	\$1,627	\$(717)	\$1,835
Total	\$995	\$(7,081)	\$15,453	\$(4,672)	\$4,695

Source: Based on data and analysis provided by the City and outlined assumptions.

Note: Total Ownership Costs include acquisition, maintenance, and disposal; Analysis considers only those asset categories that have been rented by the City in 2020; Asset lifecycle based on estimations of currently established intervals by the City; Analysis assumes a maximum five year useful life on reutilized assets.

Table 10 provides a summary of the total assets to dispose or reutilize based on the analysis performed on potential surplus of spare units.

Table 10: Potential Impact of Reducing Fleet – High Availability Scenario

Category	Estimated Potential Number of Surplus Units	Potential Number of Assets for Potential Disposal	Potential Number of Assets for Reutilizing
SUV/MID	2	2	0
TRUCK/FULL/0.5 TON	6	0	6
TRUCK/FULL/0.75 TON	2	0	2
TRUCK/FULL/0.75 TON/UTILITY BODY	1	1	0
TRUCK/MID	1	0	1
VAN/FULL/1 TON/CARGO	9	7	2
VAN/MINI	2	0	2
Total	23	10	13

Source: Based on data and analysis provided by the City and outlined assumptions.

Note: For each of the identified vehicles, it is expected that the City would see a one-time tangible influx equal to the disposal value of the asset; Asset lifecycle based on estimations of currently established intervals by the City; No vehicle in this analysis was assumed to have a lifecycle over 10 years in duration.

“Low” scenarios are presented below and demonstrate the impact of different assumptions on each of the options.

OPTION 1 – LOW

Table 11 shows the projected financial impact associated with Option 1 and rationalizing the fleet based on a retained availability of 85%.

Table 11: Option 1 Opportunity Projections (in thousands) – Potential Low Availability Scenario

Lifecycle Year	Projected Potential Disposal of Assets	Projected Potential Acquisition of Assets from Rent vs. Buy	Estimated Potential Savings Associated with a Reduction in Rental Payments	Estimated Potential Maintenance Costs associated with New Units	Estimated Potential Net Financial Impact
0	\$201	-	-	-	\$201
1	-	-	\$188	-	\$104
2	-	-	\$192	-	\$107
3	-	-	\$196	-	\$109
4	-	-	\$199	-	\$111
5	-	-	\$203	-	\$114
Total	\$201	-	\$978	-	\$1,179

Source: Based on data and analysis provided by the City and outlined assumptions.

Note: Total Ownership Costs include acquisition, maintenance, and disposal; Analysis considers only those asset categories that have been rented by the City of Edmonton in 2020; Asset lifecycle based on estimations of currently established intervals by the City of Edmonton; Analysis assumes a maximum five year useful life on reutilized assets.

OPTION 2 – LOW

Table 12 estimates the potential projected savings associated with Option 2, across the lifecycle years. This includes the rent vs. buy analysis to understand when it may become too expensive to continue renting as well as the considerations for the potential fleet reductions resulting from the analysis on surplus spare units.

Table 12: Option 2 Opportunity Projections (in thousands) – Potential Low Availability Scenario

Lifecycle Year	Projected Potential Disposal of Assets	Projected Potential Acquisition of Assets from Rent vs. Buy	Estimated Potential Savings Associated with a Reduction in Rental Payments	Estimated Potential Maintenance Costs associated with New Units	Estimated Potential Net Financial Impact
0	\$202	\$(6,652)			\$(6,450)
1	-	-	\$1,466	\$(144)	\$1,323
2	-	-	\$1,496	\$(245)	\$1,251
3	-	-	\$1,526	\$(284)	\$1,241
4	-	-	\$1,556	\$(379)	\$1,177

Lifecycle Year	Projected Potential Disposal of Assets	Projected Potential Acquisition of Assets from Rent vs. Buy	Estimated Potential Savings Associated with a Reduction in Rental Payments	Estimated Potential Maintenance Costs associated with New Units	Estimated Potential Net Financial Impact
5	-	-	\$1,587	\$(437)	\$1,150
6	-	-	\$1,411	\$(501)	\$911
7	-	-	\$1,440	\$(525)	\$914
8	-	-	\$1,468	\$(591)	\$878
9	-	-	\$1,498	\$(606)	\$892
10	\$866	-	\$1,528	\$(676)	\$1,718
Total	\$1,068	\$(6,652)	\$14,976	\$(4,388)	\$5,003

Source: Based on data and analysis provided by the City and outlined assumptions.

Note: Total Ownership Costs include acquisition, maintenance, and disposal; Analysis considers only those asset categories that have been rented by the City in 2020; Asset lifecycle based on estimations of currently established intervals by the City; Analysis assumes a maximum five year useful life on reutilized assets.

Table 13 provides a summary of the total assets to dispose or reutilize based on the analysis performed on potential surplus of spare units.

Table 13: Potential Impact of Reducing Fleet – Low Availability Scenario

Category	Estimated Potential Number of Surplus Units	Potential Number of Assets for Potential Disposal	Potential Number of Assets for Reutilizing
SUV/FULL	1	1	0
SUV/MID	4	4	0
TRUCK/FULL/0.5 TON	11	0	11
TRUCK/FULL/0.75 TON	4	0	4
TRUCK/FULL/0.75 TON/UTILITY BODY	2	2	0
TRUCK/FULL/1 TON	1	1	0
TRUCK/FULL/1 TON/FLATDECK	1	0	1
TRUCK/MID	2	0	2
VAN/FULL/0.5 TON/CARGO	1	1	0
VAN/FULL/0.75 TON/CARGO	2	2	0

Category	Estimated Potential Number of Surplus Units	Potential Number of Assets for Potential Disposal	Potential Number of Assets for Reutilizing
VAN/FULL/1 TON/CARGO	17	15	2
VAN/FULL/1 TON/CARGO/AERIAL	1	1	0
VAN/MINI	4	1	3
Total	51	28	23

Source: Based on data and analysis provided by the City and outlined assumptions.

Note: For each of the identified vehicles, it is expected that the City would see a one-time tangible influx equal to the disposal value of the asset; Asset lifecycle based on estimations of currently established intervals by the City; No vehicle in this analysis was assumed to have a lifecycle over 10 years in duration.

SIGNIFICANT ASSUMPTIONS

- Financial projections on Rent vs. Buy decisions assumes that demand for rented units in the future stays at or above the estimated demand for rental units in 2019.
- Data tracking on light duty rentals is a largely ad hoc and paper based at the City. In place of specific data on actual rental units, a request list that is managed centrally by CPSS was used as a proxy to estimate the total number of rented units per month.
- Analysis was performed on rentals with a selected rental end date of 2019. This included rentals that began in 2018.
- Proceeds on disposal of assets equal net book value minus the costs for administration of asset disposition of 3%. The 3% is inclusive of auction commission and shipping.
- In consultation with FFS, maintenance costs used in fleet optimization calculations specifically exclude the following work order job reason codes:
 - Accident
 - Abnormal Usage
 - Modifications
 - Ground Engaging Repair
 - Vehicle Fabrication
 - Non-Standard Requests
 - Disposal
 - Vandalism
 - Capital Work
- Maintenance costs collected by the City were tracked as of 2011.
- The analysis excludes maintenance data on units for the following out of scope municipal fleet maintenance clients:
 - a. Alberta Health Services, EPCOR, Edmonton Police Service
- Current length of ownership is estimated through total cost of ownership (TCO) reports or the lifecycle analysis summary, both of which are provided by the City of Edmonton.
- Asset acquisition value was calculated using median acquisition value by category from the BA25 Asset Balance Report, provided by the City of Edmonton.
- Driving Force Rental Rates are assumed to increase at the rate of inflation each year for the rented vehicles lifecycle.
- Inflation is adjusted for in each year at the following rates:

	2022	2023	2024	2025	2026
Inflation Rate (%)	1.7%	1.9%	2.1%	2.5%	2.5%

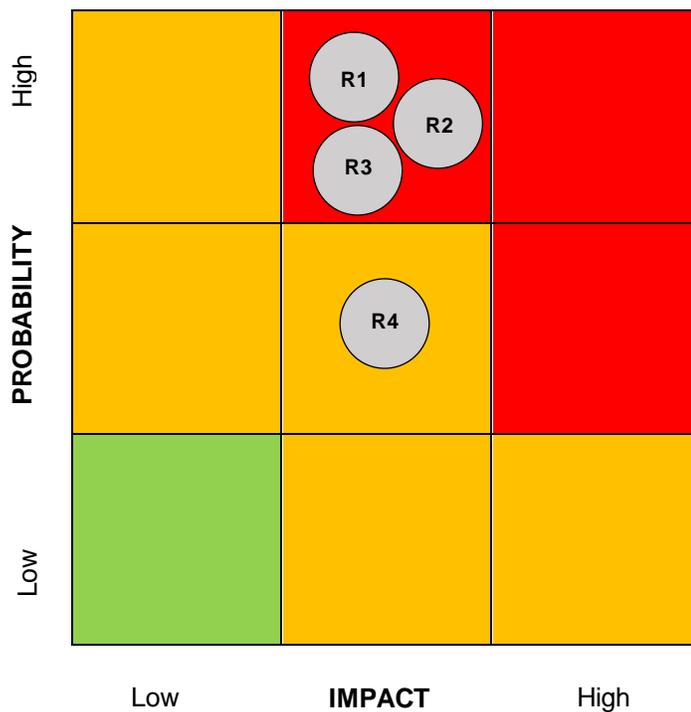
12. Fees associated with rental payments are based on the City of Edmonton's monthly rates for vehicles + attachments as defined by Driving Force.
13. A taxonomy exercise was performed to map vehicle type descriptions from Driving Force with the City's specific asset categories (e.g., 1 Ton Pickup Crew Cab 4X4 with Driving Force is equivalent to a Truck/Full/1 Ton at the City of Edmonton).
14. Asset lifecycle duration is based on estimated intervals established by the City of Edmonton. No vehicles categories include in this analysis have an estimated lifecycle of over 10 years.
15. For the vehicles that could be reutilize to offset rentals demand, we assume that they are, on average, halfway through their useful life and would only receive a financial benefit on the remaining years (e.g., 10 year current estimated lifecycle = 5 years' worth of benefit if the asset were to be reutilized).
16. The reduction analysis assumes that there would be a tangible influx equal to the disposal value of the asset.
17. Cost avoidance includes total ownership associated with not purchasing future asset replacements.
18. The reduction analysis excluded assets based on factors such as low availability (<90%), low volume within the City (<10 units), and high seasonal requirements (units belonging to Parks and Roads Services).

Appendix C: Risk Analysis

RISK ASSESSMENT

There is a high level of risk associated with this opportunity, due to the potential impacts of data to inform decision making and capital availability.

Figure 4: Risk Matrix



RISK ASSESSMENT AND MITIGATIONS

The risks and mitigation strategies identified for this opportunity are outlined in Table 14 below.

Table 14: Risk Register

Risk	Relevant Categories	Highest Rating	Mitigation	Residual Risk
Data Availability There is a risk that incomplete information or a lack of formalized data related to rental information, vehicle book-outs and critical spares	Financial Operations	Financial Impact: Medium Probability: High Overall: High	The probability of this risk occurring may be reduced through the formalization of processes that support data collection and aggregation at the City.	Operations Impact: Medium Probability: Medium Overall: Medium

Risk	Relevant Categories	Highest Rating	Mitigation	Residual Risk
would make decision making related to fleet optimization less effective				
Available Capital There is a risk that the capital would not be available to make more optimal purchasing decisions around fleet.	Financial Operations	Financial Impact: Medium Probability: High Overall: High	The impact of this risk occurring may be reduced through better understanding comparative practices around rental vs. own decisions. There may be additional best practices that support these decisions.	Operations Impact: Low Probability: Medium Overall: Medium
Performance Risk There is a risk that, as owners of the proposed new fleet, the burden of addressing performance related issues and malfunctions transfers from their rental vendor, Driving Force, to the City.	Financial Operations	Financial Impact: Medium Probability: High Overall: High	The impact of this risk may be reduced through a better understanding planning and condition monitoring. As the transfer risk occurs as soon as the vehicle purchases, there is minimal likelihood that the probably of this risk occurring can be mitigated.	Operations Impact: Low Probability: Low Overall: Low
Reliability Risk There is a risk that the proposed changes under Reimagine Services Lifecycle Business Case would decrease the reliability of vehicles and lead to a reduction in availability, therefore increasing the need for spares.	Operations Financial	Operations Impact: Medium Probability: Medium Overall: Medium	The impact of this risk could be reduced by analyzing how many assets could be removed while retaining an availability of 90%, as opposed to implementing a general 10% cut to spares.	Financial Impact: Medium Probability: Low Overall: Medium

Source: Prepared by KPMG.



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