Title: 2016 Excellence Award Entry
Category: Collection System Excellence Award
Name of Entrant Organization: The Regional Municipality of Peel
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Title of Entry: The Region of Peel’s Bi-Weekly, Cart-Based Waste Collection Program
Jurisdiction: Region of Peel, Ontario, Canada
Approximate Population: 1.1 million curbside residents
Approximate annual budget: $40M
Approximate annual collection cost per household: $121
EXECUTIVE SUMMARY

The Region of Peel (Region) provides curbside waste collection services of garbage, recycling, organics, yard waste and bulky items to approximately 1.1 million residents (330,000 households) in the Cities of Brampton and Mississauga and the Town of Caledon.

On January 4, 2016, curbside waste collection services changed from weekly, manual collection to bi-weekly, cart-based collection.

Resulting improvements include:

- Increased organics participation from 35% to 50% in January
- Reduction of waste sent to landfill: 101% increase in organics tonnes collected from January to March 2016 compared to 2015
- Fleet reduction by up to 22 vehicles deployed daily
- Compressed natural gas vehicles should reduce greenhouse gas emissions by approximately 25% compared to diesel
- Reduction in windblown litter from changing recycling boxes to lidded carts
- Anticipated reduction in worker injuries from switching to automated collection
- Estimated annual collection savings of approximately $5.8 million
2016 EXCELLENCE AWARD ENTRY

1. HISTORY OF THE PROGRAM

The Region’s waste collection system is an integrated component of the Region’s Waste Reduction and Resource Recovery Strategy, which is built upon a 4Rs (Reduce, Reuse, Recycle and Recover) Waste Management Hierarchy. The Strategy’s objectives are to design and deliver waste management services that meet the needs of the customer in a cost-effective manner and reduce the negative impact of waste, which is aligned with Regional Council’s overarching priorities to increase waste diversion and reduce greenhouse gas emissions (GHGs).

In November 2011, Regional Council directed staff to investigate a year-long bi-weekly waste collection pilot project to determine if a bi-weekly and/or cart-based collection system was feasible for the Region’s curbside residents. The pilot commenced in early 2012 to test bi-weekly garbage and recycling collection on an alternating collection schedule under a four-bag and three-bag bi-weekly garbage limit system, and a bi-weekly, cart-based garbage and recycling collection system, all with weekly organics collection.

The pilot allowed staff to obtain first-hand information and feedback in order for Council to make an evidence-based decision on how best to tailor a full-scale bi-weekly collection program to meet the needs of Peel residents. The research and results of the pilot study clearly showed that a bi-weekly, cart-based collection program was a viable option for Peel residents. Over 80 per cent of participants in the cart pilot programs said they were satisfied with bi-weekly collection. Results also showed that participation in the Region’s recycling and organics programs increased and less garbage was being sent to landfill.

As a result of the pilot, and as part of the Region’s Waste Reduction and Resource Recovery Strategy, in 2013, Regional Council endorsed plans to adopt a bi-weekly, cart-based waste collection program with the commencement of the new 2016 waste collection contracts for the following reasons:

- It will reduce the amount of waste sent to landfill
- It will reduce the annual collection costs for the Region
- GHGs will decrease with fewer collection vehicles on the roads
- Cart-based collection programs are associated with a reduction in worker injuries
- It was the optimal time to change the service level because it allowed for a competitive procurement process

Results of a competitive procurement process to support the implementation of the bi-weekly, cart-based program had Emterra and Progressive Waste awarded the 2016 waste collection contracts and IPL Inc. awarded the contract for cart design, manufacture, storage, distribution and maintenance.
The following graph provides a high-level timeline to display how the bi-weekly, cart-based waste collection program was implemented.

**Graph 1: Timeline for the Region of Peel’s Bi-weekly, Cart-based Waste Collection Program**

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**EVOLUTION OF THE REGION’S PROGRAM WITH CHANGES TO TECHNOLOGY AND EQUIPMENT**

The Region’s collection program has evolved with changes in technology and equipment in several ways. Examples include the following (all of which are discussed in further detail in Section 2):

- The complete shift from manual, diesel-fueled waste collection vehicles to automated, Compressed Natural Gas (CNG) powered vehicles, with each vehicle equipped with Global Positioning System (GPS)/Automated Vehicle Locator (AVL) technology
- The use of smart phone scanning technology to read, in real-time, advanced Radio Frequency Identification (RFID) technology that uses electronic tags placed in each cart to allow for improved asset control and management
- American National Standards Institute (ANSI)-compliant garbage, recycling and organics carts; with state-of-the-art automated organics cart that has a unique gravity lock system

**CHALLENGES**

The following outlines the challenges that were encountered in the planning and implementation phases of the program and how the challenges were overcome:

- Tight timelines to procure the cart vendor and to manufacture and deliver carts in order to meet the January 4, 2016 program commencement date – Staff stayed committed to the project’s critical deadlines, and ensured that everyone on the team, including Regional Council and the cart vendor, were aware of the deadlines and the imperative nature to complete the cart manufacture and deliveries on time
- Public awareness of the program changes and cart selection timeframe
- Public acceptance of changes
- Siting of CNG fleet yards – collection contractors worked diligently to locate and procure properties within the timelines required for a successful build and operation of the fueling systems prior to January 4, 2016
- Move from traditional printed communications (i.e. newspapers, direct mail) to digital format, where all phone numbers were omitted from the print materials
SUCCESSES

The implementation of the Region’s new bi-weekly, cart-based collection program has been successful and impressive in several ways.

During the three month long cart selection phase from January to March 2015, where residents were given the opportunity to select their garbage and recycling cart sizes (from three available options: small, medium and large), the Region had a high public engagement level of approximately 87 per cent of residents selecting their preferred cart sizes, which is much higher than the Region’s anticipated 50 per cent selection level. Of the 87 per cent, 92 per cent (approximately 230,445 households) of residents completed their selections online as a result of the Region’s comprehensive drive-to-web digital strategy. The Region’s Strategic Plan focuses on ensuring the best services for Peel’s residents and stakeholders and the Region’s renewed digital strategy aims to help accomplish this. The digital strategy is based on five key themes:

1. Excellent customer service
2. Improved and secure technology
3. Managing and using the information
4. Agile and responsive systems
5. Cost-effective implementation

As part of the digital strategy, the Region launched a successful new online web service for residents to report issues and provide feedback.

Additionally, over a 77 day period in the fall of 2015, approximately 1.2 million carts and kitchen containers (approximately 15,000 carts per day) were successfully delivered to approximately 320,000 households. This roll-out represents an unprecedented achievement in the North American cart market in terms of the magnitude and time-frame to complete the cart deliveries.

Furthermore, the Region’s requirement of the collection contractors’ use of CNG-powered collection vehicles has introduced two new state-of-the-art CNG fuelling yards and two new fleets of CNG collection vehicles into Canada representing the largest CNG fuelling station system roll-out in Canada. One of the CNG stations, which is the largest station in Canada, is open to the public, allowing other CNG fleet owners and operators the convenience of refuelling, which will help encourage conversion to lower-emission CNG options.

The Region’s new collection program contributes to the Region saving approximately $5.8 million a year, which is another achievement of the new program.

2. COLLECTION SYSTEM DESIGN AND TECHNOLOGY

The services provided as part of the Region’s new curbside collection system include the following:

- Bi-weekly, automated cart-based garbage and recycling collection on alternating weeks
- Weekly, automated cart-based organics collection
- Bi-weekly or weekly manual bag-based garbage and recycling collection at approximately 35,000 households (i.e. townhouses) that are not suited for the full three-cart system due to limited storage and/or set-out locations
• Seasonal yard waste collection
• Bulky item (i.e. furniture) collection on garbage collection weeks
• Curbside battery collection program in the spring and fall
• Three waste exemption periods during which garbage set out is unlimited
• Walk-up collection service at approved households for residents with a disability or other challenge who are unable to bring waste to the curb

The new collection system incorporates numerous key elements in an effort to implement the above mentioned services through the waste industry’s best practices and innovative solutions, with several equipment and operational changes. For instance, the old program’s manually-collected recycling boxes, green bins and garbage cans were replaced with ANSI-compliant automated wheeled carts supplied by the Region, including three sizes of garbage and recycling carts (120 litre/small, 240 litre/medium and 360 litre/large), and one standard 100 litre organics cart with the innovative locking mechanism. The benefits to the Region mentioned earlier in Section 1 and the following benefits to Peel’s residents, drove the decision to move forward with new cart equipment:

• Carts have wheels to make it easier for residents to transport waste to the curb
• Carts have lids that will prevent windblown litter and keep neighbourhoods cleaner
• The new organics cart has an innovative lock that will help keep animals out
• Carts can provide increased capacity to accommodate the bi-weekly collection schedule
• Efficient use of tax dollars as it is a tax-based program not requiring additional user-pay fees

Consistent with the industry standard of competitive tendering and implementing multiple waste collection zones (geographical areas), the Region’s 2016 waste collection service procurement document included three newly-defined collection zones within Peel with the goals of obtaining potential collection cost savings, maximizing competition during the procurement process, and maintaining competitive tension over the term of the contract. These goals were realized with the award of the contracts to two different service providers, and a collection savings of approximately $5.8 million annually for the Region. As well, a required vehicle time-off-the-road of 6 p.m., with liquidated damages being applied after 6 p.m., was incorporated into the new collection contracts to address potential service failures and issues in accordance with good industry practices.

With the commencement of the new collection contracts, the previous contracts’ ten year old diesel collection vehicles were replaced with brand new, modernized CNG-powered collection vehicles that are equipped with GPS/AVL technology, which will help improve the level of service provided to residents. The use of CNG is a growing industry trend, with citations of cost savings (as CNG has historically been generally more economical than
diesel) and environmental benefits as further described in Section 3. These key elements, in accordance with the Region’s Term of Council Priority to reduce GHGs and protect the community by managing the negative impacts associated with climate change, were key contributing factors in the decision to introduce CNG powered-vehicles and new state-of-the-art CNG fueling stations into the Region’s new 2016 collection contracts. Based on learnings from the natural gas industry, the CNG collection vehicles are cold-weather equipped to ensure that they are able to provide reliable collection services throughout the cold Canadian winters.

The waste collection vehicles are automated to allow for cart-based collection, which is designed to increase collection efficiencies with faster collection times, reduced labour costs and should result in fewer worker injuries. Innovative equipment has been introduced into the Region’s collection fleet, including the Curotto-Can, reported to have faster loading times, reduced packing and idling (lower fuel consumption), and necessitates “eyes forward” collection to help improve operator and public safety.

In order to efficiently distribute the 1.2 million carts and containers to approximately 320,000 homes in the short timeframe of 77 days (approximately 15,000 carts per day), the cart contractor used smart phone scanning technology to read advanced RFID technology that uses electronic tags placed in each cart to allow for improved asset control and management. During the crucial, time-restricted cart delivery phase, Region and cart contractor staff had real-time access to where carts were being delivered, so staff were able to know the delivery routes in advance and follow where the deliveries were being made, in order to perform quality control checks on the carts.

Another innovative component of the new cart system includes the state-of-the-art 100 litre organics cart with a unique gravity lock system, which aims at keeping animals/pests out of the organics cart (that mainly contains food waste), which is designed to only open when dumped during collection; not even if tipped over on its side by an animal, wind, or otherwise. The cart also has the ability to be left unlocked by residents with limited mobility.

Also important to note as a key element of the new collection program is the digital strategy that focuses on “drive-to-web”, for resident cart selection, cart exchange and issue reporting such as missed collections, cart damage, feedback and complaints which was historically done through the telephone.

3. ENVIRONMENTAL CONTROLS AND REGULATORY COMPLIANCE

The Region of Peel strives to design and deliver waste management services that meet the needs of all its residents while reducing the negative impact of waste. As such, staff took great efforts in the program planning phase and preparations of the procurement documents so as to incorporate important environmental and regulatory controls wherever possible, as explained in the following.
ENVIRONMENTAL CONTROLS

Collection Fleet

To ensure that the collection system minimizes environmental impact, the Region specified the mandatory use of brand new CNG-fueled collection vehicles as opposed to diesel-fueled vehicles.

The reported environmental, health and safety implications of CNG compared to diesel includes an estimated reduction of GHGs of approximately 25 per cent, lower emissions of particulate matter, volatile organic compounds, carbon monoxide and nitrous oxide than diesel-powered vehicles, quieter operating engines, and, since natural gas is lighter than air, it will not pool as a liquid or vapour on the ground.

The Region’s previous collection fleet was comprised of approximately 184 ten year old diesel-powered collection vehicles that had a greater likelihood of breakdowns and potential spills due to age despite maintenance efforts. As a result of the shift from weekly to bi-weekly garbage and recycling collection, the procurement of two new collection contractors, and the shift from manual to automated waste collection services, there was an overall reduction in fleet of up to 22 fewer vehicles on the road per day in comparison to the previous collection system.

With the reduced fleet size and switch to CNG fuel, it is anticipated that the new operations will have a lessened environmental impact and will reduce GHGs. A contractual reporting requirement is that the collection contractors provide the Region with a collection vehicle usage and fuel consumption report, which the Region will use to assess the impact of CNG fuel usage compared to diesel fuel and the potential impacts/reduction in GHGs. This information, along with the vehicle usage breakdown, should help the Region assess how the change in program and fuel type helped to minimize environmental impact on human health, environmental quality and/or resource conservation.

Old Recycling and Organics Container Re-purposing, Take-back and Recycling

In addition to the program to take-back old recycling boxes and green bins for residents who no longer want the containers, the Region is developing a communications campaign focused on the re-purposing of old containers to encourage reuse. Re-purposing efforts can include using the old containers to store driveway salt, birdseed or animal feed, or using old recycling boxes for curbside yard waste collection. Old containers that are returned to the Region will be recycled into “new” carts/containers. Also, the Region is currently working with the Province’s Continuous Improvement Fund (CIF) to set aside approximately 50,000 old recycling boxes for potential distribution to Northern Ontario communities to assist with their recycling programs.

Recycled Cart Content

All carts supplied by IPL incorporate a minimum of 20 per cent recycled content into the construction so as to reduce the amount of virgin material utilized while still maintaining the integrity of the carts.
REGULATORY COMPLIANCE

Accessibility for Ontarians with Disabilities Act, 2005 – O. Reg. 429/07

The Accessibility for Ontarians with Disabilities Act, 2005 – O. Reg. 429/07 (AODA) requires all businesses to make their services and facilities accessible. As such, staff met with the Accessibility Advisory Committees within the area municipalities of Brampton, Mississauga and Caledon, who provided valuable feedback regarding the cart and program design, which was incorporated into the cart and collection service procurement documents as described below.

Pursuant to the Region’s new collection contract, the collection contractors are required to provide a walk-up collection service at approved households for residents with a disability or other challenge who are unable to bring waste to the curb, requiring the contractor to bring waste from a designated area on the property down to the curb for collection and to return the empty carts after collection. All of the contractor’s employees must be trained on the AODA and its requirements.

In accordance with the cart contract, there are different coloured cart lids for the garbage and recycling carts so that persons with visual disabilities can differentiate the carts and carts have large contrast coloured (white) writing with two inch font size. As well, the carts were made accessible for those using them without the need for additional parts (i.e. add-ons), and the latch/lock has an external handle/design that facilitates ease of use and allows for single handed opening.

Regulatory Compliance for Data Confidentiality, Security and Privacy

The cart and collection contracts specified requirements related to data confidentiality and security. This is to safeguard any data collected against accidental or unauthorized access, disclosure, use, modification and deletion of information retrieved through the collection contractors’ GPS system or otherwise. Under these contracts, the contractors are required to comply with all privacy legislation, including without limitation, the Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990, Ch. M.56.

Operator Licensing

Upon submitting their bids on the procurement document, the collection contractor vendors were required to provide their current valid Commercial Vehicle Operator’s Registrations (CVOR), which was required to hold a rating of “Satisfactory” or better. Failure to have the minimum acceptable rating would result in the vendor’s submission not being considered for award. Additionally, they are required to maintain their CVOR rating at “Satisfactory” or better for the duration of the contract. The safety performance of the contractors, which takes into account collisions, inspections and convictions, is important to the Region in promoting the safe operation of its contractors.

4. PERFORMANCE, ECONOMICS AND COST EFFECTIVENESS

The Region has performance measures in place to monitor the outcomes of the new bi-weekly, cart-based collection program and the performance of the new collection contractors that provide these services, which are described below.
Bi-weekly, Cart-based Collection Program Performance

Although the new collection program is still in its infancy stages of implementation, there are some promising outcomes that are showing positive trends that favour the Region’s objectives of reducing the amount of waste sent to landfill, including an increase in participation in the organics program from approximately 35 per cent to 50 per cent as established from recent waste set out studies that have been conducted since the launch of the new program.

To further support these findings, the total tonnages collected from January to March 2016 shows an increase in organics tonnes collected of 101 per cent, which is more than double the tonnages, compared to the previous year’s tonnages under the old program. Month-to-month, there has been an increase in organics tonnages collected and a downward trend of garbage tonnages collected, which can be directly correlated to the increase in participation in the organics program. Staff are also beginning to see a rise in tonnages collected for recycling each month. This increase in participation and diversion activity is one of the prime goals of the new collection program and staff anticipate that these positive results will continue.

Staff will be conducting regular waste set out studies and waste composition audits to monitor participation and will use the results to create targeted communications to residents. The goal of these efforts is to increase participation and reduce contamination to further improve diversion rates and to encourage proper waste set out procedures so as to improve collection efficiencies.

Cart Contractor Performance

The requirements in the cart procurement document required the cart vendor to have all 1.2 million carts and kitchen containers delivered over a three month period, beginning in mid-September 2015 to mid-December 2015, before the Region’s new collection service contracts commenced in January 2016. As a result of diligent monitoring and strict adherence to the project’s crucial timelines, the cart vendor was able to successfully deliver all required carts as scheduled, which was critical to mitigate potential complications related to collection service levels and financial implications in the case that additional vehicles were needed to complete the deliveries on time.

Collection Contractors’ Performance

Good contract management relies on contract performance measurements that will promote reliable and thorough service delivery, promote service improvement and help the Region monitor, evaluate and manage risk. In addition to the service level requirements specified in the performance-based contracts, key performance indicators (KPIs) that have been clearly defined and easily measured and monitored give the Region an enforcement mechanism to help manage risk and non-compliance over the length of the contract. Examples of the Region’s main waste collection-related KPIs include same day collection completion rate (based on missed collections vs completed collections), valid contractor complaints and times-off-road.

The Region has mechanisms in place to provide feedback to the collection contractors, including monthly operations meetings and “report cards” using KPIs to identify service level issues and areas of improvement by contractor, which can be used to compare the two contractors’ performances, in hopes of encouraging service improvement as opposed to the application of liquidated damages. Ultimately, these measures should provide an incentive to the Region’s collection contractors to deliver good service.
The following summarizes the new contractors’ performance since the start-up of the new collection contracts using the previously stated KPIs as the basis of measurement.

**Missed Collections**

The collection contractors are expected to fully complete 100 per cent of the collection for each scheduled collection day area and are deemed to have failed if they miss any, or all, of a designated collection area. Tracking this KPI helps staff to analyze how the contractor is completing collection on any given frequency (i.e. daily/weekly/monthly, month-to-month, year-to-year) and allows the Region and contractor to work on an action plan to work towards continuous improvement. The following graph displays missed collections, tracked on a weekly basis, for the first two months of the new program under services provided by the new collection contractors. The results are as anticipated, with a decrease in the total number of missed collections from week to week for this period at the start-up of the new contract.

**Valid Contractor Complaints**

Since the start of the new collection program and collection contracts in January 2016, the total number of valid contractor complaints, which are directly attributed to collection operator performance, generally decreased from week to week. Please see Graph 3 on the next page.

Valid contractor complaints are regularly measured and monitored for the purpose of managing both waste collection contractors and reducing call volumes as it relates to operator performance and service delivery. Investigating specific complaint types will help identify retraining requirements and disciplinary actions required to ensure waste collection operators are adhering to the Region’s waste collection policies and procedures while providing quality service.

The general downward trend since January 2016 is the result of on-road staff efforts to educate residents, improved collection contractor performance (including familiarization with their new routes and smoother operation of their new automated vehicles) and residents accessing program information online. This trend of decreased contractor-related complaints was anticipated, however, it is acknowledged that there will be periods in which operational matters (such as weather, resourcing, heavy tonnages at the curb for collection, introduction of new programs, etc.) may impact either,
or both, of the contractors’ performance, and as a result, the number of valid contractor complaints reported by Peel residents will fluctuate.

Graph 3: Weekly Valid Contractor Complaints (January & February 2016)

Time-Off-Road

The contractual required vehicle time-off-the-road is 6 p.m., with liquidated damages being applied after 6 p.m. This earlier industry-standard off-road time (instead of the previous contracts’ 8 - 9 p.m. off-road time) was incorporated into the new collection contracts to address potential service failures and issues in accordance with good industry practices.

On a daily basis, the Region receives time-off-road reports from the collection contractors that state the last collection stop for each vehicle. This information is used to determine the average off-road time, the hour in which each vehicle completed collection, and any late off-road times. This gives the Region and the collection contractor an indication of how the contractor is performing and whether or not operational changes are required so as to improve the contractor’s completion times.

An analysis of the times-off-road showed an improvement/increase in the percentage of collection vehicles that completed collection by the required off-road time of 6 p.m. between January to February 2016, which is indicative and expected with the start-up of new collection contracts under a new collection program. In January, the per cent of trucks that completed collection by 6 p.m. ranged between 54 per cent to 86 per cent (depending on the collection zone) and between 91 percent to 97 per cent in February.

Collection Vehicle Maintenance Schedules

The collection contractors are required to arrange as necessary and report preventative and corrective maintenance records and odometer readings at the time of the maintenance for each waste collection vehicle. This contractual requirement encourages the contractors to uphold a regular maintenance schedule to ensure regular operation of the collection vehicles.

RECOVERY PLAN FOR SERVICE INTERRUPTIONS DUE TO EQUIPMENT MALFUNCTIONS OR NATURAL DISASTERS

The following sections outline some of the Region’s Plans and mechanisms that may be used to address and respond to natural disasters.
Emergency Response Team & Emergency Response Plan

The Region of Peel has a Regional Emergency Management (REM) Program, with a goal to further enhance Peel as a disaster resilient community: a community that’s better prepared to respond and recover from a significant emergency such as flooding, severe storms and earthquakes. REM works with the area municipalities to ensure that the Region is ready to respond to a significant emergency in Peel and to ensure that people living and working in Peel know about the potential hazards in their communities and have the knowledge they need to handle any emergency situation. The Region’s Emergency Plan (ROPEP) describes how the Region leads or supports the response to an emergency through Corporate and Departmental coordination and direction. The ROPEP is reviewed and evaluated each year to make sure it is up-to-date.

Business Continuity Plan

The Region of Peel has a Business Continuity Plan that helps outline measures in order to support and manage the response to an emergency (e.g. natural disasters), within the Region’s Public Works department to ensure the continued delivery of core services. The Waste Collection and Processing section’s contingency plans include program emergency response with respect to waste and debris management, service disruption of the waste collection contractor and shutdown or closure of the waste management facilities. The Plan is updated on an annual basis.

Force Majeure

In case of service disruptions due to natural disasters, specifications were incorporated into the collection contract surrounding “Force Majeure”, meaning all unforeseeable events beyond the control of either party that effect the performance of the contract by either party, including, but not limited to, acts of God, earthquakes, fires and floods. In the event that either the collection contractor or the Region is prevented or rendered unable by Force Majeure to carry out any of its obligations under the contract then such obligations of such party shall be suspended during the continuation of any inability so caused by the Force Majeure.

5. SAFETY

As described, safety was heavily considered and addressed throughout the planning phase of the new program and outlined in the specifications in the cart and collection service procurement documents.

Public, Health and Environmental Safety

There are several public, health and environmental safety elements that were built into the bi-weekly collection program:

- The carts are safer and more user-friendly. The carts are more ergonomic to maneuver than boxes, bags or cans, with ease of transportability due to the wheels. With carts, lifting is not required and there is a reduced number of trips to the curb as only one garbage or recycling and one organics cart is placed out for collection on any given collection day
- Free subscription walk-up service for those with medical issues
- Earlier required time-off road encourages collection vehicles to complete collections during the day and not during later, darker, evening hours
- CNG means fewer GHGs
General Safety Requirements of Contractors

The collection contract specified that all services performed by the contractors must be performed in accordance with all applicable safety laws and regulations.

The contractors were also required to develop a full training program to ensure every driver has complete familiarization with operations, public relations, safety procedures, applicable laws and regulations, policies and procedures in the performance of the services.

General Collection Vehicle Safety

All vehicles were required to be licensed by the Ministry of Transportation (MTO), meet all applicable safety laws, including the Ministry of Labour and/or MTO safety standards, specifically the Ontario Safety Standards Certificate and meet the provisions of the Canada Motor Vehicle Safety Act and the Regulations.

Additionally, all collection vehicles are equipped with either a rear-mounted back-up camera or 360 degree camera monitoring system and are required to be equipped with all mandated and/or legislated safety equipment, including, but not limited to, a fire extinguisher, first aid kit, flares and reflective triangles.

CNG Equipment Safety Requirements

The Region’s new fleet is comprised of brand new CNG collection vehicles with the requirement that all engines meet or exceed the appropriate Canadian engine emission standards at the time of manufacture.

CNG vehicles, facilities, including fueling stations, storage and maintenance facilities/yards, equipment and components must meet Canadian local, provincial and federal safety standards and applicable codes, standards and regulations and be certified as required by such codes, standards and regulations for any changes that may occur during the life of the contract.

Moreover, the contractor and its employees must be properly trained (and certified, as required) by the Original Equipment Manufacturers (OEMs) to operate and maintain natural gas-powered waste collection vehicles. The contractors were required to develop a training plan for drivers, which includes but is not limited to training on waste collection vehicle usage, engine operation, fueling procedures, storage, maintenance and safety. The contractors are expected to obtain training through other sources as they become available with respect to natural gas.

Reduction in Worker Injuries

The Region’s collection contract specified the use of fully-automated or semi-automated waste collection vehicles that are compatible with ANSI-compliant carts. Where fully-automated collection vehicles are used, carts are collected by a mechanical arm. With semi-automated collection, an operator manually retrieves the cart and brings it to the collection...
vehicle for automated collection by a mechanical tipper. Both collection methodologies are being utilized for automated cart-based collection, with the majority being fully-automated vehicles.

The shift from the old program’s manually-collected receptacles to the new program’s automated cart-based program reduces or eliminates repetitive and improper lifting that may result in worker injuries. Moreover, with the majority of the fleet being one-man operator collection vehicles, the driver is inside the vehicle the majority of the time thus reducing the likelihood of injury from being outside of the vehicle, which would be more likely with two-man operator collection vehicles such as rear pack vehicles. Region staff will work with the collection contractors to quantify and analyze the impact of the shift from all manual collection vehicles to automated vehicles on the reduction in worker injuries, accidents and injuries.

Collection Policies and Procedures

The Region provided the collection contractors with a written policies and procedures manual for the purpose of establishing guidelines for the performance of the services, for inclusion in the contractor’s employee training program. The contractors were required to submit to the Region a sign-off sheet for each employee to confirm the completion of training.

Safety-specific policies included: reporting weapons and ammunition found during collection, action on accidents, incidents, property damages and claims, and spill response and reporting. These policies define the procedures that will be followed for reporting, investigating and rectifying safety issues encountered during the waste collection process, which includes the immediate notification of the issue encountered, particularly related to safety violations, accidents, vehicle collisions, near miss, personal or other individual’s injuries or property damage and fire.

Contractor staff are held accountable for the above mentioned safety matters since a record of the incident, including details, action taken/outcome, are recorded and associated with the operator(s) involved, including any re-training required.

6. PUBLIC ACCEPTANCE, APPEARANCE AND AESTHETICS

The marketing and communication approach that supported the bi-weekly waste collection project was built upon focus group research. The findings clearly that determined residents understood, accepted, and reacted most positively to simple, clear, and concise messaging with accompanying visuals. Therefore, the project’s business objectives and three phases were supported by an evidence-based campaign with an integrated digital-first approach.

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<th>PHASE ONE</th>
<th>PHASE TWO</th>
<th>PHASE THREE</th>
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<tr>
<td>Residents know to select carts via digital self-serve tool</td>
<td>Residents know to store carts; they could not be used until Jan. 2016</td>
<td>Residents begin to properly set out carts on correct day and old methods aren’t being used</td>
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Also, the Region hired 24 contract staff to help educate residents and assist with collection issues, and the following additional tactics we used for community outreach and engagement:

- open houses
- pilot surveys
- user testing for the website
- specialized collection calendars for residents
- collection information onto the top of the carts using In Mold Labels (IMLs)