Appendix D

Multi-Residential Diversion/Reduction in York Region

June 20, 2019

Background

In 2013, York Region (the Region) and its nine local municipal partners developed and approved the Integrated Waste Management Master Plan (SM4RT Living Plan) to identify more than 60 initiatives for waste management in the Region over the next 25 to 40 years. As part of the SM4RT Living Plan, a Multi-Residential Waste Strategy was developed to address growing concerns related to low recycling and high contamination rates within multi-residential buildings. Waste management services are delivered to residents through a two-tier structure in York Region where local cities and towns manage curbside collection of waste, including collection at multi-residential buildings, and York Region is responsible for waste processing and disposal.

As the Region's communities welcome new growth over the next decades, the shift towards higher population density will continue. From 2011 to 2019, apartment units have increased by 50.3% to 18,990 units. While this growth represented the fastest growing dwelling type when compared to detached and semi-detached which increased by a combined total of 9.3% (9.0% for detached and 12.0% for semi-detached), the rate of growth has not transpired as originally forecasted in the SM4RT Living plan at 68.4% (27,206).

Higher density developments can make it more complicated to deliver waste collection services. Multi-residential buildings continue to pose challenges for municipalities due to a range of factors and building design features, such as limited in-home storage, inconvenient access to recycling bins, insufficient number of disposal containers, lack of waste program messaging and limited enforcement. Since 2013, York Region and its local municipal partners have undertaken various initiatives within multi-residential buildings to address these issues including:

- Testing the feasibility of in-unit countertop composters;
- Developing and implementing a multi-residential database for all local municipal partners to use;
- Conducting multi-residential waste audits;
- Facilitating swap tables/share rooms;
- Launching textile/WEEE collection pilots;
- Conducting RFID and volume-based assessments;
- Launching multi-residential food waste diversion program;
- Developing promotional and educational (P&E) materials;
- Create template of development standards for local municipalities.

In 2019, EcoCompass Inc. was retained by the Region to conduct a review of the initiatives undertaken since 2013 and identify best practices and new technologies to support the Region in continued implementation of the SM4RT Living Plan. This document summarizes the current issues/challenges affecting multi-residential buildings, and outlines recommended next steps for York Region and its local municipal partners. These recommendations are informed by initiatives and best practices observed in other jurisdictions.

Current Issues

The Region has conducted waste audits in 2013, 2015, 2016 and 2017 to track the effectiveness of waste diversion programs in various multi-residential buildings. Waste audits conducted in 2017, included 25 multi-residential buildings from Aurora, Newmarket, Richmond Hill and Vaughan who responded to the Region's request for participants. These buildings offer either two or three stream collection services, had between 50-250 units each and various building

design features for waste programs including chutes and tri-sorters accessible on each floor or garbage rooms/areas where residents would have to bring down their waste (See Table 1 for building characteristics).

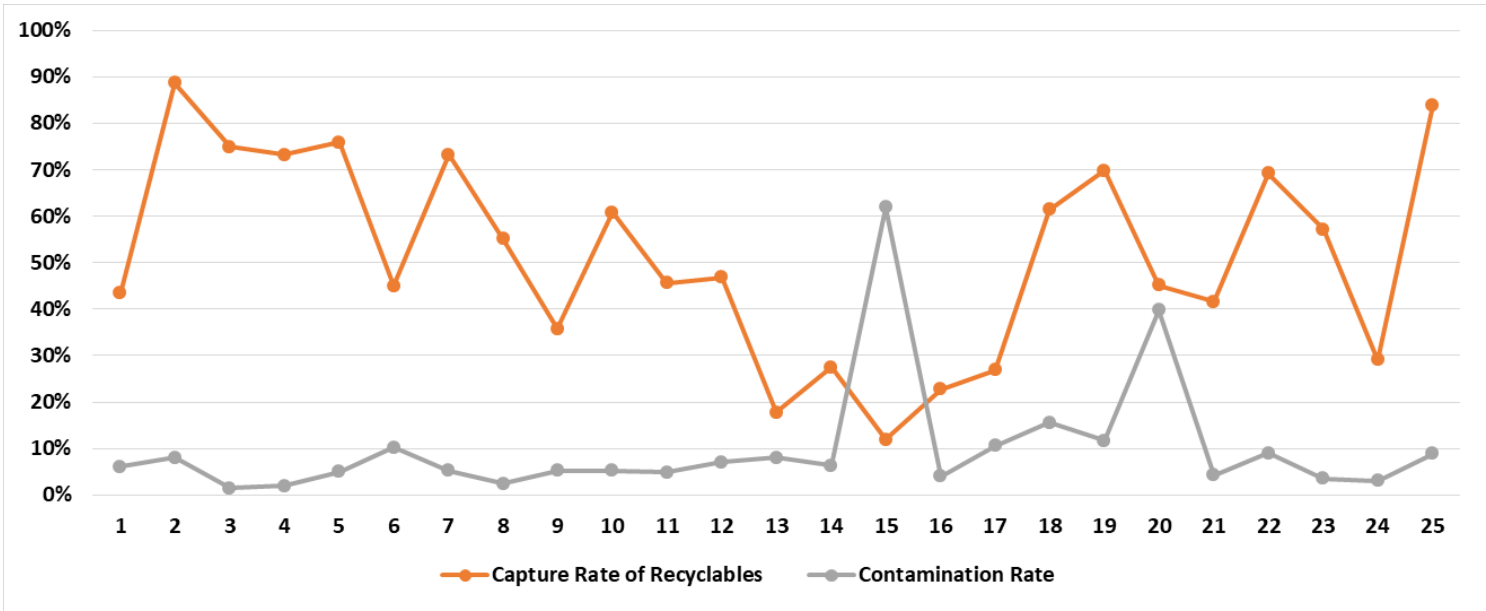
Table 1: Summary of 2017 Audited Buildings

Municipality	ID #	# of units	Building Type	Organics Collection	Recycling Collection	Garbage Collection
Newmarket	1	56	Condo	N/A	Walk down to garbage room 14 Totes recycling 1 x 3 yard cardboard	Walk down to garbage room 2 x 3 yard
	2	126	Condo	N/A	Walk down to garage 4 x 2 yard recycling 1 x 4 yard cardboard	2 Chutes 2 x 4 yard 2 x 2 yard
	3	137	Condo	N/A	Walk down to garbage room 13 Totes recycling	Chute 2 x 3 yard
	4	131	Condo	N/A	Walk down to garage 14 Totes recycling 1 x 4 yard cardboard	Chute 3 x 4 yard
Aurora	5	98	Rental	N/A	Walk down to garbage room 13 Totes recycling	Walk down to garbage room 1 x 2 yard 1 x 4 yard
	6	153	Condo	N/A	Chute 4 x 4 yard recycling	Chute 2 x 4 yard
	7	122	Co-op	N/A	Walk down to garbage room 8 Totes recycling	Walk down to garbage room 2 x 3 yard
	8	59	Rental	N/A	Walk down to garbage room 8 Totes recycling 1 x 6 yard cardboard	Walk down to garbage room 1 x 6 yard
Vaughan	9	30	Rental	N/A	Walk down to garbage room 4 Totes recycling	Chute 2 x 3 yard
	10	111	Condo	N/A	Walk down to garbage room 15 Totes recycling	Chute 5 x 3 yard
	11	259	Condo	N/A	Walk down to garbage room 16 Totes recycling	Chute 6 x 3 yard
	12	100	Condo	N/A	Walk down to parking garage 8 Totes recycling	Chute 3 x 3 yard
	13	23	Rental	N/A	Walk down to parking area 4 Totes recycling	Walk down to parking area 1 x 6 yard
	14	125	Rental	N/A	Walk down to garbage room	Walk down to garbage room

Municipality	ID #	# of units	Building Type	Organics Collection	Recycling Collection	Garbage Collection
					4 Totes recycling	4 x 3 yard
Richmond Hill	15	174	Condo	Chute (Tri-sorter) 2 x 2 yard	Chute (Tri-sorter) 1 x 4 yard; 3 x 3 yard recycling	Chute (Tri-sorter) 3 x 3 yard
	16	210	Condo	Chute (Tri-sorter) 1 x 2 yard 7 Totes	Chute (Tri-sorter) 6 x 2 yard recycling	Chute (Tri-sorter) 4 x 3 yard
	17	140	Condo	Chute (Tri-sorter) 8 Totes	Chute (Tri-sorter) 1 x 4 yard; 3 x 3 yard recycling	Chute (Tri-sorter) 2 x 4 yard 2 x 3 yard
	18	260	Condo	Chute (Tri-sorter) 2 x 2 yard	Chute (Tri-sorter) 3 x 3 yard recycling	Chute (Tri-sorter) 3 x 3 yard
	19	156	Condo	Chute 3 Totes	Chute 4 x 4 yard recycling 2 x 4 yard cardboard	Chute 5 x 4 yard
	20	198	Condo	Chute 7 Totes	Chute 4 x 2 yard recycling	Chute 3 x 3 yard
	21	142	Rental	Walk down to garbage room 2 Totes	Walk to garbage room 3 x 3 yard recycling 2 x 4 yard cardboard	Chute 1 x 3 yard
	22	104	Rental	Walk outside 4 Totes	Chute 4 x 4 yard recycling 2 x 4 yard cardboard	Chute 5 x 4 yard
	23	102	Condo	Chute (Tri-sorter) 3 Totes	Chute (Tri-sorter) 1 x 4 yard; 4 x 2 yard recycling	Chute (Tri-sorter) 2 x 3 yard
	24	51	Rental	N/A	Walk down outside 1 x 4 yard recycling	Walk down to outside 1 x 6 yard
	25	55	Rental	N/A	Walk down outside 1 x 4 yard recycling	Walk down to outside 1 x 8 yard

Analyzing the data provides critical insight into the unique challenges within multi-residential buildings. Building attributes and collection methodology can influence recycling performance however, this is not the only variable. For example, in Figure 1 below, building #2 and #6 are similar as they both are condominiums, have chutes, and have over 100 units. While ownership and convenience (access to recycling through chutes on each floor) are often associated with higher capture rates, #2 demonstrates high capture, while building #6 is low capture.

Figure 1: 2017 Multi-residential Audit results for Capture and Contamination Rates



Contamination and Capture rates are one aspect to be evaluated when considering recycling performance in a multi-residential building. Further analysis can help in evaluation performance through composition analysis of each waste stream. As shown in Figure 2, 80% of the total waste comprised of materials that could be diverted, 42% organics and 38% recyclables. Additionally, almost 75% of the recyclable materials consisted of fibres (Figure 3) which are typically easy to recycle and have an average recycling rate of 73% in Ontario[1].

Figure 2: 2017 Multi-Residential Audit Waste Composition

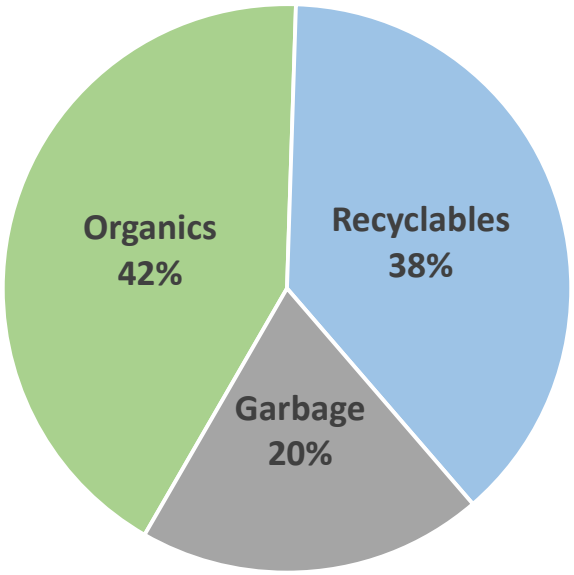
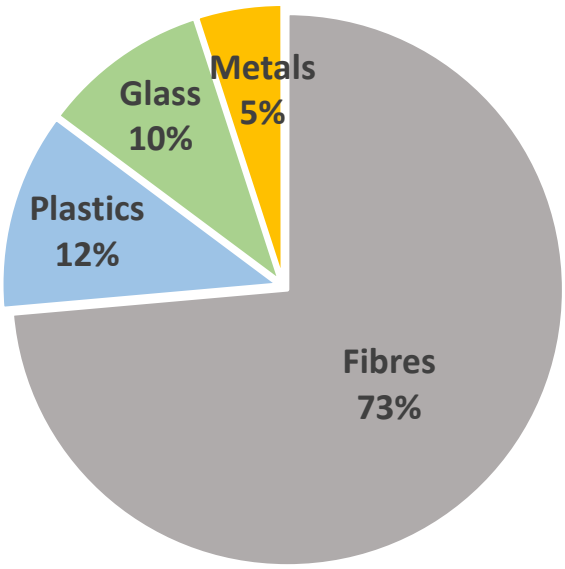


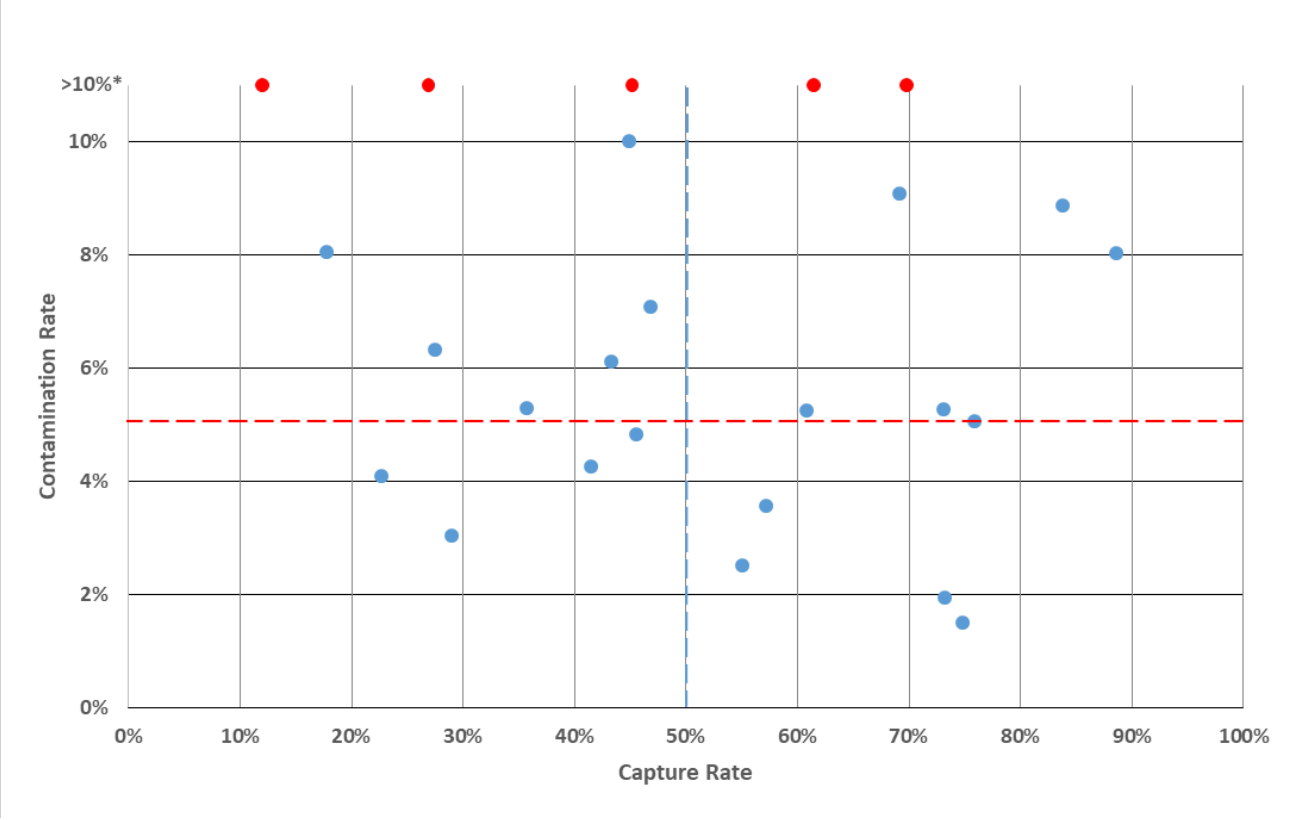
Figure 3: 2017 Multi-Residential Audit Composition of Recyclables



Results from the 2017 waste audit indicate variability amongst results when compared to building attributes. In addition to the earlier example of different capture rates in similar buildings (#2 & #6), performance also varied in #15 (low capture and high contamination) when compared to building #19 that demonstrated higher capture with lower contamination.

As the number of variables like building attributes, tenant ownership or rental, and demographics and make up can impact performance, analysis of all these variables to determine best approach to improve performance can be complicated. An additional approach to analyzing the data can be considered to help determine the best approach to improve performance. Figure 4 illustrates the variability in diversion and contamination rates among the 25 buildings.

Figure 4: 2017 Blue Box Capture and Contamination Rates in 25 Multi-residential Buildings in York Region



*** -** For illustrative purposes, buildings with significantly higher contamination rates within the blue box recycling stream (identified as red points) were set to the maximum of the graph. This was done to align with the following figure to highlight the issues and the support required for buildings that fall within each quadrant.

The following summarizes the different scenarios observed and provides insight into contributing factors related to resident behaviours and differences in building designs and access to programs. The goal is to achieve high capture and low contamination rates as indicated in the bottom right box.

Lower Contamination

Low capture rates and high contamination rates

- **Description of Assumption:** Residents are not familiar or aware of the waste diversion programs available within the building.
- **Possible Contributing Factors:**
  - Newer residents unfamiliar with waste diversion programs
  - Inconvenient access to recycling containers
  - Poor signage for garbage and recycling containers
  - Lack of P&E to identify what materials are recyclable
- **Support Needed:**
  - *Greater access to waste diversion bins (located with garbage containers, easy to open, etc.)*
  - *Improved signage for garbage and recycling containers*
  - *Targeted P&E to identify recyclable materials*
  - *Targeted P&E to address specific contaminant issues*
  - *Additional garbage and recycling containers on-site*

High capture rates and high contamination rates

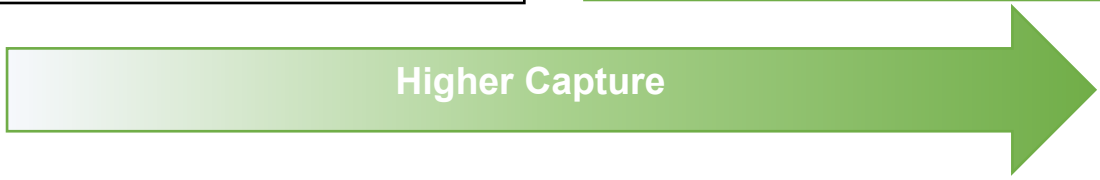
- **Description of Assumption:** Residents are eager to recycle but may be "wish-cycling"; the practice of placing materials within recycling bins wishing they will be recycled.
- **Possible Contributing Factors:**
  - Insufficient capacity for garbage disposal on-site; garbage being placed in recycling containers when garbage containers are full
  - Incorrect signage on garbage and recycling containers
  - Confusion regarding what materials are recyclable
- **Support Needed:**
  - *Targeted P&E to address specific contaminant issues*
  - *Additional garbage containers on-site to minimize contamination of recycling containers*
  - *Improved signage for garbage and recycling containers*

Low capture rates and low contamination rates

- **Description of Assumption:** Residents who do recycle are recycling effectively; however, most of the residents do not recycle.
- **Possible Contributing Factors:**
  - Newer residents unfamiliar with waste diversion programs
  - Inconvenient access to recycling containers
  - Lack of P&E to identify what materials are recyclable
- **Support Needed:**
  - *Improved signage for garbage and recycling containers*
  - *Greater access to waste diversion containers*
  - *Additional recycling containers on-site*
  - *Better engagement between new tennants and property managers*

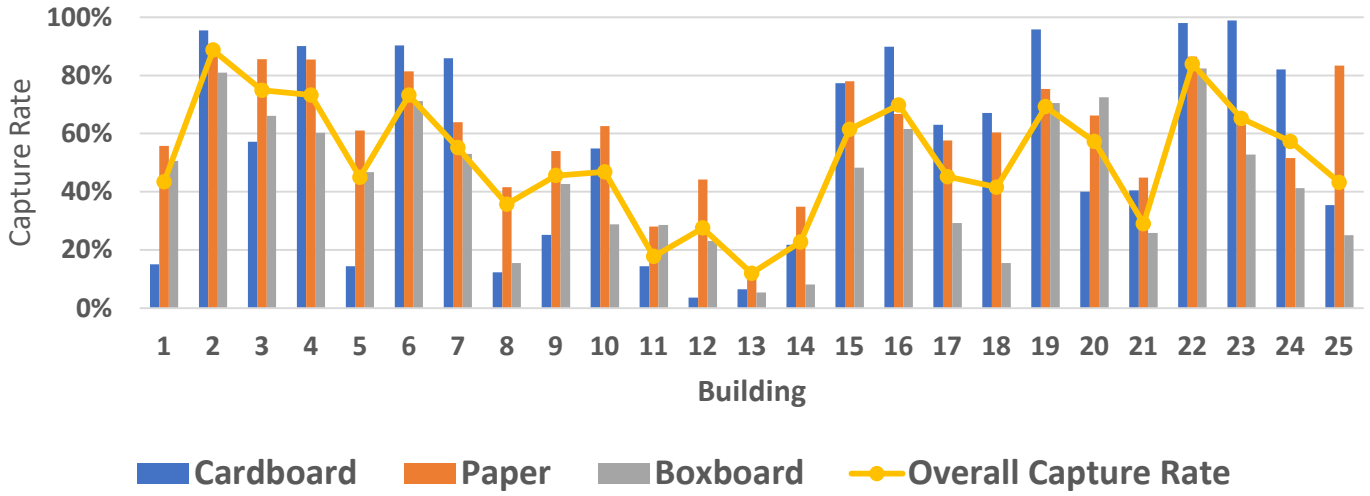
High capture rates and low contamination rates

- **Description of Assumption:** Ideal scenario for multi-residential buildings.
- **Possible Contributing Factors:**
  - Appropriate P&E materials provided
  - Sufficient number of disposal and recycling containers
  - Convenient and consistent access to disposal and recycling streams
  - Engaged residents and property managers
- **Support Needed:**
  - *Minimal support needed; continued P&E to maintain high recycling and low contamination rates*



Another interesting finding when looking more closely at the material-specific capture rates within these buildings, is that buildings with high capture rates are effective at capturing fibre materials such as corrugated cardboard (OCC), paper (e.g. newspaper, office paper, magazines, etc.) and boxboard. Given the rise in e-commerce, the diversion of OCC is critical for success of diversion programs within multi-residential buildings. However, as Figure 5 illustrates, the capture of OCC and other fibre materials varies significantly between buildings.

Figure 5: 2017 Fibre Capture Rates in 25 Multi-Residential Buildings in York Region



In summary, waste audit data reveals that diversion performance and the underlying factors that affect performance can vary widely from one multi-residential building to the next. Customized solutions are required to address structural and behavioural issues that impact waste diversion. For example, buildings with high capture rates for cardboard, paper and boxboard (i.e. tissue and cereal boxes) have chute systems and typically have high overall capture rates (>70%), as these three materials represent over 70% of the recyclable materials (see Figure 2). However, only nine buildings achieved capture rates for cardboard well over 80%, and of these, only four had capture rates for paper exceeding 80%. Of the nine buildings, seven had chutes to collection systems. The underperforming buildings, mostly collecting recyclables in totes, could improve capture of these materials by enhancing P&E aimed at paper materials (e.g. newspaper, office paper, etc.) and other high-volume materials if structural changes like adding chutes, are not practical.

Additionally, fourteen buildings had higher capture rates for paper than for cardboard. Eight of these buildings had capture rates well below 30% for cardboard. This is an unexpected trend as cardboard tends to have the highest capture rate of all recyclable materials in the province. Low capture rates of cardboard can be an indicator that residents are unable to break cardboard down to fit into recycling chutes or existing recycling containers. As online shopping continues to grow, the volume of cardboard is expected to increase. Therefore, to improve cardboard and the overall capture rates within these buildings, York Region and its local municipal partners could consider providing additional P&E, larger recycling bins, and/or dedicated bins exclusively for cardboard.

Approach

Following the review of data collected by the Region, a review of best practices and initiatives in similar jurisdictions to the Region was conducted to inform next steps in improving diversion performance of multi-residential buildings within the Region. The initiatives identified were grouped into the following three categories:

- **Building on existing initiatives**: Initiatives already undertaken by the Region that can be refined to improve data tracking and performance.
- **Low cost and easy to implement initiatives:** Initiatives that have been implemented by other municipalities that have proven to be effective, low cost and can be easily implemented.
- **Long-term initiatives:** Initiatives that require significant investment and/or commitment to implement, such as new technologies or policies.

Best Practices for Multi-Residential Waste Diversion

The following are best practices identified through a scan of available literature and research aimed at waste diversion within multi-residential buildings. These five best practices have already been identified within the SM4RT Living Plan and implemented at various multi-residential buildings.

1. Diversion programs must be as convenient as garbage collection;
2. Property owner/management must educate new residents about recycling/diversion programs;
3. Property owner/management must distribute recycling information annually to each resident;
4. Property owner/management must have available recycling educational information;
5. Adequate space must be provided for waste recycling/diversion containers;

The following best practices are not explicitly identified in the SM4RT Living Plan but have been identified by other jurisdictions as critical to success. Although not explicitly identified, York Region and its local municipalities have been providing these services and support to multi-residential buildings.

1. Provide in-unit recycling storage containers (bags or small boxes) for each household; and,
2. Provide training programs to building staff and owners on how to promote and operate diversion programs – supportive and engaged building superintendents and owners are key to the success of the program.

Initiatives

After an in-depth review of best practices and initiatives implemented by other jurisdictions, the following initiatives have been selected as the most applicable to York Region. The first set of initiatives **(boxes with no shading)** look to build on initiatives already underway by York Region and its local municipalities**.** The second set of initiatives **(boxes with grey shading)** are low cost initiatives that have been implemented by York Region in the past as pilot programs or have been implemented by similar jurisdictions as York Region. Finally, the last set of initiatives represent long-term goals that will require a concerted effort and consultation with key stakeholders, and local staff to implement and enforce **(boxes with blue shading).**

1. **Data Tracking (Weight Collected) from Multi-Residential Buildings**

   Description: To address specific issues within multi-residential buildings, collection of more reliable and consistent data related to the amount of garbage, recycling and organics collected from each building is required. This will enable the Region and its local municipal partners to identify and isolate issues in specific buildings and provide appropriate support. This is a fundamental requirement to ensure success of multi-residential waste diversion programs.

   Opportunity: Several of the local municipalities have recently awarded collection contracts requiring the deployment of RFID technology. Data tracked will provide insight into key performance indicators (KPIs) and allow for more focused efforts. KPIs tracked should include:
   - Waste generated per building
   - Waste generated per unit (calculated figure)

- Overall diversion rate

York Region has already developed a Regional database tracking number of bins on site, frequency of collection, P&E materials, etc. related to multi-residential buildings. Integration of RFID weights collected from multi-residential buildings into the existing database should be explored and evaluated against other software solutions to determine the most effective technology.

Recommended Next Steps:

- Conduct analysis to determine KPIs for all buildings tracked.
- Consider mapping the locations of multi-residential buildings to track performance on a geographical basis. It will identify problematic areas or collection routes.
- Conduct site visits at buildings with high waste generated per unit.

2. Waste Audits

Description: Waste audits provide insights into the composition of waste disposed and recycled by residents and allow the identification of specific materials that are contributing to lower recycling performance or contamination rates. This information can then be used to customize solutions (e.g. additional bins, targeted P&E, etc.) for individual buildings. Information gathered from waste audits in multi-residential buildings include:

- Material-specific generation rates
- Material-specific capture rates
- Common materials contaminating recycling stream.

Opportunity: The Region has conducted audits in 2013, 2015, 2016, and 2017 and is planning to conduct audits at 30 buildings in 2019. This information will allow the Region and its local municipal partners to customize and address specific issues within multi-residential buildings.

Recommended Next Steps:

- Consider adding or revising waste audit material categories to focus on problematic materials (e.g. cardboard size, black plastics, coffee cups, plastic bags, etc.).
- Consider including additional buildings within the audit. Selected buildings should vary by demographics, income, maturity of recycling program, waste diversion infrastructure (e.g. chutes vs. no chutes), etc. Number of buildings selected will be determined by available budget.
- Conduct detailed analysis to identify material-specific capture rates within buildings.

3. Focused P&E Materials

Description: Promotional and Educational (P&E) materials are a critical tool for helping residents, current and new, in understanding how to properly recycle and dispose of materials. Additionally, with rapidly changing demographics, shifts in packaging and the growth of e-commerce, it is often confusing and difficult for municipalities to identify the full range of materials that are accepted within recycling programs.

For buildings with low capture rates, P&E materials should focus on capturing high volume and easy-to-recycle materials such as cardboard, newspaper, plastic bottles, glass, etc. In buildings where capture rates are sufficiently high but are experiencing high contamination rates, P&E materials should focus on problematic materials or proper preparation of recyclables. This can include the proper breakdown of cardboard, emptying and rinsing containers, proper disposal of black plastics, etc.

Additionally, a recent study by Mckinsey[23] found 70% of surveyed consumers are undertaking some form of online shopping. As consumers move away from traditional brick-and-mortar stores to online shopping, providing digital P&E materials will enable consumers to link environmental issues to their purchasing habits.

Opportunity: York Region and its local municipalities should coordinate resources and efforts to deliver updated P&E material that is consistent across the Region. P&E material should consist of large graphics that can easily communicate to residents what materials are accepted in the recycling program. Additionally, the P&E materials should be customized to address specific materials and focus on larger volume materials.

Recommended Next Steps:

- Develop new P&E materials based on the results from the 2019 waste audits. P&E materials should be geared towards addressing large volume materials that have low capture rates (e.g. corrugated cardboard, newspapers, etc.), and large volume materials contaminating the recycling stream (e.g. organic materials, black plastics, toys, etc.).
- Consider delivering P&E materials through social media and other digital mediums. Social media via Instagram shares, Facebook groups, viral videos, etc. have demonstrated greater effectiveness of conveying messages to large audiences at a lower cost than traditional mediums, while also targeting specific audiences.

4. Coordinated Site Visits to Serviced Multi-Residential Buildings

Description: Site visits are critical for gathering information related to bin placements and frequency, as well as assessing whether P&E materials are placed in appropriate locations. Currently, site visits are conducted by staff within the local municipalities which potentially result in inconsistent data tracking.

Ensuring coordinated site visits on a regular basis (annual visits at a minimum with random spot checks) with trained staff will also enable the Region and local municipalities to receive critical information on multi-residential issues on a timely basis. Addressing issues early on, such as ensuring appropriate signage, appropriate P&E, sufficient bins, greater access to recycling, etc. can prevent poor recycling habits from setting in.

Opportunity: York Region and local municipalities to work together to develop a new standard form for conducting site visits. Additionally, the Region could provide necessary resources/staffing to ensure staff conducting site visits have a common understanding on evaluating and tracking information for multi-residential buildings.

Recommended Next Steps:

- Develop guidelines for site visit staff to assess if number of bins is adequate and if P&E materials are placed in appropriate locations.
- Prepare standard template/form to be used by site visit staff.
- York Region and local municipalities to coordinate site visits at buildings with low capture rates, as determined through the tracking of weights collected or through multi-residential waste audits.

5. Online Tools

Description: Online multi-residential recycling toolkits can provide interested property managers,

superintendents and residents with relevant information to address multi-residential waste diversion issues. Given that the maturity of waste diversion programs varies between buildings, it is important that the toolkit provides guidance from how to establish waste diversion programs to optimizing existing waste diversion programs. Relevant information should include the number of bins needed, acceptable materials, contact numbers, and other relevant resources.

Metro Vancouver is a prime example of an effective online toolkit as it provides users with drop-options and questions to ensure users are directed to the appropriate links to receive the resources they need. It provides resources for buildings at different stages of program development; from those looking to start recycling programs to buildings with established programs in place.

Opportunity: York Region to expand existing www.york.ca/condowaste toolkit and consolidate resources as an online toolkit in partnership with local municipalities. The Region to ensure messaging and resources provided are consistent and consolidated in an easy-to-navigate website.

Recommended Next Steps:

- Review multi-residential recycling tools provided by local municipalities within the Region.
- Work with local municipalities to harmonize information and tools.
- Provide an accessible online toolkit on the Region's website that consolidates all multi-residential resources from each local municipal partner.

6. In-Unit Reusable Totes

Description: One of the challenges faced by residents living in multi-residential buildings is the limited storage space within their units. Providing residents with reusable totes or bins to store recyclables and other waste materials (organics) within their units can ensure effective diversion while also delivering direct P&E materials. Currently, property managers within the Region can order free reusable recycling totes from the Region's website; however, the uptake of this program has been slow.

Several municipalities including the City of Toronto, Peel Region, Durham Region, City of London and City of Winnipeg have undertaken pilot projects to deliver in-unit reusable totes to residents in multi-residential buildings. In 2016 – 2017, the Region conducted a similar pilot project delivering in-unit totes to a number of multi-residential buildings. Buildings that received the totes experienced an 11.4% increase in recycling capture rates.

Opportunity: York Region and its local municipal partners have provided reusable recycling totes to residents in multi-residential buildings. There is an opportunity to improve effectiveness of these totes by adding a standard complement of P&E materials that includes sorting guides to all multi-residential buildings, new and existing. Replacement totes of 10% per unit count should be allocated per year to account for resident turnover and replacing of damaged totes.

Recommended Next Steps:

- Conduct another pilot where in-unit totes are delivered to buildings that are part of the 2019 waste audit and have low capture rates.
- Consider providing in-unit totes to all multi-residential developments in the Region.

7. Material Specific Collection

Description: Starting new recycling programs in multi-residential buildings can often be

challenging due to conflicting messaging around recyclable materials. In addition, many residents and property managers view recycling as a low priority resulting in low capture rates. To overcome this perception, several municipalities have shifted their focus to target specific materials in multi-residential buildings by providing bins that only collect one or a smaller range of materials (i.e. newspapers only, cardboard only, beverage containers only, etc.). This approach simplifies the messaging to residents and can encourage participation by demonstrating the ease of recycling.

The City of London conducted a pilot project where multi-residential buildings were provided with front-end containers for corrugated cardboard. Buildings that participated in the pilot project experience a doubling of their cardboard capture rate[4].

Opportunity: The 2017 York Region waste audits indicated that certain buildings had low capture rates (<50%) for high volume and easy-to-recycle materials. If 2019 multi-residential waste audits yield similar results, the Region should equip those buildings with material-specific containers.

Recommended Next Steps:

- Given that current end-markets for fibers such as cardboard and newsprint is limited with heavy restrictions on contamination, Region staff should determine if a dedicated and clean load of this material would be more successful to market.
- If a dedicated and clean load of fibers from multi-residential buildings can be marketed, work with Region waste operations staff to conduct a pilot at multi-residential buildings to target specific materials. The pilot should target high volume materials, such as cardboard, newspaper, plastic bottles, etc., as determined through waste audits.
- Consider facilitating a direct relationship between a cardboard buyer and multi-residential buildings.

8. Public Competition & Challenges

Description: Public competition and challenges provide an opportunity for property managers and residents to showcase their ideas and innovations on increasing diversion and recycling. It is typically a low-cost opportunity that increases public engagement. To ensure an effective competition and challenge, the Region will need to provide resources and support to buildings looking to participate. This includes a website for sharing information, toolkits and messaging for property managers and superintendents.

City of Toronto introduced the Mayor's Tower Waste Challenge, had 143 buildings register for the event representing 22,000+ units.

City of Barrie provides diversion information publicly for condo buildings and highlights the top 10 buildings on their website.

Opportunity: York Region and its local municipalities should consider encouraging multi-residential buildings to participate in challenges related to waste diversion. These initiatives are an opportunity for the Region and its local municipal partners to receive direct feedback regarding specific challenges from multi-residential buildings.

Recommended Next Steps:

- Seek expressions of interest from multi-residential buildings to gauge appetite for public competition and/or challenges within the Region.
- Staff to investigate how other jurisdictions have designed and launched similar

campaigns, and success of campaigns
- Facilitate a working group amongst York Region and local municipal waste staff, along with multi-residential building stakeholders to tailor a campaign within the Region.
- Prepare package with supporting materials to be delivered to participating multi-residential buildings.

9. Financial Incentives and Rebates

Description: The use of financial incentives and rebates could increase engagement and participation by superintendents and property managers. While several municipalities provide some form of incentive to single-family and multi-family households through volume-based pricing, these often do not provide direct feedback to residents on their diversion habits. Once the bin size is selected, they no longer receive any direct feedback on disposal volumes or habits. Financial incentives and rebates are used in various other industries, most recently the cancelled Ontario's Save-On-Energy and Green Fund Ontario provided residents with tax rebates and incentives to undertake energy saving initiatives (i.e. conducting energy audits, installing programmable thermostats, sealing and replacing windows). Additionally, utility and telecommunication companies provide residents with monthly/bi-monthly usage reports that provide them a direct feedback for extra usage and/or comparisons to previous month's usage. A financial-based model for multi-residential buildings aimed at waste can also be developed using these principles, promoting waste reduction and increased recycling performance while providing more direct feedback to residents. Incentives should be based on recycling performance and waste diversion on a per unit basis to allow for equal opportunity across municipalities.

Opportunity: York Region to work with local municipalities to explore the development of incentives and rebates for waste diversion within multi-residential buildings. This initiative should be considered more as a research and development opportunity, as there are a limited number of examples of direct incentives or rebates provided to multi-residential buildings for waste. An incentive model can be built on providing buildings with a more direct link of costs associated with waste generation and diversion, similar to utility companies that provide residents information on water and electricity consumption. The primary objective of the model will be to incentivize waste reduction, measured on a kg/unit basis. Incentives should be high enough to encourage reduction, without compromising the delivery or quality of services (i.e. should be careful not to encourage increased contamination in recycling containers).

Recommended Next Steps:
- Conduct detailed analysis to determine current financial impacts resulting from low capture rates and high contamination rates.
- Develop a draft financial incentive model and solicit feedback from local municipalities. **NOTE:** A financial incentive model can only be implemented if reliable data on the weight collected and number of pick-ups is tracked for each multi-residential building. Periodic waste audits will be required to identify composition of the waste stream to ensure low contamination rates.

10. Bylaw and Enforcement

Description: One of the biggest challenges to effective waste diversion in multi-residential buildings is inconvenient access to waste diversion programs compared to waste disposal. This is often due to building designs that focused on garbage disposal, rather than all waste streams. To address this issue, several municipalities including Toronto, Ottawa, Peel Region, and Hamilton have provided design guidelines and standards for developers and owners of new buildings and redevelopments. The guidelines and standards outline minimum requirements for waste

management, and are part of the approval process or requirement to receive municipal collection services. Requirements for waste management include:

- Number and size of bins based on number of units
- Size of disposal room area to accommodate all waste streams
- Use of compactor bins
- Loading facilities
- Access routes

Also, introducing bylaws that mandate multi-residential buildings to provide recycling and/or other waste diversion programs, regardless if the buildings are serviced by the municipality, can greatly enhance diversion. It can also provide the tools required by the Region and its local municipal partners to enforce and fine non-compliant or poor performing buildings.

Another policy tool to drive participation in diversion programs is disposal bans. Disposal bans are placed on materials that can be diverted from garbage through available diversion programs (e.g. recyclable materials, organic waste, etc.) and seek to prevent collectors from delivering these materials to landfill or other disposal sites. This forces the collector to work with multi-residential buildings to ensure they have effective diversion programs. It also provides for easier enforcement, as enforcement is done at the disposal site rather than at individual buildings.

City of Barrie (2017), Niagara Region, City of Calgary (2016 and 2017), City of Regina (2015) and Metro Vancouver are a few examples of communities that have bylaws for multi-residential buildings and/or disposal bans.

Opportunity: York Region and its local municipal partners to develop consistent design standards for new developments and redevelopments. Providing these standards will enable developers to appropriately design and construct buildings to provide convenient access to waste diversion programs right from the on-set. Additionally, developing bylaws with enforcement capabilities will enable York Region and its local municipal partners to ensure compliance by not only new multi-residential buildings, but also existing buildings. Bylaws should outline the authority for enforcement officers to inspect buildings and provide the level of fines for non-compliance.

Recommended Next Steps:

- Conduct detailed analysis on effectiveness of design standards for waste management to ensure convenient an[5]d consistent access to waste diversion programs.
- Consult with key stakeholder across York Region to present minimum design standard requirements for multi-residential buildings.
- Prepare draft bylaws modeled after other municipalities that outlines requirements for multi-residential owners and property manager, including fines and penalties for non-compliance.

Other Multi-Residential Technologies and Programs

- **Train the trainer**
    - **Description:** Develop workshops aimed at training superintendents, property managers and interested residents to effectively operate, communicate and promote diversion programs within their respective buildings. The key objective is to develop waste diversion champions within multi-residential buildings.

- **Solar Powered Trash Compactor**
    - **Description:** Solar powered trash compactors can help maximize available space for diversion programs by limiting the area required for disposal. They can also reduce the frequency of collection, removing trucks from the road.
- **Compactor/Bin Monitoring**
    - **Description:** A system designed to monitor the remaining capacity within compactors and trash bins. Allows for on-demand pick-ups resulting in reduced lift/pick-up costs.
- **Garburators/Sink Disposals**

    Description: Garbage disposal unit installed under a kitchen sink designed to grind organic waste and allow it to be introduced into municipal sewage system. There are known challenges including clogged pipes, eutrophication, increased water usage and water treatment issues. Can be viewed as a potential alternative to organics collection with proper investments. As the use of garburators increase the load on the existing wastewater treatment system, additional investments will be required to increase piping and processing capacity to effectively manage the increased food residuals into the wastewater system.[6] York Region is currently undertaking a study to evaluate the effectiveness of food grinders in multi-residential buildings and the impacts to its wastewater system.
- **Underground Storage Systems**
    - **Description:** Underground waste storage systems have gained popularity in multi-residential buildings as they provide more effective storage and are more aesthetically pleasing.
- **Recycling Rewards Program (e.g. Recyclebank)**
    - **Description:** Develop a program designed to reward residents for diverting and recycling waste. Residents can also earn points by completing educational quizzes.

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[1] Based on the 2019 Stewardship Ontario Pay-In Model.

[2]

[3] https://www.inc.com/peter-roesler/new-research-reveals-more-consumers-are-shopping-online-for-everyday-items.html

[4] https://www.london.ca/residents/Garbage-Recycling/Garbage/Documents/Section%204%20What's%20Next%20Road%20Map%202.0.pdf

[5]

[6] http://docs.assets.eco.on.ca/reports/energy/2016-2017/Every-Drop-Counts-08.pdf