

# Waste & Recycling Services Collection Services Review Attachment 4 – Cost Impact for Alternative Service Delivery and Recommendations



PRESENTED TO  
**The City of Calgary**

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## 1.0 COST IMPACT FOR ALTERNATIVE SERVICE DELIVERY MODEL

The purpose of this section is to estimate the potential impact of WRS adopting an alternative service delivery model. The Mixed Model is likely to hold some potential cost savings relative to WRS' existing Public-Sector Model. Given this analysis, it is beneficial to estimate this cost difference and compare that to the impacts to customer experience, safety, and environment performance.

A discussion of the major residential collection service cost components and the assumptions made in the estimating the differences between WRS' cost structure vs. that of a potential private sector vendor is provided in the following sections.

### 1.1 Alternative Model Description for Cost Comparison

It was found that the Mixed Model is likely to represent the most attractive alternative model upon which to compare against WRS' existing Public-Sector Model. It was found to be superior than the fully outsourced Private Sector Model regarding customer experience, safety, environment, and cost objectives.

Further, it was assumed that an appropriate Mixed Model to serve as a comparison would be approximately one-third of WRS' current residential customers. This was set as a base assumption to best align and minimize the change impact to the current state service delivery model. The existing residential collection services are organized and managed as a set of three residential districts. Within each district, all material types (i.e., black, blue, and green cart) are collected. Although the districts are encouraged to collaborate and share resources upon need, each is separately managed by a Superintendent and supporting Foremen. Given this, it would result in less change impact to the existing collections model should a private sector entity be awarded one of these districts.

Consideration for outsourcing a specific material type across the entire City was not considered. Previous studies have indicated that it is possible to outsource residential collections by material type. However, it was viewed that this method can result in increased logistical and route design challenges. In addition, it was noted that this method may further risk customer service consistency should individual customers be served by multiple haulers.

### 1.2 Efficiency

The number of scheduled customer services (or households) a service provider can achieve with the same number of resources (i.e., trucks, labour, and hours) is a proxy for service efficiency. A service provider with greater efficiency can collect from more households than other less efficient providers. This allows them to require relatively fewer collection trucks and drivers than less efficient providers.

In the external scan, a review of the number of households per collection beat across the variety of municipalities was considered. However, it is dangerous to review the differences in these results to conclude whether a municipality is either less or more efficient. This is due to the several logistics and service level differences that are present between these municipalities, which include:

- Customer excess service levels (e.g., black and green carts);
- Customer set-out frequency;
- Degree of customer cart tagging / communications;

- Total distance per route; and
- Local traffic speed limit and flow conditions.

Based on all these potential variables, it is impractical to draw absolute conclusions from comparing the number of households per collection beat across different municipalities.

However, it is possible to assess whether WRS could increase its efficiency based on existing collection practices. It was noted that WRS has already identified the need to adopt an industry leading route design tool. Internally, it is viewed that this tool will enable WRS to be on-par with current industry leading practices and functionality. However, it is also acknowledged that some private sector entities have been ahead of WRS on both route design and in-truck technology (e.g., turn-by-turn technology).

Based on this, it is reasonable to assume that WRS may now lag private sector efficiency in the range of 5% to 10%. To estimate the costs between WRS and a potential private sector entity, this relative efficiency gain can be used to assume that a private sector entity may need between 5% to 10% less total labour and collection trucks (for the same number of households per collection district) based on this advantage.

It is acknowledged that, upon implementation of the improved route design functionality, WRS may tighten the gap on expected route efficiency between itself and private sector. However, for the sake of the financial cost analysis, an efficiency advantage of 7.5% for the private sector was assumed.

### 1.3 Cost of Labour

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A study of the potential differences in labour rates for Class 3 drivers in Calgary and Alberta was conducted by The City<sup>1</sup>. Highlights of the findings from this study were provided to support the potential cost estimates between WRS and a potential private entity. A review of salaries from 16 Alberta private sector organizations, 7 municipalities in Alberta, and results from the Alberta Government Wage and Salary Survey (which is completed every 2 years) was leveraged for this analysis.

It was found that current WRS rates for a Class 3 driver are 10% above the market median (when calculating that range using the +/- 5% methodology). Thus, for the same number of Class 3 drivers, it is estimated that WRS now pays approximately 10% more than the market median.

To be conservative, for this evaluation, it was decided to increase this difference between WRS and a potential private entity to 15% given that this was within the stated 5% to 15% competitive market range quoted and further considers the likelihood that private sector collection companies may feature slightly lower wages relative to other organizations within the sample.

### 1.4 Cost of Fleet

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When considering relative differences in total fleet costs between WRS and a potential private sector entity, the following cost components are identified:

- Collection truck purchase cost, which translates to a lease cost;
- Maintenance; and

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<sup>1</sup> The City of Calgary, "Collection Services Review – 2018", September 2018

- Fuel and oil.

To consider the difference in total truck leasing costs on a per-truck basis, differences in the estimated quality per truck (based on the anticipated technical features and functionality), purchasing power, and financing costs were considered. Given WRS's selection for trucks with enhanced driver ergonomics, it is estimated that a potential private sector entity may spend approximately 5% less per truck. Based on discussions with sources from industry collection truck providers, only the largest private sector entity may elicit slight purchasing power (i.e. price discount) savings relative to WRS. However, it is also acknowledged that The City may save on truck financing costs given its access to a relatively lower cost of debt financing as compared to the private sector. Based on these factors, it is estimated that a potential private sector entity may save approximately 5% in truck purchase and leasing costs.

In addition, it is estimated that a private sector entity may have an advantage in total maintenance costs for the same number of collection trucks (despite the observation that fleet maintenance costs have demonstrated increased efficiencies over the current business cycle). Although a labour salary comparison for the same level of mechanics was not performed, it is acknowledged that WRS fleet services are provided from Corporate Fleet Services. In comparison to a large private sector hauler, it is estimated that such a hauler may be able to leverage increased asset utilizations, realize more stringent asset standardizations, and feature leading asset management and lean operational practices. Given these considerations, it was estimated that a private hauler may realize 5% increased maintenance efficiency.

Finally, based on estimated route design and fuel economy efficiency advantages which a private sector entity may be able to provide, it was estimated that it could also save 5% on total fuel and oil costs for a given collection district.

## 1.5 Cost of Miscellaneous Business Expenses

In addition to direct costs for collection driver labour and fleet, there are additional direct business expenses to support the collection services function. These address a variety of administrative needs, including facilities, communications, materials and commodities, supplies, insurance, and security.

To estimate the differences in costs between WRS and a potential private sector entity, it was generally assumed that this would follow overall efficiency advantages of approximately 5% for the private sector.

## 1.6 Contract Administration Costs

It was identified that, should WRS outsource portions of its collection districts, it would be required to design and implement incremental administration resources within its organization structure. Such incremental resources would be required to perform the following activities:

- Perform overall contract management and oversight;
- Triage and manage 3-1-1 customer service requests completion and reporting; and
- Provide regular oversight and quality assurance (i.e., on-site inspectors) for the outsourced collection district.

From input from other municipalities which already outsource significant portions of their collection districts, it was estimated that approximately 8 net-new full-time-equivalents may be required within WRS to accommodate outsourcing of a collection district (note that a detailed review would be required to confirm this estimate).

In addition, it is anticipated that one-time transition and procurement costs will be required to develop the request for proposal, direct the tendering process, and both develop and implement a contract. It is vital for WRS to not

overlook the efforts required to perform this function, as there can be a fine divide between including route completion timeliness incentives vs. desired customer service and service request completion objectives. The one-time costs were estimated at approximately \$600,000, which could be expected to be amortized across the contract life-time (assumed to be 8 years).

## 1.7 Avoidance of Corporate HR Allocations

Presently, WRS records internal human resources costs based on a corporate allocation model. These reflect the total Corporate HR costs which are allocated to the Business Unit. These are typically allocated based on the total number of head-count of internal full-time-equivalent employees. Recognizing that through outsourcing one-third of the WRS' total collection routes would significantly decrease WRS' total headcount, it can be reasonably assumed that approximately one-third of the HR costs now allocated to WRS just for its residential collection services employees could be avoided. Based on this, it was estimated that WRS could save approximately \$250,000 per year through the avoidance of current Corporate HR allocations.

## 1.8 Private Sector Entity Profit

It is identified that any successful private sector entity needs to earn a profit on its business. This is required to achieve private sector sustainability long-term. As such, WRS should only be interested in outsourcing portions of its business to reliable and sustainable private sector entities, as it cannot risk the consistent provision of its residential collections service.

An industry scan noted that the average private sector profit margin achieved for the collections function is 10%<sup>2</sup>. This is consistent with other previous studies which have provided a generally profit margin range of between 7% to 15%.

## 1.9 Comparative Financial Analysis Summary

Based on the estimated assumptions and discussion above on each applicable cost component between current WRS costs and those from a potential private sector entity, the total cost difference was estimated for one of WRS' three existing collection districts. This is summarized in the following table:

Cost Element	WRS Current Model Annual \$ for One-Third Collection Network	One-Third Private Sector Model Estimate \$	One-Third Private Sector vs. WRS Current Model Difference \$	Comments / Assumptions
Labour	\$8,928,132	\$6,919,302	(\$2,008,830)	<ul style="list-style-type: none"> <li>15% labour savings</li> <li>7.5% efficiency savings</li> </ul>
Fleet Leasing	\$3,473,312	\$3,039,148	(\$434,164)	<ul style="list-style-type: none"> <li>5% truck cost savings</li> <li>7.5% efficiency savings</li> </ul>
Feet Maintenance	\$3,096,871	\$2,787,184	(\$308,687)	<ul style="list-style-type: none"> <li>5% cost savings</li> <li>5% efficiency savings</li> </ul>
Fuel & Oil	\$1,388,934	\$1,319,488	(\$69,447)	<ul style="list-style-type: none"> <li>5% efficiency &amp; fuel economy savings</li> </ul>

<sup>2</sup> Michael Emgarten, "Waste Management Services Industry, The Henry Fund, Henry B Tippie School of Management, 2014

Misc. Business Expenses	\$874,031	\$830,329	(\$43,702)	▪ 5% efficiency savings
Contract Transaction Costs	-	\$775,000	+\$775,000	▪ 8 new WRS FTE's ▪ \$600k 1-time costs
City Corp HR Allocations	\$250,000	-	(\$250,000)	▪ Decrease of ~ one-third allocations
Profit	-	\$1,489,545	+\$1,489,545	▪ 10% contractor profit
<b>Total Difference</b>	<b>\$18,011,280</b>	<b>\$17,159,996</b>	<b>(\$851,284)</b>	▪ ~ +/- 50% range

Based on this analysis, it is estimated that WRS may save approximately \$850,000 per year if it was to outsource one-third of its total residential collection network (i.e., 1 district). However, given that each cost element features its own unique factors and assumptions, it should be acknowledged that this amount may vary approximately +/- 50%. The differences in future WRS efficiencies and actual private sector pricing proposals would dictate actual cost savings.

To analyze these potential savings, their impact on WRS' potential budget and cost per residential household customer summarized in the following table:

Annual Budget Savings \$	Budget Savings % vs. 1/3 Collection Network	Budget Savings % vs. Entire Collection Network	Household Savings per Month	Household Savings per Year
\$851,284	4.7%	1.6%	\$0.2160	\$2.59

However, it is noted that moving to a Mixed Model such as this does pose potential risks to performance in customer experience (particularly for reliability) and safety. These risks are primarily due to the extended arms-at-length control which The City would need to adopt over residential waste collections and the increased risk for the private entity to attract and retain qualified drivers relative to WRS.

## 2.0 SUMMARY

The provision of residential collection service is a highly debated and contested issue across Canada and North America. Successful collection is a balance between achieving several competing objectives, such as customer satisfaction, service reliability, customer responsiveness, environmental management, public and private safety, and costs.

Essentially there are three different service delivery models that municipalities can choose from: In-house, Mixed or Fully Contracted. Each has its own benefits and challenges depending on the desired outcomes. Our analysis demonstrates that WRS' Public Sector Model is likely to achieve stronger levels of customer experience and safety outcomes but may feature higher costs than a model which partially outsources waste collection to a private sector entity.

Waste collection costs for WRS can be divided into four parts: (1) fleet management; (2) labour management; (3) planning and administration; and (4) customer service. Item 3 and Item 4 are parts that are normally undertaken by the municipality whether the service delivery is conducted in-house or contracted out. The "big ticket items" of the

collection costs are fleet management and labour management which combined make up 80% to 85% of the total cost. Fleet management is 40% to 45% of the total cost and includes leasing vehicles, maintenance, and fuel. Labour management is also about 40% to 45% of the total cost that that includes wages and benefits. Item 1 and Item 2 are aspects that can be performed by the public and private sectors.

Many jurisdictions moved towards contracted services because of uncontrollable costs associated with work place injuries and wages. Using automated collection trucks reduces the potential for work related injuries and opens the door to a wider pool of workers. There are a number of communities that are moving from contracted services to in-house collection services because of the flexibility and operational benefits it provides their community such as snow removal and disaster debris management.

Findings from the external scan showed that the lowest cost arrangement does not always represent the best value or service for the community. There are several examples, including Winnipeg, where the low-cost collection contracts were terminated because of quality of service issues such as missed pick-ups, old trucks that break-down and affect traffic and flexibility to address issues.

Labour rates for drivers in Manitoba and Ontario are typically 8% less than in Alberta and 18% behind The City of Calgary rates for drivers. Considering that labour costs make up as much as half of the collection costs, there is a strong likelihood that per household costs will be lower in Manitoba and Ontario than in Alberta. Benchmarking unit costs helps to understand how communities compare across the country. However, it is more important to understand the factors and circumstances for the differences among communities so that program performance can be evaluated and compared to identify leading practices and help communities as a whole identify optimal targets to achieve the most efficient system.

The labour rates in Alberta can be high when the oil and gas industry is thriving. When this occurs, wages for skilled services such as truck drivers escalate rapidly. For this reason, it may be challenging for the private sector to guarantee a unit collection fee for the life of a six to eight-year contract. Private sector haulers are likely to lose drivers to other organizations that will offer higher wages. If the contractor is unable to find drivers for the wages they set in their contract, there is a risk that the contract will not be financially sustainable, or the contractor will not be able to fulfill the terms in the collection contract. WRS pays its drivers slightly above market rates and with better benefits to motivate and retain staff who want to serve The City.

From the efficiency and effectiveness analysis performed, it is noted that WRS has been providing reliable, responsive, and valued collection services. Its history of service consistency, response time to customer service requests, and high citizen satisfaction scores can attest to this. In addition, WRS has demonstrated a commitment towards safety (both for the public and its workforce) and environment outcomes. Finally, it has demonstrated it can drive cost efficiencies across both manpower and fleet maintenance resources.

However, a private entity may well be able to perform the residential waste collection services at a cheaper cost than WRS. Analysis performed indicated that a private entity may be able to achieve approximately \$850,000 (+/- 50%) in savings if it was to assume one-third of WRS' entire collection network. However, there are risks to this approach which largely stem from the nature of the contract (as a private entity would be managed at an arms-at-length contract, which can be difficult to define well across a 7 or 8-year duration) and WRS' current advantage in attracting and retaining qualified manpower. There are noted examples from other jurisdictions where these issues resulted in service instability and disruptions.

Finding the most suitable metrics to assess and compare WRS's waste collection program will involve developing benchmarks that will be of interest for other communities. Based on the findings from the collection service review, some options to discuss with other jurisdictions include (1) cost per scheduled collection; (2) customer collections per hour; (3) maintenance cost per vehicle per month (or year); (4) FTE's required per 10,000 scheduled pick-ups,



(5) fleet spare ratio; (6) fleet cost per vehicle; and (7) scheduled collections per vehicle per week. These will need to be defined so that the group of jurisdictions understands the information required to calculate these metrics and the relevance of these benchmarks to their respective organizations.

There is a possibility that elected officials might want to test whether the private sector can propose and provide a comparable or better level of service for better value. WRS can consider issuing a request for proposals for one of its service areas that would be subject to a competitive process. This would include collection of all three streams which mirrors the services provided by WRS. Details of the fleet requirements, collection approach, routing plan, vehicle storage, fuel type, vehicle maintenance and labour expectations would need to be established by WRS.

### 3.0 RECOMMENDATIONS

The purpose of this section is to summarize the individual recommendations as a result of research and analysis presented throughout the main body of this report.

1. **Hours of work:** Drivers work 9.5 hours per day for a total of 38 hours per week. If there is a desire to improve collection rates by extending the shifts to a 10-hour day, the extra 30 minutes could result in 60 to 100 more pick-ups per shift thereby improving the daily efficiency of each collection vehicle.
2. **Additional Collection Day:** Collection trucks are financed and used four days per week. If The City were to use those vehicles on Mondays and Saturdays, there would be no incremental finance charge for using those vehicle on those days. This is a business model used by corporations like WestJet to keep the vehicles in use to maximize revenue. Collecting waste on Mondays or Saturdays could be applied to multi-family and commercial customers.
3. **Alternative Fuel Vehicles:** Fuel and oil make up approximately 8% of the total collection costs. Most jurisdictions are moving towards CNG because of financial and environmental benefits. WRS has some experience testing CNG collection vehicles. A feasibility analysis should be conducted to assess the financial and environmental benefits and concerns to WRS if alternative fuels such as CNG were used in one of the districts or the entire fleet. Electric vehicles are also worth considering as they are being tested across several jurisdictions across North America.
4. **Review Worker Safety Performance Issues:** WRS' safety performance for its drivers has demonstrated a growing number of claims. Through discussions with WRS, this performance is already known and initiatives to improve driver safety are underway. These include improved truck ergonomics, driver safety training, and prevention / physical conditioning techniques. It is recommended that WRS maintain a regular review and update of these safety improvement initiatives to ensure worker compliance with updated safety training protocols.
5. **Continue to Cultivate Employee Retention:** Given the insights from the industry analysis, a key resource which defines how reliable service providers can be is the attraction and retention of skilled labour, particularly for Class 3 drivers. Although it has been identified that WRS has a current advantage in this regard relative to the private sector, it must continue to focus and maintain this advantage should it desire to continue delivering residential collections internally. For WRS, this will necessitate continued investments into driver training, ergonomics, and safety. In addition, it must continue to maintain the historically positive relationship it has had and partner with drivers to ensure that collection objectives and community needs are met.
6. **Adopt Collection Services Objectives:** The residential collection service objectives are intended to serve WRS over the long-term as a description on what this function is intended to achieve. They are agnostic of the

actual service delivery model. As such, it is recommended these objectives continue to live outside of this project and serve as key strategic planning inputs to the future of The City's residential collection services.

7. **Adopt Performance Measures and Operational Indicators and Establish Targets:** To support each of the residential collection services objectives, specific performance measures and supporting operational indicators were identified and reviewed with the WRS Management Team. It is recommended that these be adopted and included within WRS' annual performance measurement planning and review processes. Ongoing measurement and reporting of these will enable an enhanced culture of continuous improvement against each of the overarching objectives. Upon adoption of the performance measures and indicators, further work is recommended to develop desired performance targets. These should reflect a continuous improvement mindset balanced with industry leading practices, current performance levels, and desired levels for improvement.
8. **Review Projected Collection Services Costs per Scheduled Service:** From review of historical collection services costs, it is shown that overall costs decreased on a per scheduled collection basis between 2014 to 2017. However, it can also be seen that black and blue cart collection costs per scheduled collection are projected to slightly increase in 2018. In addition, increases to black cart's miscellaneous administrative/business expenses have been reported.

It is understood that costs are in progress of being confirmed due to the recent changes in service levels to both green and black carts. Further, an internal view is that manpower has become lean and additional manpower may be required. It is recommended that WRS focus on the 2018 and 2019 costs per scheduled service metric, confirm appropriate manpower and administrative / business expense requirements, and work to both limit and stabilize these costs across 2019 to 2022 in balance with the priority customer experience, environment, and safety objectives.

9. **Develop Annual Performance Review and Reporting Protocols:** Given the objectives, performance measures, and indicators, it is recommended that WRS establish an annual process devoted to performance benchmarking, performance analysis, and both management and public reporting. It is acknowledged that, over time, political questions will continue whether WRS should continue to serve residents itself or outsource a portion of its collections route. Facing this reality, WRS should adopt a performance measurement and reporting protocol that demonstrates both its commitment to continuous improvement and its comparable performance against other municipalities. This could utilize existing benchmarking initiatives where appropriate to minimize the additional administrative effort required. However, it would also be expected that this would require select other municipalities to participate in sharing their respective performance information.
10. **Continue to Deliver Residential Services:** Given the strategic and efficiency and effectiveness analysis, it is noted that WRS has been providing effective customer experience performance. Overall customer satisfaction has consistently been high for both black and blue services, while both WRS' reliability and responsiveness measures strong performance. In addition, it has demonstrated a commitment to improving both its safety and environment performance over time. Further, pending final cost management adjustments based on the 2017 and 2018 service level changes, it has achieved increased cost efficiencies, particularly in manpower management and fleet maintenance costs.

Further, it is shown that WRS currently has a competitive advantage for the attraction and retention of skilled labour. From research conducted, this is a primary root cause for unreliable collection services. This would be a key risk should WRS outsource a portion of collections to a private sector entity.

It is acknowledged that WRS may save approximately 1.6% of its total baseline residential collections budget (i.e., for its entire collection network) if it chose to outsource one-third of its collection network. This equates to

a residential bill impact of between \$0.22 (+/-50%) per month. However, based on potential consequences to desired performance outcomes (as noted from other jurisdictions across North America) and the initial changes required, it would introduce new risk to WRS' residential collections. These can include risks to service reliability, responsiveness, and safety outcomes.

Based on this, it is recommended that WRS maintain its internal collections model, with a caveat that it can regularly review, assess, and report on its performance relative to other jurisdictions on a go-forward basis.