



County of Wellington: Behaviors surrounding waste drop off sites

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1.0 Introduction

The goal of the project was to determine why and when rural residents use County waste facilities, as well as to identify barriers to them participating in rural curbside collection of garbage and recyclables.

This document summarizes the results from the survey of users of the County of Wellington's waste facilities, conducted by County staff. Surveys were completed from August 1 to August 14, 2018. County staff administered the questionnaire and entered data in a database, which was exported to excel for analysis.

This document is broken down into four sections: 1) Summary Statistics (general description of survey respondents, source of material, etc.), 2) Measures of Convenience, 3) Measures of Utilization (drop off frequency and what is being dropped off), and 4) Awareness and General Comments.

A brief discussion of data analysis, including statistical tests was completed.

2.0 Data Methodology

A total of 692 surveys were filled out across the six waste facilities with respondents from all seven municipalities. Of these, the distribution of respondents was slightly weighted towards urban households (as shown in Figure 1 below). It should be noted that a statistically significant sample was collected with a confidence level of 95% at a macro level, which implies that these results can both be credibly analyzed and representative of the broader region.

However, when evaluated on a region by region basis (to ensure representation across member municipalities), a 90% confidence level was not achieved in any of the 6 tier 2 municipalities. Table 1 summarizes these results:

Table 1: Samples Required at 90%

	Aberfoyle	Belwood	Elora	Harriston	Riverstown	Rothsay
Samples	80	203	191	94	80	44
Population Households	4947	9520	7654	3247	4682	3141
90% Confidence Interval?	No	No	No	No	No	No
# of Samples Required	176	264	262	250	256	250
Total Population	51,482					
Total Samples Required for 95% (Non Stratified)	382					

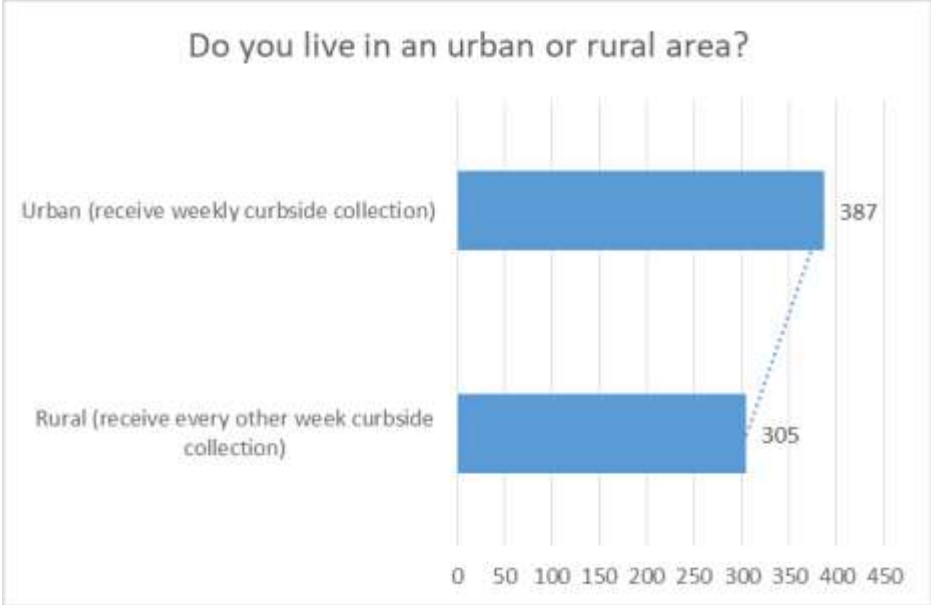
Based on the number of samples taken, regional statistical significance was approximately 65-70%.

Note: This report defines statistical significance as variation that exceeds one standard deviation from the mean, indicating a confidence interval of 95%

Based on the number of rural households in the County, York University determined that a minimum of 150 rural households would be statistically representative. As the target audience was users of County waste facilities, it was decided that an in-person survey at the waste facilities was the most appropriate and efficient way to contact those users.

County staff knew the average customer count at each waste facility, though did not have data on the urban/rural split of those customers. In order to meet the quantity of rural households required for a representative sample, staff estimated surveying 1 in 10 customers for a two week period would obtain that sample size required. This frequency resulted in a total of 692 surveys being completed, with 305 customers from rural households.

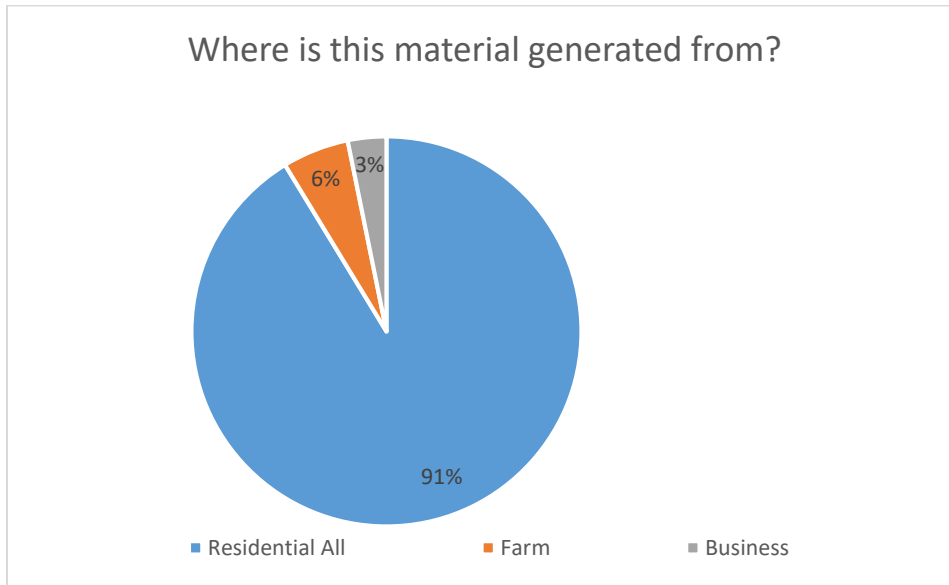
Figure 1: Urban vs. Rural



Most of the material brought to drop off facilities came from residential households. Please see Appendix A for Urban/Rural Split for each member municipality.

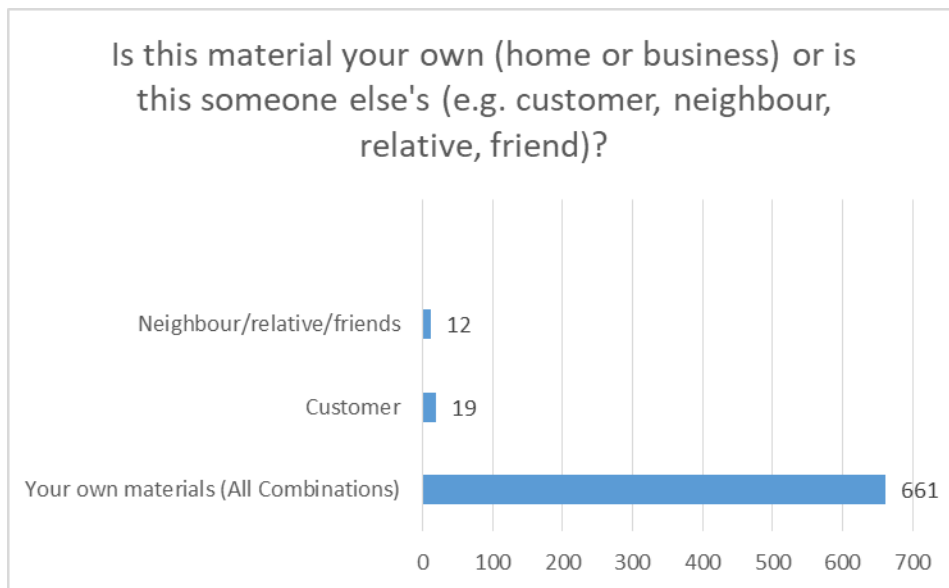
Figure 2 below summarizes sources of material generated by respondents.

Figure 2: Material Source



Materials being brought to drop off sites were almost exclusively generated by the individual who attended the drop off (Shown in Figure 3)

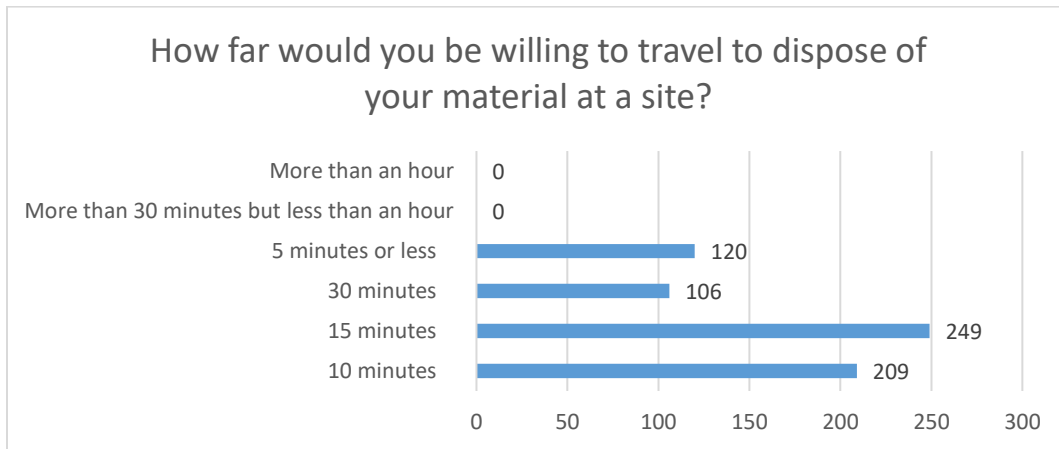
Figure 3: Who owns this material?



3.0 Measures of Convenience

One of the most significant predictors of recycling participation (be it curbside or bring systems) is convenience. Almost 77% of all respondents reported that they would be willing to travel 15 minutes or less to use the drop off site. These results were mirrored in how far respondents traveled the day they participated in the survey.

Figure 4: How far would you be willing to travel

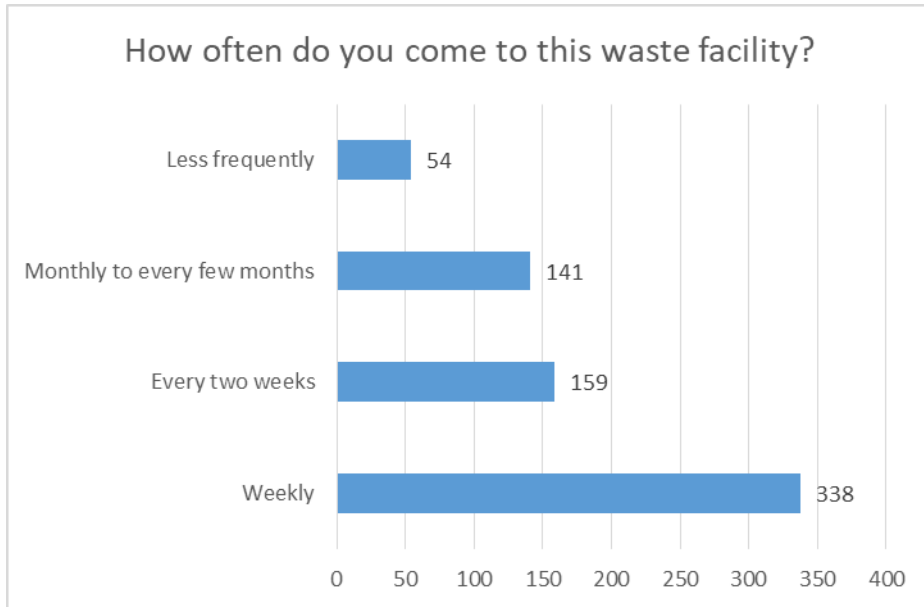


An interesting result is that there is a statistically significant difference between “willingness to travel” for urban and rural households. Rural households were more likely to travel in excess of 15 minutes to utilize a drop off site. This is not entirely unexpected, as population and infrastructure density is lower in rural areas. As such, households are required to incur a greater transactional cost (expressed in terms of both distance traveled and time) to participate in drop off programs.

4.0 Utilization

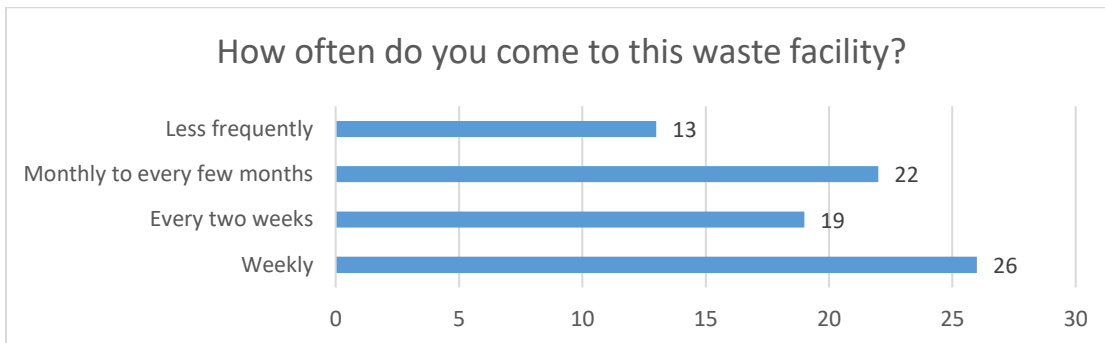
Utilization of drop off sites was fairly even across all sites, with the exception of Riverstown (based on frequency of responses). Generally speaking, the majority of households in Wellington utilize drop off sites on a weekly basis. Figure 5 summarizes the utilization frequency of drop off sites across the County.

Figure 5: Frequency of Visits



What was not entirely clear is that survey respondents from Riverstown utilize drop off sites less frequently than all other regions in Wellington (as shown in Figure 6). Despite reviewing the accompanying survey results, it was not entirely clear as to why this was the case.

Figure 6: Frequency of Visits Riverstown



4.1 Time and day of use

Across all seven municipalities, survey respondents were slightly more likely to bring material to drop off sites on weekdays, and significantly more in the morning. Based on the preferences exhibited by households in the County, particular attention should be paid to service levels (number of staff, etc.) during peak use times. While the waste facilities are not currently open in the evening, staff took the opportunity to assess the interest of evening hours. One third of respondents indicated they'd be interested in using the waste facility in the evening.

These results are shown in Figures 7 and 8:

Figure 7: Which day do you normally visit the drop off site?

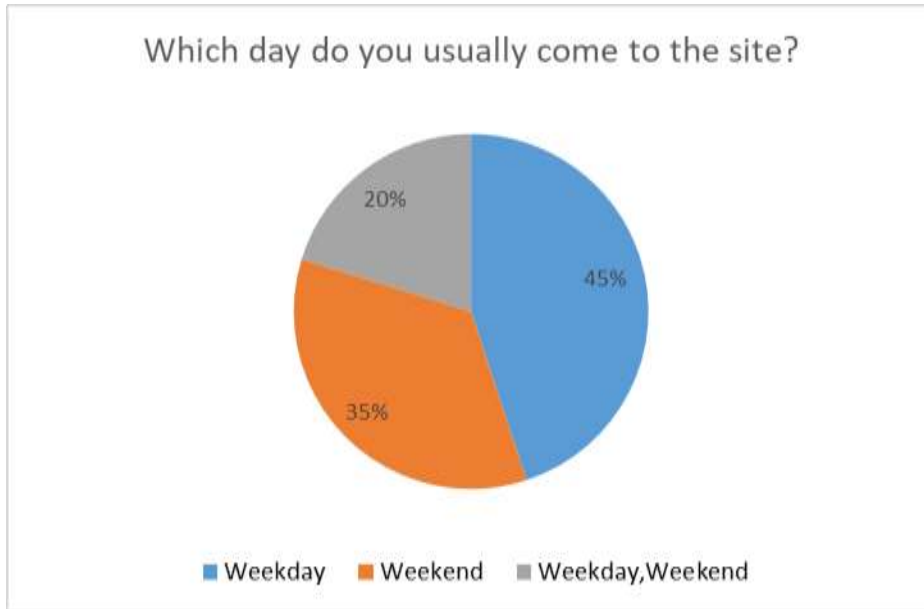
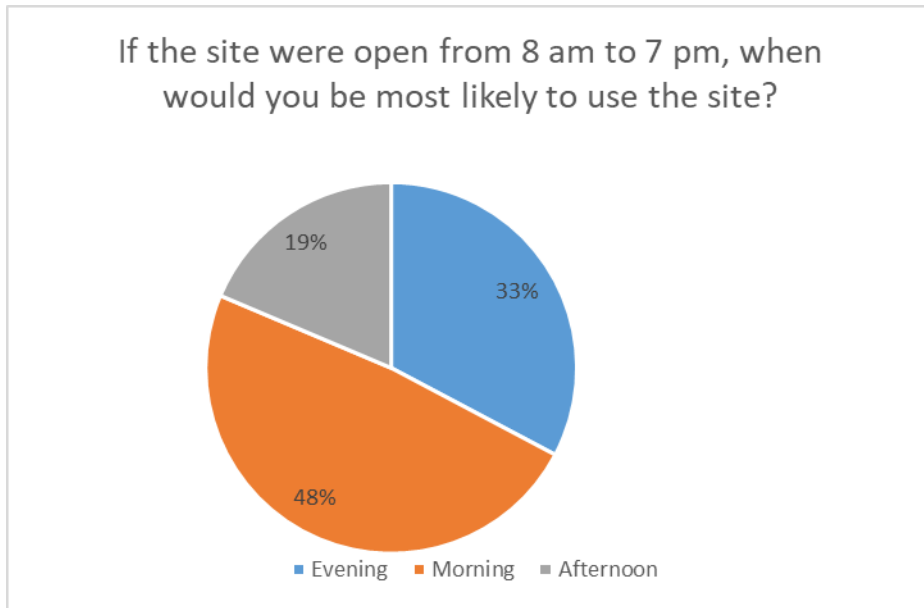


Figure 8: What time would you be most likely to visit a drop off site?



4.2 Utilization of other facilities

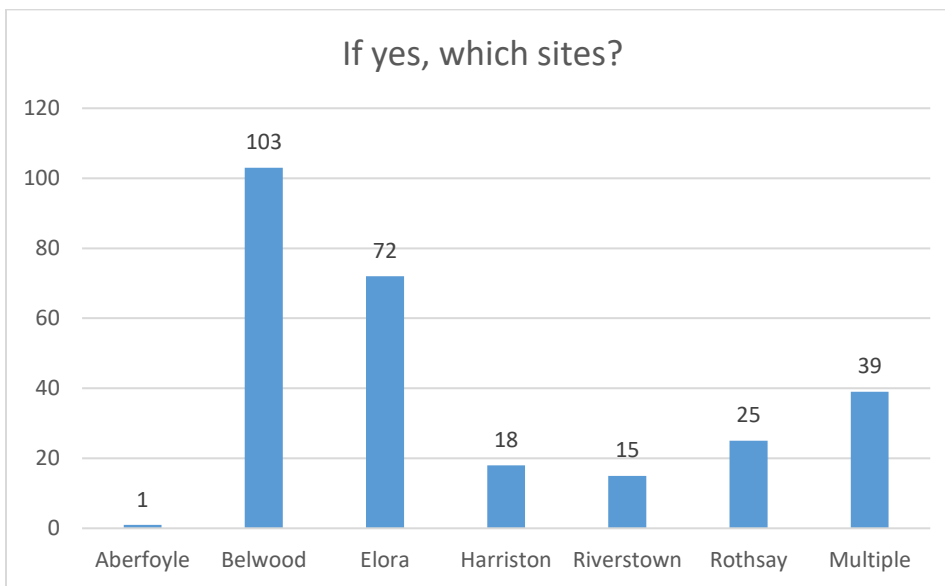
While on the whole, the majority of respondents indicated that they would not use other sites (as shown in Figure 9), urban residents were much more inclined to utilize multiple drop off sites relative to rural households (with observed variation in responses deemed to be statistically significant).

Figure 9: Would you visit multiple drop off sites?



Figure 10 below summarizes which drop-off sites households were likely to use in addition to their primary drop-off site. Of note, some households would utilize more than one alternative drop-off site (as shown in Figure 10). While customers were not asked why they used more than one site, SWS staff believe that the Elora and Belwood sites are the most common alternatives as they are both located in the Township of Centre Wellington, which is the largest municipality in the County by population, making up about 1/3 of the County’s households. Rothsay and Riverstown are located a fair distance from the local urban areas so are not as convenient. Aberfoyle is the southernmost site and is located in the smallest Township by population, and is not as convenient to households in other municipalities as the other sites are.

Figure 10: Alternative drop off sites

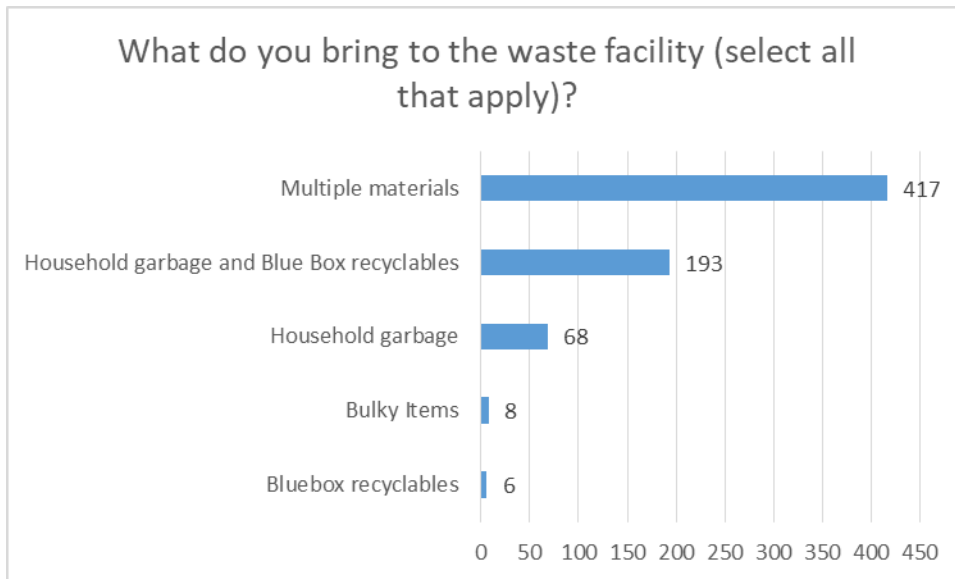


4.3 What is being brought to drop-off sites?

One of the key objectives of this study was to determine why participation in drop-off sites was so high, particularly given that the County now offers curbside service for garbage and recyclables in both urban and rural areas. Historically, “bring” systems have much lower rates of participation when compared to curbside programmes, largely because convenience is seen as a significant predictor of behaviour.

As shown in Figure 11, households use drop-off sites for a range of purposes that extend beyond just Blue Box and garbage materials. Almost half of all respondents reported bringing multiple material types (in addition to recyclables and mixed waste) to drop off sites.

Figure 11: Materials being brought to drop off sites



What was particularly interesting is that of participants who regularly bring a mix of materials to drop off sites, many forgo using curbside collection for garbage (shown in Figure 12). Is this different between rural vs urban?

Figure 12a: Do you utilize curbside service for garbage (Rural)?

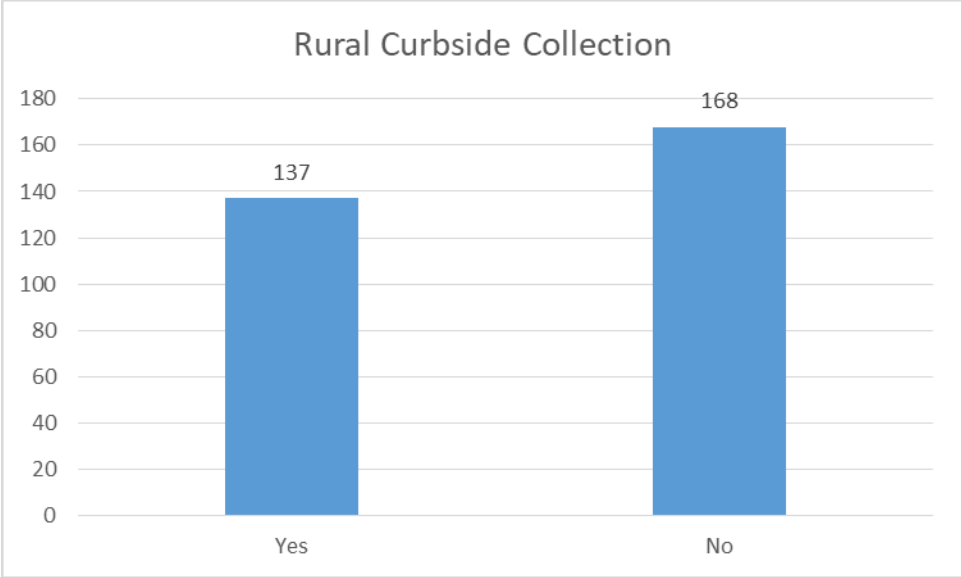
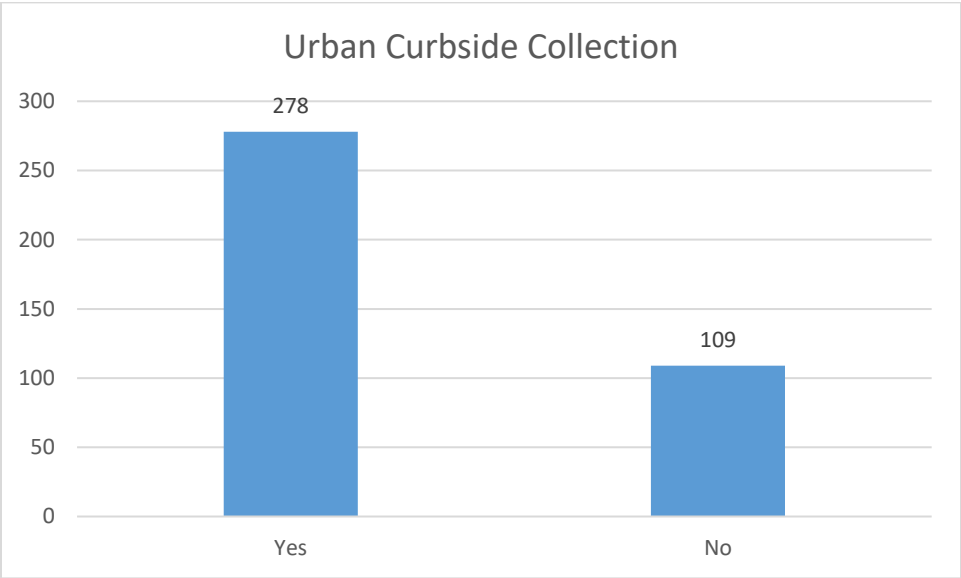


Figure 12b: Do you utilize curbside service for garbage (Urban)?



While convenience was the most frequently recorded response when respondents were asked why they opted to use drop-off locations (shown in Figure 13), it is important to note that measures of convenience also tacitly encompass other potential drivers. While the most common interpretation of convenience is that “the task is easy to perform” – it also affects attitudes towards other variables such as frequency and familiarity. Something that is serviced frequently and is known to a person, is by definition, more convenient. As such, there is a collinearity among survey responses that makes it difficult to specifically isolate what factors are most likely to influence drop-off participation.

Figure 13: Why do you use drop off sites in lieu of curbside?



Of note, “Other” was selected by almost a quarter of all respondents. The most frequently coded “Other” responses were animals (27), cleaning out (9), bags (11), familiarity (5), frequency (7). As noted earlier, the decision to use a drop-off site in lieu of curbside collection is atypical relative to the broader findings in the literature. Why this is happening ultimately remains unclear.

5.0 Awareness and General Comments

Generally speaking, household awareness regarding the presence of both curbside collection and the Mobile HHW Depot was extremely high. Households across Wellington are familiar with the collection options available to them – which raises questions surrounding why drop off sites are so heavily utilized.

The answer to this may be explained by behavioural theory (in part) – namely, habituation.

Based on the survey results, convenience, familiarity and disposal options were the most significant predictors of drop-off participation. It should be noted that these are stated preferences – subjective interpretations of survey respondents based on their experience with the programme. Why this is worth highlighting is that waste disposal/diversion behaviour is largely habitual. As such, any programmatic/infrastructural changes (i.e. introducing curbside collection to rural areas) may take time before changes in behaviour are observed. Given the relative infancy of curbside collection in many rural areas, (rural) respondents may genuinely find drop sites as being more convenient (at least during the programme’s onset). Uncertainty regarding curbside collection (i.e. collection days, accepted materials, service standards, etc.) may motivate households to continue to use drop sites until the curbside programme has gained traction.

Stepping back for a moment, the determinants to recycling behaviour are explained by the following three factors: 1) Attitude towards the activity (in this case, recycling and disposal) 2) Normative pressures (what does my family and extended kinship network do when it comes to waste), 3) Perceived behavioural control (how easy is it to perform the behaviour, do my actions make a difference).

With these three factors in mind, the decision to continue to use the drop off sites may be attributed to what they see their neighbours/friends/family do. Given the number of respondents that have historically used drop-off sites (particularly in rural communities) – indirect normative/peer influences may be reinforcing the habitual behaviour of bringing waste to a waste facility.

Related to the above, levels of perceived behavioural control are much higher for households who use drop-off sites. Households can pick a time and day to bring their material, they can bring a range of items that are not collected by the Blue Box, and lastly, households are familiar with the programme and how it works, given its history etc.

The general expectation is that over time (as awareness regarding the efficacy of curbside collection grows), you would see more and more households transition to using curbside exclusively for blue box recyclables and waste. However, there are significant head winds to this happening. Wellington residents have a long and established history of using drop-off sites, and don't seem to have any particular objection to using them.

The decision to offer drop-off sites is a function of customer service and economics for the municipality. Based on survey results, a significant percentage of Wellington residents use one (or more) of the drop-off sites. This behaviour is likely to persist barring direct intervention on the part of the municipality forcing respondents to use curbside collection.

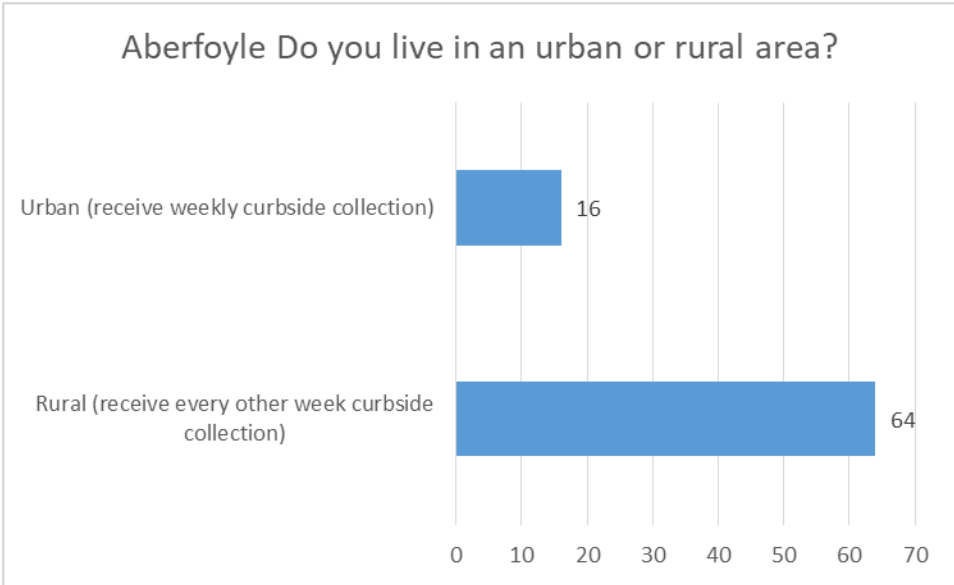
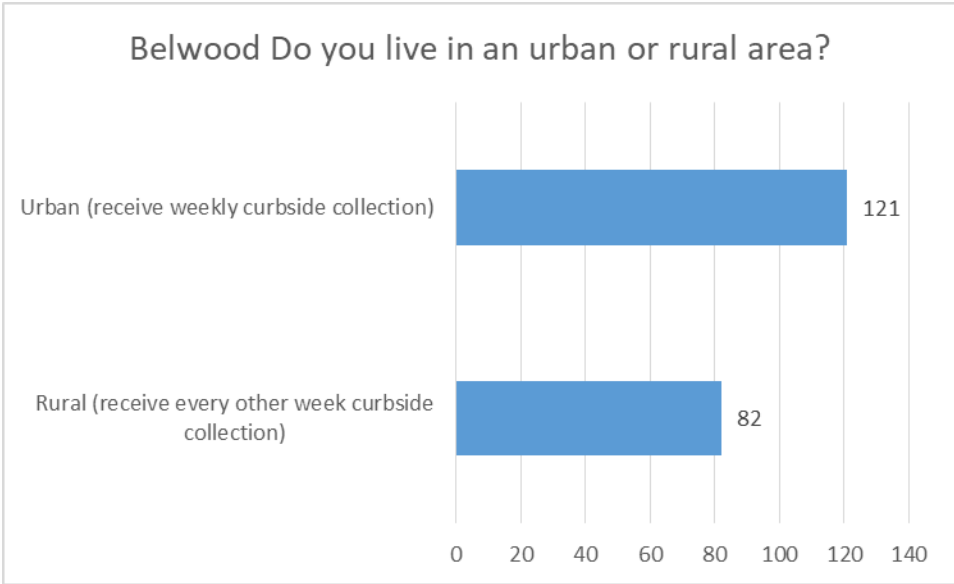
It is the recommendation of this report that all drop-off sites continue to operate in the near term, while simultaneously promoting the benefits and results of curbside collection to residents. Particular emphasis should be placed on communicating that curbside collection has the potential to match or exceed the efficacy of bring sites.

To support the waste optimization plan, methods for selecting sites to continue/discontinue may rely on interpretations of:

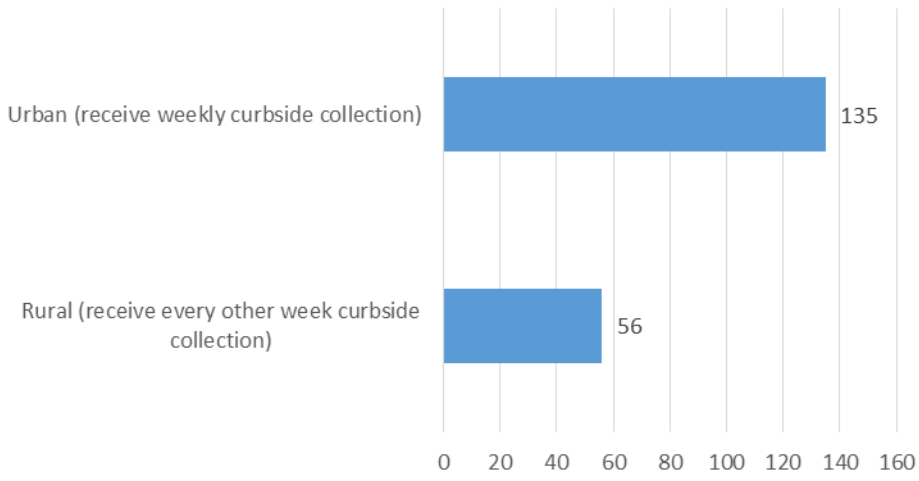
- Alternatives to drop-offs
- Site usage reports
- Use by proximity

Future iterations of the survey should possibly consider asking households who utilize drop-off sites what would encourage them to switch to curbside collection.

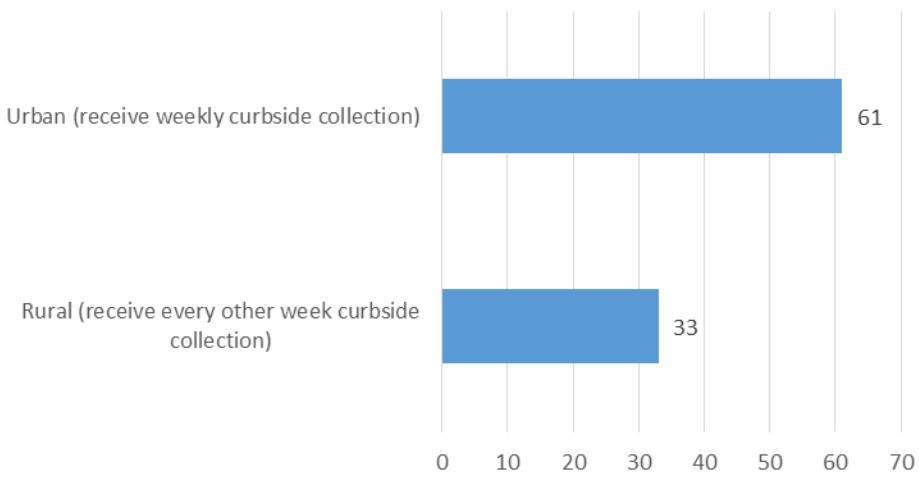
Appendix: Additional Figures (Rural vs Urban Split):



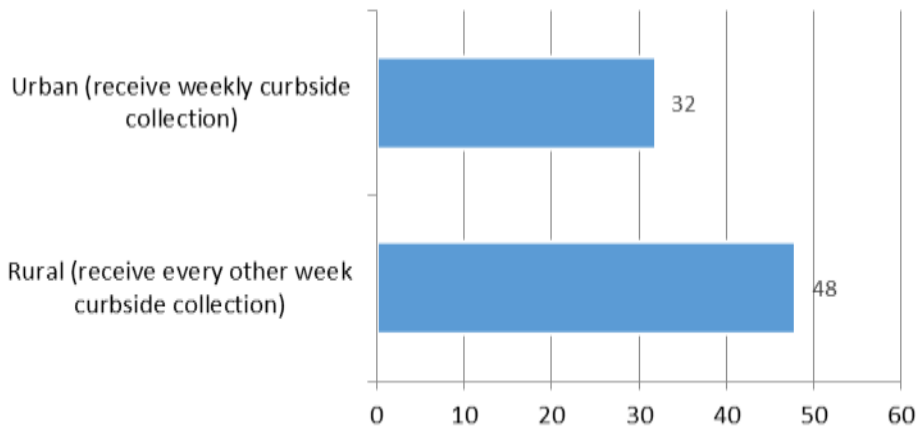
Elora Do you live in an urban or rural area?



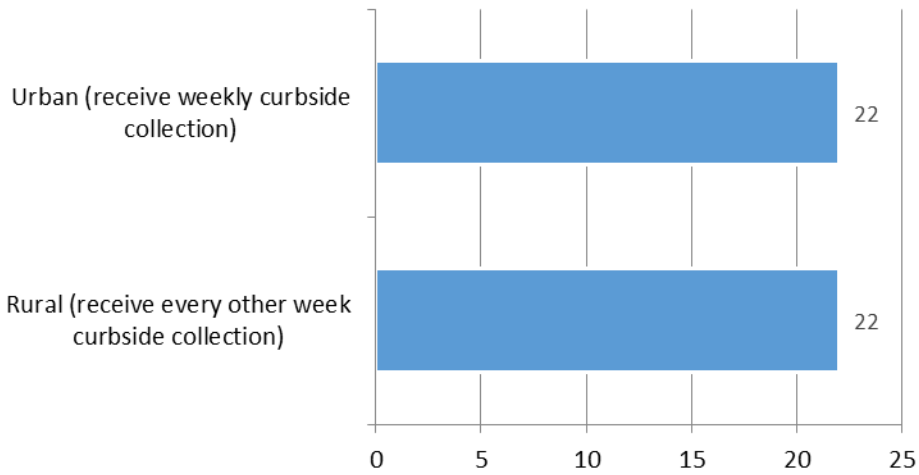
Harriston Do you live in an urban or rural area?

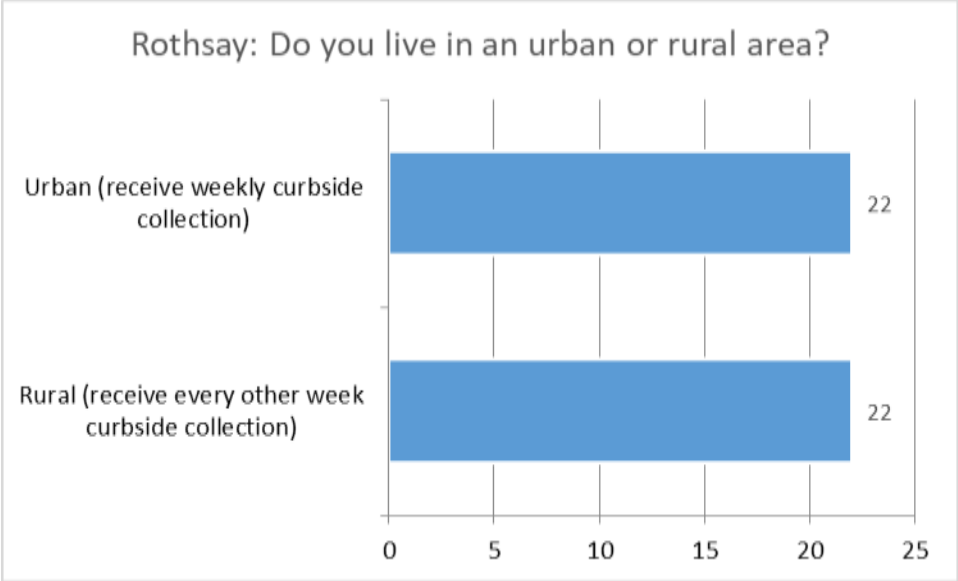


Riverstown: Do you live in an urban or rural area?

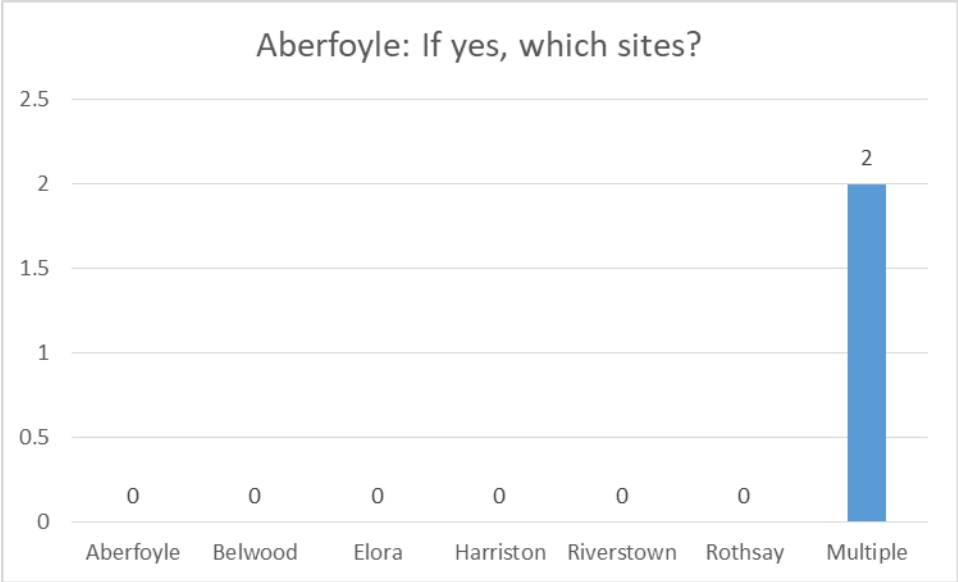


Do you live in an urban or rural area?

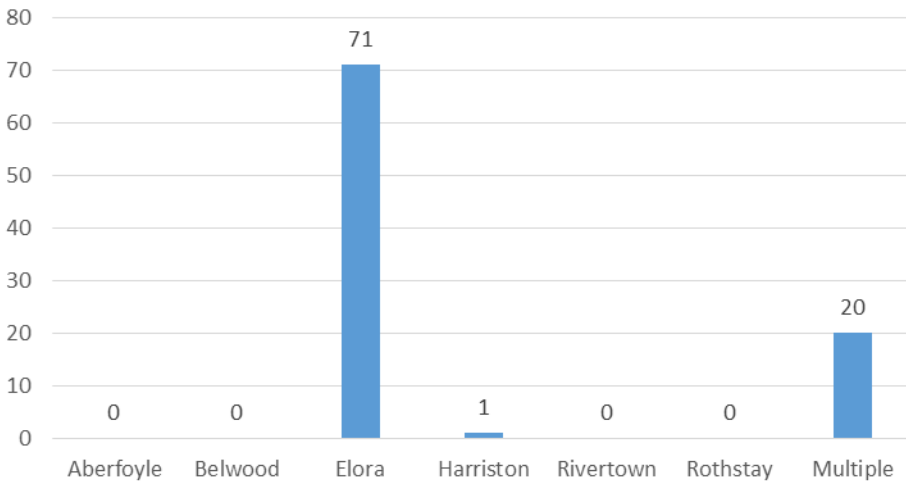




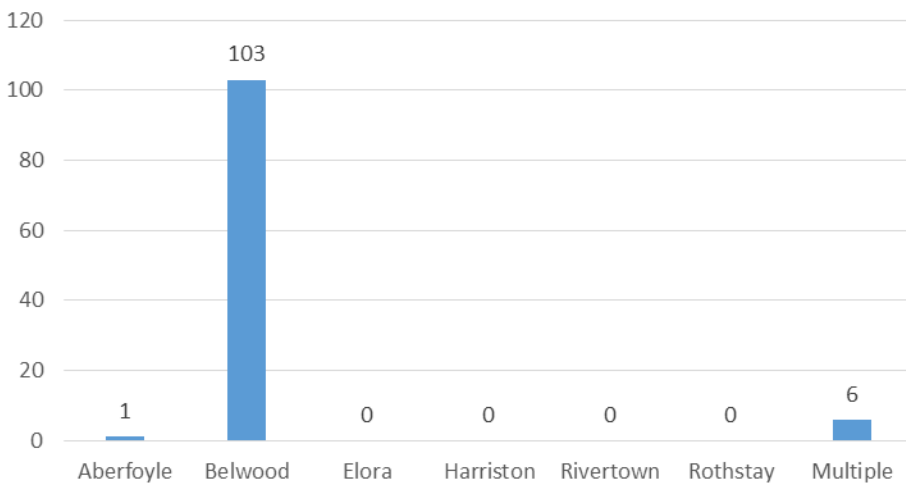
Appendix B: Site utilization by member municipality



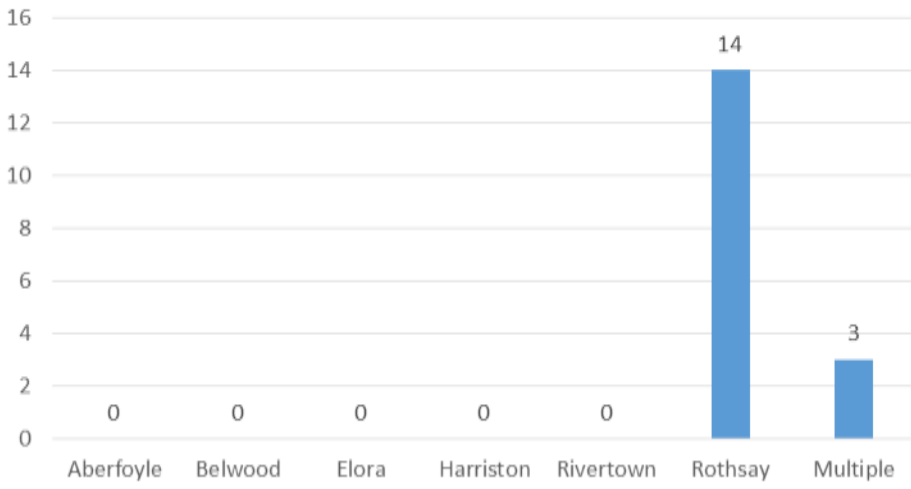
Belwood: If yes, which sites?



Elora: If yes, which sites?



Harriston: If yes, which sites?



Rothsay: If yes, which sites?

