

PHASE TWO IMPLEMENTATION PLAN

FOR THE SECOND PHASE OF THE SORT-TOSS-ROLL AUTOMATED SOLID WASTE
COLLECTION SERVICES ROLL OUT



**GLOBAL AFFINITY
COMMUNICATIONS INC.**

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Submitted March 12, 2018



EXECUTIVE SUMMARY

The City of Nanaimo is rolling out phase two of the automated waste collection program during the summer, 2018. 20,000 households will receive three new carts (a green organics cart, a blue recycling cart and a black waste cart) delivered and scanned to their home address over the six-week delivery period. The successful implementation of phase one in October 2017 has assisted City staff in preparing for phase two, using a similar implementation and communications strategy, and incorporating lessons learned.



Image credit: City of Nanaimo

Two new automated trucks were purchased during phase one and are currently in use, and the remaining six trucks are set to arrive in spring, 2018.

Approximately 30% of the total number of carts were ordered and delivered in phase one, including all carts used during the swap out period.

The remaining 70% of carts will be ordered in April 2018.

Rehrig Pacific Company, the successful supplier, will manage the cart delivery process over the six-week delivery period, coordinating each truck to deliver one cart type to each home and ensuring each barcode is scanned to the correct address.

The communications strategy of phase two will build upon the success of phase one's communication strategy, utilizing multiple communications streams and updated online and print materials. City of Nanaimo residents will be exposed to program information through press releases, print advertising, newsletters, online information, downloadable materials, printed materials, videos, radio messaging and customized letters to residents participating in special programs. A series of new videos will be produced and promoted monthly leading up to and during the roll out, while radio ads will begin airing in May for the remainder of the year. Staff will also set up information exhibits and staffed educational displays at public locations around the City leading up to the roll out of phase two, (building upon the success of this initiative in phase one), as well as continuing to manage the Sort Toss Roll hotline. The free 'cart swap out month' was a success for phase one, and will occur in November for phase two households.

Project potential risks include: changes to the delivery schedule of the carts and/or trucks, the inability to secure a suitable staging area, and changes to the current organics processing facility. Steps to mitigate or avoid these risks are indicated in this report. Several considerations for the future have been identified, as well as opportunities to generate revenue that need to be addressed within the next 12 months.

After reviewing all plans, procedures and timelines for the implementation of phase two, Global Affinity Communications is confident the project will be delivered on time.



TABLE OF CONTENTS

EXECUTIVE SUMMARY2

PHASE ONE IMPLEMENTATION OVERVIEW4

 COMMUNICATIONS 4

 IMPLEMENTATION – CART DELIVERY 6

 CART SWAP OUT 7

 RESIDENTIAL FEEDBACK 7

 PHASE ONE RECOMMENDATIONS 9

 Administrative 9

 Operational..... 9

 Communications..... 10

 Trucks 10

 Carts 10

PHASE TWO IMPLEMENTATION PLAN.....11

 OPERATIONS PLAN 11

 Project Commencement..... 12

 Procurement Period 12

 Implementation Assistant Work..... 12

 Implementation - Phase Two Roll Out..... 12

 COMMUNICATIONS PLAN 14

 Communications Strategy Stream: Awareness Building 15

 Communications Strategy Stream: Participation Building and Evaluation..... 17

RISK MANAGEMENT PLAN18

 CAPACITY OF ORGANICS PROCESSING 19

 DELAY IN TRUCK DELIVERY..... 19

 POTENTIAL DELAY IN CART DELIVERY 19

 IDEAL CART STAGING AREA NOT AVAILABLE 20

FUTURE CONSIDERATIONS AND OPPORTUNITIES21

 CLOSURE OF NANAIMO RECYCLING EXCHANGE (SPRING/SUMMER, 2018) 21

 REVENUE GENERATION THROUGH TRUCK ADVERTISING (SUMMER, 2018) 22

 CHANGES TO THE CARRY OUT SERVICE (SUMMER, 2018) 23

 CHANGES TO MEDICAL PROGRAM (SUMMER, 2018) 24

 SATISFACTION SURVEY (SPRING, 2019)..... 24

 INCENTIVIZE HIGHER DIVERSION (SUMMER, 2019) 25

 NEW ROUTE TO MEET CITY GROWTH (SUMMER, 2019)..... 26

 CHANGES TO THE WASTE STREAM COLLECTION FREQUENCY (FALL, 2019) 26

 DRIVER SHIFT CHANGES (WINTER 2019)..... 27

APPENDIX A – DRAFT CARRY OUT SERVICE VERIFICATION FORM28

APPENDIX B – DRAFT MEDICAL SERVICE VERIFICATION FORM30



PHASE ONE IMPLEMENTATION OVERVIEW

Phase one of the Sort Toss Roll automated solid waste collection service was rolled out over a three-week period in October 2017 in central Nanaimo. 8,000 households received a set of wheeled carts: a blue recycling cart, a green organics cart (includes food and yard waste) and a waste/landfill cart. Residents of Nanaimo are well versed in waste reduction, having had weekly organics collection since 2014 and unlimited recycling curbside. Switching to the new automated waste collection system will help the City meet their goals of reducing workplace injuries by 75%, begin yard waste collection and make all waste collection easier, cleaner and more convenient for residents.

The implementation of phase one was a success due to a strong and diverse communications strategy, and the ability for the contractors to complete delivery within the given time frame.

COMMUNICATIONS



A sample of videos created to assist residents in understanding the new Sort Toss Roll program. Image credit: City of Nanaimo

The City of Nanaimo did an excellent job in communicating changes in curbside collection to residents in the phase one area. Staff used all possible communication channels, and kept the message clear and consistent.

Residents were informed through several press releases, print advertising, door hangers, newsletters, web and social media, downloadable materials, videos, radio messaging and customized letters.

The communication strategy used is leading the way in innovative awareness campaigns across North American municipalities.

Although there were several ways to obtain answers to most possible questions (through FAQ, webpages, videos and the guide), many residents had individualized questions about how the program would directly affect them. Their questions were best answered either in person, or by phone or email. This direct communication occurred one of three ways: 1) by responding to calls/emails on the Sort Toss Roll hotline, 2) speaking with residents at a public information display/event, or 3) talking to residents during the cart delivery.

1) The creation of the Sort Toss Roll hotline helped streamline calls and emails specific to the new program and provided residents with a qualified staff member to respond to their enquiries. Having the hotline also helped staff measure the types of questions being asked, which assisted with adjusting the communications strategy.

2) Having in-person conversations at public locations allowed residents to get a better idea of how the program will affect them personally. An information display was set up at Woodgrove Centre for residents to visit and learn about the program from July 4 to October 31, 2017. There were also several occasions where staff were present



and available to answer questions at public locations around the City, including Woodgrove Centre, Country Club Mall and Port Place Mall. Staff set up a public display with carts at Bowen Park Complex, Beban Social Centre, the Service and Resource Center, Oliver Woods Community Centre, Vancouver Island Exhibition and the Trunk Sale, which allowing residents to test out the carts for themselves. The majority of residents that visited one of these exhibits left with a better understanding of the new system. Awareness through public events played a very important role in the success of the phase one roll out.

3) The ambassador program provided a friendly face for residents to talk to about the new system as their carts were being delivered, offering an invaluable outreach. Global Affinity’s team of ambassadors talked to homeowners about how the new program would benefit them, how to place their carts on collection day, what items go in each of their three carts, and answered any other questions they had. This service allowed the delivery contractors to stay on task and continue their route, and homeowners received the one-on-one conversations they needed to feel confident about the new program. Ambassadors knocked on the door of every home during phase one. Ambassadors talked to residents at 36% of the total number of homes, and of those, 98% of residents were satisfied with the answers to their questions and/or with the program in general. This service reduced calls and emails to the hotline regarding common and specific questions.

Customized Communication

Residents living within the phase one area received several customized letters about when they would expect their carts to be delivered, when their new collection would began, what their new collection schedule would be and how the program would work. Homes with legal suites and non-strata fourplexes were also sent information explaining how they would receive a larger set of carts to accommodate two homes. Customized letters were also sent to residents participating in assistance programs such as the ‘carry out service’ and ‘medical program’. These situations were assessed on a case by case basis, and the delivery crew was asked to pull carts up driveways to the homes of residents that identified they were on such programs.



Residents also received new garbage collection calendar with a special symbol indicating when residents should start using their new carts. Image credit: Angela Mowatt



IMPLEMENTATION – CART DELIVERY

Ten routes were selected in Central Nanaimo to participate in phase one. 30% of the total 76,000 carts were ordered and delivered for the three-week delivery phase. From October 10-27, contractors loaded delivery trucks, each with all sizes of one cart type (i.e. one truck for blue recycling carts, one truck for green organics carts and one truck for black waste carts). Carts were assembled in the back of the trucks as crews worked through their delivery route.

This strategy meant that each delivery truck would pass through a neighbourhood before a home had its complete set. Each cart was scanned to the designated address and the address was written on the cart.



Waste cart delivery crew following the organics cart delivery crew. Image Credit: Global Affinity Communications

Boxes of Sort Toss Roll guides in stickered plastic bags were provided to the organics cart delivery crew, who stuck one guide on the top of each organics bin (one guide per home).

Carts were left, as they should be placed for collection, with the handles towards the house and a one-meter spacing between carts and other objects. Homes along roads with street parking had their carts placed either on the edge of their driveways or on the road with the wheels against the curb to ensure residents understood where to place the cart so the automated arm of the new trucks could reach it.



An ambassador was present with each delivery truck to talk to residents about the new system. Ambassadors knocked on doors and provided residents with an overview of the program, when their first collection will be and answered any of their questions. Over one third (36%) of residents within the phase one area received personalized information from an ambassador.

When the delivery trucks were empty, crews would return to the staging area to reload. Crews worked tirelessly to deliver all carts on time. Automated collection began one to two weeks after residents received their new carts.

A happy resident conversing with an ambassador. Image credit: Global Affinity Communications



With the delivery of their new carts, the majority of residents wanted to know what to do with their old carts. Because the City had purchased and delivered the organics carts in 2014, the City offered a free drop off location for clean carts at the Public Works yard.

Residents were encouraged to reuse their other plastic recycling or garbage collection containers, (i.e. use for storage, pet food, etc.) or to take them to a recycling depot.

CART SWAP OUT

Residents in the phase one areas were asked to try out their delivered cart sizes for three months. If they were unhappy with their cart size after that time, residents of single-family homes could upsize their recycling and waste carts at no charge during the month of February. Exchanges outside this time were subject to a \$25 fee, and residents would be billed for the additional waste collection if upsizing their waste cart. Exchange options for homes with suites and non-strata fourplexes included adding an extra recycling cart, and/or upsizing their garbage cart.

To book their exchange, residents called or emailed the Sort Toss Roll Hotline or filled in an online Cart Exchange Request Form on the City's website. Staff successfully completed all free swap out deliveries in the month of February.

RESIDENTIAL FEEDBACK

Since the implementation of phase one, resident enquires have dropped significantly to focus on cart change out options and splitting large sets of carts between suites and duplexes/fourplexes.

During implementation, ambassadors talked to 2,665 residents (over one-third of the homes delivered to). Of those residents, only 55 residents (2%) had an issue that needed to be resolved by referring him/her to a City staff member. The remaining 2,610 residents (98%) were either happy with the program, or were satisfied with the answers their received to their questions.

Lindsay Eason collected the following testimonials on March 1, 2018 in a neighborhood near Labieux Road. Lindsay walked around the neighborhood chatting with residents as they came out to collect their carts after collection to find out how they felt about the new system.

Please note: Each person featured in the testimonials below gave their permission to use their photo and/or testimonial in this report and subsequent presentation to council. Photo credits: Global Affinity Communications Inc.



“I love the new system! Nothing but the best. I do a lot of gardening and the green [cart] is always full.”

- Gordon Smidts

“I like the new system. I would love a bigger green bin for more yard waste, but besides that, it works well. But I never know when the trucks are coming because the new ones are so quiet!”

- Stuart Collins



“The system is good, easy to wheel and less physical, [and it] solves the issue of rain soaking the bags and bins and recycling flying down the street. Plus the [recycling] cart is big enough to fit everything.”

- Tom Star (no photo)

“I like the new system. I can't think of anything bad to say, they're great!”

- F.B (no photo)





PHASE ONE RECOMMENDATIONS

The major lessons learned during phase one of the Sort Toss Roll project implementation have become recommendations for the implementation of phase two. These recommendations have been incorporated into the implementation plan and should be reviewed prior to commencement to ensure that each action has been taken into consideration. Recommendations are broken down into five categories: administrative, operational, communications, trucks and carts.

ADMINISTRATIVE

1. **Software training:** Innovadel training needs to be refreshed now that the program has been implemented, and prior to phase two.
2. **Two sets of carts:** Properties described as bare-land strata with two homes need to receive two standard sets of carts, rather than an upsized set.
3. **Review fourplexes:** All fourplexes should be reviewed on a case-by-case basis to check access if they will be required to share two upsized cart sets.
4. **Upload data well in advance:** Allow ample time for uploading new routes into Tempest from Arc GIS, this is not a quick job.
5. **Adjust data:** Remove all new construction homes, vacant homes or empty lots from the delivery database that are not yet “move-in ready”. There was confusion as to whether to leave carts at homes or lots that were vacant. Residents will then have to order/pick up their new set once they move in to these locations.
6. **Address special programs:** Address how the new carts will affect residents currently using the ‘carry out service’ and ‘medical program’. Adjust criteria to ensure the program is cost-effective (noted in Future Considerations and Opportunities).

OPERATIONAL

1. **Alley Service:** Residents (and City administration) typically prefer alley service to communal collection points. In advance of going into alleys, City staff needs to do a trial run with a mid-sized manual truck to ensure the route will work. Residents will need to receive a letter detailing how their collection point has changed and the proposed start date for their new collection point.
2. **Optimize routes:** Optimal max-route size for large truck is (as anticipated) 650 stops per 8-hour shift. City staff should order a new truck for 2019. If not, utilize a night service staff member to wash and fuel collection trucks to maximize on-route time.
3. **Customized route map book:** In absence of turn-by-turn GPS option, each truck and driver needs a route map book. City staff can make one for each truck/driver when new routes are created.



COMMUNICATIONS

1. **Public engagement:** The communications program was a success, in particular, the door hanger and the Woodgrove Centre display.
2. **Special exceptions:** Send letters regarding homes noted as exceptions to all named owners, not tenants.
3. **Yellow bags:** The recycling contractor will not collect yellow bags following the final collection. This needs to be made clear to residents what to do with their yellow bags upon final collection.
4. **Collection Schedules:** Allow ample time to build new collection schedules and triple check for accuracy. Allow for a minimum of three weeks from sending the files to the printers to arriving at each residential address.
5. **Mail outs:** For large mailings such as collection schedules, use a mailing house or printer with in-house addressing equipment.
6. **Double booklets:** Provide two educational booklets on the cart to homes with a suite.
7. **Publicize delivery schedule:** Post the delivery schedule on the City's Sort-Toss-Roll webpage so residents know when to expect their delivery and when their new carts will be used for the first time. Publicize that the webpage will be kept up to date so residents know where to look for updated information before calling the hotline.

TRUCKS

1. **Training:** Provide ergonomic driver training in advance of beginning full-time shifts with the new automated trucks.
2. **Mirror improvements:** Make improvements to cats-eye mirrors on the trucks. See Kamloops trucks.
3. **Onboard scale operation:** Provide training on onboard scale operation to all drivers.
4. **Screen placement:** Review with staff and ergonomic specialist to find the optimum location for the onboard computer screen.

CARTS

1. **Staging area:** Secure a centrally located cart staging area with a hard surface.
2. **Communicate delivery logistics:** Cart delivery crews will deliver carts by type, not by set, meaning that each home will receive three separate drop offs. This makes logistical sense, however generates more phone calls from residents wondering when they will get their other carts. Make sure to communicate this to residents in advance.



PHASE TWO IMPLEMENTATION PLAN

Phase two will be carried out in a similar fashion to phase one, incorporating lessons learned and building upon delivery efficiencies.

The initial stages of phase two have already commenced as of January 2018, and will be carried out over a 13-month period. Roll out will occur over a six-week time period in the summer, 2018, with the free swap out month occurring in November.

Phase two is broken down into two parts, an operational plan and a communications plan.

OPERATIONS PLAN

The operations plan is organized into four subheadings: project commencement, procurement period (for organics collection), implementation assistant work, and phase two roll out. The table below indicates the operational tasks and timelines, followed by a discussion of the tasks to be completed within each subheading.

Table 1. Operations tasks and timeline

Task	Jan 18	Feb 18	Mar 18	Apr 18	May 18	Jun 18	Jul 18	Aug 18	Sep 18	Oct 18	Nov 18	Dec 18	Jan 19
Project Commencement													
Detailed project plan and review													
Communications plan													
GIS mapping of new routes													
Tempest data extraction													
Confirm data and roll out plan with RPC													
Innovadel phase two training													
Trouble shoot problem locations													
Confirm cart staging area													
Organics processing options/solutions	Research & present												
Procurement Period													
TENTATIVE Truck Advertising RFP				Prep	Award								
STR Implementation Assistant Work													
Contamination reduction program				Dev	Implement								
Promotional events and locations													
Cart swap database													
Phase Two Roll Out													
Crew training													
Milestone - Small truck delivered to yard													
Milestone - 2 large trucks delivered													
Milestone - 3 large trucks delivered													
Carts arrive at staging area													
Carts delivered to residents													
Milestone - All trucks operational													
Cart trial period (bags accepted)													
Cart swaps available											Free	Paid	Paid



PROJECT COMMENCEMENT

On the operational side of the project, all plans are to be finalized and reviewed by the end of March. During this early period of planning, City staff is also focused on ensuring all data is ready and in place for the new routes and all routes are to be mapped by GIS. Data will be extracted through Tempest and uploaded into Innovadel, and training for Innovadel will commence.

The back-end organization of the phase two implementation plan also includes confirming all data and roll out procedures with suppliers (Rollins Equipment and Rehrig Pacific Company), and securing an appropriate staging area for cart loading. Difficult delivery locations within the routes will be identified and troubleshot in advance; so all challenging locations are approached with a plan, providing ample time to communicate with residents about changes to collection locations.

PROCUREMENT PERIOD

The procurement period focuses on the potential issuing a request for proposal (RFP) for generating revenue by advertising on the automated trucks. This option is currently tentative and dependent on council approval.

IMPLEMENTATION ASSISTANT WORK

A temporary staff member will be hired to assist with the implementation of phase two. The main job of the assistant will be to develop and implement a contamination reduction program to reduce the amount of contamination in each of the three waste streams. Educational videos, radio and print materials will be developed within the communications plan to assist with the contamination reduction program. There will also be an emphasis on attending public events and providing public outreach leading up to the roll out to showcase the correct way to use the carts and which items go in which cart.

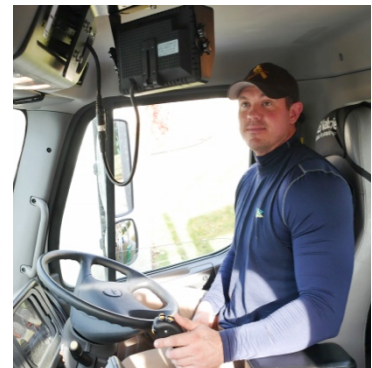
The assistant will then continue working after the roll out to assist with updating the cart swap out database, and continuing to implement successful measures to reduce contamination issues.

IMPLEMENTATION - PHASE TWO ROLL OUT

The roll out of phase two will begin with training all staff and contracted crew on the delivery routes, technology and public communication. Staff and contractors will meet to go over the implementation schedule, procedures, safety protocols and risk management options. Trucks will be delivered in stages (as they are ready) from May 14 to June 4. The trucks will be up-fitted in the public works yard and drivers will be trained. All trucks will be operational by July 30 and all drivers fully trained.

The remaining 70% of the carts have been ordered and will be shipped to the designated staging area beginning June 11, 2018. Each week a new shipment of carts will arrive, and those carts will be delivered the following week. Carts delivery will likely commence by the end of June, for six consecutive weeks.

The delivery of phase two will be the same as phase one.



*Automated truck driver.
Image credit: City of
Nanaimo*



Each morning, contractors will load each delivery truck with one type of cart. They will confirm route details and test each scanner to ensure they have the correct data uploaded for each route. Each truck will then pass through the route assembling and delivering one of each type of cart per household, scanning the barcode for each address. Carts will be placed in front of the house as they are to be placed out for collection, one meter apart from each other and other options, and avoiding obstructing traffic. When the trucks are empty, crews will return to the staging area to reload.



A complete set of carts delivered by three separate delivery trucks. Image credit: Global Affinity Communications Inc.

City staff will work closely with contractors to troubleshoot any issues that arise during delivery, mitigating all risks and ensuring the project is completed on time.

The phase two roll out ends with a three-month cart trial period, where by residents are asked to use and try the carts that were delivered before booking to swap sizes. During this time, additional bagged waste will still be accepted. The free cart swap out month is November, and the fee will be \$25 to swap the cart sizes after this period of time.



COMMUNICATIONS PLAN

The communications plan for the implementation of phase two is currently underway. The successful implementation of phase one has refined the plan into two strategy streams: Awareness Building and Participation Building and Evaluation.

Awareness Building: The plan includes a well-rounded general awareness campaign that reaches residents in all media forms before and during the roll out. This campaign also includes personally reaching out to residents with special collections issues. The City’s communications department will do the majority of the creative design in-house.

Participation Building and Evaluation: Once implementation is complete, additional print ads and a video will help residents understand the cart resizing options and free swap out month. Program evaluation will commence with a plan to survey, evaluate and report on the implementation program, as well as to gather information that will enhance participation.

Table 2 provides an overview of the communications plan over a 13-month timeline.

Table 2. Communications plan overview

Communications Timeline	Jan 18	Feb 18	Mar 18	Apr 18	May 18	Jun 18	Jul 18	Aug 18	Sep 18	Oct 18	Nov 18	Dec 18	Jan 18
Awareness Building	Hotline, web updates, social media, press releases												
Online Communications													
Print Communications		Develop		Print and Deliver									
Radio Advertising		Dev	Execute										
Video Production	Develop		Promote										
Community Outreach			Outreach										
Other Communications Initiatives			Council	Staff training					Council				
Participation Building and Evaluation													
Advertising													
Program Evaluation			Apply for awards							Evaluation			

Each communications strategy stream is broken down below, providing additional discussion and timelines for development and execution.



COMMUNICATIONS STRATEGY STREAM: AWARENESS BUILDING

The first communications strategy for phase two of the Sort Toss Roll implementation will begin with a strong awareness campaign, including boosting public awareness through print materials, custom letters, online updates, radio and video, as well as hosting public displays and attending community outreach events.

Materials developed in phase one, such as the FAQ and Sort Toss Roll Guide (see image), will be updated and reprinted for distribution.

When nearing the start of phase two roll out, residents will receive their new schedules, and an informative door hanger to let them know their new carts will be delivered soon.

All radio messaging and videos will be geared towards how to use the new system with tips and examples on how to set out their and reduce contamination.

The Sort Toss Roll guides will be printed and delivered to each home with their new set of carts (likely on the organics cart again).



Printed materials from phase one to be updated. Image credit: City of Nanaimo

During the awareness campaign, customized letters will be sent to residents with special collections exceptions, such as homes with suites and residents participating in assistance programs.

These residents will be made aware of all changes to their carts in advance of delivery. During phase one, residents with suites were well aware that they would be receiving a larger set of carts to accommodate both homes. It is anticipated that communication on this matter will be equally effective. All larger sets of carts will receive two guides, one for each home/suite/duplex/fourplex sharing the set.

The following table outlines the specific tasks and creative production within the Awareness Building strategy stream. All timeline dates are for 2018 unless otherwise specified.



Table 3. Communications Strategy Stream: Awareness Building

AWARENESS BUILDING TASKS	PRODUCTION TIMELINE	PLACEMENT/ EXECUTION
1. Online Communications		
a. Sort Toss Roll hotline and email address		January - January '19
b. City webpages	February	March - January '19
c. City newsletter	January	February
d. Social media – promotion of videos/key messages	March	December
e. Press releases	March - June	April - November
2. Print Communication and Advertising		
a. FAQ booklet	March	April - June
b. The factsheet	March	April - June
c. Print ad "Sort Toss Roll: The Facts"	March	April - June
d. Door hanger	March	April - June
e. Truck signage	March	April - June
f. Sort Toss Roll guides – delivered with carts	February	June - July
g. Print ad "Sort Toss Roll Coming Soon"	February	April - June
h. Recollect automation edition- graphic design, etc.	April	May - January '19
i. Letters to suites and exceptions	February	March - May
j. Assistance programs and eligibility	March	June - July
3. Radio Advertisement		
a. "Download the App"	February	February
b. "Contamination"	February	Mid March
c. "Automation is Coming"	February	Late March
d. "New Calendar"	February	Early April
e. "Carts are Being Delivered"	February	April - May
f. "Automation is Here"	February	Early June
g. "Trunk Sale"	February	Late June, Early July
h. "Contamination"	February	August, October
i. "Free Swap Month for Carts"	February	September
j. "Christmas Message"	February	December
4. Video Production		
a. Automation phase two into	March	April - June
b. At the recycling facility	January	February – June
c. Automation user guide video	March	April - June
d. Automation tips	May	June - August
5. Community Outreach		
a. Displays in City facilities		April – June
b. Trunk sale		July
c. Vancouver Island Exhibition		August
6. Other Communication Initiatives		
a. Staff orientation and training		April - June
b. Council briefings		March, September



COMMUNICATIONS STRATEGY STREAM: PARTICIPATION BUILDING AND EVALUATION

Once the awareness campaign is implemented, communications will shift to educate residents on how to upsize their carts and when, and will include print advertising and a resizing video. The City will also evaluate the program with a survey to understand how residents feel about the new system and whether there are any areas that require additional communication, followed by data analysis and reporting. The evaluation process will occur in spring, 2019. More information about the survey can be found in future considerations and opportunities. Table 4 provides an overview of the participation building and evaluation stream tasks and timeline. All timeline dates are for 2018 unless otherwise specified.

Table 4. Communications Strategy Stream: Participation Building and Evaluation

Table with 3 columns: PARTICIPATION BUILDING AND EVALUATION TASKS, PRODUCTION TIMELINE, and PLACEMENT/ EXECUTION TIMELINE. Rows include Advertising (Print ad, Resizing video, City newsletter) and Program Evaluation (Apply for recognition awards, Evaluation survey, Evaluation analysis and reporting).

Applying for Recognition Awards

The City also wishes to apply for recognition awards to showcase their innovative approach to rolling out the automated waste collection program. Possible award submissions will be to:

The Solid Waste Association of North America (SWANA) for the 'Awareness Campaign Excellence Award', which recognizes "excellence in the creation and implementation of a communication, education or marketing campaign aimed at informing audiences of environmental information relating to a particular issue or solid waste management program, project or organization. Entries for this category should involve a communication plan for the implementation of a variety of communication tools used together to achieve maximum reach in your community". Application deadline is April 16, 2018.



For more information, visit https://swana.org/Awards.aspx.

Union of BC Municipalities (UBCM) Community Excellence Awards Program showcases leaders in innovation and within BC municipalities and regional districts. Awards are given to communities that rise above challenges with strong vision, creativity and teamwork. Possible submissions will be for the 'Best Practices: Community Connections Award', or the 'Leadership and Innovations: Green Initiative Award.' Application Deadline is June, 2018.



For more information, visit http://www.ubcm.ca/EN/main/convention.html.

Additional awards will be sought throughout the year, and following the implementation of phase two.



RISK MANAGEMENT PLAN

City staff are working to avoid all potential risks, however four risks have been identified that could affect the proposed project timeline and/or budget. The following table identifies each potential risk and the ranking of the potential outcome.

Table 5. Risk registrar

Risk Name	Probability	Impact	Risk Rank	Risk Response	Risk Owner
Capacity of Organics Processing	1	1	Low	Mitigate	CoN, RDN, NOW
Delay in truck delivery	2	4	Significant	Avoid	CoN, Rollins Equipment
Delay in cart delivery	1	4	Moderate	Avoid	CoN, RPC
Availability of ideal staging area	1	2	Low	Mitigate	CoN

Risk Owners

- CoN – City of Nanaimo
- RDN – Regional District of Nanaimo
- NOW – Nanaimo Organic Waste
- RPC – Rehrig Pacific Company

The table below outlines how the risk outcomes are calculated based on the probability and potential impact.

Table 6. Risk outcomes

Probability	Impact				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	5	10	15	20	25
Likely 4	4	8	16	16	20
Possible 3	3	6	12	12	15
Unlikely 2	2	4	8	8	10
Rare 1	1	2	4	4	5

Risk Outcomes Chart Legend	Low	Moderate	Significant	High
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Each risk noted in the risk registrar table is listed below with additional background information and mitigation strategy.



CAPACITY OF ORGANICS PROCESSING

Probability: **LOW**

Background: Organics are processed by Nanaimo Organic Waste (NOW). This facility will be undergoing upgrades and will continue to process organics for all collected organics post phase two.

Mitigation: The City is confident that it will be able to continue to work with the RDN to process organic materials in an ongoing fashion with their contractor, Nanaimo Organic Waste.

DELAY IN TRUCK DELIVERY

Probability: **SIGNIFICANT**

Background: The final six automated trucks are supplied by Rollins Machinery and are due to be delivered between May and June. The fleet and sanitation departments are receiving weekly updates on the progress of the trucks to ensure all trucks will be operational for July 30.

Mitigation: It is ideal to avoid further delays. The implementation plan allows a six-week window between the expected delivery date and the time the trucks would need to be up-fitted in the yard prior to their roll out. The change in delivery will have a significant effect on the timeline of the project, causing rescheduling of all other aspects of phase two.

POTENTIAL DELAY IN CART DELIVERY

Probability: **MODERATE**

Background: The carts are manufactured and supplied by Rehrig Pacific Company (RPC). RPC operates on a “just in time” methodology meaning that carts are manufactured two to four weeks before they are shipped. This also means they are shipped less than one week before residential delivery commences. The RFP for the cart manufacture and supply took into consideration the ability to deliver carts on time, and several references were checked before being awarded the contract.

Mitigation: The same contractor was used during phase one, and they delivered the carts on time and with favorable reference checks. The City of Nanaimo has scheduled residential delivery to commence mid June, which means the carts will be delivered one week prior. It will take six weeks to deliver all carts. Changes in timing by the City of Nanaimo (or other noted risks) may impact the ability of RPC to deliver the carts when specified, as they tend to schedule municipal deliveries relatively far in advance, especially during spring/summer. In communicating potential changes with the contractor, City staff will also confirm the effects on delivery truck rental agreements and delivery team availability.

**IDEAL CART STAGING AREA NOT AVAILABLE****Probability:** **LOW**

Background: During phase one, the initial cart staging area was where the carts were delivered, an area near the airport. After the second day of delivery during phase one, it was identified that having a staging area centrally located in the City would reduce loading time by over an hour, resulting in more carts delivered per day. The exhibition grounds in Beban Park became the new staging area and the remaining carts were delivered to this location to complete the project. However, this was not an ideal staging area, as it did not have a large hard surface. City staff is working with RPC to identify a more suitable staging area in advance of cart delivery.

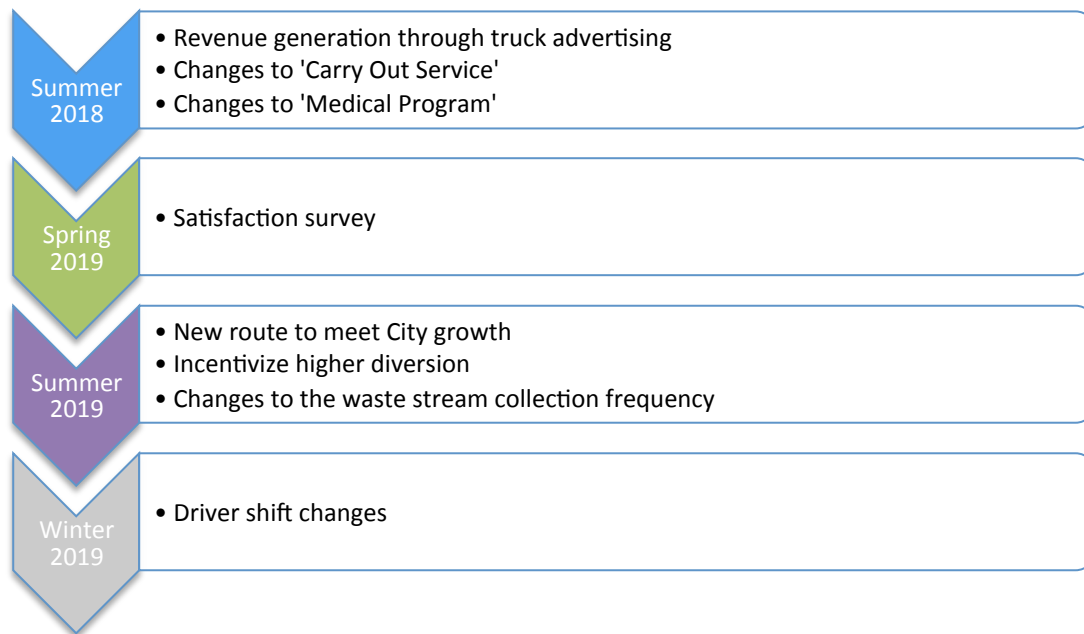
Mitigation: In the unlikely event that a suitable staging area is not found in time for the roll out to begin, the Public Works yard will become the staging area as it has a hard surface and enough space to receive cart shipments.



FUTURE CONSIDERATIONS AND OPPORTUNITIES

Learning from other automated communities, and reviewing the long-term future plan for the City of Nanaimo, the following future considerations should be reviewed and incorporated into future planning and communications. Three of the eight future considerations/opportunities should be reviewed as soon as possible as they will affect the program and further public communication in 2018. The remaining five items are to be considered for 2019.

Figure 1. Timeline of future considerations and opportunities



CLOSURE OF NANAIMO RECYCLING EXCHANGE (SPRING/SUMMER, 2018)

The Nanaimo Recycling Exchange (NRE) will cease operations in March/April 2018.

The NRE recycles 8,000 tonnes of waste a year. The assumption has been made that with the closure of this depot, additional recyclable material will end up in the residential collection system. While it is challenging to predict the proportion of recyclables that will be put out for curbside service, factors for considering the impact of this situation include:

- 83% of NRE users are City residents, however it is unknown as to how many of these users receive curbside service
- The NRE recycles for Zero Waste; many of the items collected are not able to be recycled elsewhere





- Impacts could include increased garbage/landfill material and increased contamination of the curbside-recycling stream caused by “wish-cycling” and misinformation/confusion

In preparation for this closure, staff will develop a strong communication strategy to remind residents of their disposal options and review curbside contamination. Promotion of the Nanaimo Recycles app will help residents figure out where to take their recyclables that cannot be collected curbside.

REVENUE GENERATION THROUGH TRUCK ADVERTISING (SUMMER, 2018)

Much like transit bus advertising, there is potential to generate revenue from the sale of advertising space on the side of refuse collection trucks.

Preliminary discussions with advertising sales agencies have suggested potential annual revenues of between \$50,000 and \$100,000. It is suggested that the sale of advertising space is handled externally and as such staff would need to work with the purchasing department to release a request for proposals for this service.



Automated truck with messaging on the side. Image credit: City of Nanaimo

The scope for these services would need to detail the City’s limitations on which products are permissible to be advertised and should limit the shortest advertising period to a minimum of 2 months to minimize disruption.

Additionally, it is recommended that the installation of the advertisements is the responsibility of the sales agency. It is anticipated that the new sanitation fleet will use plastic wraps applied directly to the vehicle body.

The value of sale of this space will need to be weighed against the loss of identity and the loss of promotional space available to the City (the space is typically used to promote City initiatives, particularly recycling messages).



CHANGES TO THE CARRY OUT SERVICE (SUMMER, 2018)

The 'carry out service' is currently available for residents who are living alone and are not physically able to place their waste at the curb for collection.

The waste is collected from a pre-agreed location from the resident's property and placed in the garbage truck by the refuse collector. The current rules for waste pick up are:

- Garbage must be placed in black bags tied at the top
- Organics must be placed in compostable bags tied at the top. Food waste only accepted (no yard waste)
- Recycling must be placed in wheeled blue cart

The program is currently available, but not publicly advertised. It should be noted that this service is supplementary to the waste collection service and it not typically offered by similar municipalities. This service is a "nice to have" service, and the City enjoys providing it to residents at no charge. However, if the number of applicants to the service grows significantly, it will impact the City's ability to deliver waste collection service in an efficient and cost-effective manner, which could result in the need to cancel the service. For these reasons, the eligibility needs to be defined in a set of criteria and there can be no exceptions. Residents receiving the service are asked to immediately notify the City if a change in their circumstances should occur.

Suggested Criteria

The resident must answer 'yes' to the following statements:

- Resident lives alone (no other tenants on the property)
- Resident does not have a close neighbour or family member who is willing to put waste at the curb for them
- Resident's mobility is impaired such that they are not able to wheel their carts to the curb
- Resident has a medical note to prove their eligibility for the service

To begin implementation, Global Affinity Communications has drafted a verification form (see Appendix A). The program will be communicated via the City's website, and through VIHA staff who work in the community, to provide information directly to potential qualifying residents. Interested applicants will call Public Works and explain their situation. If staff believe they qualify, a sanitation staff member will visit the resident's home to complete the verification form and agree upon a collection point, as well confirm that the residents meets all the requirements. Sanitation staff will receive training on this new approach to registering residents.

It is advised that this service be added to the City's solid waste bylaw following the implementation of phase two. Collecting a fee for this service should be considered in advance of cancelling the service.



CHANGES TO THE MEDICAL PROGRAM (SUMMER, 2018)

The Medical program is available for residents who have certain medical conditions that result in them producing excessive waste.

Residents who meet eligibility requirements are entitled to have their black cart upsized. However, this will not be done as a default because the regular sized wheeled carts offer 55% more capacity for waste when compared to manually collected carts and bags. Residents must prove that, as a result of their medical condition, they have more waste than can be contained in the standard sized black wheeled cart.

Similarly to the Carry Out Service, the Medical Program service is supplementary to the waste collection service and is not typically offered by similar municipalities. If the number of applicants significantly increases, changes will either need to be made or the service cancelled to ensure the program is cost effective. Eligibility criteria must be defined with no exceptions. Residents currently receiving the service are asked to notify the City if a change in their circumstances should occur.

Suggested Criteria

The resident must answer 'yes' to one or more of the following statements:

- Resident is a recipient of dialysis
- Resident is a recipient of wound care
- Resident has a brain injury or brain related illness

As well as answer yes to the following statement:

- Resident has a medical note to prove their eligibility for the service

Similarly to the Carry Out Service, Global Affinity Communications has drafted a verification form (see Appendix B). The program will be communicated via the City's website, and through VIHA staff who work in the community, to provide information directly to potential qualifying residents. Interested applicants will call Public Works and explain their situation. If staff believe they qualify, a sanitation staff member will visit the resident's home to complete the verification form and confirm that residents meets all the requirements and needs to upsize their waste cart. Sanitation staff will receive training on this new approach to registering residents.

The City is advised to add this service to the City's solid waste bylaw following the implementation of phase two. Collecting a fee for this service should be considered in advance of cancelling the service.

SATISFACTION SURVEY (SPRING, 2019)

Once residents have been using the system and the cart swap outs have occurred, the City will conduct a survey to identify resident's level of satisfaction with the program, as well as identify opportunities to further improve waste reduction.



Upon completion of phase two cart exchanges, it would be valuable to measure and report on the success of the program in terms of user satisfaction. The survey should be accessible to all (online and paper formats) and be widely promoted.

Key survey areas will measure the following:

- Satisfaction with managing change (how well was the change communicated?)
- Satisfaction with carts
- Satisfaction with collections on route
- Satisfaction with the program overall
- Gauge whether residents would support future initiatives such as improving diversion rates (through incentivized diversion) and changes to waste stream collection frequency
- Identify if any areas of the program require further changes

A survey will be drafted and approved for spring 2019. The survey will be available online, utilizing the City's online marketing channels. The survey should be incentivized with a prize draw and a solid deadline, and should be relatively short (take five minutes to complete). Any mailed correspondence can include the link to the survey, and they City will look into direct emailing residents that contacted the City through the hotline.

INCENTIVIZE HIGHER DIVERSION (SUMMER, 2019)

Once both phases of project are fully implemented, the City will begin to work on improving the diversion rate.

The most effective way to increase diversion is to incentivize residents to recycle more and throw away less by introducing "a pay as you throw system". The RFID technology inside the wheeled carts gives the City the ability to keep track of how often residents set out their carts. By allowing unlimited set outs of recycling, and only 12 set outs of garbage and organics annually as part of the base fee, residents would hopefully look to recycle more. Every additional set out of garbage or organics would be billed as extra, tracked by the RFID technology. One anticipated additional benefit to this practice is that decreased weekly participation should reduce strain on collection routes, improving efficiencies and incentivizing residents to be very mindful of their waste.



This program is successful in Beaconsfield, QC, and is called Smart Collection. This community will act as a model for the City of Nanaimo's future program. More information can be found at <https://www.beaconsfield.ca/en/incentive-tariff-approach-1>

*Andrew Duffield, Director of Public Works,
Beaconsfield, QC. Image credit: Beaconsfield.ca*



NEW ROUTE TO MEET CITY GROWTH (SUMMER, 2019)

Population growth will have an impact on the capacity of waste collection in the City of Nanaimo.

Since 2015 sanitation staff have indicated that a new refuse collection route is needed once the number of collections reaches 29,000. Since it is predicted that this number will be reached at the end of 2018, staff recommends a new route be implemented in early 2019.

How to Implement

In order for this to be done with minimum interruption to scheduling and routing, a truck should be ordered by late 2018 to begin service in summer 2019. Collection route efficiencies are the same with automation as they are with manual collection (in fact they are higher with the incorporation of yard waste collection). The new route would require one additional staff member in addition to one full-sized automated truck. Should staff not wish to move forward with this request to Council at this time, it is recommended that the temporary use of a night service person to alleviate some of the refuse collector’s workload would be a short term solution.

CHANGES TO THE WASTE STREAM COLLECTION FREQUENCY (FALL, 2019)

Based on volumes of waste by stream since implementing phase one, an alteration to the collection frequency of the organics and recycling streams should be investigated.

The 240L blue cart has limited the amount of recycling residents can put out curbside. Early indications of the phase one waste collection volumes indicate that residents reach capacity on their recycling volume before they reach it on organics. Refuse collectors report a large number of organics cart are placed at the curb with very small amounts of waste inside, but this may change in the summer once yard waste season commences, however.

It is suggested that staff monitor the volumes of organic waste in the summer months of 2018 before making any recommendations. A full cost-benefit analysis of the potential change would be required before any alterations are put in place.

If these indications prove true, it may be beneficial to increase the collection frequency of recycling from biweekly to weekly collection and in turn to reduce the collection of organics from weekly to biweekly.

Additionally, the potential to “pay as you throw” may also reduce this concern (see “Incentivizing Higher Diversion” for details).

Figure 2. Proposed changes to the collection frequency

Current Collection Frequency by Stream

Organics	Recycling	Garbage/Landfill
Weekly	Biweekly	Biweekly



Potential Collection Frequency by Stream

Organics	Recycling	Garbage/Landfill
Biweekly	Weekly	Biweekly



DRIVER SHIFT CHANGES (WINTER 2019)

Collection schedules change each month due to stat holidays. These ‘add-a-day’ schedules can be confusing for residents and costly to continuously print.

In 2017 City Council asked staff to report back on the suitability of moving to a fixed collection schedule (rather than the ‘add-a-day’ schedule). Sanitation staff worked with payroll to find the most cost effective way of doing this. Currently, employees have 5 - 8 hour shifts per week, and do not work holidays, causing a shift in resident’s collection day. It was ascertained that moving to a four day week and working ten-hour days (Tuesday to Friday) would be the most affordable way of doing this. Early discussions with CUPE were positive. Benefits to residents would be less confusion and an easy to follow schedule, with the same collection day each week all year long.

Prior to recommending this change to Council, a full cost benefit analysis of the potential change would be required. The cost is expected to be around \$100,000 annually, however, there would be savings in terms of annual calendar publication.



APPENDIX A – DRAFT CARRY OUT SERVICE VERIFICATION FORM

Carry Out Service Verification of Eligibility

The purpose of this form is to obtain information about the applicant’s physical and/or cognitive functional ability, verifying that he or she is unable to participate in the City of Nanaimo’s regular curbside waste collection service and requires additional waste collection support.

This form is to be filled out by sanitation staff at the applicant’s home during an onsite visit. The onsite visit will help staff understand whether the resident meets the program eligibility requirements and allows staff to identify an agreed upon waste collection point. This form must be completed in full and returned to public works.

Applicant Information

First and Last Name:			
Phone:		Age:	
Email:			
Street Address:			
Mailing Address (if different from above):			
Reason for joining program:			

Eligibility Requirements (All must be checked)

- Resident lives alone (no other tenants on the property)
- Resident does not have a close neighbour or family member who is willing to put waste at the curb for them
- Resident’s mobility is impaired such that they are not able to wheel the new automated carts to the curb
- Resident has a medical note to prove their eligibility for the service

The pre-agreed waste collection location is: _____

- I certify that I have verified the above requirements, identified the pre-agreed waste collection location for waste, recycling and organics, and the applicant understands this change in service.

Signature (City staff)

Signature (applicant)

Print Name (City staff)

Print Name (applicant)

Return the Verification of Eligibility form to Public Works. Please leave qualifying applicant with page two.



Carry Out Service Waste Collection Participant

Address: _____

Date: _____
First collection date: _____

Dear _____,

You are eligible to receive the 'Carry Out Service' from the City of Nanaimo.

This means that as of the date noted above, your waste will be collected from a pre-agreed location on your property and placed in the waste collection truck by the refuse collector.

Your pre-agreed waste collection location is: _____

The rules for waste pick up are:

- Garbage must be placed in black bags tied at the top
- Organics must be placed in compostable bags tied at the top. Food waste ONLY is accepted (no yard waste)
- Recycling must be placed in your wheeled blue cart

To maintain eligibility, you must meet the following criteria:

- You live alone (no other tenants on the property)
- You do not have a close neighbour or family member who is willing to put waste at the curb for you
- Your mobility is impaired such that they are not able to wheel your carts to the curb
- You have a medical note to prove your eligibility for the service

If your circumstances change, you must notify staff at Public Works by calling 250-758-5222 or sending an email to SortTossRoll@nanaimo.ca as soon as possible.

The City of Nanaimo reserves the right to perform random visits to confirm continued program eligibility. You must notify Public Works if your circumstances change and you are able to resume regular waste collection services.

Signature (City staff)

Print Name (City staff)



APPENDIX B – DRAFT MEDICAL SERVICE VERIFICATION FORM

Medical Service Verification of Eligibility

The purpose of this form is to obtain information about the applicant’s medical condition, verifying that he or she requires a larger wheeled waste cart that what was provided by the City of Nanaimo, at no additional cost. *Upsizing a cart will not be done by default, since the new carts offer 55% more volume than a typical garbage can.*

This form is to be filled out by sanitation staff at the applicant’s home during an onsite visit. The onsite visit will help staff understand whether the resident meets the program eligibility requirements and allows staff to identify an agreed upon waste collection point. This form must be completed in full and returned to public works.

Applicant Information

First and Last Name:			
Phone:		Age:	
Email:			
Street Address:			
Mailing Address (if different from above):			
Reason for joining program:			

Eligibility Requirements

- Resident has a medical note to prove their eligibility for the service (must have)

Resident has one of the following (check one)

- Resident is a recipient of dialysis
- Resident is a recipient of wound care
- Resident has a brain injury or brain related illness
- Other: (describe) _____

To be completed by City staff member

- I certify that I have verified the above requirements, identified that the applicant requires a larger waste cart at no additional cost.

Signature (City staff)

Signature (applicant)

Print Name (City staff)

Print Name (applicant)

Return the Verification of Eligibility form to Public Works. Please leave qualifying applicant with page two.



Medical Service Waste Collection Participant

Address: _____

Date: _____
Date of delivery: _____

Dear _____,

You are eligible to receive a larger wheeled waste cart as part of the 'Medical Service' from the City of Nanaimo, at no additional charge.

To maintain eligibility, you must meet one of the following criteria:

- Be a recipient of dialysis
- Have a brain injury or brain related illness
- Be a recipient of wound care
- Other: (describe) _____

If your circumstances change, you must notify staff at Public Works by calling 250-758-5222 or sending an email to SortTossRoll@nanaimo.ca as soon as possible. If you do not require continued medical service, your upsized cart will be collected and your original sized cart will be returned to you.

The City of Nanaimo reserves the right to perform random visits to confirm continued program eligibility. You must notify Public Works if your circumstances change and you are able to resume regular waste collection services.

Signature (City staff)

Print Name (City staff)