

CIF Project 711

**Ontario Single Family Curbside Audits
2012/2013**

April 2014



CIF Project 711, Ontario Single Family Curbside Audits 2012/2013

Waste Composition Analysis

Prepared for

Continuous Improvement Fund

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April 17, 2014

Project No. CON_WAC1314_078



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Appendix A. Waste Audit Results

1.0 INTRODUCTION

1.1 Background

AET Group Inc. (AET) was contracted by the Continuous Improvement Fund (CIF) and Stewardship Ontario to conduct seasonal single-family residential curbside waste composition audits in seven (7) municipalities across Ontario in 2012/2013. This report summarizes the results from these audits. Kilogram per household per week (kg/hh/wk) generation rates are summarized by material type, season, and municipal group.

The municipalities audited fell into five (5) of WDO's nine (9) municipal group classifications. The audit results include the following municipal groups: Large Urban, Medium Urban, Small Urban, Urban Regional & Rural Regional. The remaining municipal groups that were not part of the 2012/2013 audit program include: Rural Collection South, Rural Depot South, Rural Collection North and Rural Depot North.

2.0 METHODOLOGY

2.1 Data Collection

Four seasonal 2-week audits were conducted in each municipality over the study period (8 weeks total per municipality). The sample size was 100 households per municipality. The sampled households were pre-selected and remained the same throughout all four seasonal audits. AET staff collected, sorted and weighed all garbage, recycling and organics (if applicable) set out by the sample households over the four seasonal audit periods. Materials were collected, sorted and weighed separately by stream and by sample area.

The number of households sampled is adjusted to account for any hauler issues (e.g. material picked up by regular hauler before audit team arrival), resident refusals, or seasonal drop off locations. Although material categories were the same for all audits, a particular material's classification as recyclable or compostable was dependant on each individual municipality's acceptance criteria.

2.2 Calculations

The calculations used to analyze the waste audit results are as follows:

Total kg/hh/wk:

$$\left(\frac{\text{Total disposed weight (kg)}}{\text{Number of households sampled}} \right) \div \text{generation period(days)} \times 7 \text{ days}$$

Capture Rate:

$$\left(\frac{\text{Total Recycled(kg)}}{\text{Total Generated(kg)}} \right) \times 100\%$$

4-Season Average (kg/hh/wk):

$$\left(\frac{\text{Spring(kg/hh/wk)} + \text{Summer(kg/hh/wk)} + \text{Fall(kg/hh/wk)} + \text{Winter(kg/hh/wk)}}{4} \right)$$

3.0 RESULTS AND DISCUSSION

The following sections summarize the results of the waste composition calculations. Table 3.1 provides an overview of the waste collection details for the 7 municipalities audited. The results are presented by primary material category, stream (garbage, recycling & organics (if applicable)) as well as a cumulative total (all streams combined). Full detailed results can be found in Appendix A, including breakdown by material sub-category and acceptance criteria for the recycling and organics streams.

Table 3.1 Overview of Waste Collection Details

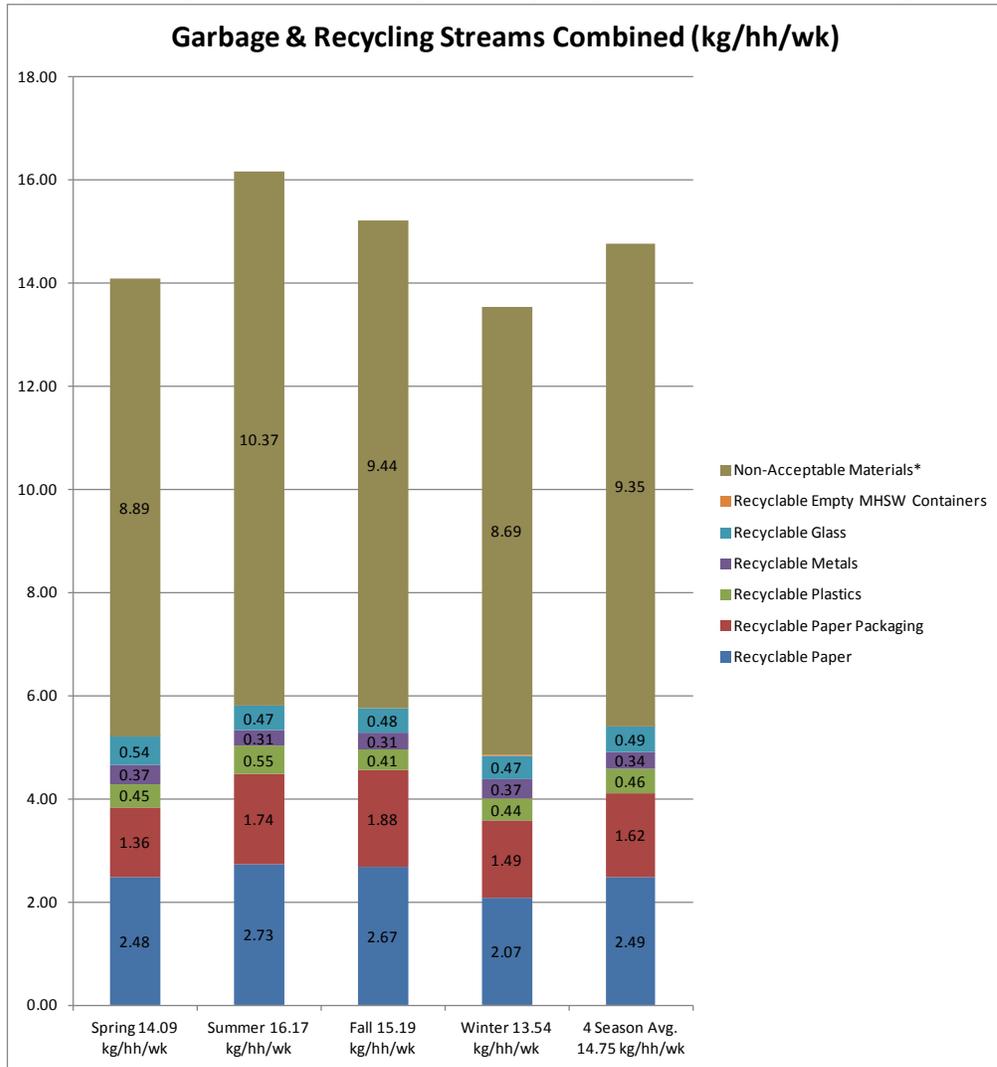
Municipal Group	Garbage		Recycling			Organics	
	Collection Frequency	Bag/Container Limit	Collection Frequency	Type of Collection	Type of Recycling Receptacles	Organics Program in Place?	Collection Frequency
Large Urban A	weekly	4 bag/container limit	weekly	Two-Stream	blue box	No	-
Large Urban B	biweekly	Cart System (S,M,L & XL)	biweekly	Single-Stream	Cart System (S,M,L,XL)	Yes	weekly
Medium Urban	weekly	2 bag/container limit	weekly	Two-Stream	blue box	No	-
Small Urban	weekly	No bag/container limit	weekly	Two-Stream	blue box	Yes	weekly
Urban Regional	weekly	1 bag/container limit	weekly	Two-Stream	blue box	Yes	weekly
Rural Regional A	weekly	3 bag/container limit	weekly	Two-Stream	blue box	No	-
Rural Regional B	weekly (summer & fall), biweekly (spring & winter)	3 bag/container limit	weekly	Two-Stream	blue box	No*	-

*Rural Regional B has organics collection in partial areas of the municipality. This material was not collected as part of the audit.

3.1 Large Urban A

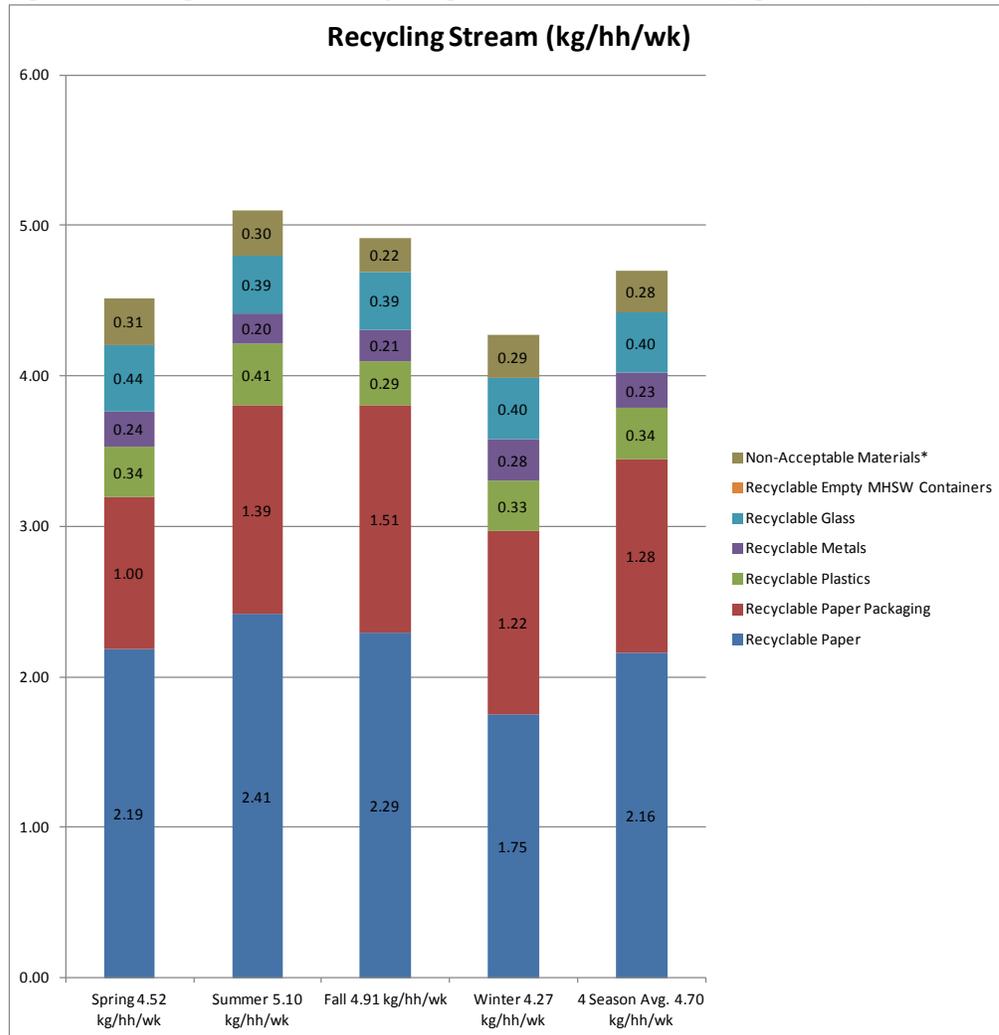
The Large Urban A composition results are based on a municipality that has weekly garbage and recycling collection. The recycling program is two-stream, where residents set out their containers and fibres separately.

Figure 3.1 Large Urban A Garbage & Recycling Stream Breakdown (kg/hh/wk)



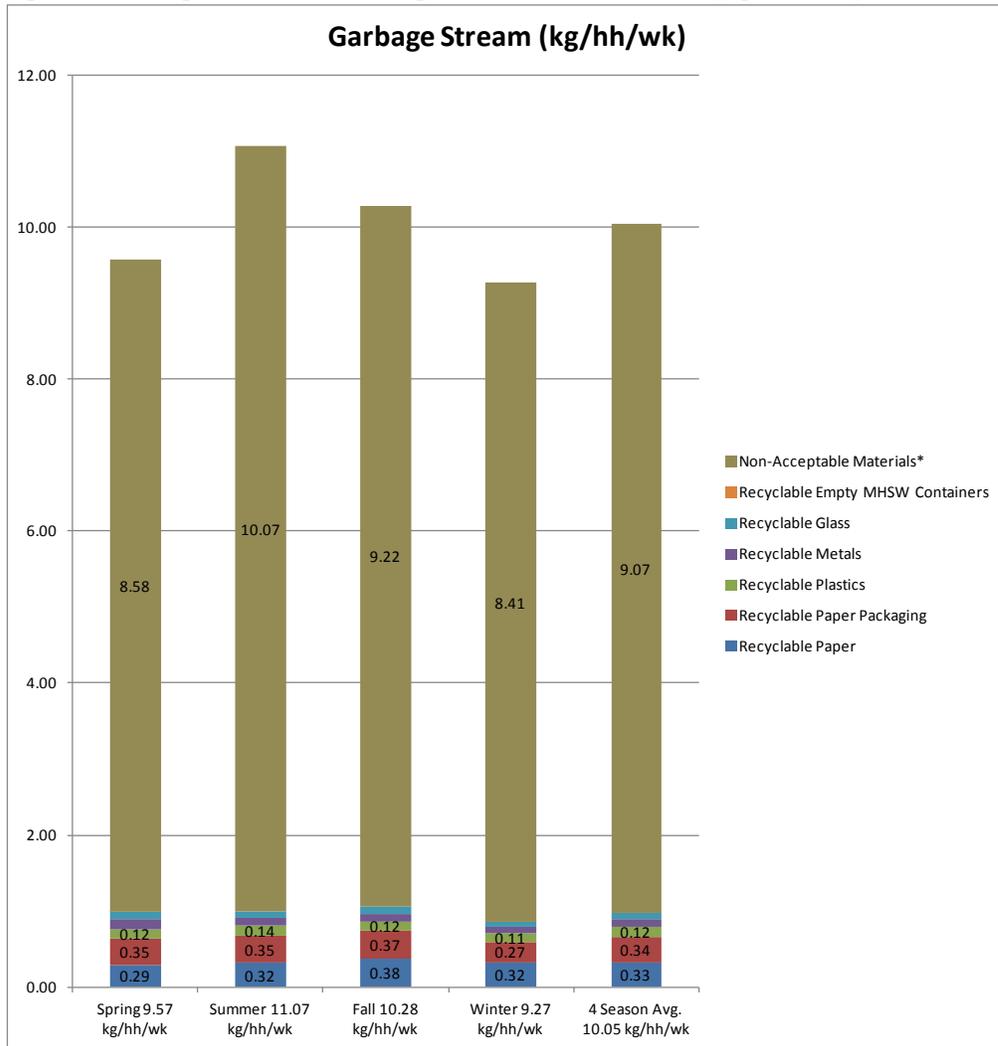
*Non-Acceptable Materials category will vary depending each municipality's blue-box program acceptance criteria.

Figure 3.2 Large Urban A Recycling Stream Breakdown (kg/hh/wk)



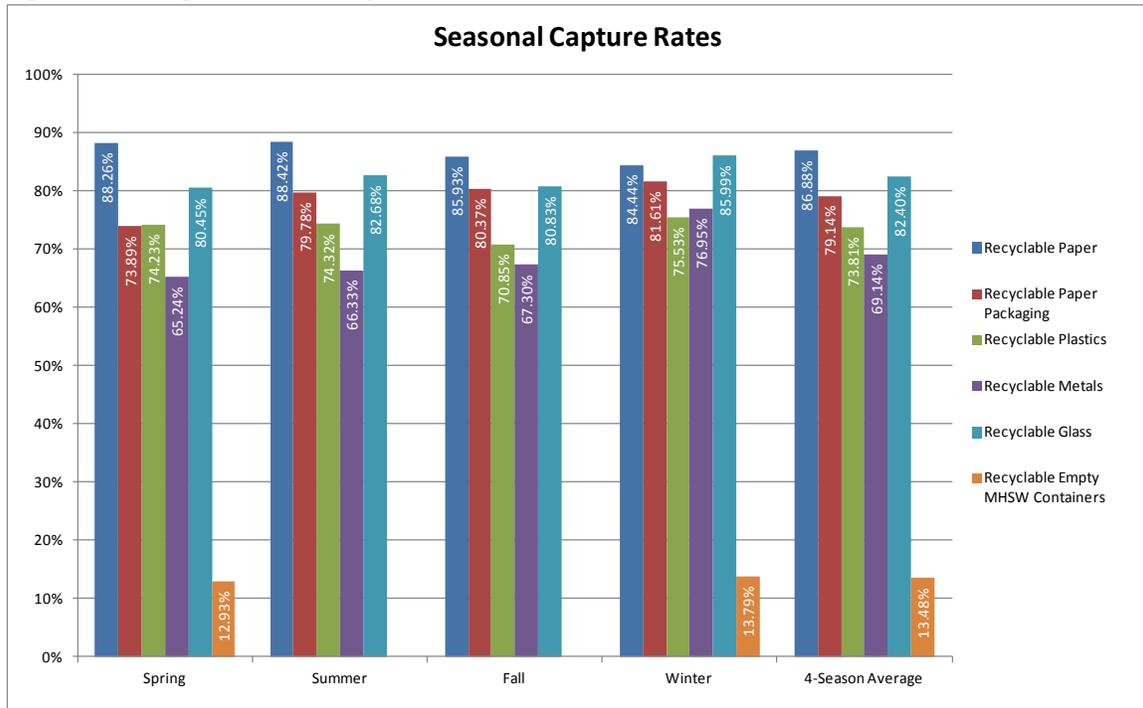
*Non-Acceptable Materials will vary depending on each municipality's recycling stream acceptance criteria.

Figure 3.3 Large Urban A Garbage Stream Breakdown (kg/hh/wk)



**Non-Acceptable Materials will vary depending on each municipality's recycling stream acceptance criteria.

Figure 3.4 Large Urban A Capture Rates

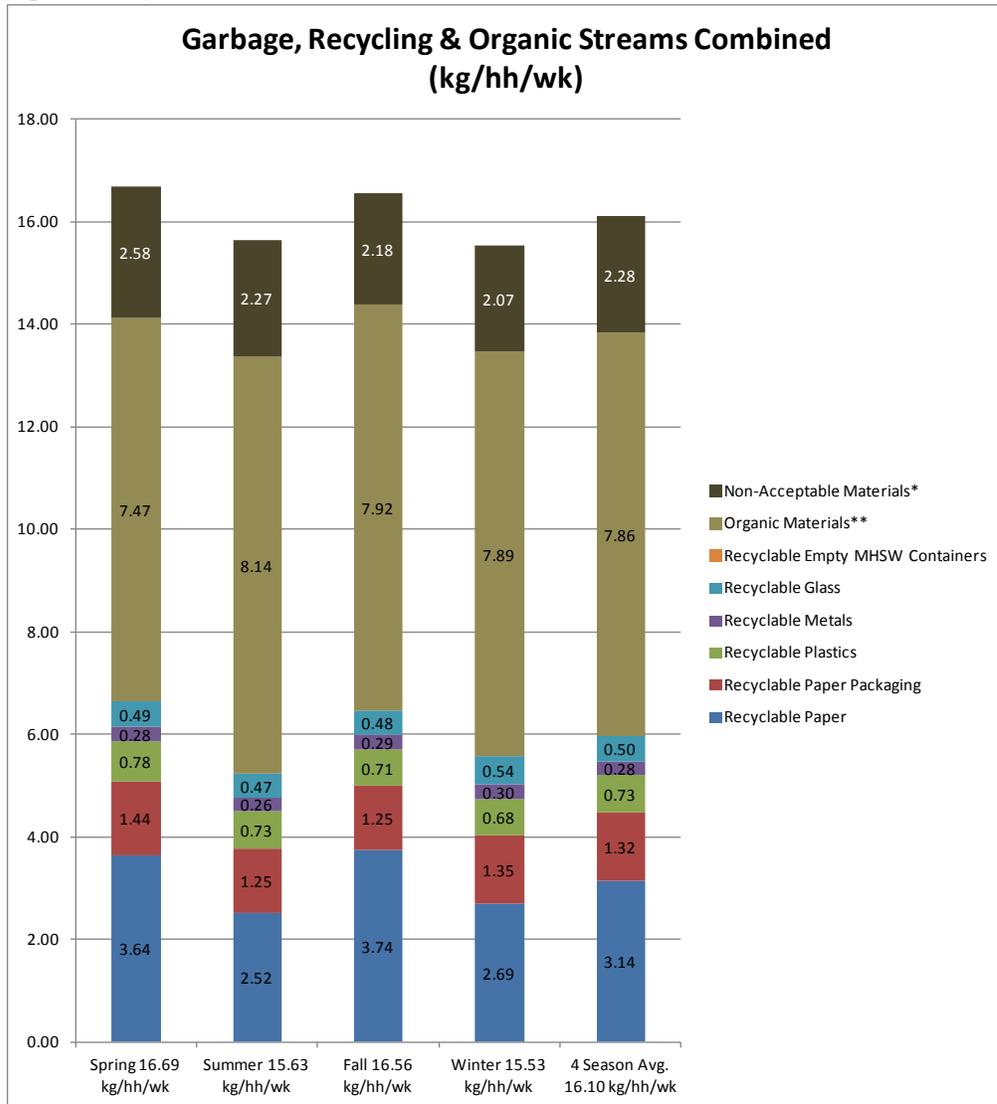


Note: Recyclable Empty MHSW Containers were not isolated as a separate category for the summer and fall season.

3.2 Large Urban B

The Large Urban B composition results are based on a municipality that has biweekly garbage and recycling collection and weekly organics collection. The recycling program is a single-stream cart system. Residents set out their garbage and recycling in different size carts. A standard green bin is used for organics collection.

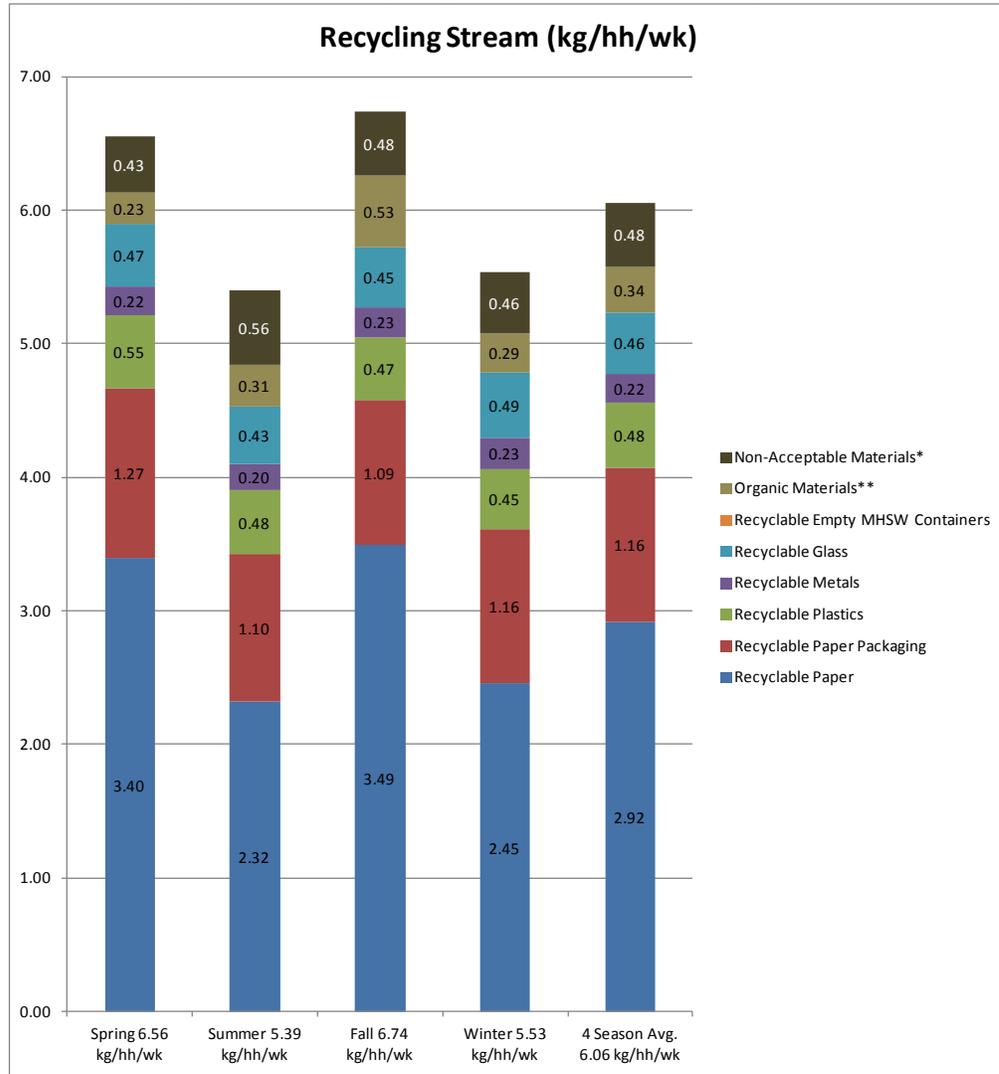
Figure 3.5 Large Urban B Garbage, Recycling & Organics Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria.

**Organic Materials includes all materials accepted in this municipal green bin program (e.g. food, compostable fibres, pet waste, etc.)

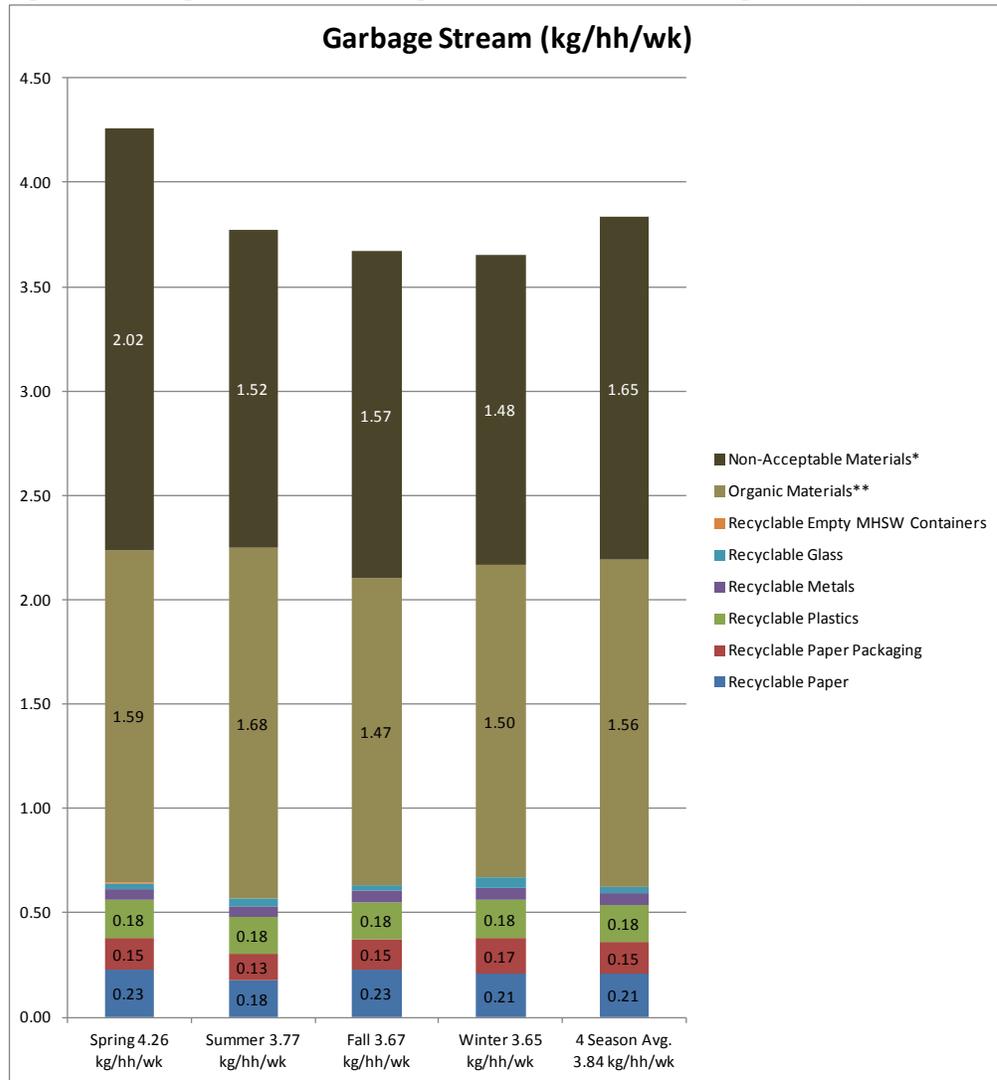
Figure 3.6 Large Urban B Recycling Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria.

**Organic Materials includes all materials accepted in this municipal green bin program (e.g. food, compostable fibres, pet waste, etc.)

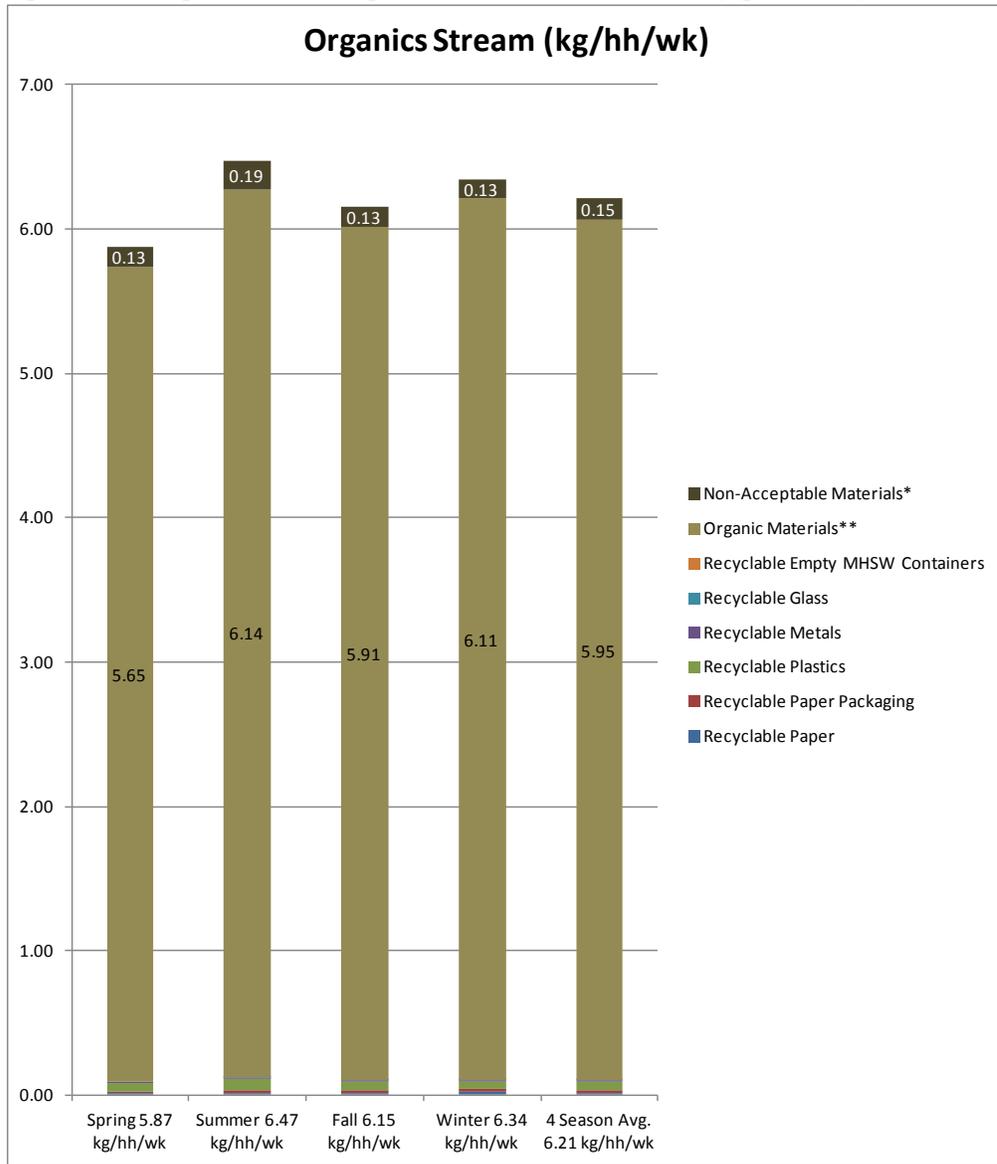
Figure 3.7 Large Urban B Garbage Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria.

**Organic Materials includes all materials accepted in this municipal green bin program (e.g. food, compostable fibres, pet waste, etc.)

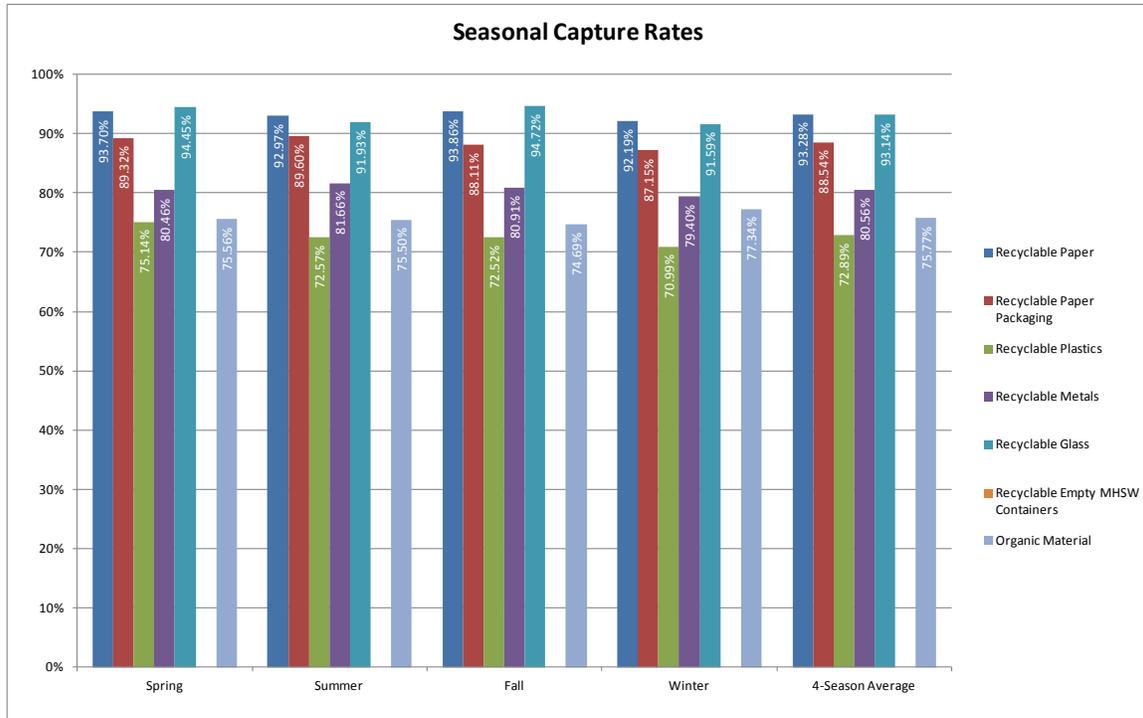
Figure 3.8 Large Urban B Organics Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria.

**Organic Materials includes all materials accepted in this municipal green bin program (e.g. food, compostable fibres, pet waste, etc.)

Figure 3.9 Large Urban B Capture Rates

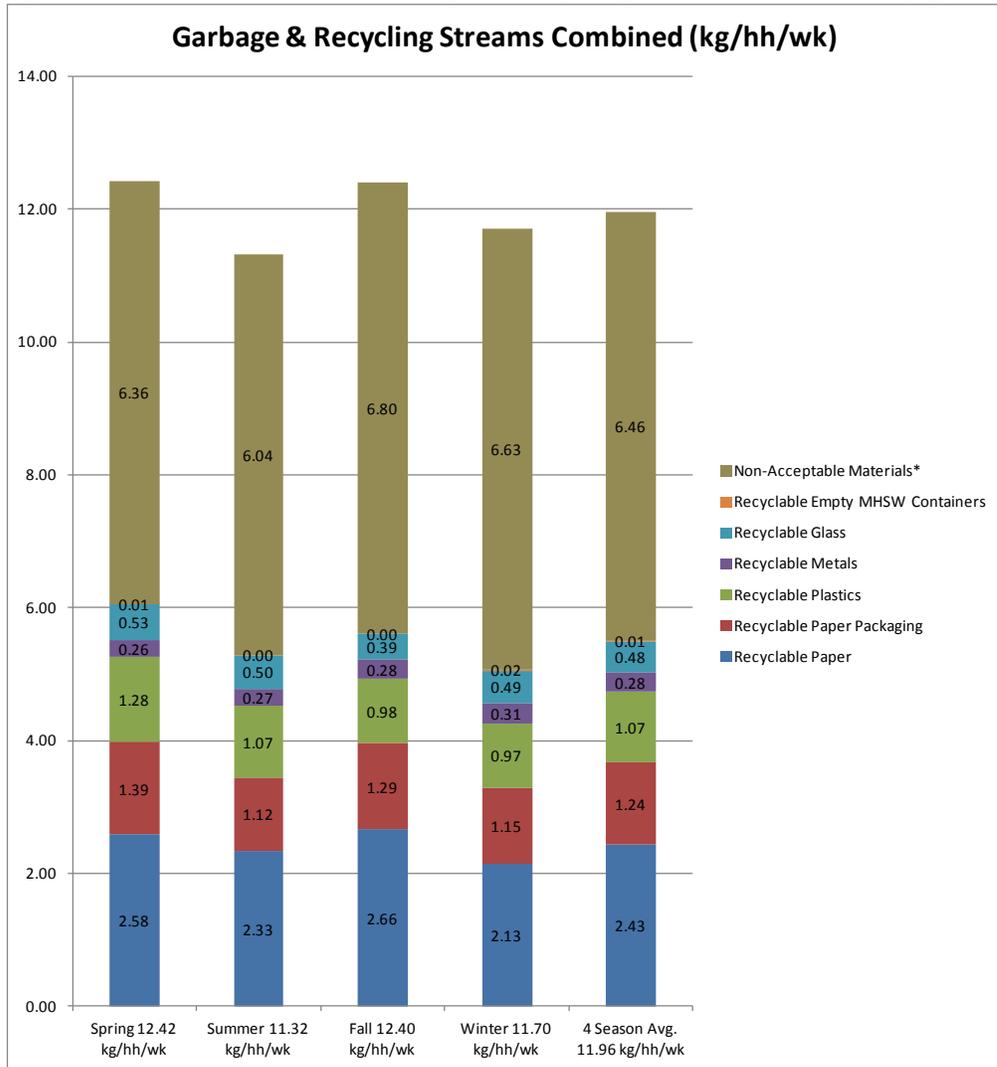


Note: Recyclable Empty MHSW Containers were not isolated as a separate category for the summer, fall and winter seasons.

3.3 Medium Urban

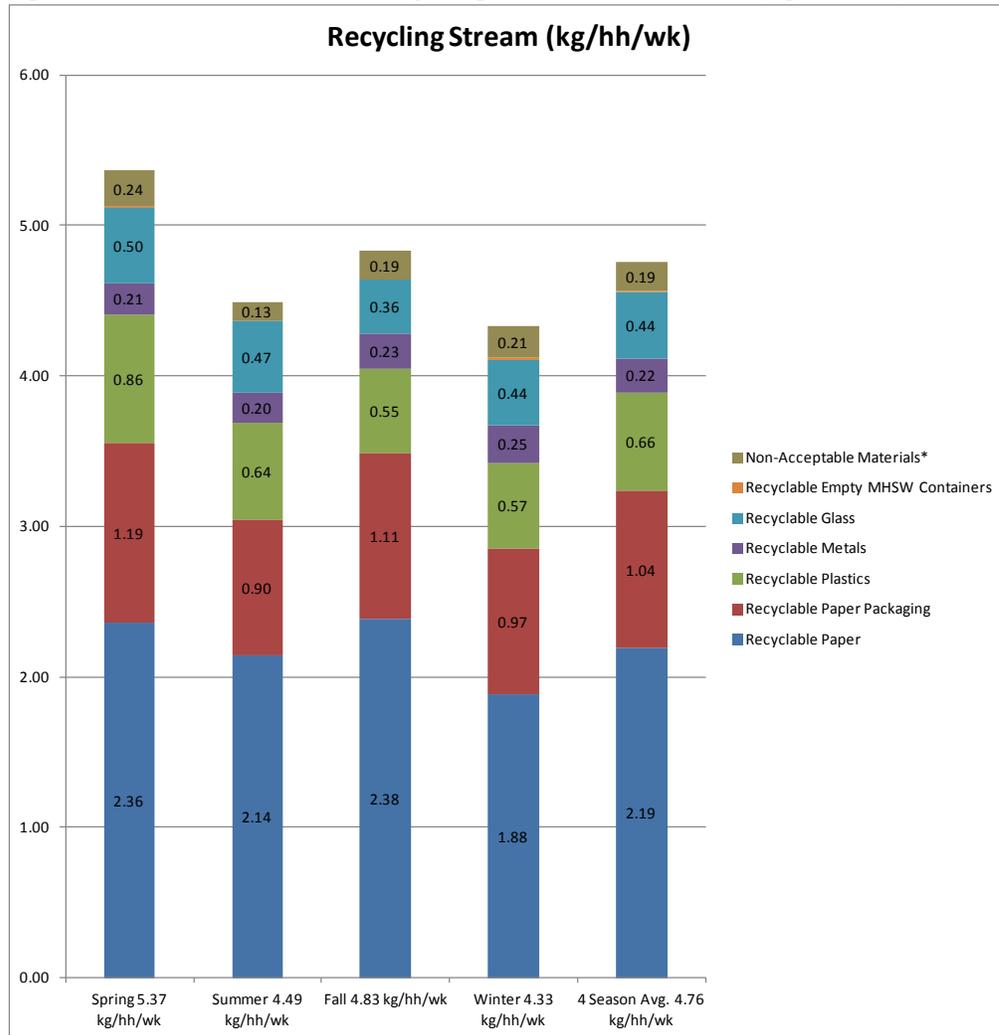
The Medium Urban composition results are based on a municipality that has weekly garbage and recycling collection. The recycling program is two-stream, where residents set out their containers and fibres separately.

Figure 3.10 Medium Urban Garbage & Recycling Stream Breakdown (kg/hh/wk)



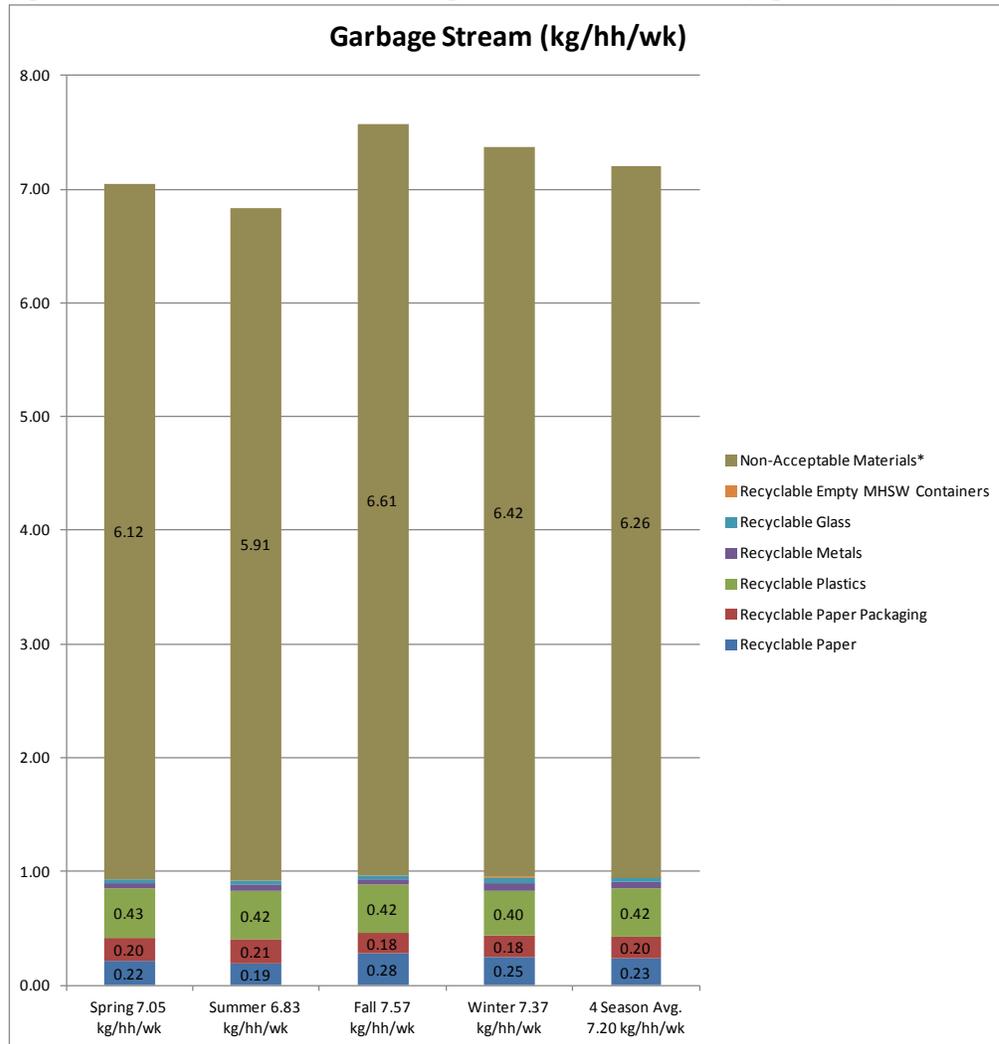
**Non-Acceptable Materials will vary depending on each municipality's recycling stream acceptance criteria.

Figure 3.11 Medium Urban Recycling Stream Breakdown (kg/hh/wk)



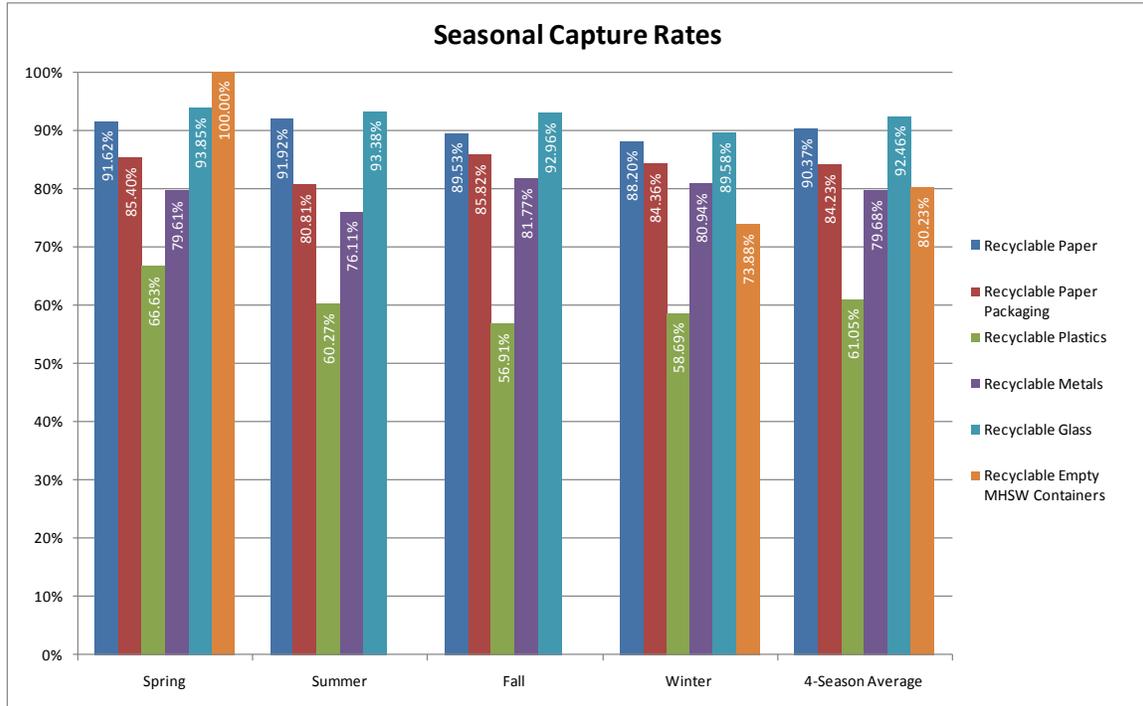
*Non-Acceptable Materials will vary depending on each municipality's recycling stream acceptance criteria.

Figure 3.12 Medium Urban Garbage Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials will vary depending on each municipality's recycling stream acceptance criteria.

Figure 3.13 Medium Urban Capture Rates

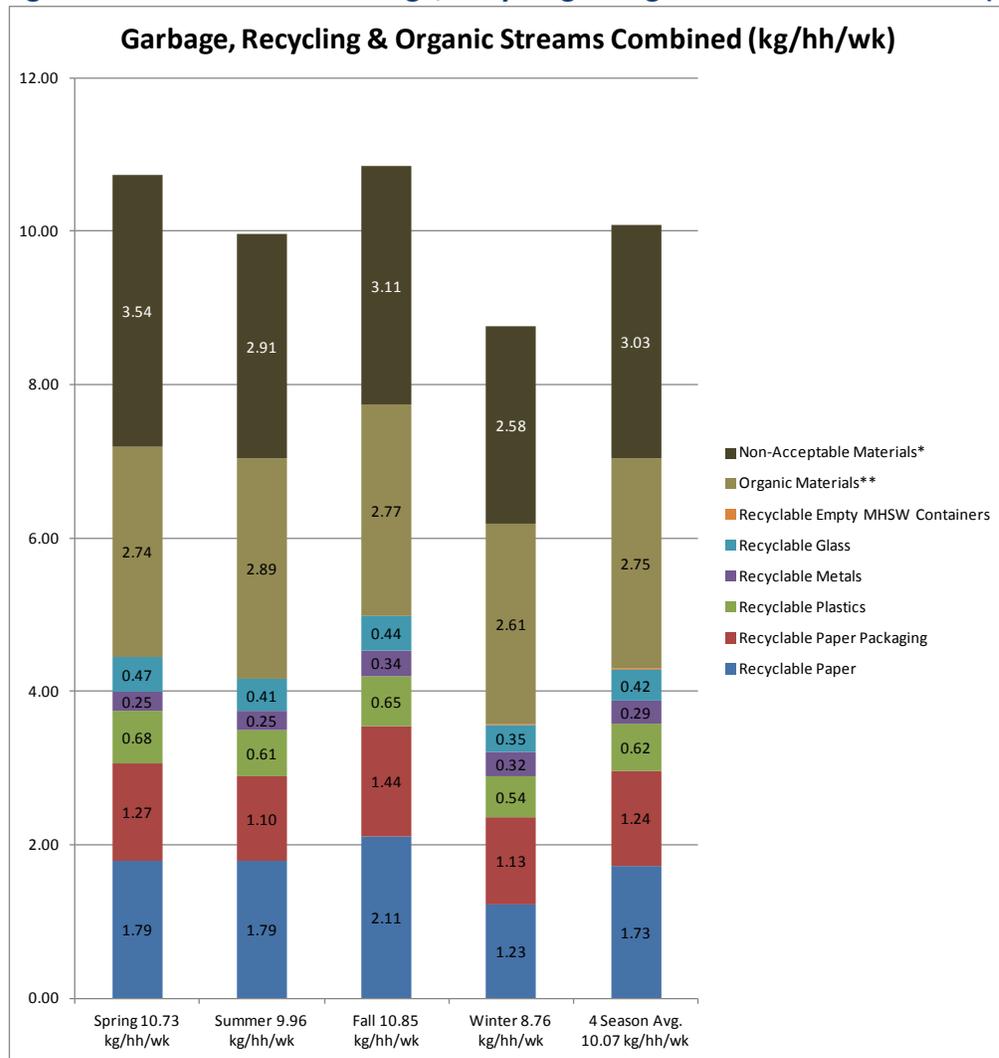


Note: Recyclable Empty MHSW Containers were not separated out as a separate category for the summer and fall seasons.

3.4 Small Urban

The Small Urban composition results are based on a municipality that has weekly garbage, recycling and organics collection. The recycling program utilizes two-stream collection, where residents set out their containers and fibres separately.

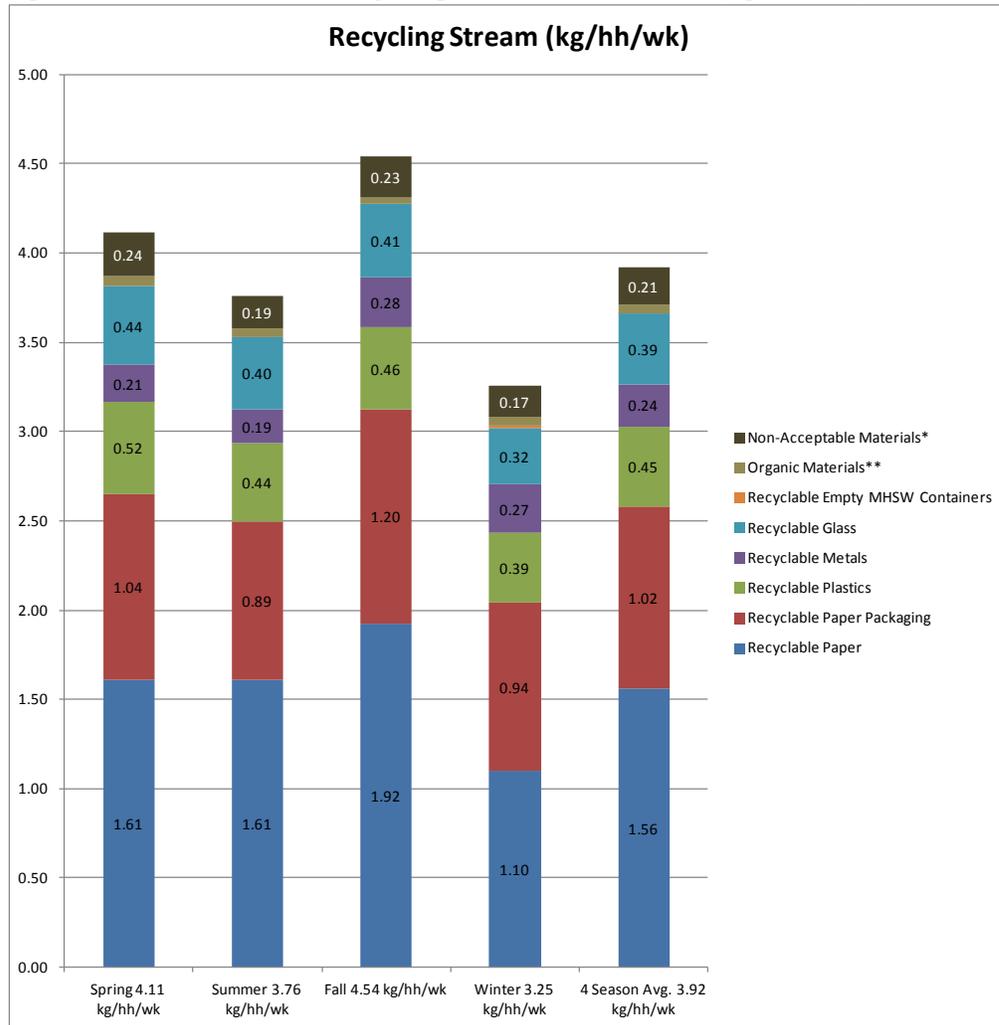
Figure 3.14 Small Urban Garbage, Recycling & Organic Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria.

**Organic Materials includes only materials accepted in this municipal green bin program.

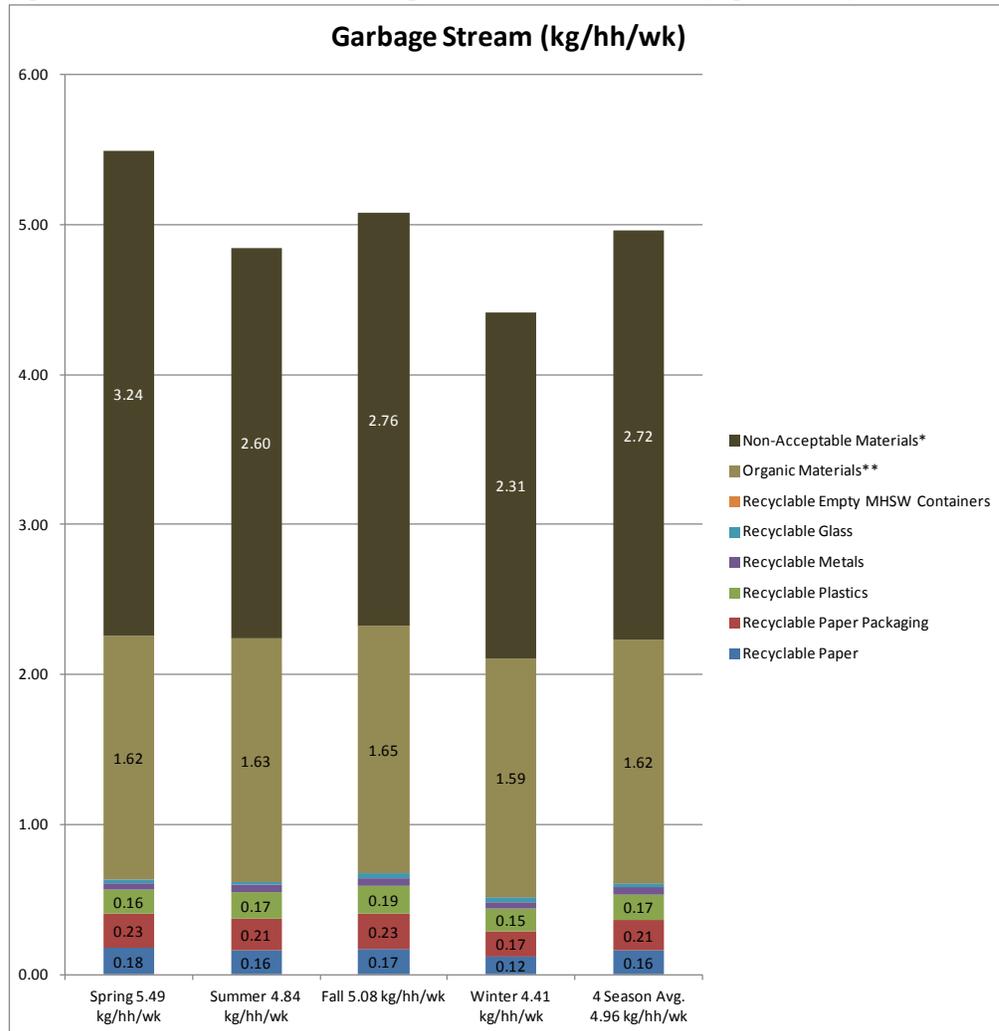
Figure 3.15 Small Urban Recycling Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria.

**Organic Materials includes only materials accepted in this municipal green bin program.

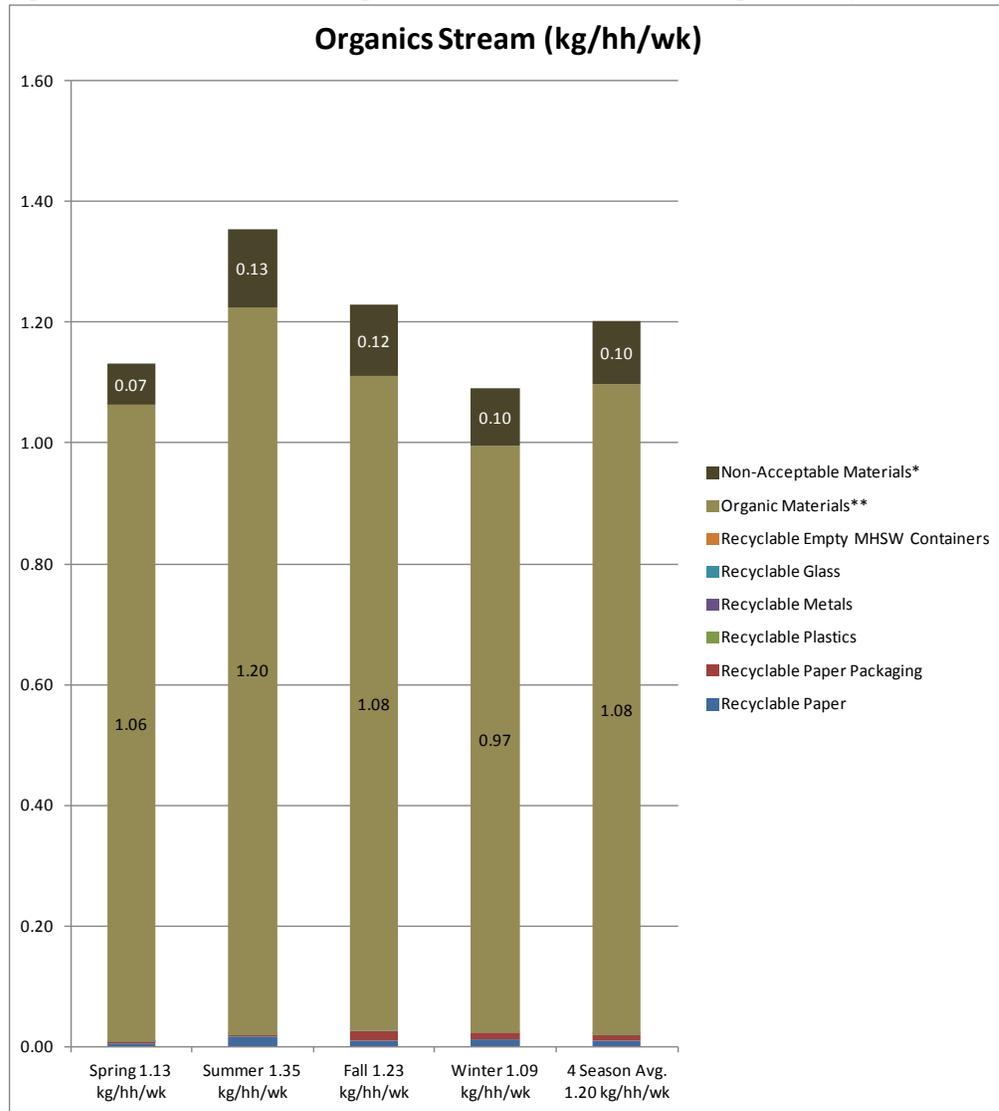
Figure 3.16 Small Urban Garbage Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria.

**Organic Materials includes only materials accepted in this municipal green bin program.

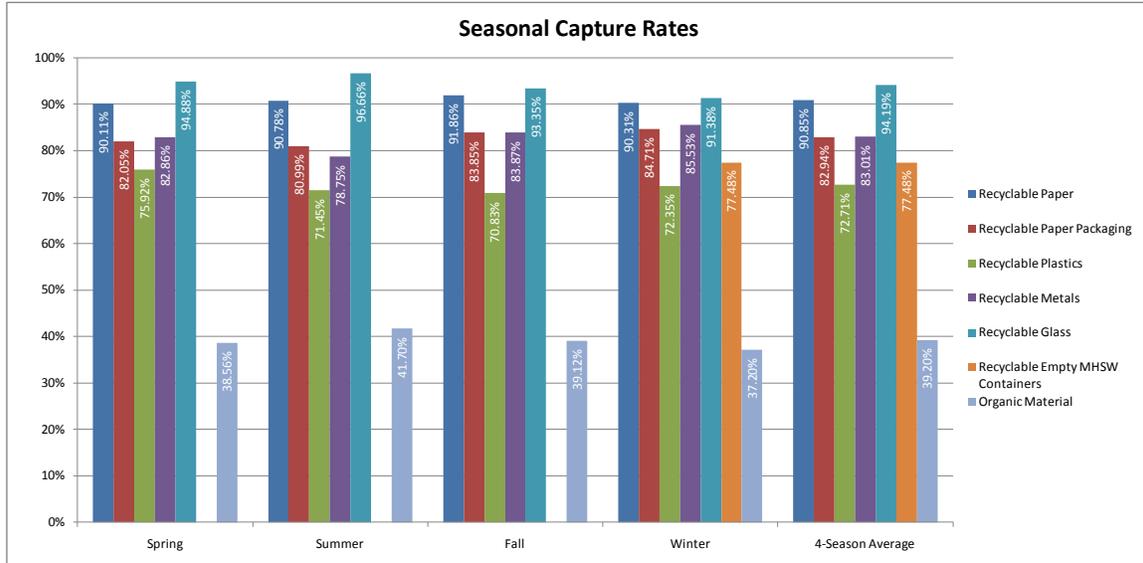
Figure 3.17 Small Urban Organics Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria.

**Organic Materials includes only materials accepted in this municipal green bin program.

Figure 3.18 Small Urban Capture Rates

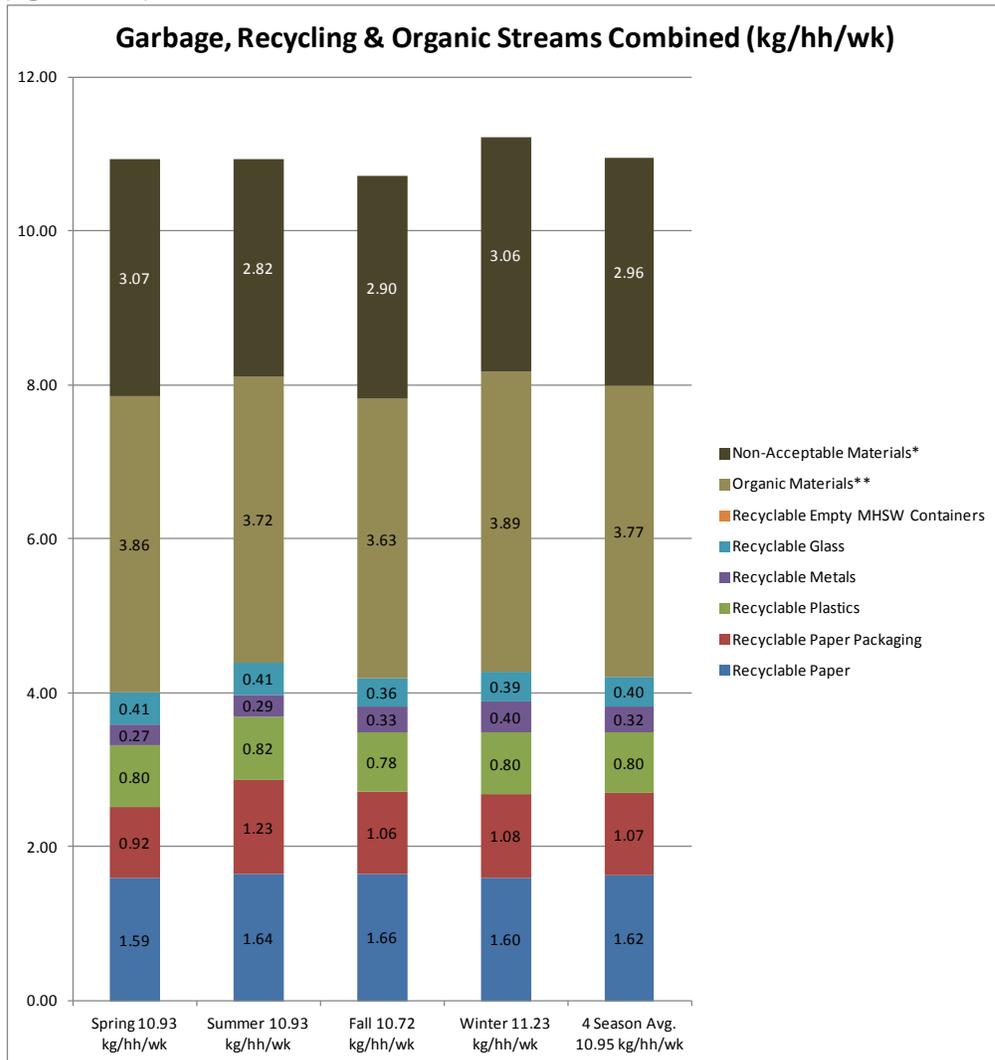


Note: Recyclable Empty MHSW Containers were not separated out as a separate category for the spring, summer and fall seasons.

3.5 Urban Regional

The Urban Regional composition results are based on a municipality that has weekly garbage, recycling and organics collection. The recycling program utilizes two-stream collection, where residents set out their containers and fibres separately.

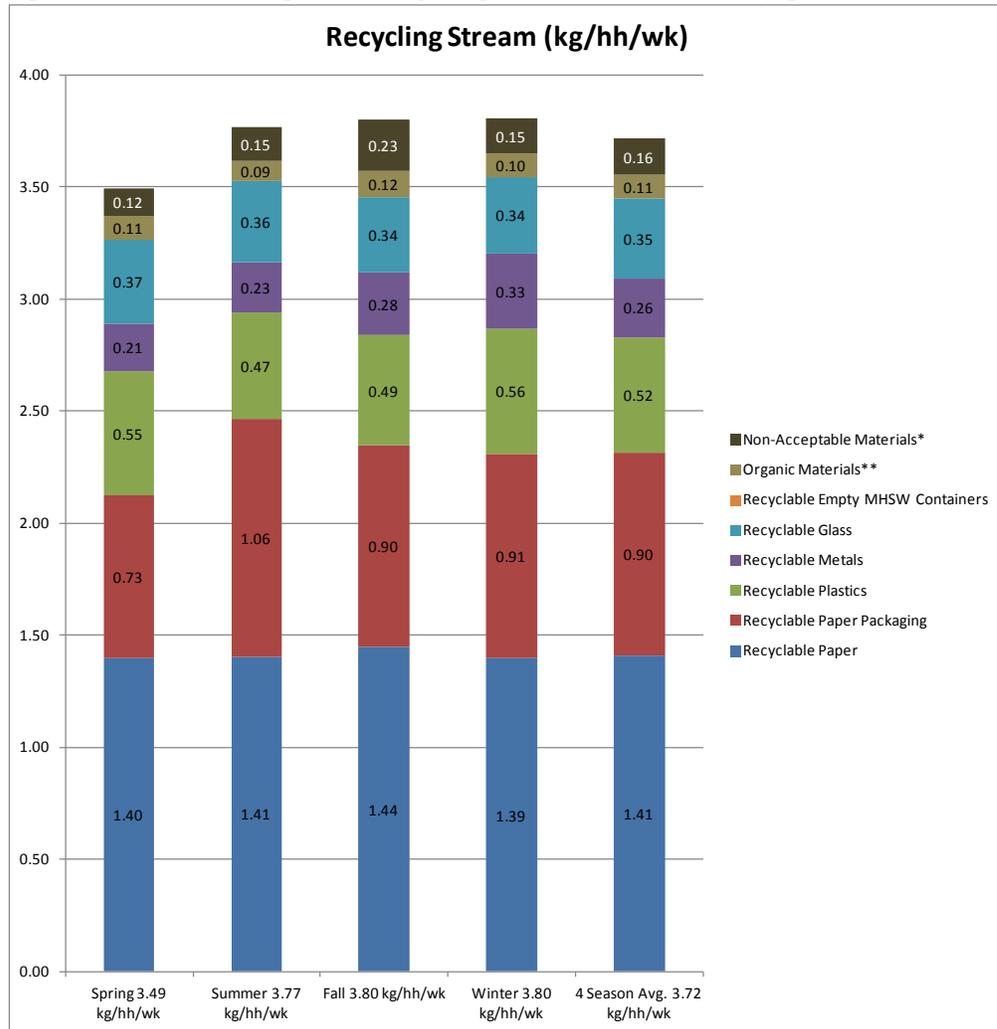
Figure 3.19 Urban Regional Garbage, Recycling & Organics Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality’s recycling program acceptance criteria.

**Organic Materials includes only materials accepted in this municipal green bin program.

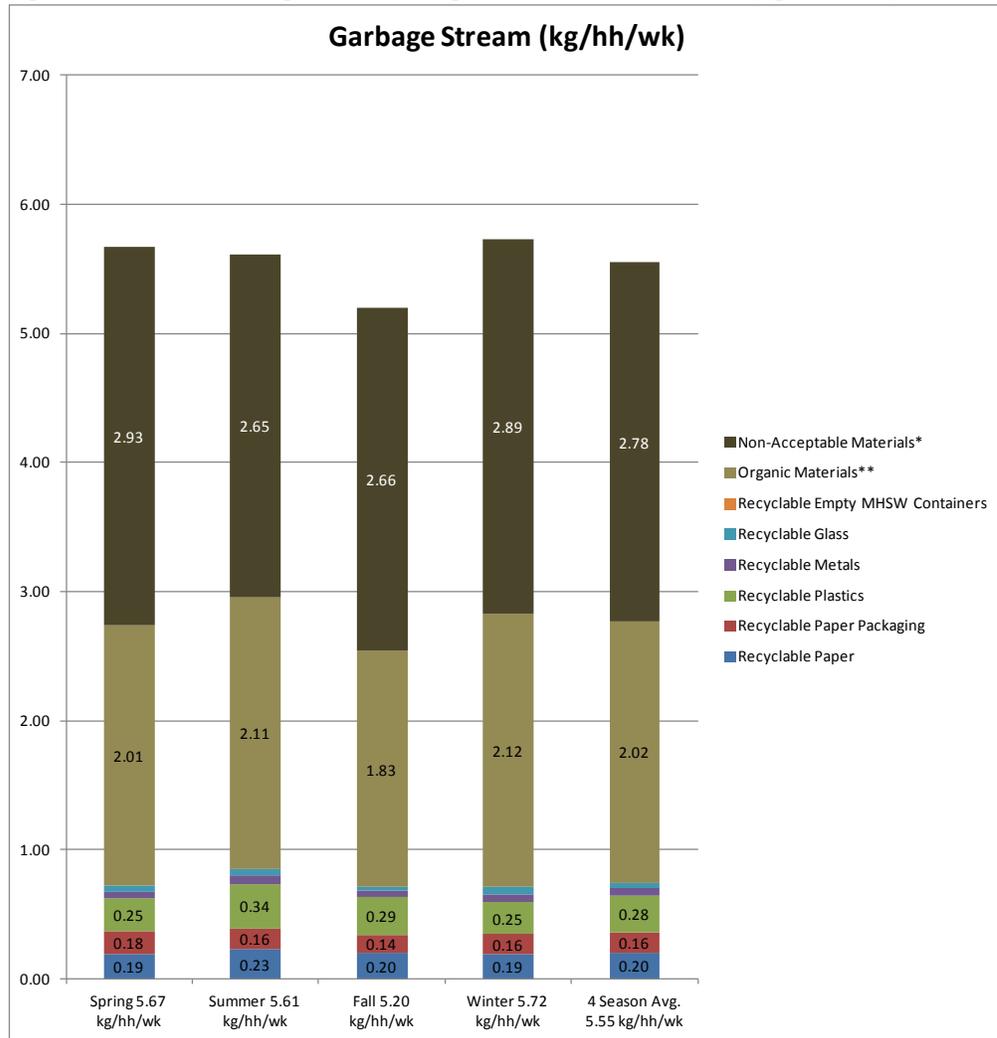
Figure 3.20 Urban Regional Recycling Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria.

**Organic Materials includes only materials accepted in this municipal green bin program.

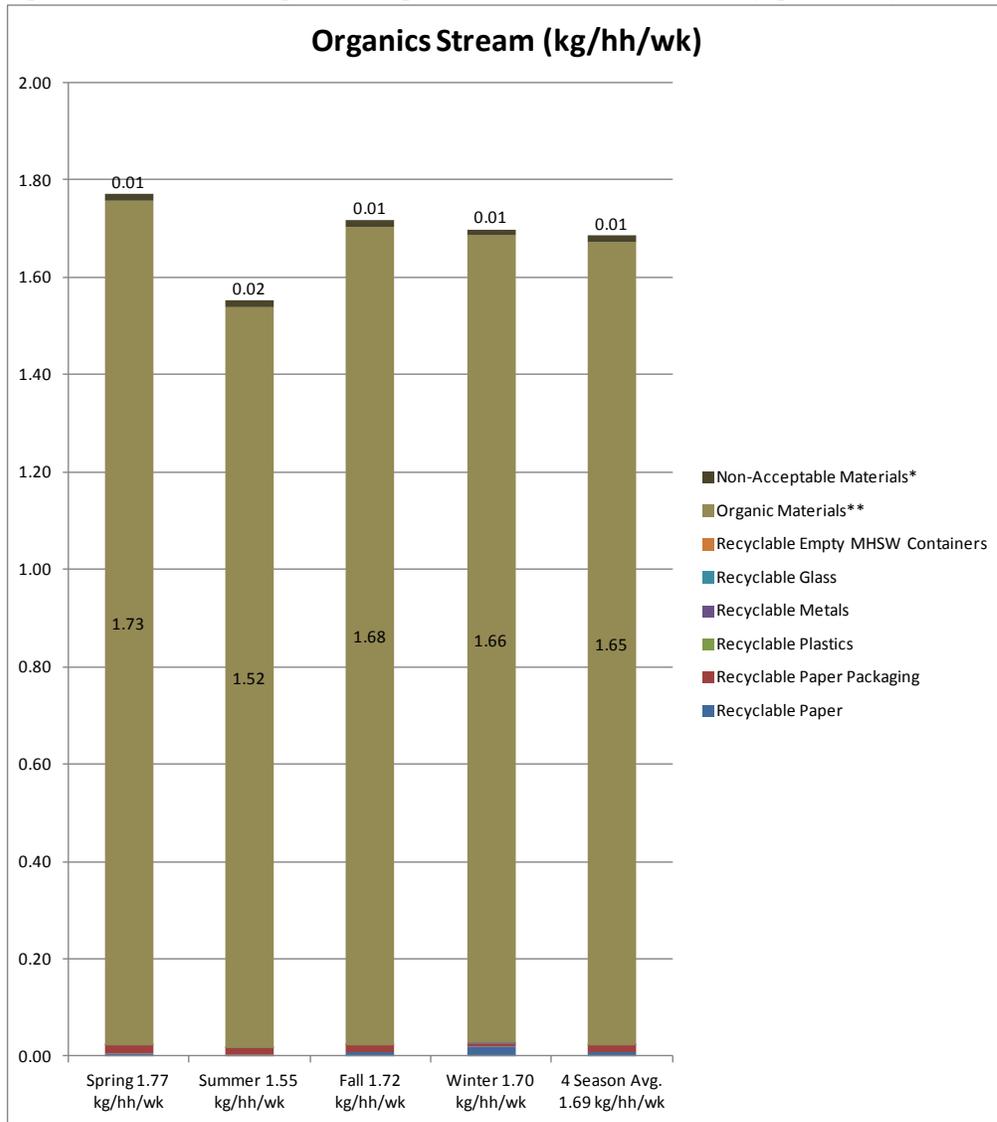
Figure 3.21 Urban Regional Garbage Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria.

**Organic Materials includes only materials accepted in this municipal green bin program.

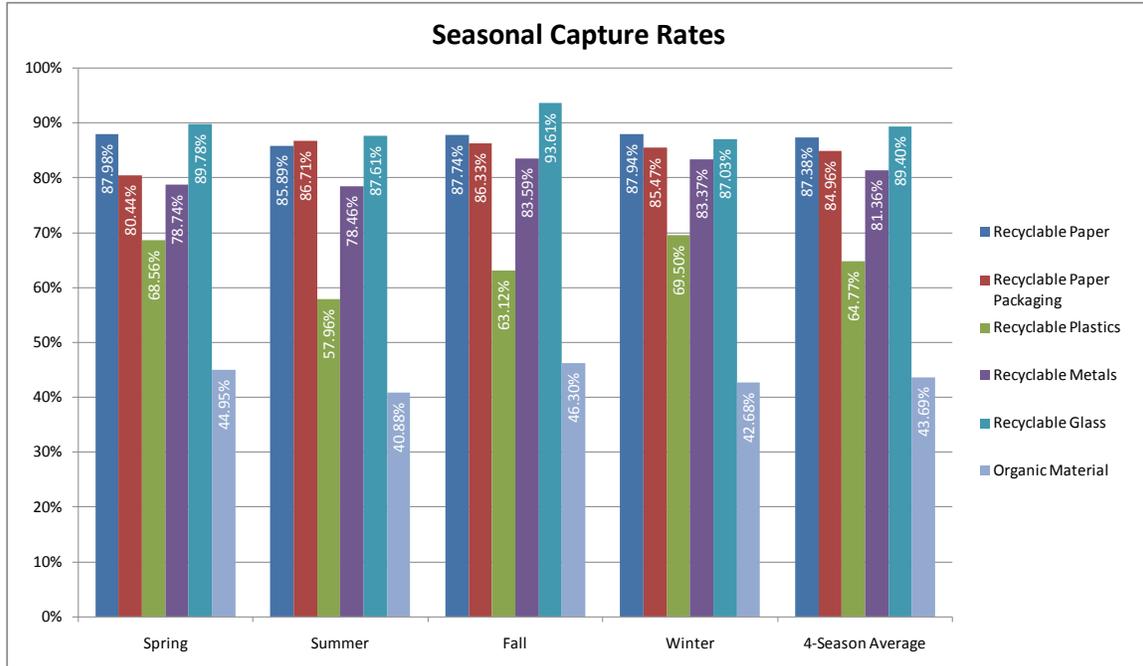
Figure 3.22 Urban Regional Organics Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria.

**Organic Materials includes only materials accepted in this municipal green bin program.

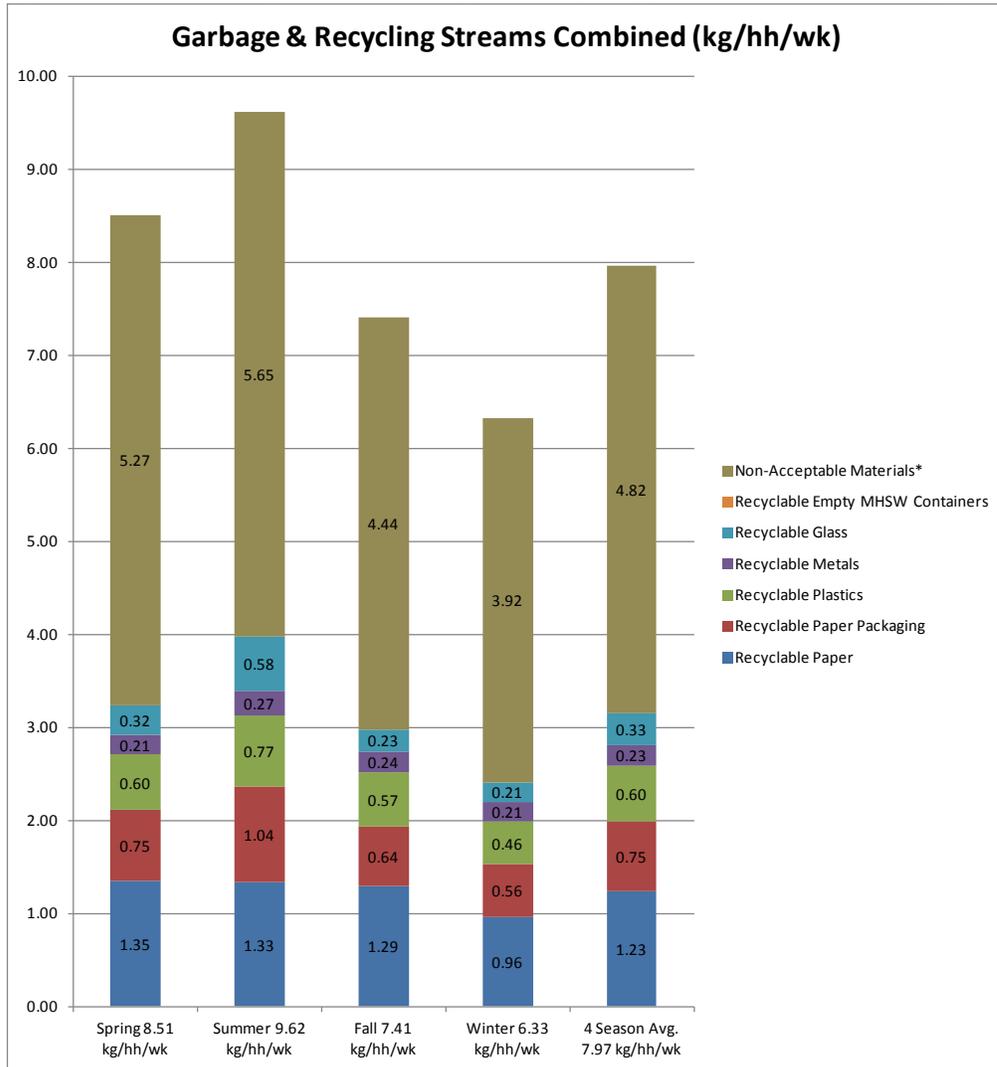
Figure 3.23 Urban Regional Capture Rates



3.6 Rural Regional A

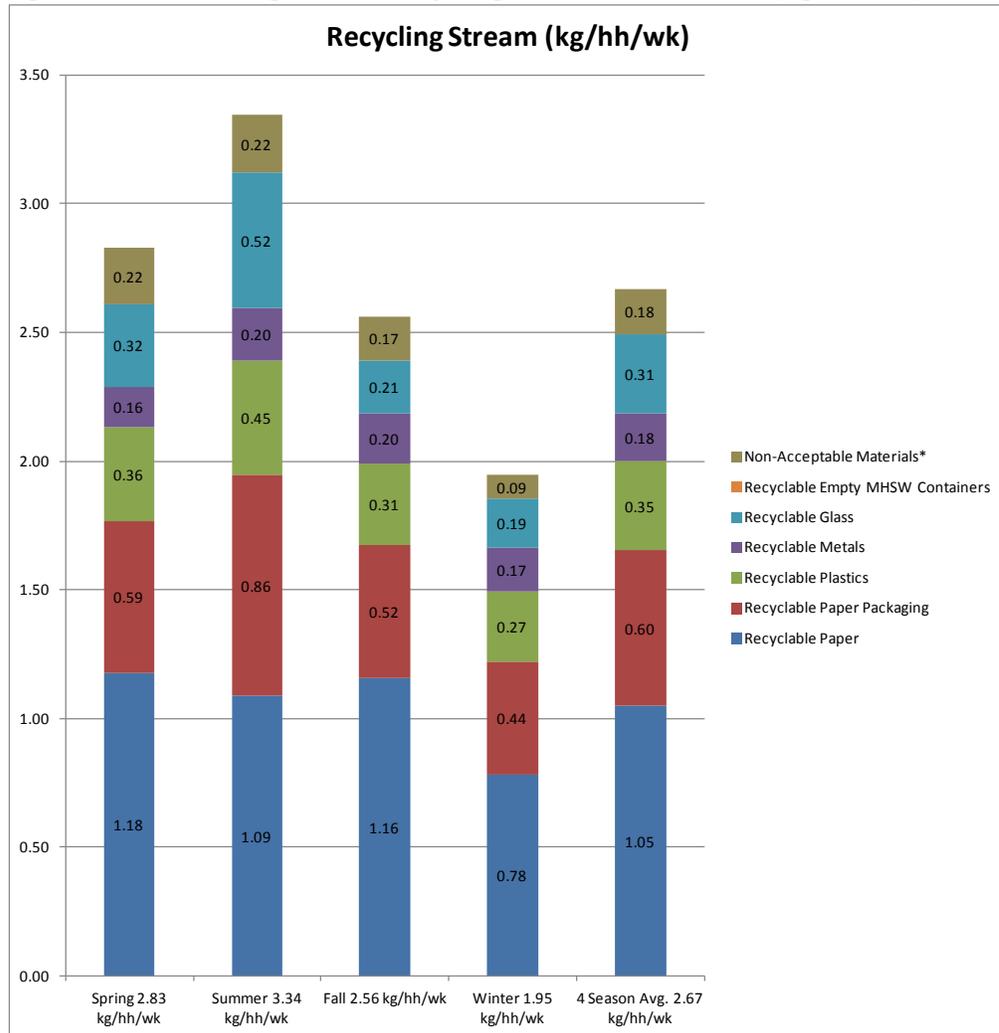
The Rural Regional A composition results are based on a municipality that has weekly garbage and recycling collection. The recycling program is two-stream collection, where residents set out their containers and fibres separately. This municipality has a notable amount of seasonal properties.

Figure 3.24 Rural Regional A Garbage & Recycling Stream Breakdown (kg/hh/wk)



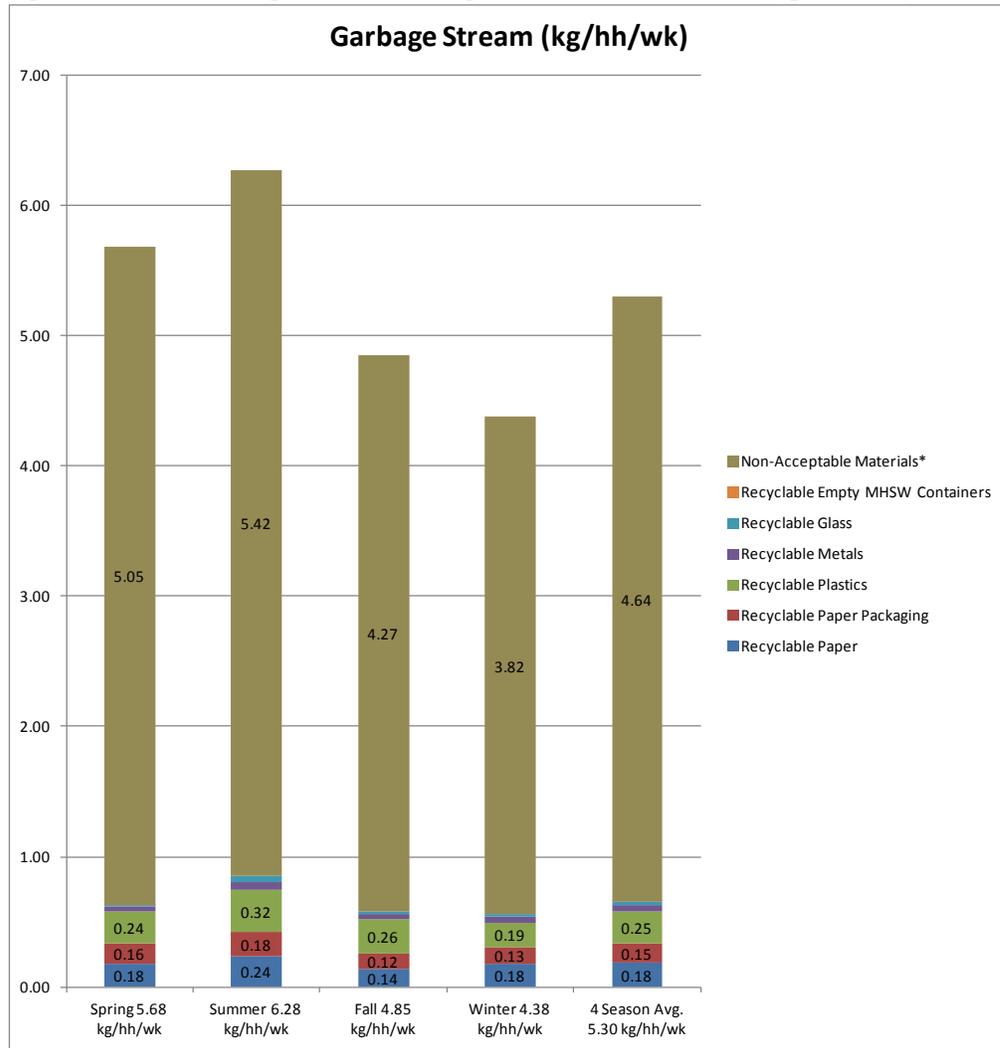
*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria, which can vary from other municipalities.

Figure 3.25 Rural Regional A Recycling Stream Breakdown (kg/hh/wk)



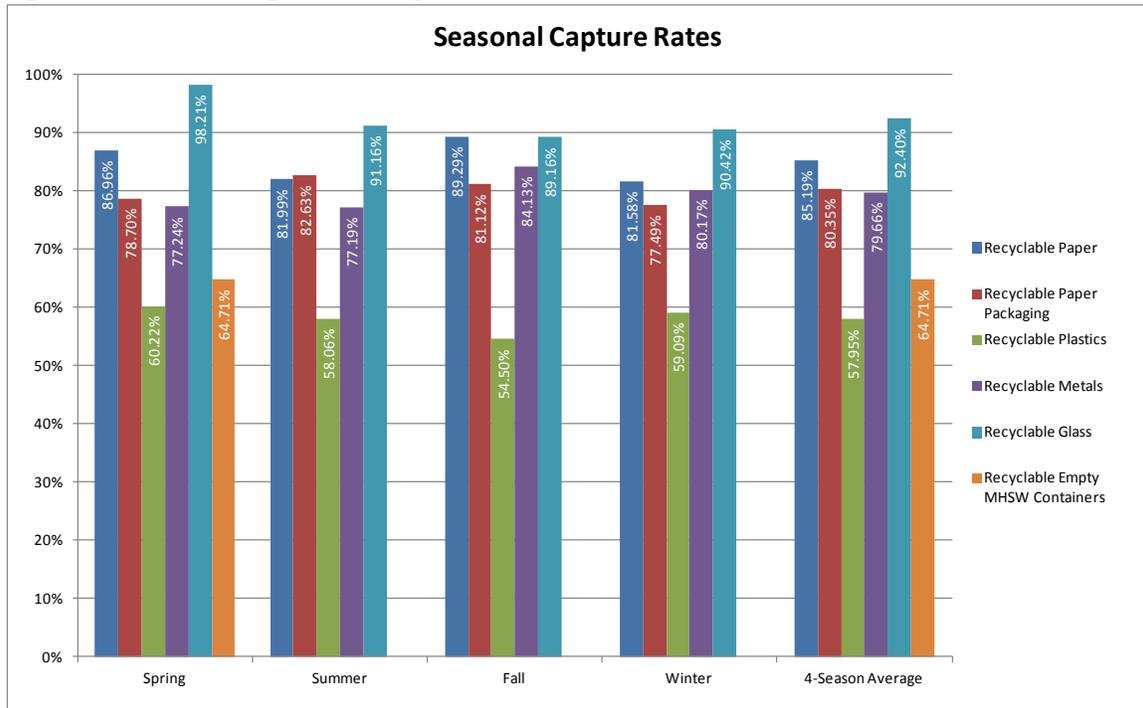
*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria, which can vary from other municipalities.

Figure 3.26 Rural Regional A Garbage Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria, which can vary from other municipalities.

Figure 3.27 Rural Regional A Capture Rates

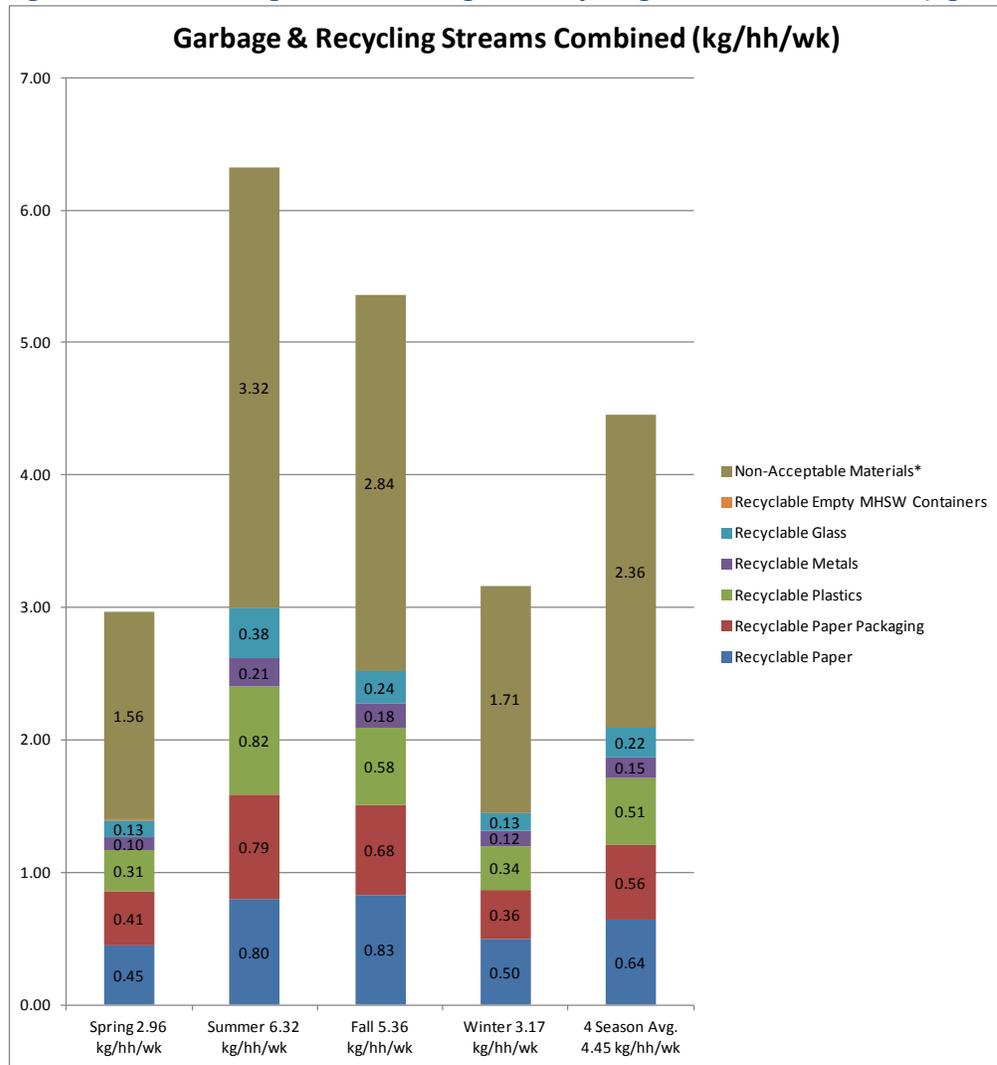


Note: Recyclable Empty MHSW Containers were not separated out as separate categories for the summer, fall and winter seasons.

3.7 Rural Regional B

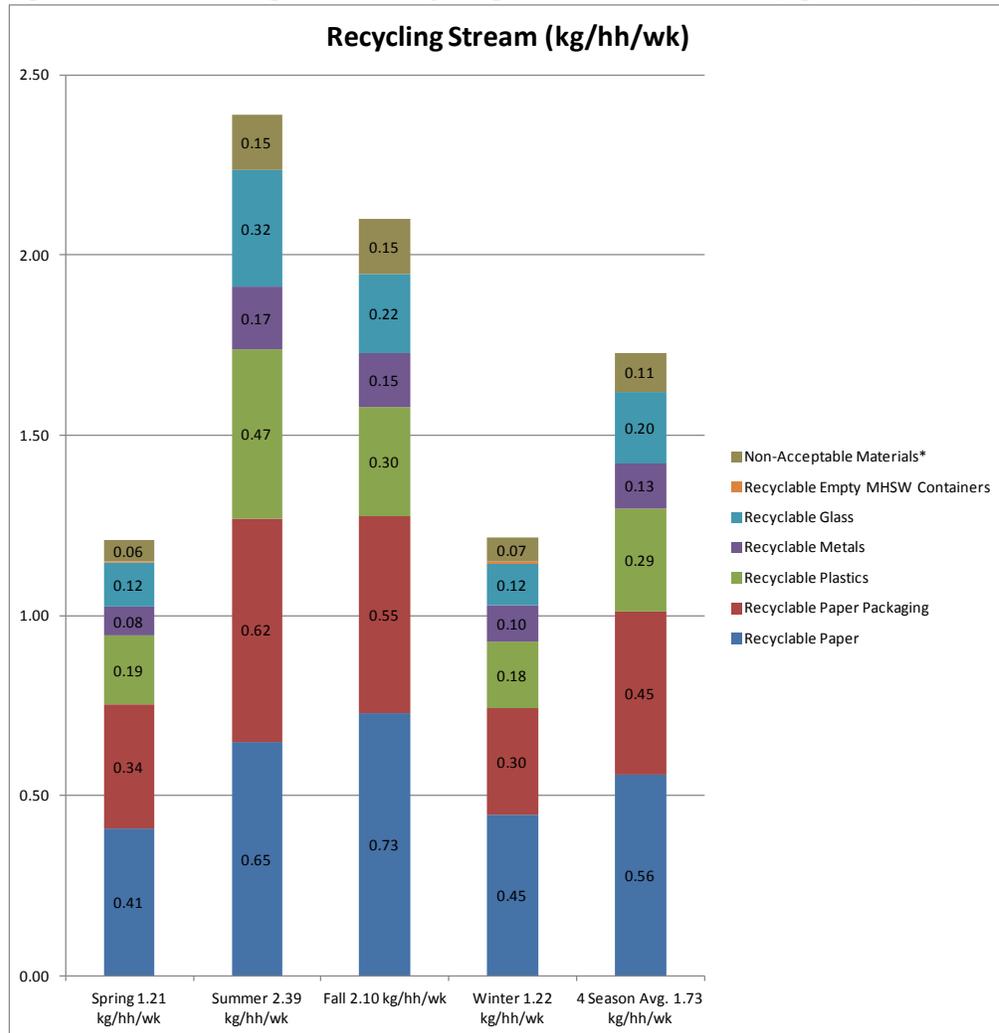
The Rural Regional B composition results are based on a municipality that had weekly garbage and collection in the summer and fall. The garbage was collected on a biweekly schedule during the spring and winter season. The weekly recycling program is two-stream, where residents set out their containers and fibres separately. This municipality also has an organics collection in some areas. The organics content was not included as part of the audit. Rural Regional B also used seasonal drop-off zones in the spring and winter seasons. This raises the total number of households sampled. This municipality has a significant number of seasonal properties.

Figure 3.28 Rural Regional B Garbage & Recycling Stream Breakdown (kg/hh/wk)



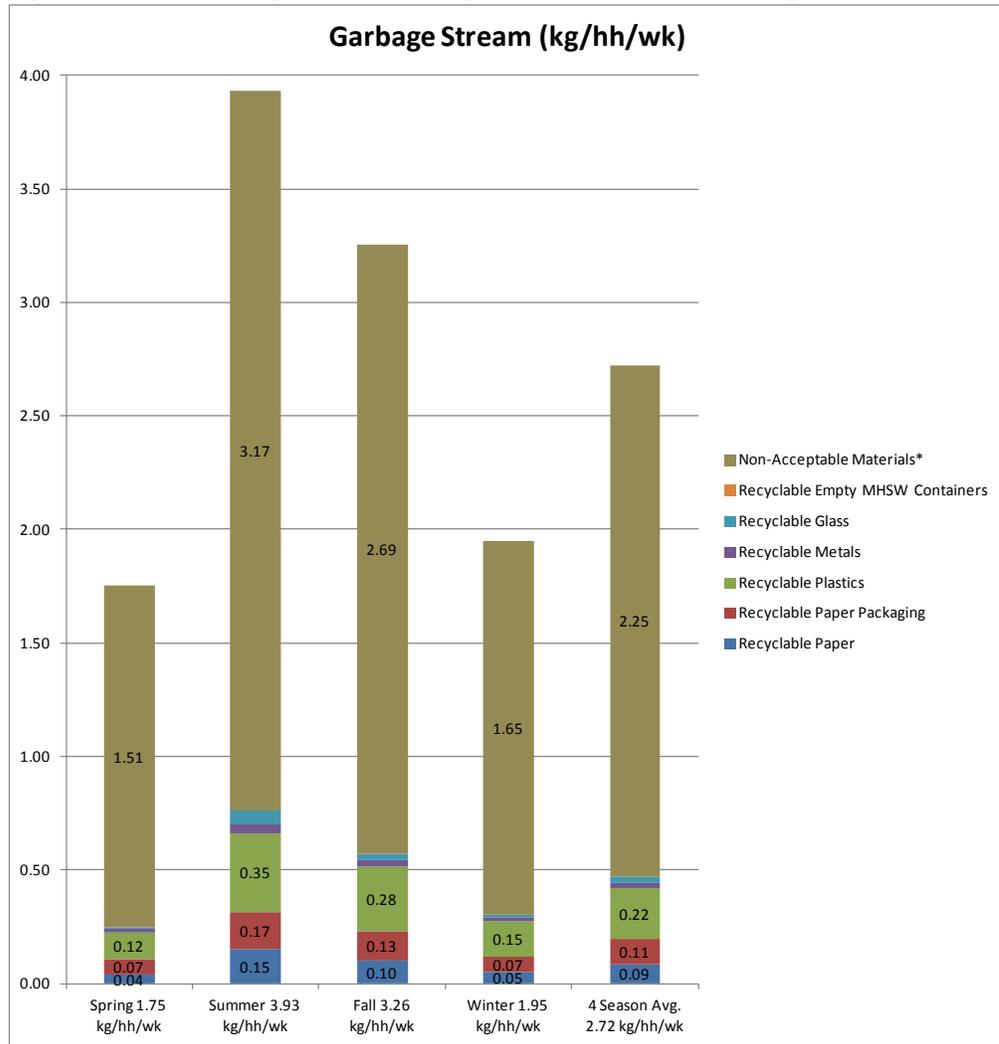
*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria, which can vary from other municipalities.

Figure 3.29 Rural Regional B Recycling Stream Breakdown (kg/hh/wk)



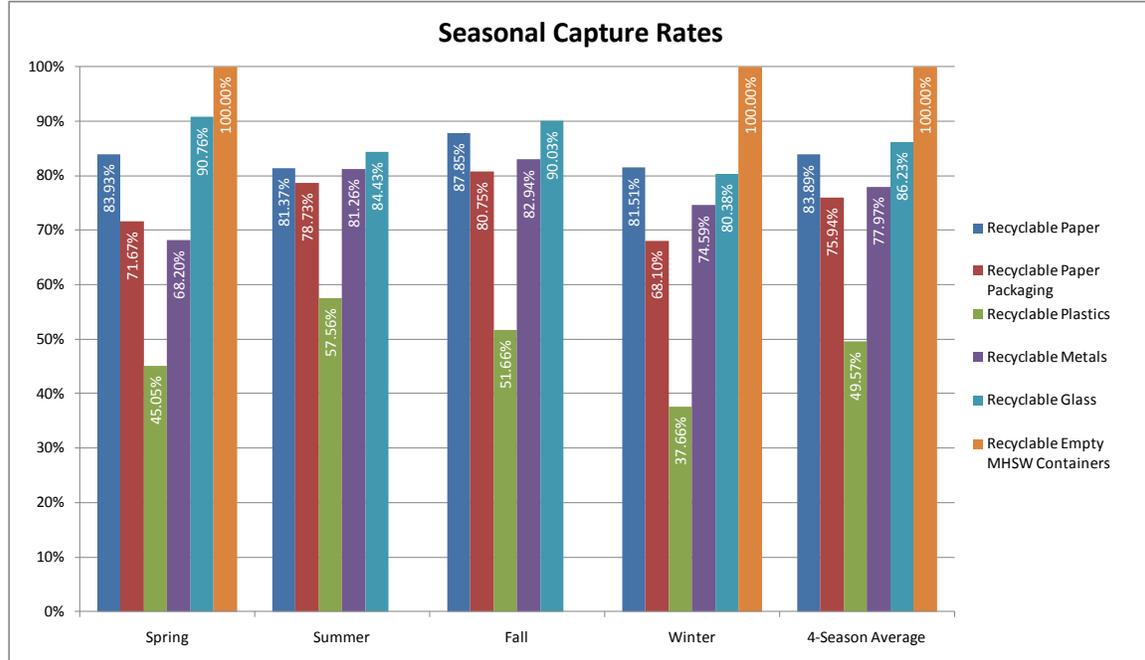
*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria, which can vary from other municipalities.

Figure 3.30 Rural Regional B Garbage Stream Breakdown (kg/hh/wk)



*Non-Acceptable Materials are based on this municipality's recycling program acceptance criteria, which can vary from other municipalities.

Figure 3.31 Rural Regional B Capture Rates



Note: Recyclable Empty MHSW Containers were not separated out as separate categories for the summer and fall seasons.

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APPENDIX A

WASTE AUDIT RESULTS

