September 19, 2024

Technical Memo #7:

Options for Improving Diversion in Multi-Family Dwellings

Comox Strathcona Waste Management

TO:	Regional Solid Waste Advisory Committee (RSWAC)	TO RSWAC:	September 19, 2024
FROM:	Abby McLennan Environmental Consultant	TO BOARD:	Presented at a future CSWM Board Meeting
COMPA-NY:	Let's Talk Trash	FILE:	5360-30 SWMP

Applicable Guiding Principles

- ✓ *Prevent organics and recyclables from going into the garbage*
- ✓ *Maximize beneficial and best use of waste materials and manage residuals appropriately.*

Strategy Description

The Comox Strathcona Waste Management (CSWM) service area's population is growing, a 13 per cent population increase was experienced over the past decade within the service area. To accommodate population growth, City planners are emphasizing an increase in density and thus, support for multi-family dwellings.

Within the CSWM, approximately one third of the region's dwellings are multi-family (inclusive of identified movable dwellings) according to the 2021 census. Because multi-family dwellings have fewer people per household than single family dwellings, they produce less waste per household; estimated from municipal reported data to be 276 kg per multi-family household versus 414 kg per single family household. Although less waste per household is observed, there is significant room for improvement in terms of diversion opportunity. Recycle BC has observed that annual recovery of printed paper and packaging (PPP) is lower for multi-family dwellings in BC than for single-family households. Available data suggests that BC multi-family residents recycle an average of 52 kg of PPP per household per year, compared to an average of 173 kg of PPP per household per year for single-family residents[1]. This demonstrates a lower percentage of recycling in the total waste generated from multi-family homes.

The rational for why multi-family dwellings are noted to be recycling less than those in single family dwellings is because recycling is generally less convenient for residents living in multi-

[1] "Recycling Programs – Best Practices to Improve Capture of Recyclables", Recycle BC, 2012, https://recyclebc.ca/multi-family-building-recycling-programs-best-practices-improve-capture-recyclables/

family dwellings[2]. Convenience is defined as the distance to a recycling station and the amount of space available to store recyclables. This difference is critical for the disparity in recycling behaviors between the two dwelling environments.

Multi-family dwellings are often referred to as complicated and complex when discussing waste management and in particular waste reduction and diversion strategies due to space constraints, building configuration and access to waste management infrastructure. Despite these common challenges, there are strategic initiatives that can be applied to overcome these barriers. Approaching multi-family dwellings through a multi-pronged lens such as improving access and convenience, supporting and encouraging waste management infrastructure coupled with outreach and educational efforts will likely lead to the desired results of sending less waste to landfill within this 33 per cent housing sector. Working towards strategies that address waste diversion within multi-family dwellings directly relates to Guiding Principle 5 (Prevent organics and recycling from going into the garbage), which was ranked as the most important Principle during Step 2 of the Solid Waste Management Plan renewal consultation process. Preventing organics and recyclables from going into the garbage is low hanging fruit that can be prioritized through targeted initiatives.

CSWM Background

The CSWM does not offer any waste collection services directly to multi-family dwellings. Within the CSWM only the City of Campbell River multi-family residents (approximately 2,800 dwellings) have Recycle BC funded collection services for recycling. An additional estimated 3,800 multi-family dwellings located within the CSWM are not funded by Recycle BC and are considered 'served' by the available depot recycling facilities. Throughout the service area, there are no standards, expectations or requirements for multi-family dwellings to provide waste diversion infrastructure.

Waste management data crossing the scale from multi-family dwellings is currently captured within municipal collection by contracts and industrial, commercial and institutional (ICI) / household waste loads. This categorization provides only an estimate of waste originating from multi-family dwellings as incoming loads can be mixed with other ICI and household waste, not specific to multi-family buildings. It is estimated from CSWM scale data that 2,000 tonnes of waste is generated per year from multi-family dwelling residents.

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[2] Ando, A.W., and A.Y. Gosselin. 2005. "Recycling in Multifamily Dwellings: Does Convenience Matter?" Economic Inquiry 43 (2): 426–438

A 12-week multi-family pilot program took place in spring 2024 and found on average, that 71 per cent of what is being thrown into the garbage could have been diverted through either recycling or composting programs. Anecdotally, the CSWM Community Educator often hears from multi-family residents at outreach events that they feel they have a lack of access to diversion infrastructure within their buildings, in particular organics. The desire to participate in waste diversion activities is prominent and often voiced by residents within this sector.

Multi-family dwellings are unique in that recycling and garbage collection is often located within centralized bins on the property, either inside or outside of the building. Many buildings though do not offer recycling collection and if residents want access to waste diversion infrastructure, they are required to self-haul all their material to a recycling depot. Obvious barriers with buildings that provide only garbage collection are as follows: diversion isn't encouraged; residents without vehicles; reduced convenience for all; and barriers to participation for those with disabilities.

Some buildings are mixed-use, with commercial and residential units accessing the same disposal facilities. Obtaining Recycle BC funding at this time for multi-family dwellings requires that the material not be picked up co-mingled with commercial recycling. The Village of Cumberland and the Town of Comox offer multi-family residents recycling pick-up through a private hauler but under a central contract that picks-up with commercial recycling. In the City of Courtenay multi-family dwellings hire private contractors for pick up services but have no requirement for recycling or organics; buildings can choose to pay for garbage collection only.

It's noted that private hauling recycling services may have a different list of accepted materials when compared with the common Recycle BC curbside/roadside collection program and therefore may be limiting diversion opportunity when compared with a Recycle BC approved collection. To expand access to residents in this sector, Recycle BC has announced that they are investigating allowing routes with mixed pick-up of ICI and multi-family to be funded through their program in the future for private haulers. Education would continue to be the responsibility of local governments.

The entire CSWM area suffers from a lack of affordable housing, and growth in the multi-family sector for purpose-built rentals, and subsidized housing will continue to be needed. On average between 2010 and 2020 the City of Campbell River has been expanding by 90 apartment units per year. The CVRD housing needs assessment provides a conservative estimate that by 2041, an additional 17,750 housing units will need to be built. A further 200-500 multi-family units could be constructed in the CSWM area each year adding to our current challenge.

One strategy previously discussed within Technical Memo #6, Waste Generator Source Separation is to require everyone to have three streams of waste sorted on site: garbage, recycling and organics. This approach would also apply to multi-family buildings and would support many of the initiatives and strategies discussed below.

Current overarching challenges identified with waste management and diversion within multi-family dwellings are summarized below.

Table 1: Waste Management Challenges with Multi-Family Buildings

Education	Infrastructure	Management & Culture
Unreliable distribution of educational materials	Not a priority of building developers	Property managers are hard to contact
Varying demographics	Limited storage space	Cleanliness and contamination
Lack of continuous communication	Collection vehicle access	Anonymity, monitoring and enforcement
Tends to be more transient population	Proximity and safety	Lack of incentives to both residents and private contractors
Requires significant time/effort investment to reach all residents and assist with signage/setup to improve waste collection infrastructure	Relative convenience of garbage disposal and lack of general infrastructure for recycling/organics diversion	Less peer pressure as participation in diversion programs are less visible to neighbours than curbside

Options for Implementation

Strategy 7a: Making space for waste during planning and development of new buildings

Municipal and Regional planning staff could require new multi-family dwelling developments and construction to have adequate waste management space and considerations incorporated within the proposed design. Requiring waste management infrastructure to be considered and planned for into new building developments directly supports a waste source separation bylaw. One of the main challenges and barriers for waste diversion in multi-family dwellings is lack of space for waste management infrastructure. Often these developments have limited storage

space and are generally seen to be able to partake in waste diversion collections when they have been designed to ensure sufficient space for these activities.

When buildings with inadequate space try to accommodate waste diversion initiatives, collections can tend to be overflowing and full. This can inadvertently result in residents being less likely to consistently participate due to unsightliness, cleanliness and inaccessibility. Establishing a central storage area that is indoors, convenient (e.g. near laundry room or lobby), well-lit and feels safe for residents (e.g. not in dark, remote corners of deserted parts of the building) are recommended best practices that could be significantly supported through building permit design requirements.



Figure 1: Poorly managed waste infrastructure



Figure 2: Well managed waste infrastructure

Operational and Staffing Impacts Anticipated

CSWM staff or contractors would be required to develop language for a template zoning bylaw amendment or design guideline that could be used by planning staff to assist with reviewing new development permits for multi-family buildings. Consultation with municipal and regional district planning staff would be necessary in the development of these tools. Once deployed there would be minimal ongoing impacts to CSWM staff. Alternatively, municipal staff could refer development plans for multi-family buildings to CSWM staff for review and comment.

If the former approach is taken, staffing impacts would be anticipated for City/Regional planning staff to become informed of this strategy and to collaborate with CSWM staff and/or contractors, to finalize the template or guideline matrix that would be used to evaluate waste management considerations in new designs. Adoption and enforcement of these requirements would also be the responsibility of the local government building and planning staff.

Estimate of Diversion Impact

Research indicates that participation in recycling programs and increased capture rates significantly increase when infrastructure improvements are made to facilitate convenience, accessibility and safety for residents. Low diversion impacts are estimated with this strategy as it would only impact new buildings and not existing buildings. If 200 units were constructed each year with 1.6 residents per unit, and 50 kg of diversion was achieved per person, approximately 16 tonnes would be diverted in year one. This strategy would have an incremental impact as more new buildings are constructed over time.

Financial Implications

This strategy could be implemented using existing CSWM staff resources.

Regulatory Authority Required

There is no specific waste service that would need to be established to execute this strategy. Amendments to zoning bylaws or development permit processes would be required.

Diversion Impacts

Low

Improvements in building waste management infrastructure.

Operational Impacts

Low

Impact is primarily with building and planning staff of local governments.

Financial Implications

Low

Could be implemented with current CSWM staffing.

Strategy 7b: Increase education and outreach to multi-family residents

Having informed residents and community partners empowered to participate effectively and consistently in proper waste management practices was identified during Step 2 as one of the six goals to strive towards. Working towards increased education and outreach initiatives is an actionable strategy that directly addresses this goal and supports the overarching goal of achieving increased waste diversion. At the fifteen community events that were hosted in Step 2 consultation, twelve of the events identified an increase in educational aspects as a key action that residents felt could be considered.

Multi-family building residents experience less peer pressure as participation in recycling programs is less visible to their neighbours than curbside set-out at single-family dwellings. Building infrastructure also varies and until collection services are all via an approved Recycle

BC program, collection of materials within buildings may also vary depending on the service provider. A multi-pronged approach with these considerations in mind may include:

- Implementation of a comprehensive promotion and education campaign involving superintendents and management as well as residents;
- Development and delivery of training programs to build capacity within multi-family dwelling operations on how to promote and operate the recycling program – supportive and engaged building superintendents and owners are key to the success of the program;
- Involve interested and engaged residents as recycling champions – aiming for at least one or two champions per building;
- Provide an in-unit recycling storage container (bags or small boxes) for each household;
- Provide incentives to building superintendents to increase recycling;
- Integrate Community-Based Social Marketing techniques to make participation more visible within the building; and
- Develop a guide, outlining best practice approaches for multi-family dwellings that includes examples of waste diversion infrastructure set-up that can be accommodated in small spaces for buildings that may be challenged by space restraint.

Operational and Staffing Impacts Anticipated

Time and resources spent on this strategy can vary. An integrated approach can be applied in targeting direct outreach to a certain number of buildings per year, developing various educational outreach resources over time to add into the larger CSWM toolkit and building capacity slowly, throughout the service area.

The pilot to assist multi-family buildings in the summer of 2024 found that one contractor needed 10-15 hours of support for each building to communicate with property management/strata, conduct audits, educate residents and support resetting the waste collection area. With approximately 6,700 multi-family dwellings in the service area in 2021 it is proposed to assist 20 buildings, an estimated 1000 dwellings a year. This would require an estimated 300 hours of staff or contractor time.

Estimate of Diversion Impact

Diversion impacts will likely correlate directly with the level of investment in education and outreach efforts in combination with having the supporting waste diversion infrastructure to increase access and convenience. If residents are aware and motivated to divert, it has been

demonstrated convenience also plays a key role[3]. There is opportunity for low diversion impacts that could result from increasing the current level of education, communication, and outreach. If multi-family residents generate 2,000 tonnes of waste a year, a 50% reduction could result in 1,000 tonnes diverted after all buildings have been on-boarded.

Financial Implications

The proposed phased approach of 20 buildings per year would cost an estimated $25,000 to execute in contractor expenses, delivery of signage, in home bags and consumables.

Regulatory Authority Required

The effectiveness of this strategy will be significantly higher if complemented with either a requirement for three stream separation on site, and or a ban on food waste from the landfill. Voluntary participation will result in higher waste service costs for buildings under current conditions (no generator levy) and leave many rentals or below market housing without access.

Diversion Potential

Low

Estimated after 5 years to be 1,000 tonnes per year

Operational Impacts

Low

Educational services add-on, or additional contract

300 hours

Financial Implications

Low to Medium

Estimate of $25,000 to support 1000 dwellings a year

Strategy 7c: Expansion of organics diversion to multi-family homes

A lack of access to organics diversion infrastructure in multi-family dwellings is the most common feedback that the CSWM Community Educator receives from residents within this sector. Currently there is only one small private company offering organics diversion pick-up to multi-family dwellings in the Comox Valley area only. Increasing opportunities will allow for greater equitability among residents.

As previously described, the anonymous nature of waste disposal in multi-family building settings leads to a higher percentage of contamination in recycling bins and that trend is likely

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[3] Alessandra DiGiacomo, David W.-L. Wu, Peter Lenkic, Bud Fraser, Jiaying Zhao & Alan Kingstone (2018) Convenience improves composting and recycling rates in high-density residential buildings, Journal of Environmental Planning and Management, 61:2, 309-331, https://zhaolab.psych.ubc.ca/pdfs/Convenience_JEPM_2018.pdf

to extend to organics based on experienced municipalities. Bins with obvious contamination can be left at the curb by a hauler with a note, informing a single-family dwelling that they need to remove the contamination before the next pick-up. This doesn't work in a multi-family setting as there is not one person responsible to pick through the contaminated waste, nor are they likely to be able to identify who the offending party is. Additionally, cleaning bins is a dirty task that homeowners can manage or feel directly responsible for. In communal bins, no one wants the task of cleaning out the bin or cart and it can become unwelcoming to users over time.

Compostable bin liners for the communal carts, as well as allowing compostable liners for the bins in each apartment add convenience to users making a trip to the waste area on their way out while keeping hall carpets and elevators sanitary. These compostable plastic liners are an accepted feedstock in a private compost facility in Nanaimo which is larger than the CSWM facility and has invested in additional capital to accommodate the challenges of these materials.

If this organic material was picked-up by private haulers it could potentially be delivered to the organics transfer station in Cumberland for consolidation and delivery to Nanaimo, instead of Campbell River. Material originating in Campbell River would need to be consolidated at a private facility or delivered to Cumberland.

Operational and Staffing Impacts Anticipated

Assuming delivery of materials to the transfer station for organics in Cumberland there would be some additional CSWM staff time to load transfer trailers and manage incoming vehicles to keep feedstocks separate. The expansion of the organics program would also need a comprehensive educational campaign to target the reduction of contamination. After outreach, onsite follow-up with buildings to ensure that collection bins and contracts are in place would be required by staff or contractors.

Estimate of Diversion Impact

Assuming that this strategy is implemented with a landfill ban on food waste and buildings comply with setting up collection contracts and providing infrastructure, the estimated food waste diversion potential is 55 kg per M-F hh based on participation by City of Courtenay residents. All 6,700 households participating could divert 369 tonnes of food waste.

Financial Implications

The increase in staff or contractors to kick-off an educational campaign would have to be considered in addition to monitoring collections using summer student ambassadors or educators to address and mitigate any contamination issues with the launch of the program. A six-month follow-up with residents is recommended to reinforce participation.

An additional 0.25 Full-time Equivalent (FTE) at the organics transfer station, as well as an estimated $50,000 in outreach and education expenses.

Regulatory Authority Required

The effectiveness of this strategy will be significantly higher if complemented with either a requirement for three stream separation on site, and or a ban on food waste in the landfill. Voluntary participation will result in higher waste service costs for buildings under current conditions (no generator levy) and leave many rentals or below market housing without access.

Diversion Potential

Low

Less than 400 tonnes per year

Operational Impacts

Medium

Increased operational staffing, outreach and compliance enforcement

Financial Implications

Medium

$50,000 and an additional 0.25 FTE

Summary of Strategic Actions

Table 1 Strategy Summary Table

Strategy	Diversion Potential	Ops. & Staffing	Financial Impacts	Comments
7a. Making space for waste during planning and development of new buildings	Low	Low	Low	Requires adoption by individual local governments and efforts by building and planning staff members
7b. Increase education and outreach to multi-family residents	Low	Low	Low to Medium	Diversion impacts will likely correlate with the level of increase in education and outreach efforts in combination with supporting waste infrastructure
7c. Expansion of organics diversion to multi-family homes	Low	Medium	Medium	Allowing organics from this sector will increase fairness for residents.

When it comes to best practices, it has been identified that waste diversion should be as convenient as, or more convenient than, garbage disposal[4]. When best practice approaches are applied, improved participation in recycling programs and a significant increase in the capture of recyclables can be seen when compared to buildings without best practices in place. Given the urgency of waste problems, it is imperative to identify best practices for increasing recycling and composting adherence, with an eye toward minimizing waste. Specifically, noting the trend for urban high-density living, it seems reasonable and productive for waste reduction efforts to be focused on identifying and executing best practices for pro-environmental behavior in high-density buildings such as multi-family dwellings.

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4 "Recycling Programs – Best Practices to Improve Capture of Recyclables", Recycle BC, 2012, https://recyclebc.ca/multi-family-building-recycling-programs-best-practices-improve-capture-recyclables/