

# King County Waste Monitoring Program

## 2008 Transfer Station Customer Surveys

*April 2009*



**King County**

Department of Natural Resources and Parks  
**Solid Waste Division**

**Prepared by:**

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# Chapter 1

## Executive Summary

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### 1.1 OVERVIEW

#### Project Purpose & Background

Since 1990, the King County Solid Waste Division has conducted its Waste Monitoring Program to help plan for future community needs, improve services, and track progress towards recycling goals. The Transfer Station Customer Survey provides King County with answers to crucial questions such as where the waste comes from, how to increase recycling, and why and how often people visit a transfer station. These surveys help the County understand and track its customers and provide effective service.

Between February 2008 and January 2009, the Waste Monitoring Program conducted 5,086 customer surveys at ten facilities (eight King County public transfer stations and the Cedar Falls and Skykomish drop-boxes). Of the ten facilities, seven transfer stations were surveyed quarterly and the two drop-boxes and Vashon transfer station were surveyed twice a year, due to their low traffic volumes.

This report presents the results of those customer surveys.

#### Study Methods

The 2008 study collected customer data at King County waste facilities using three steps:

- **Develop a sampling plan.** Customer surveys were scheduled for each waste facility on randomly selected days throughout the year. The survey instrument was designed by King County in collaboration with Cascadia Consulting Group, Inc. The consultant team pre-tested the survey at the Renton transfer station and incorporated the feedback into the final survey instrument.
- **Train and implement the Customer Survey.** Surveyors completed a one day, on-site training prior to the first day of surveying. The trained surveyors gathered information such as vehicle type, hauler type, and source of the material from drivers bringing loads to waste facilities. Data from each month's surveys were then reviewed for accuracy and completeness.
- **Analyze data and prepare report.** Survey data were entered into a customized database, compiled, and summarized. The survey results are presented here in a report format similar to previous years.

Chapter 2 provides additional information on the project purpose, background, and methods.

## Understanding King County's Facility Customers

To manage waste and to plan for the future, King County gathers information about its solid waste stream and transfer station users. Analysis of waste substreams is useful in waste management planning because the different substreams may have different waste types and user profiles, and may require different public programs designed to reach target customers. Thus to analyze the customer surveys, waste flows were divided into various substreams according to the source of the waste and type of hauler.

The customers surveyed were first divided according to how materials were delivered to transfer stations (hauler type): either commercially collected by franchised waste hauling companies or self-hauled by residents or businesses that bring loads to waste facilities.<sup>1</sup> Wastes were further categorized according to the source, or generator, of the waste, namely residential, nonresidential, or mixed residential/nonresidential.

### 1.2 KEY CUSTOMER SURVEY FINDINGS

- **Seventy-eight percent of the customers surveyed were self-haulers.** Passenger vehicles compose nearly all (93%) of the self-hauled traffic surveyed.<sup>2</sup>
- **Self-hauled loads came primarily from residences (90%).**
- **The majority (67%) of commercially collected loads** originated from nonresidential sources.
- **Mixed garbage accounted for 77% of all loads surveyed.** Construction and demolition materials represented 15%, and yard waste accounted for 8%.
- **Most residential self-haulers subscribed to curbside garbage service (72%);** the 28% that did not subscribe reported making, on average, eight trips more per year to waste facilities than subscribers.
- **“Cheaper/Saves Money”** was the primary reason for residents to self-haul their waste (18%).
- **“Large Amount of Garbage”** was the top reason for self-hauling waste from nonresidential sources (19%).
- **Most self-haulers (80%) said they would separate** their wood, metals, and yard waste to save \$10/ton or approximately \$2/load. However, 20% of contractors and 11% of landscapers reported that they would be unwilling to separate recyclable materials regardless of the cost savings.

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<sup>1</sup> Commercial haulers are firms that contract with local governments to operate a garbage collection company or operate under a state franchise in a particular geographic area. The City of Enumclaw operates its own waste collection systems, rather than contracting with commercial haulers. Loads hauled by the City of Enumclaw are considered commercially hauled.

Self-hauled loads are categorized as residential or nonresidential according to the source of the load, not the type of hauler. Some companies collect waste from homes or businesses, but they are not the franchised haulers (1-800-Got Junk, for example). These loads are considered self-hauled residential if the waste is produced from homes, even though a company, not the residents, delivers the material to a waste facility.

<sup>2</sup> Passenger vehicles include autos, pick-up trucks, vans, and sport-utility vehicles.



## 1.3 REPORT OUTLINE

The remainder of the 2008 Transfer Station Customer Survey report is organized as follows:

- **Chapter 2. Introduction** describes the Waste Monitoring Program's purpose and background, summarizes the study methods, and discusses how to interpret the results.
- **Chapter 3. Customer Survey Results** presents the results of the customer surveys, including hauler type, vehicle types, waste types, generator types, geographic origins, and other information gathered from waste facility users.
- **Appendices** present additional information on the customer surveys, including field forms and methodologies.

# Chapter 2

## Introduction

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### 2.1 PROJECT PURPOSE & BACKGROUND

Each year, residents and businesses in King County dispose of approximately 1 million tons of garbage, also known as municipal solid waste (MSW).<sup>3</sup> What are people disposing, where does this waste come from, and where does it go? The King County Solid Waste Division's Waste Monitoring Program was started in 1990 to answer these questions and learn more about disposed waste. This ongoing program seeks to characterize King County's waste disposal and to understand the customers using its waste facilities. Monitoring the waste stream helps the County provide effective and efficient services, plan for future needs, and track progress towards its recycling goals.

#### Solid Waste Management in King County

The County's waste monitoring efforts are designed to track its complex waste management system. Private waste management companies collect much of the waste from homes and businesses. Some individuals and companies also choose to haul their own waste, either occasionally or on a regular basis. Most of King County's solid waste destined for disposal first goes to one of 10 facilities: eight County-owned transfer stations and two County-owned drop-boxes.

For the purpose of this study, vehicles entering all 10 of these facilities were surveyed. The County-owned transfer stations included in the study were: Algona, Bow Lake, Enumclaw, Factoria, Houghton, Renton, Shoreline, and Vashon. The two drop-boxes are located at Cedar Falls and Skykomish. From these transfer stations and drop-boxes, trucks haul King County's waste to the Cedar Hills Regional Landfill for disposal.

#### King County's Waste Monitoring Program

The Waste Monitoring Program assesses where, why, how, and which materials both residents and businesses dispose. Customer surveys are useful for tracking the types of vehicles using the waste facilities as well as the types of waste and the waste origins. These surveys help the County understand its customers, serve them more effectively, and plan for the future.

Between February 2008 and January 2009, the project team conducted 5,086 customer surveys at King County transfer stations.<sup>4</sup> This report presents the results of those customer surveys. Table 2-1 shows the number of customer surveys conducted

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<sup>3</sup> This figure excludes wastes originating within the city of Seattle, which manages its solid waste separately from the rest of King County.

<sup>4</sup> Field work was scheduled to be completed in December 2008, however heavy snow and ice forced the final two survey days into January 2009.

since 1993 as part of King County's Waste Monitoring Program. The number of surveys obtained in 2008 represents a 10.2% decline from the 2006 study period.

**Table 2-1. Customer Surveys Conducted <sup>5</sup>**

<b>Study Period</b>	<b>Customer Surveys</b>
2008	5,086
2006	5,665
2002-2003	6,381
2001	7,050
1999-2000	7,809
1998	22,645
1997	12,610
1995-1996	11,132
1993-1994	12,523
<b>TOTAL</b>	<b>90,901</b>

## **2.2 SUMMARY OF METHODS**

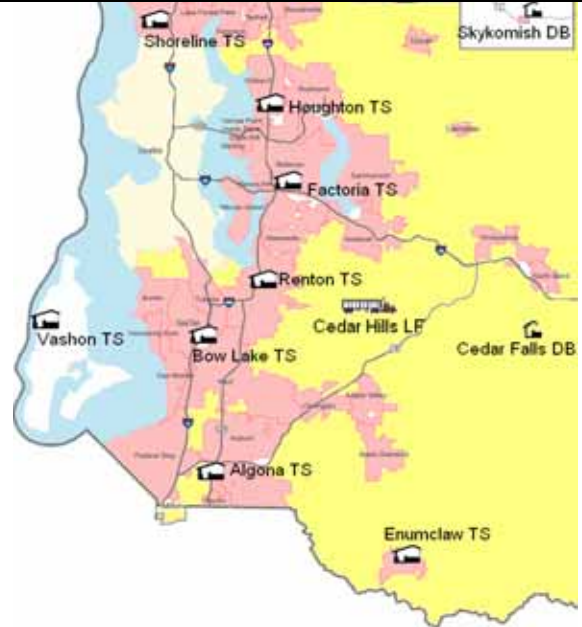
The following section provides an overview of the 2008 study methodology. This study of customer use involved three major steps, as described below. See Appendix A for a detailed description of the surveying methodology.

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<sup>5</sup>Since 1998, the number of surveys obtained during each study period has decreased due to budgetary constraints and construction-related facility closures.

### Step 1. Develop Survey Plan

A survey schedule was constructed for the study period.<sup>6</sup> Quarterly surveys occurred at each facility except for Vashon, Skykomish, and Cedar Falls, which were surveyed every six months due to their low traffic volume. The survey days assigned to each facility were randomly selected in order to ensure unbiased sampling and statistically representative results. Consistent with previous customer surveys, error ranges and confidence intervals were not calculated and the report does not address statistically significant differences among the facilities. The data do reveal trends and can be used to identify County-wide transfer station customer use patterns.



King County transfer stations and drop-boxes



Surveyor gathering information from a driver

### Step 2. Survey Incoming Vehicles

The surveyor gathered information from the driver such as the vehicle type, hauler type (commercially collected or self-hauled), category of waste brought for disposal (e.g., mixed garbage, yard waste, construction/demolition), source or generator of the material (residential or nonresidential), and their willingness to separate materials for a reduction in their tip fee.

### Step 3. Analyze Data & Prepare Report

Each month, the survey data were entered into a customized database and reviewed for data entry errors.

At the conclusion of the study, the information gathered from the surveys was analyzed to determine key findings, such as who uses the site and why.

A screenshot of a Microsoft Access data entry form. The form is titled "Microsoft Access: [Entry]" and shows a "Site Notes" form. The form includes fields for "Field Sample No.", "Ticket No.", "Collection type", "Vehicle type", "City", "Waste type", "Source (House/Business)", "ZIP Code", and "Comments". The "Comments" field contains "DB - Cedar Falls". There are also buttons for "Go to survey", "Last", "Next", and "New".

Example data entry form in customized database

<sup>6</sup> Field work was scheduled to be completed in December 2008, however heavy snow and ice forced the final two survey days into January 2009.

Table 2-2 shows the number of surveys that were obtained from each facility during the study.

**Table 2-2. Total Number of Customer Surveys  
February 2008 – January 2009**

<b>Transfer Stations and Drop Boxes</b>	<b>Total Samples</b>
Algona	672
Bow Lake	1,136
Cedar Falls Drop Box	183
Enumclaw	480
Factoria	811
Houghton	910
Renton	446
Shoreline	327
Skykomish Drop Box	7
Vashon	114
<b>Total</b>	<b>5,086</b>

## 2.3 UNDERSTANDING THE WASTE STREAM

King County's overall solid waste stream is analyzed as a whole, and is divided into various substreams for analysis at the substream level. Analysis at the substream level is useful because the different substreams often:

- Produce different waste types,
- Have different user profiles, and
- Require different communication, outreach, and education programs.

Substreams are identified according to factors such as hauler type (commercially collected or self-hauled) and the source, or generator, of the waste (residential or nonresidential). The sources of waste and types of delivery are defined as follows:

- **Commercial haulers** are firms that contract with local governments to operate a garbage collection company or operate under a state franchise in a particular geographic area.<sup>7</sup>
- **Self-haulers** are residents or businesses that bring waste to transfer stations or drop-boxes themselves.<sup>8</sup>
- **Residential waste** comes from single-family or multi-family dwellings.

<sup>7</sup> The City of Enumclaw operates its own waste collection systems, rather than contracting with commercial haulers. Loads hauled by the City of Enumclaw are considered commercially hauled.

<sup>8</sup> Self-hauled loads are categorized as residential or nonresidential according to the source of the load, not the type of hauler. Some companies collect waste from homes or businesses, but they are not the franchised haulers (1-800-Got Junk, for example). These loads are considered self-hauled residential if the waste is produced from homes, even though a company, not the residents, delivers the material to a waste facility.

- **Nonresidential waste** comes from businesses, schools, government offices, and other institutions that are not residences.

In this study, customers surveyed are first divided into commercially collected and self-hauled waste hauler type categories. Those categories are further divided between residential, nonresidential, and mixed residential and nonresidential generators as shown in Figure 2-1. Each of the six cells in Figure 2-1 represent a substream for which data is reported.

**Figure 2-1. Substream Definitions**

	<b>Commercially Collected</b>	<b>Self-hauled</b>
<b>Residential Waste</b>	Commercially collected waste from residential sources	Self-hauled waste from residential sources
<b>Nonresidential Waste</b>	Commercially collected waste from nonresidential sources	Self-hauled waste from nonresidential sources
<b>Mixed Residential and Nonresidential Waste</b>	Commercially collected waste from residential and nonresidential sources	Self-hauled waste from residential and nonresidential sources

## 2.4 WASTE CATEGORIES

All customers were asked what type of waste they were hauling. The waste was then classified into one of the four options below:

- **Yard Waste** is organic waste made primarily of plant material. This includes grass, leaves, and prunings.
- **Construction and Demolition** is waste that is created by construction and/or demolition activities.
- **Special Waste** is petroleum-contaminated soil, sludge, or asbestos.
- **Mixed Garbage** is waste that does not fit into any of the above four categories or is a mix of several categories.

## 2.5 INTERPRETING THE RESULTS

### Rounding

When interpreting the results presented in the tables and figures in this report, it is important to consider the **effect of rounding**.

To keep the waste composition tables and figures readable, estimated percentages are rounded to the nearest percent. Due to this rounding, the percentages, when added together, may not equal 100%.

# Chapter 3

## Customer Survey Results

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### 3.1 CUSTOMER SURVEY OVERVIEW & KEY FINDINGS

In 2008, King County conducted almost 840,000 transactions at the eight County transfer stations and two drop-box facilities. During that time, the project team conducted 5,086 interviews with customers at those waste facilities to determine who uses the sites and why. Each survey day an interviewer asked the driver of every vehicle entering the site a series of questions.<sup>9</sup>

This chapter presents the findings of these customer surveys. Appendix A provides additional details on the study methodology. Survey results are presented for commercially collected and self-hauled substreams.

The figures presented describe the portion of waste transactions (customers, loads, visits, or users) surveyed at waste facilities – *not* the weight or tonnages of the waste they delivered. The percentages reported refer to the portion of drivers surveyed, not the number of waste loads delivered during the study period.

#### Key Customer Survey Findings

- **Seventy-eight percent of the customers surveyed were self-haulers.** Passenger vehicles compose nearly all (93%) of the self-hauled traffic surveyed.<sup>10</sup>
- **Self-hauled loads came primarily from residences (90%).**
- **The majority (67%) of commercially collected loads** originated from nonresidential sources.
- **Mixed garbage accounted for 77% of all loads surveyed.** Construction and demolition materials represented 15%, and yard waste accounted for 8%. No household hazardous waste was disposed on survey days.
- **Most residential self-haulers subscribed to curbside garbage service (72%);** the 28% that did not subscribe reported making, on average, eight trips more per year to waste facilities than subscribers.
- **“Cheaper/Saves Money”** was the primary reason for residents to self-haul their waste (18%).
- **“Large Amount of Garbage”** was the top reason for self-hauling waste from nonresidential sources (19%).

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<sup>9</sup> If traffic became too congested the surveyor skipped a few vehicles to avoid traffic flow problems at the site.

<sup>10</sup> Passenger vehicles include autos, pick-up trucks, vans, and sport-utility vehicles.

- **Most self-haulers (80%) said they would separate** their wood, metals, and yard waste to save \$10/ton or approximately \$2/load. However, 20% of contractors and 11% of landscapers reported that they would be unwilling to separate recyclable materials regardless of the cost savings.

### 3.2 HAULER TYPE

Table 3-1 summarizes the proportion of transfer station customers delivering each reported substream. Most transfer station customers (70%) are self-haulers with waste from a residential source. Commercial haulers with waste from nonresidential sources are the next most prevalent transfer station customer (15%). A more detailed *Load Source by Hauler Type and Facility* table can be found in Appendix B.

**Table 3-1. Proportion of Surveyed Customers in Each Substream  
February 2008 – January 2009 (n=5,086)**

	Commercial	Self-hauled	Total
<b>Residential</b>	6%	70%	<b>76%</b>
<b>Nonresidential</b>	15%	7%	<b>22%</b>
<b>Mixed</b>	1%	1%	<b>2%</b>
<b>Total</b>	<b>22%</b>	<b>78%</b>	<b>100%</b>

*Note: Estimated percentages are rounded to the nearest percent and, when added together, may not equal 100%, due to rounding. For more detail, please see Interpreting the Results on page 8.*

### 3.3 VEHICLE TYPE

Table 3-2 shows the vehicle types for commercial and self-hauled customers. Most self-hauled customers (93%) drove passenger vehicles (autos, sedans, vans, pick-up trucks, sport-utility vehicles). Commercial haulers primarily delivered loads in drop-boxes (56%). Please see Table D-1 for photographs of sample vehicle types.

A more detailed *Observed Vehicle Types, by Hauler Type and Facility* table can be found in Appendix B.

**Table 3-2. Observed Vehicle Types, by Hauler Type  
February 2008 – January 2009 (n=5,086)**

	Commercial	Self-hauled	Overall
Packer	43%	0%	10%
Dropbox	56%	1%	13%
Large Other	0%	6%	5%
Passenger Vehicle	1%	93%	73%
<b>Subtotal</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>No Response</i>	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

*Note: Estimated percentages are rounded to the nearest percent and, when added together, may not equal 100%, due to rounding. For more detail, please see Interpreting the Results on page 8.*



### 3.4 WASTE TYPE

#### Waste Types for Commercially Collected & Self-hauled Loads

Table 3-3 shows the types of waste hauled by commercial and self-hauled customers. The majority of loads from both the commercial and self-hauled waste stream contained mixed garbage (99% and 71%, respectively). Self-haulers delivered all of the loads containing yard waste.

Overall (commercial and self-hauled customers combined), 77% of loads delivered mixed garbage, and 15% of loads contained primarily construction and demolition (C&D) waste. The remaining loads contained yard waste (8%).

A detailed *Reported Waste Types, by Hauler Type and Facility* table can be found in Appendix B.

**Table 3-3. Reported Waste Types, by Hauler Type  
February 2008 – January 2009 (n=5,086)**

	Commercial	Self-hauled	Overall
Mixed Garbage	99%	71%	77%
Construction/Demolition	1%	20%	15%
Yard Waste	0%	10%	8%
Special Waste	0%	0%	0%
<b>Subtotal</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>No Response</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

*Note: Estimated percentages are rounded to the nearest percent and, when added together, may not equal 100%, due to rounding. For more detail, please see Interpreting the Results on page 8.*

### 3.5 GENERATOR TYPE

#### Commercially Collected Loads

Table 3-4 shows the proportion of commercial vehicle traffic arriving at each facility by generator type: residential, nonresidential, and mixed residential and nonresidential. The residential generator type is further subdivided into single-family residential, multi-family residential and mixed single-family and multi-family residential generator types. As shown, the relative proportion of loads by generator type can vary greatly by site. For example the proportion of nonresidential generators ranges from 0% of the loads at Vashon to 79% at Bow Lake. Of commercially collected loads delivered to the eight public facilities, the residential generator type accounted for 26% of the loads, the nonresidential generator type accounted for 67%, and the mixed generator type accounted for 5%. Commercial customers are not accepted at the Cedar Falls and Skykomish drop-boxes.

**Table 3-4. Reported Generator Types for Commercially Collected Loads  
February 2008 – January 2009 (n=1,138)**

	Algona	Bow Lake	Enumclaw	Factoria
<b>Residential</b>	<b>26%</b>	<b>15%</b>	<b>31%</b>	<b>34%</b>
Single-family	13%	9%	28%	18%
Multi-family	10%	4%	3%	12%
Mixed Single-family & Multi-family Residential	3%	2%	0%	4%
<b>Nonresidential</b>	<b>66%</b>	<b>79%</b>	<b>41%</b>	<b>57%</b>
<b>Mixed Residential and Nonresidential</b>	<b>5%</b>	<b>4%</b>	<b>7%</b>	<b>8%</b>
<b>Subtotal</b>	<b>97%</b>	<b>99%</b>	<b>79%</b>	<b>99%</b>
No Response	3%	1%	21%	1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Houghton	Renton	Shoreline	Vashon	Overall
<b>Residential</b>	<b>34%</b>	<b>45%</b>	<b>49%</b>	<b>100%</b>	<b>26%</b>
Single-family	19%	19%	37%	100%	15%
Multi-family	13%	24%	9%	0%	9%
Mixed Single-family & Multi-family Residential	1%	2%	2%	0%	2%
<b>Nonresidential</b>	<b>60%</b>	<b>51%</b>	<b>47%</b>	<b>0%</b>	<b>67%</b>
<b>Mixed Residential and Nonresidential</b>	<b>6%</b>	<b>5%</b>	<b>5%</b>	<b>0%</b>	<b>5%</b>
<b>Subtotal</b>	<b>99%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>98%</b>
No Response	1%	0%	0%	0%	2%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Note: Estimated percentages are rounded to the nearest percent and, when added together, may not equal 100%, due to rounding. For more detail, please see Interpreting the Results on page 8.

## Self-hauled Loads

Table 3-5 shows the proportion of self-hauled loads arriving at each facility, by generator type. Ninety percent of the self-hauled loads came from residential generators, 9% from nonresidential sources, and 1% from mixed sources. Across all sites the proportion of self-hauled loads from residential sources ranges from a low of 85% at Bow Lake to a maximum of 100% at Skykomish. Nonresidential sources were the source of 10% or fewer of self-hauled loads at all facilities except Bow Lake.

**Table 3-5. Reported Generator Types for Self-hauled Loads  
February 2008 – January 2009 (n=3,948)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria
<b>Residential</b>	<b>91%</b>	<b>85%</b>	<b>93%</b>	<b>94%</b>	<b>89%</b>
<i>Single-family</i>	89%	81%	93%	91%	87%
<i>Multi-family</i>	2%	4%	1%	2%	2%
<i>Mixed Single-family &amp; Multi-family Residential</i>	0%	1%	0%	0%	0%
<b>Nonresidential</b>	<b>7%</b>	<b>13%</b>	<b>7%</b>	<b>4%</b>	<b>10%</b>
<b>Mixed Residential and Nonresidential</b>	<b>1%</b>	<b>2%</b>	<b>0%</b>	<b>1%</b>	<b>1%</b>
<b>Subtotal</b>	<b>99%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>No Response</i>	1%	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Houghton	Renton	Shoreline	Skykomish	Vashon	Overall
<b>Residential</b>	<b>88%</b>	<b>92%</b>	<b>89%</b>	<b>100%</b>	<b>93%</b>	<b>90%</b>
<i>Single-family</i>	84%	89%	86%	100%	90%	87%
<i>Multi-family</i>	4%	3%	3%	0%	2%	3%
<i>Mixed Single-family &amp; Multi-family Residential</i>	0%	0%	0%	0%	1%	0%
<b>Nonresidential</b>	<b>10%</b>	<b>6%</b>	<b>9%</b>	<b>0%</b>	<b>4%</b>	<b>9%</b>
<b>Mixed Residential and Nonresidential</b>	<b>1%</b>	<b>1%</b>	<b>1%</b>	<b>0%</b>	<b>3%</b>	<b>1%</b>
<b>Subtotal</b>	<b>99%</b>	<b>99%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>99%</b>
<i>No Response</i>	1%	1%	0%	0%	0%	1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

*Note: Estimated percentages are rounded to the nearest percent and, when added together, may not equal 100%, due to rounding. For more detail, please see Interpreting the Results on page 8.*

## **Contractors & Landscapers (Self-hauled Only)**

The surveyor asked self-haulers bringing loads of yard waste or C&D waste if they were a contractor or landscaper. Table 3-6 presents the proportion of C&D/yard waste loads from each source (residential, nonresidential, and mixed) brought by contractors, landscapers, and other self-haulers.

As shown, contractors and landscapers combined brought most (73%) of the surveyed C&D/yard waste loads from nonresidential sources. In contrast, only 29% of residential C&D/yard waste loads surveyed was delivered by contractors or landscapers. Overall, most (65%) loads of C&D/yard waste were brought to King County facilities by self-haulers that were neither contractors nor landscapers.

A detailed *Reported Self-hauled Contractors and Landscapers, by Facility and Generator Type* table can be found in Appendix B.

**Table 3-6. Proportion of C&D and Yard Waste by Source and Type of Self-hauler  
February 2008 – January 2009 (n=1,156)**

	Residential	Nonresidential	Mixed Residential & Nonresidential	Overall
Contractors	26%	61%	88%	31%
Landscapers	3%	12%	6%	4%
All Others	71%	27%	6%	65%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

*Note: Estimated percentages are rounded to the nearest percent and, when added together, may not equal 100%, due to rounding. For more detail, please see Interpreting the Results on page 8.*

### 3.6 CURBSIDE GARBAGE SUBSCRIPTION LEVELS REPORTED BY RESIDENTIAL SELF-HAULERS

#### Service Levels

Table 3-7 shows the proportion of self-haulers with residential waste that subscribe and do not subscribe to curbside garbage collection service. Most residential self-hauled customers reported that they subscribe to curbside garbage service (72%), while 28% residential self-haulers do not subscribe. The percentage of self-haulers that do not subscribe to curbside garbage collection service is higher at the rural facilities than at the urban locations. For example, self-hauled customers without curbside garbage service accounted for the largest share of residential self-haulers at Skykomish (86%) and Vashon (84%) – both rural locations. Most Houghton (85%), Factoria (84%), and Shoreline (82%) customers subscribe to curbside garbage collection.

**Table 3-7. Reported Usage of Curbside Garbage Collection Service by Residential Self-haulers**

**February 2008 – January 2009 (n=3,142)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria
<b>Subscribe</b>	79%	69%	63%	51%	84%
<b>Do not subscribe</b>	21%	31%	37%	49%	16%
<b>Subtotal</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>No Response</i>	0%	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Houghton	Renton	Shoreline	Skykomish	Vashon	Overall
<b>Subscribe</b>	85%	73%	82%	14%	16%	72%
<b>Do not subscribe</b>	15%	27%	18%	86%	84%	28%
<b>Subtotal</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>No Response</i>	0%	0%	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

*Note: Estimated percentages are rounded to the nearest percent and, when added together, may not equal 100%, due to rounding. For more detail, please see Interpreting the Results on page 8.*

### 3.7 EFFECT OF SERVICE LEVELS ON TRIP FREQUENCY

#### Residential Generators

Self-hauled customers were asked about the number of visits they made on a per day, per week, or per month basis. These responses were then converted to visits per year (i.e., “twice a week” equals 104 visits per year).

Table 3-8 and Table 3-9 show the annualized average number of visits residential self-haulers made to each King County facility. Residential self-haulers are sorted into two groups: those who subscribed to curbside garbage collection service and those who did not subscribe.

The data shown in Table 3-8 include all self-haulers (including contractors, landscapers, and independent haulers) who brought residential waste. Table 3-9 includes the subset of self-haulers making an average of less than two trips per day. An employee for an independent hauler (i.e., companies such as “Got Junk”) frequently makes several trips per day. To avoid a skew in the results due to this small number of respondents making hundreds of trips per year, Table 3-9 summarizes the annualized visits for self-haulers who make fewer than two trips per day.

#### **ALL RESIDENTIAL USERS**

Transfer station customers that do not subscribe to curbside garbage service made, on average, about eight trips more to waste facilities over the course of the year than residential self-haulers that do subscribe. This overall average was weighted by the proportion of self-haul customers assisted at each transfer station.

Users of the Skykomish transfer station who subscribe to curbside garbage collection made the fewest annual visits on average (6.0), though the small number of surveys at Skykomish makes this anecdotal at best. Users of the Factoria and Houghton transfer stations who subscribe to curbside garbage collection made the most annual visits to a King County transfer station (43.1 and 37.9, respectively).

**Table 3-8. Average Visits per Year by All Residential Self-haulers With and Without Curbside Garbage Service  
February 2008 – January 2009 (n=3,508)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria
<b>Subscribe</b>	24.1	35.2	6.9	10.4	43.1
<b>Do not subscribe</b>	20.9	24.4	14.0	17.9	149.3
<b>No Response</b>	12.0	0.0	0.0	36.0	28.6
<b>Combined Average</b>	<b>23.4</b>	<b>31.9</b>	<b>13.2</b>	<b>14.1</b>	<b>60.3</b>

	Houghton	Renton	Shoreline	Skykomish	Vashon	Overall
<b>Subscribe</b>	37.9	10.2	16.9	6.0	17.1	28.4
<b>Do not subscribe</b>	63.2	17.3	37.1	16.0	15.7	36.7
<b>No Response</b>	61.3	0.0	12.5	0.0	52.0	33.9
<b>Combined Average</b>	<b>41.7</b>	<b>12.1</b>	<b>20.5</b>	<b>14.6</b>	<b>15.9</b>	<b>30.7</b>

### **RESIDENTIAL USERS MAKING FEWER THAN TWO VISITS PER DAY**

Surveyed customers who made fewer than two visits per day and do not subscribe to curbside garbage service visited a transfer station, on average, only twice more over the course of the year than customers who do subscribe to curbside garbage collection. This overall average was weighted by the proportion of self-haul customers assisted at each transfer station. Filtering out the responses from heavy transfer station users drops the average number of annual visits by almost half.

On average, customers who subscribe to curbside garbage collection make 17.9 visits per year to a transfer station (or 1.5 visits per month), up from the 2006 study, when subscriber-customers made slightly less than one trip per month. Users of the Skykomish transfer station who subscribe to curbside garbage collection make the fewest annual visits on average (6.0), though the small number of surveys at Skykomish makes this anecdotal at best. Users of the Houghton and Bow Lake transfer stations who subscribe to curbside garbage collection make the most annual visits on average (25.0 and 23.1, respectively).

Users of the Factoria transfer stations who do not subscribe to curbside garbage collection make 32.2 visits per year, a reduction from 149.3 in Table 3-8. This is due to the exclusion of five users making more than two trips per day.

**Table 3-9. Average Visits per Year by Residential Self-haulers With and Without Curbside Garbage Service Making Fewer than Two Visits per Day  
February 2008 – January 2009 (n=3,473)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria
<b>Subscribe</b>	15.2	23.1	6.9	10.4	17.8
<b>Do not subscribe</b>	20.9	19.9	14.0	17.9	32.2
<b>No Response</b>	12.0	0.0	0.0	36.0	28.6
<b>Combined Average</b>	<b>16.3</b>	<b>22.2</b>	<b>9.6</b>	<b>14.1</b>	<b>20.2</b>

	Houghton	Renton	Shoreline	Skykomish	Vashon	Overall
<b>Subscribe</b>	25.0	10.2	16.9	6.0	17.1	17.9
<b>Do not subscribe</b>	26.9	17.3	17.6	16.0	15.7	20.1
<b>No Response</b>	61.3	0.0	12.5	0.0	52.0	33.9
<b>Combined Average</b>	<b>25.3</b>	<b>12.1</b>	<b>17.0</b>	<b>14.6</b>	<b>15.9</b>	<b>18.5</b>

### **Nonresidential Generators**

Self-hauled customers reported the number of visits on a per day, per week, or per month basis. These responses were then converted to visits per year (i.e., “twice a week” equals 104 visits per year).

Table 3-10 and Table 3-11 show the annualized average number of visits nonresidential self-haulers made to each King County facility. Nonresidential self-haulers are sorted into two groups: those who subscribed to curbside garbage collection service and those who did not subscribe.

The data shown in Table 3-10 include all self-haulers (including contractors, landscapers, and independent haulers) who brought nonresidential waste. Table 3-11 includes the subset of self-haulers making an average of less than two trips per day. An employee for an independent hauler (i.e., companies such as “Got Junk”) frequently makes several trips per day. To avoid a skew in the results due to this small number of respondents making hundreds of trips per year, Table 3-11 summarizes the annualized visits for self-haulers who make fewer than two trips per day.

**ALL NONRESIDENTIAL USERS**

Customers that do not subscribe to garbage service made, on average, 50% fewer visits per year than subscribers. This counterintuitive result is likely due to the prevalence of independent haulers making multiple trips per day skewing the results. The overall average was weighted by the proportion of self-haul customers assisted at each transfer station.

On average, surveyed customers who subscribe to curbside garbage collection make 106.8 visits per year to a King County owned transfer station (slightly more than two visits per week). Users of the Vashon and Renton transfer stations who subscribe to curbside garbage collection make the fewest annual visits (27.5 and 32.6, respectively). Users of the Algona and Factoria transfer stations who subscribe to curbside garbage collection make the most annual visits (188.8 and 178.4, respectively).

**Table 3-10. Average Visits per Year by All Nonresidential Self-haulers With and Without Curbside Garbage Service  
February 2008 – January 2009 (n=322)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria
Subscribe	188.8	117.7	91.0	32.7	178.4
Do not subscribe	24.6	71.8	65.6	51.2	85.7
No Response	0.0	0.0	260.0	24.0	39.8
<b>Combined Average</b>	<b>142.8</b>	<b>105.2</b>	<b>78.3</b>	<b>38.9</b>	<b>155.9</b>

	Houghton	Renton	Shoreline	Vashon	Overall
Subscribe	48.8	32.6	106.0	27.5	106.8
Do not subscribe	104.2	20.0	24.0	110.7	69.8
No Response	0.0	0.0	0.0	0.0	73.8
<b>Combined Average</b>	<b>57.6</b>	<b>32.6</b>	<b>96.9</b>	<b>77.4</b>	<b>97.7</b>

**NONRESIDENTIAL USERS MAKING FEWER THAN TWO VISITS PER DAY**

Customers that make fewer than two visits per day and do not subscribe to curbside garbage service visited a transfer station, on average, slightly more often than nonresidential customers who subscribe to curbside garbage collection. This result is more intuitive than than the results for all customers (including those who make more than two visits per day) shown in Table 3-10. The overall average was weighted by the proportion of self-haul customers assisted at each transfer station.

On average, customers who subscribe to curbside garbage collection make 66.5 visits per year to a King County transfer station (more than once per week). Users of the Vashon and Renton transfer stations who subscribe to curbside garbage collection

make the fewest annual visits (27.5 and 32.6, respectively). Users of the Bow Lake transfer station and Cedar Falls drop box who subscribe to curbside garbage collection make the most annual visits (100.9 and 91.0, respectively) to a King County facility.

**Table 3-11. Average Visits per Year by Nonresidential Self-haulers With and Without Curbside Garbage Service Making Fewer than Two Visits per Day February 2008 – January 2009 (n=313)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria
Subscribe	70.2	100.9	91.0	32.7	59.4
Do not subscribe	24.6	71.8	65.6	51.2	85.7
No Response	0.0	0.0	260.0	24.0	39.8
Combined Average	57.4	93.0	78.3	38.9	65.8

	Houghton	Renton	Shoreline	Vashon	Overall
Subscribe	48.8	32.6	78.8	27.5	66.5
Do not subscribe	104.2	20.0	24.0	110.7	69.8
No Response	0.0	0.0	0.0	0.0	73.8
Combined Average	57.6	32.6	72.7	77.4	67.3

### 3.8 WILLINGNESS TO RECYCLE WOOD, METAL, YARD DEBRIS

All self-haulers were asked, “In the future, would you be willing to recycle wood, metals, and/or yard waste into separate containers if you could save \$2 per load?” If the driver responded “no” the surveyor asked if the driver would be willing to do so for a cost savings of \$4 per load. This process continued at \$2 increments until the driver indicated the price point at which he or she would be willing to separate material for recycling, or until the driver indicated that he or she would be *unwilling* to separate materials for recycling *regardless* of the cost savings.<sup>11</sup> This section presents the survey results for this question.

#### All Self-hauled loads

As shown in Table 3-12 most self-hauled customers (80%) would be willing to separate and recycle their wood, metal, and yard waste for a \$2 per load savings. Of the contractors surveyed, 20% would not separate materials for recycling regardless of the savings. Eleven percent of landscapers said they would not separate materials for recycling, and 9% of all other self-haulers reported that they would not recycle regardless of the savings. In general customers either indicated they would be willing to separate their recyclables with minimal incentive or they wouldn’t do it at any level of incentive. Very few customers seemed to base their recycling decision on the cost savings. Most customers commented that either:

<sup>11</sup> If the self-hauled vehicle was larger than a passenger vehicle (e.g., a moving van or flatbed truck) the surveyor asked the question on a per ton basis.



- Recycling was important to them and the cost savings wouldn't sway their decision, or
- No amount of cost saving would justify the perceived extra time required to separate materials.

**Table 3-12. Savings Required for Self-hauled Customers to Separate and Recycle  
February 2008 – January 2009 (n=3,861)**

	<b>Contractor</b>	<b>Landscaper</b>	<b>All Others</b>	<b>Total</b>
Savings of \$2/load (\$10/ton)	65%	85%	82%	80%
Savings of \$4/load (\$25/ton)	4%	0%	4%	4%
Savings of \$8/load (\$50/ton)	4%	0%	4%	4%
The materials were free to recycle	7%	4%	2%	3%
Will not separate	20%	11%	9%	10%
<b>Subtotal</b>	<b>99%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>No Response</i>	1%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

*Note: Estimated percentages are rounded to the nearest percent and, when added together, may not equal 100%, due to rounding. For more detail, please see Interpreting the Results on page 8.*

A detailed table, by facility, can be found in Appendix B

### **3.9 REASONS FOR SELF-HAULING WASTE**

The surveyor asked every self-hauled customer their reason for self-hauling waste to the transfer station. Table 3-13 presents the five most common reasons for self-hauling, by facility, for both residential and nonresidential customers. The data includes subscribers to curbside garbage service as well as non-subscribers.

The most common reason reported by residential customers was that self-hauling was cheaper/saves money (18%) while the most frequent response from nonresidential customers was large amount of garbage (19%). For residential customers, the remaining top 4 reasons for self-hauling were large amount of garbage (16%), cleaning home or workplace (12%), convenience (10%), and items too big to fit in garbage can (9%). The remaining top 4 reasons for nonresidential customers differed from the residential customers, and included cleaning home or workplace (16%), items too big to fit into garbage can (12%), remodeling (11%), and convenience (10%).

All responses from residential and nonresidential customers regarding reasons for self-hauling waste can be found in Appendix B.

**Table 3-13. Five Most Common Reasons for Self-hauling Waste  
February 2008 – January 2009 (n=2,153)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria
<b>Residential</b>					
Cheaper/saves money	23%	22%	15%	31%	8%
Large amount of garbage	16%	23%	4%	10%	16%
Cleaning home or workplace	19%	6%	24%	4%	18%
Convenience	10%	12%	6%	15%	6%
Items too big to fit into garbage can	3%	4%	12%	5%	8%
<b>Subtotal</b>	<b>71%</b>	<b>67%</b>	<b>60%</b>	<b>65%</b>	<b>56%</b>
<i>All other responses</i>	29%	33%	40%	35%	44%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Nonresidential</b>					
Large amount of garbage	19%	17%	29%	29%	18%
Cleaning home or workplace	25%	0%	0%	29%	41%
Items too big to fit into garbage can	0%	2%	0%	14%	18%
Remodeling	0%	26%	0%	0%	0%
Convenience	13%	12%	29%	0%	5%
<b>Subtotal</b>	<b>56%</b>	<b>57%</b>	<b>57%</b>	<b>71%</b>	<b>82%</b>
<i>All other responses</i>	44%	43%	43%	29%	18%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Houghton	Renton	Shoreline	Skykomish	Vashon	Overall
<b>Residential</b>						
Cheaper/saves money	8%	21%	10%	67%	30%	18%
Large amount of garbage	17%	11%	30%	0%	3%	16%
Cleaning home or workplace	13%	11%	9%	0%	0%	12%
Convenience	3%	16%	6%	0%	36%	10%
Items too big to fit into garbage can	16%	11%	7%	0%	2%	9%
<b>Subtotal</b>	<b>58%</b>	<b>70%</b>	<b>61%</b>	<b>67%</b>	<b>71%</b>	<b>63%</b>
<i>All other responses</i>	42%	30%	39%	33%	29%	37%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Nonresidential</b>						
Large amount of garbage	8%	24%	38%	0%	33%	19%
Cleaning home or workplace	19%	12%	25%	0%	0%	16%
Items too big to fit into garbage can	19%	35%	13%	0%	0%	12%
Remodeling	12%	6%	13%	0%	0%	11%
Convenience	8%	6%	13%	0%	33%	10%
<b>Subtotal</b>	<b>65%</b>	<b>82%</b>	<b>100%</b>	<b>0%</b>	<b>67%</b>	<b>68%</b>
<i>All other responses</i>	35%	18%	0%	0%	33%	32%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>0%</b>	<b>100%</b>	<b>100%</b>

*Note: Estimated percentages are rounded to the nearest percent and, when added together, may not equal 100%, due to rounding. For more detail, please see Interpreting the Results on page 8.*

### 3.10 CITY OF ORIGIN

#### Commercially Collected Loads

Table 3-14 shows the reported city of origin for commercially collected loads to each of the County's facilities. With the exception of Vashon and Renton, 90% of the commercially collected loads to each facility originated from incorporated areas.<sup>12</sup>

**Table 3-14. Reported City of Origin, Commercially Collected Loads  
February 2008 – January 2009 (n=1,138)**

	Algona	Bow Lake	Enumclaw	Factoria	Houghton	Renton	Shoreline	Vashon	Overall
Algona	5%								1%
Auburn	42%	4%	28%						8%
Bellevue		1%		53%	2%				9%
Black Diamond	1%								0%
Bothell					9%		7%		2%
Burien		10%							4%
Carnation				1%					0%
Covington	1%	1%							0%
Des Moines		3%							1%
Duvall					1%		2%		0%
Enumclaw			55%						1%
Federal Way	37%	2%							5%
Issaquah				13%	2%	2%			3%
Kenmore					2%		9%		1%
Kent	10%	39%		1%					18%
Kirkland					26%				4%
Lake Forest Park							7%		0%
Maple Valley	2%		7%			1%			1%
Mercer Island				9%					1%
Newcastle				1%		4%			0%
Normandy Park									0%
North Bend				4%					1%
Redmond				11%	31%				7%
Renton		12%				78%			11%
Sammamish				3%	6%				1%
SeaTac		11%							5%
Seattle		2%							1%
Shoreline							74%		3%
Skykomish					1%				0%
Snoqualmie				3%		1%			1%
Tukwila		14%							6%
Woodinville				1%	15%				2%
<b>Incorporated</b>	<b>98%</b>	<b>99%</b>	<b>90%</b>	<b>99%</b>	<b>95%</b>	<b>86%</b>	<b>100%</b>	<b>0%</b>	<b>97%</b>
<i>Unincorporated</i>	1%	1%	7%	1%	4%	13%	0%	100%	3%
<b>Subtotal King County</b>	<b>99%</b>	<b>100%</b>	<b>97%</b>	<b>99%</b>	<b>99%</b>	<b>99%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>Outside King County</i>	1%	0%	0%	0%	1%	0%	0	0%	0%
<i>No Response</i>	1%	0%	3%	1%	0%	1%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Note: Estimated percentages are rounded to the nearest percent and, when added together, may not equal 100%, due to rounding. For more detail, please see Interpreting the Results on page 8.

<sup>12</sup> Please note that Vashon Island is considered unincorporated King County.

## Self-hauled Loads

Table 3-15 shows the origin of self-hauled loads delivered to King County disposal facilities. The majority of loads (92%) originated from King County's incorporated cities; 7% originated from unincorporated areas.

**Table 3-15. Reported City of Origin, Self-hauled Loads  
February 2008 – January 2009 (n=3,948)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria	Houghton	Renton	Shoreline	Skykomish	Vashon	Overall
Algona	1%										0%
Auburn	33%	4%		5%			1%				6%
Bellevue		1%			44%	10%	1%				9%
Black Diamond				10%			1%				1%
Bothell					1%	10%		1%			2%
Burien		9%									2%
Carnation			7%								0%
Clyde Hill											0%
Covington	7%	2%		5%			1%				2%
Des Moines		10%									2%
Duvall			1%		1%	2%					0%
Enumclaw				40%							5%
Federal Way	24%	7%									5%
Issaquah			1%		15%		4%				3%
Kenmore						4%		4%			1%
Kent	9%	29%		2%	1%		2%				7%
Kirkland					2%	31%					6%
Lake Forest Park								8%			1%
Maple Valley	2%	1%	1%	13%	1%		9%				3%
Medina			1%		2%	1%					0%
Mercer Island					8%						1%
Milton	2%										0%
Newcastle					4%		1%				1%
Normandy Park		2%									0%
North Bend			61%								3%
Pacific	2%										0%
Redmond			1%		4%	17%					4%
Renton	1%	5%			1%		71%				7%
Sammamish			1%		8%	3%					2%
SeaTac		12%									2%
Seattle		6%	1%	7%	2%	3%		20%			4%
Shoreline								62%			5%
Skykomish									38%		0%
Snoqualmie			14%		1%						1%
Tukwila		7%									1%
Woodinville					1%	14%		1%			3%
Yarrow Point											0%
<b>Incorporated</b>	<b>83%</b>	<b>97%</b>	<b>86%</b>	<b>83%</b>	<b>96%</b>	<b>96%</b>	<b>92%</b>	<b>96%</b>	<b>38%</b>	<b>0%</b>	<b>89%</b>
<i>Unincorporated</i>	1%	2%	14%	10%	4%	2%	7%	0%	50%	100%	7%
<b>Subtotal King County</b>	<b>84%</b>	<b>99%</b>	<b>100%</b>	<b>93%</b>	<b>100%</b>	<b>98%</b>	<b>99%</b>	<b>96%</b>	<b>88%</b>	<b>100%</b>	<b>96%</b>
<i>Outside King County</i>	16%	1%	0%	7%	0%	2%	0%	2%	13%	0%	4%
<i>No Response</i>	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Note: Estimated percentages are rounded to the nearest percent and, when added together, may not equal 100%, due to rounding. For more detail, please see Interpreting the Results on page 8.

The surveyors also asked self-hauled customers to identify the ZIP code where the load originated. The following two pages of Table 3-16 show these results.<sup>13</sup>

<sup>13</sup> Some self-haulers did not know the ZIP code of origin for their load. It is possible that these self-haulers recently moved, work on a contract or landscaping job in the area, or are a friend or relative of a nearby resident. If the driver did not know the ZIP code, the surveyor recorded "No Response".

**Table 3-16. Reported ZIP Code of Origin, Self-hauled Loads  
February 2008 – January 2009 (n=3,948)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria	Houghton	Renton	Shoreline	Skykomish	Vashon	Overall
98000		1%	1%								0%
98001	19%	3%						0%			3%
98002	13%	1%		1%							2%
98003	6%	2%									1%
98004					7%	3%					2%
98005					7%	3%					2%
98006					15%	1%					3%
98007					5%	1%					1%
98008					10%	3%					2%
98010				11%				0%			1%
98011						8%		1%			2%
98012						1%		0%			0%
98014			7%		1%						1%
98015		1%			2%			0%			1%
98017											0%
98019			1%		1%	2%		0%			1%
98020											0%
98021					1%	3%		1%			1%
98022				49%			1%				6%
98023	16%	3%									3%
98024			11%		2%						1%
98025				1%				0%			0%
98026											0%
98027			1%		8%		4%	0%			2%
98028						4%		6%			1%
98029					5%			0%			1%
98030	3%	4%					1%				1%
98031	1%	9%					1%	0%			2%
98032	3%	12%			1%						3%
98033					1%	18%		0%			4%
98034					1%	10%					2%
98035								0%			0%
98036											0%
98037											0%
98038	2%	1%	1%	14%			9%				3%
98039			1%		2%	1%					0%
98040					9%						2%
98042	12%	5%		9%			1%				4%
98043											0%
98045			62%				1%				3%
98047	3%										0%
98048											0%
98050			1%								0%
98051				6%							1%
98052					3%	12%	1%				3%
98053					1%	4%					1%
98054											0%
98055		2%						6%			1%
98056		1%			3%			14%			2%
98057								3%			0%
98058	1%	3%	1%					24%			3%
98059		1%			1%			25%			3%
98063											0%
98064											0%
98065			14%		1%						1%
98068											0%
98070										100%	3%
98071	1%										0%
98072						11%		1%			2%
98073											0%
98074					3%	2%					1%
98075			1%		5%						1%
98076											0%
98077						4%					1%
98083											0%

Continued on next page...

**Table 3-16. Reported ZIP Code of Origin, Self-hauled Loads, Contd.  
February 2008 – January 2009**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria	Houghton	Renton	Shoreline	Skykomish	Vashon	Overall
98087											0%
98088											0%
98089											0%
98092	12%	1%		7%			1%				3%
98093											0%
98095											0%
98097											0%
98098											0%
98103								1%			0%
98105											0%
98108											0%
98115											0%
98116											0%
98117											0%
98118											0%
98122											0%
98123											0%
98124											0%
98125								1%			0%
98130											0%
98133								29%			2%
98135											0%
98144											0%
98145											0%
98146		2%									0%
98148		3%									1%
98155								41%			3%
98158											0%
98163											0%
98166		8%									1%
98168		6%									1%
98170											0%
98177								14%			1%
98178		1%					4%				1%
98182											0%
98185											0%
98186											0%
98188		11%									2%
98189											0%
98190											0%
98198	1%	12%									2%
98199								1%			0%
98208											0%
98223											0%
98224									57%		0%
98256											0%
98272											0%
98288									43%		0%
98290											0%
98294											0%
98296											0%
98321											0%
98322											0%
98352											0%
98354	3%										0%
98360											0%
98371											0%
98372											0%
98375											0%
98391											0%
98422											0%
98505											0%
98652											0%
<b>Subtotal</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>99%</b>	<b>99%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
No Response	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

# **APPENDIX A.**

## **Survey Methodology**

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The customer survey was administered to vehicles entering 10 public waste facilities in King County between February 2008 and January 2009.<sup>1</sup> Copies of the data collection forms are included in Appendix D.

### **Sampling Plan**

Each transfer station was surveyed once per quarter except for Vashon, Skykomish, and Cedar Falls. Vashon and the two drop boxes were surveyed only once every 6 months due to their low traffic volume. A process was designed and implemented to ensure a random distribution of survey days.

To create an unbiased and representative survey schedule, facilities were assigned to specific dates using a random process. First, facilities were randomly assigned to a month during the first quarter of the study. Additional survey days for each transfer stations were then scheduled every three months; surveying at drop boxes and at the Vashon Transfer Station was scheduled six months out from the first month. A survey start date for each month was randomly selected, eliminating holidays or other events (such as construction) that would impact the normal traffic patterns at facilities scheduled for surveying. Generally survey days were scheduled to occur on consecutive days each month.

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<sup>1</sup> Field work was scheduled to be completed in December 2008, however heavy snow and ice forced the final two survey days into January 2009.

**Table A-1. Customer Survey Schedule  
February 2008 – January 2009**

	Sun	Mon	Tue	Wed	Thurs	Fri	Sat
<b>February</b>		25-Feb Enumclaw	26-Feb Factoria				23-Feb Cedar Falls
<b>March</b>				19-Mar Houghton	20-Mar Renton		22-Mar Bow Lake
<b>April</b>					24-Apr Shoreline	25-Apr Algona	26-Apr Vashon
<b>May</b>			6-May Enumclaw	7-May Factoria	8-May Skykomish		
<b>June</b>			10-Jun Bow Lake			6-Jun Renton	7-Jun Houghton
<b>July</b>			15-Jul Shoreline	16-Jul Cedar Falls			12-Jul Algona
<b>August</b>		25-Aug Bow Lake				22-Aug Enumclaw	23-Aug Factoria
<b>September</b>			9-Sep Houghton			12-Sep Vashon	13-Sep Renton
<b>October</b>		6-Oct Algona		8-Oct Shoreline			4-Oct Skykomish
<b>November</b>					20-Nov Bow Lake	21-Nov Factoria	22-Nov Enumclaw
<b>December</b>			16-Dec Renton, Algona				
<b>January</b>					8-Jan Houghton		10-Jan Shoreline

### Conducting Customer Surveys

In most cases, two surveyors were assigned to each facility on each survey day. The first surveyor administered the questionnaire to vehicles entering the facility, while the second surveyor recorded the vehicle's ticket number as it exited. Only one surveyor was assigned to the facilities at Vashon, Enumclaw, Cedar Falls, and Skykomish, due to the lower traffic flow at those facilities.

To link the vehicle's ticket number to the survey information, the first surveyor placed a uniquely numbered identification card on the vehicle's dashboard and recorded the ID number on the questionnaire. The second surveyor obtained this card as the vehicle exited the facility and recorded the net weight on the back of the card. An example of the numbered card is available in Appendix D.

The surveyors administered the questionnaire to every vehicle entering the facility during their shift, except in rare instances when the traffic became so congested that the surveyor needed to wave some of the vehicles past to avoid excessive delays.

Before the surveying took place, all surveyors attended a training session at the Renton transfer station. As part of the training they conducted mock interviews using the customer survey field form (see Appendix D for a copy).

The protocol used by the surveyors is described in more detail below.



## Information Collected on the Survey Form

### **AS THE VEHICLE APPROACHED**

1. The surveyor determined whether the approaching vehicle was a commercial garbage truck or a self-hauler. Surveyors were provided with a list of all companies licensed to haul municipal solid waste; please see the coding sheet in Appendix D.
2. The surveyor recorded the vehicle type, according to the four categories listed below:
  1. Packer
  2. Drop Box
  3. Large Other
  4. Passenger Vehicle
3. The surveyor noted whether the vehicle was pulling a trailer.
4. The surveyor let the driver know that the King County Solid Waste Division was conducting a customer survey. The surveyor placed a numbered card on the windshield and explained that the card kept the driver anonymous, and would be collected when the driver left the facility.
5. The surveyor first asked the driver from which city the load originated. The surveyor was given a list of King County cities and other areas. If the driver's response was not on the list, the surveyor asked whether the location was a rural area within King County or a city outside King County. If waste came from multiple areas in the County, "all over King County" was recorded.
6. The surveyor asked the driver to describe the type of waste brought to the facility, according to the four categories below:
  - Yard waste
  - Construction or demolition debris
  - Mixed garbage
  - Special waste (petroleum-contaminated soil, sludge, or asbestos)
7. If the waste type was yard waste or construction and demolition waste, the surveyor asked if the driver was a contractor/builder or a landscaper.
8. From the following list, the drivers were asked to pick the category that best described the source of their load:
  - Single-family
  - Multi-family
  - Both single-family and multi-family (mixed residential)
  - Residential and nonresidential

- Nonresidential (business)
9. In addition to the questions listed above, self-haulers were also asked the following questions (franchise haulers were not asked these questions):
- How often does the driver visit any transfer station? The surveyor recorded the number of visits per day, week, month, or year (or ever).
  - What is the ZIP code corresponding to the area this waste is from?
  - In the future, would the driver be willing to recycle wood, metals, and/or yard waste into separate containers, if the driver could save money? The savings corresponded with either tons (for bigger vehicles) or loads (for smaller vehicles). The surveyor then gave the driver the 1<sup>st</sup> option. If the driver said yes then they would circle the option, but if they said no then the surveyor would continue to the 2<sup>nd</sup> option and so on. The 5 options, in order, were:
    1. If you could save \$10/ton (approximately \$2/load)? YES/NO (If NO, continue; if YES record the answer and, continue to the next question)
    2. If you could save \$25/ton (approximately \$4/load)? YES/NO (If NO, continue; if YES record the answer and, continue to the next question)
    3. If you could save \$50/ton (approximately \$8/load)? YES/NO (If NO, continue; if YES record the answer and, continue to the next question)
    4. The materials were free to recycle? YES/NO (If NO, continue; if YES record the answer and, continue to the next question)
    5. Will not separate.
  - Does the driver subscribe to curbside garbage collection? (This question was not asked if the driver was a contractor/builder or a landscaper.)
  - Why is the driver self-hauling waste today? (This question was not asked if the driver was a contractor/builder or a landscaper.)

***AS THE VEHICLE EXITED THE FACILITY***

A member of the survey team stopped the driver as they exited the facility to collect the numbered card. The surveyor asked to see the driver's receipt and recorded the net weight as noted on the receipt on the numbered card.

## **APPENDIX B.**

### **Detailed Customer Survey Results**

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Chapter 3 of the report presented customer survey results for analyzed survey components but excluded *detailed* customer survey tables. This appendix presents the following tables:

- Load Source by Hauler Type and Facility
- Observed Vehicle Types, by Hauler Type and Facility
- Reported Waste Types, by Hauler Type and Facility
- Reported Self-hauled Contractors and Landscapers, by Facility and Generator Type
- Reported Reasons for Self-hauling Waste from Residential Generators
- Reported Reasons for Self-hauling Waste from Nonresidential Generators, by Facility
- Willingness to Recycle Wood, Metal, Yard Debris, by Facility

## Vehicle Type

**Figure B-1. Load Source by Hauler Type and Facility  
February 2008 – January 2009 (n=5086)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria
<b>Commercial</b>					
<b>Residential</b>	6%	7%	0%	2%	7%
<i>Single-family</i>	3%	4%	0%	2%	4%
<i>Multi-family</i>	2%	2%	0%	0%	3%
<i>Mixed Single-family &amp; Multi-family Residential</i>	1%	1%	0%	0%	1%
<b>Nonresidential</b>	14%	34%	0%	3%	12%
<b>Mixed Residential and Nonresidential</b>	1%	2%	0%	0%	2%
<b>No Response</b>	1%	0%	0%	1%	0%
<b>Subtotal</b>	<b>21%</b>	<b>43%</b>	<b>0%</b>	<b>6%</b>	<b>21%</b>
<b>Self-hauled</b>					
<b>Residential</b>	72%	49%	93%	88%	70%
<i>Single-family</i>	70%	46%	93%	86%	68%
<i>Multi-family</i>	1%	2%	1%	2%	2%
<i>Mixed Single-family &amp; Multi-family Residential</i>	0%	0%	0%	0%	0%
<b>Nonresidential</b>	6%	7%	7%	4%	8%
<b>Mixed Residential and Nonresidential</b>	1%	1%	0%	1%	1%
<b>No Response</b>	1%	0%	0%	0%	0%
<b>Subtotal</b>	<b>79%</b>	<b>57%</b>	<b>100%</b>	<b>94%</b>	<b>79%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Houghton	Renton	Shoreline	Skykomish	Vashon	Overall
<b>Commercial</b>						
<b>Residential</b>	7%	9%	6%	0%	1%	6%
<i>Single-family</i>	4%	4%	5%	0%	1%	3%
<i>Multi-family</i>	3%	4%	1%	0%	0%	2%
<i>Mixed Single-family &amp; Multi-family Residential</i>	0%	0%	0%	0%	0%	0%
<b>Nonresidential</b>	12%	10%	6%	0%	0%	15%
<b>Mixed Residential and Nonresidential</b>	1%	1%	1%	0%	0%	1%
<b>No Response</b>	0%	0%	0%	0%	0%	0%
<b>Subtotal</b>	<b>20%</b>	<b>19%</b>	<b>13%</b>	<b>0%</b>	<b>1%</b>	<b>22%</b>
<b>Self-hauled</b>						
<b>Residential</b>	71%	75%	78%	100%	92%	70%
<i>Single-family</i>	67%	72%	75%	100%	89%	67%
<i>Multi-family</i>	3%	3%	2%	0%	2%	2%
<i>Mixed Single-family &amp; Multi-family Residential</i>	0%	0%	0%	0%	1%	0%
<b>Nonresidential</b>	8%	5%	8%	0%	4%	7%
<b>Mixed Residential and Nonresidential</b>	1%	1%	1%	0%	3%	1%
<b>No Response</b>	1%	0%	0%	0%	0%	0%
<b>Subtotal</b>	<b>80%</b>	<b>81%</b>	<b>87%</b>	<b>100%</b>	<b>99%</b>	<b>78%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Figure B-2. Observed Vehicle Types, by Hauler Type and Facility  
February 2008 – January 2009 (n=5,086)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria
<b>Commercial</b>					
Packer	9%	16%	0%	3%	8%
Dropbox	12%	27%	0%	3%	12%
Large Other	0%	0%	0%	0%	0%
Passenger Vehicle	0%	0%	0%	0%	0%
<b>Subtotal</b>	<b>21%</b>	<b>43%</b>	<b>0%</b>	<b>6%</b>	<b>21%</b>
<i>No Response</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
<b>Self-hauled</b>					
Packer	0%	0%	0%	0%	0%
Dropbox	1%	1%	0%	0%	0%
Large Other	3%	5%	2%	3%	7%
Passenger Vehicle	74%	51%	98%	91%	72%
<b>Subtotal</b>	<b>79%</b>	<b>57%</b>	<b>100%</b>	<b>94%</b>	<b>79%</b>
<i>No Response</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Houghton	Renton	Shoreline	Skykomish	Vashon	Overall
<b>Commercial</b>						
Packer	12%	9%	8%	0%	1%	10%
Dropbox	8%	10%	6%	0%	0%	12%
Large Other	0%	0%	0%	0%	0%	0%
Passenger Vehicle	0%	0%	0%	0%	0%	0%
<b>Subtotal</b>	<b>20%</b>	<b>19%</b>	<b>13%</b>	<b>0%</b>	<b>1%</b>	<b>22%</b>
<i>No Response</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
<b>Self-hauled</b>						
Packer	0%	0%	0%	0%	0%	0%
Dropbox	0%	1%	0%	0%	0%	1%
Large Other	6%	2%	5%	0%	5%	5%
Passenger Vehicle	74%	78%	82%	100%	94%	72%
<b>Subtotal</b>	<b>80%</b>	<b>81%</b>	<b>87%</b>	<b>100%</b>	<b>99%</b>	<b>78%</b>
<i>No Response</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

## Waste Type

This table is based on numbers of vehicles surveyed, not the net weights of those vehicles. Commercial haulers were 22% of vehicles surveyed but they bring more than half of the waste tipped at King County transfer stations.

**Figure B-3. Reported Waste Types, by Hauler Type and Facility  
February 2008 – January 2009 (n=5,086)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria
<b>Commercial</b>					
Mixed Garbage	21%	42%	0%	6%	21%
Construction/Demolition	0%	0%	0%	0%	0%
Yard Waste	0%	0%	0%	0%	0%
<b>Subtotal</b>	<b>21%</b>	<b>43%</b>	<b>0%</b>	<b>6%</b>	<b>21%</b>
<i>No Response</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
<b>Self-hauled</b>					
Mixed Garbage	60%	42%	72%	80%	45%
Construction/Demolition	11%	9%	16%	9%	25%
Yard Waste	8%	6%	13%	5%	9%
<b>Subtotal</b>	<b>79%</b>	<b>57%</b>	<b>100%</b>	<b>94%</b>	<b>79%</b>
<i>No Response</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Houghton	Renton	Shoreline	Skykomish	Vashon	Overall
<b>Commercial</b>						
Mixed Garbage	20%	19%	13%	0%	1%	22%
Construction/Demolition	0%	0%	0%	0%	0%	0%
Yard Waste	0%	0%	0%	0%	0%	0%
<b>Subtotal</b>	<b>20%</b>	<b>19%</b>	<b>13%</b>	<b>0%</b>	<b>1%</b>	<b>22%</b>
<i>No Response</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
<b>Self-hauled</b>						
Mixed Garbage	51%	64%	55%	86%	83%	55%
Construction/Demolition	23%	11%	16%	14%	11%	15%
Yard Waste	6%	6%	16%	0%	4%	8%
<b>Subtotal</b>	<b>80%</b>	<b>81%</b>	<b>87%</b>	<b>100%</b>	<b>99%</b>	<b>78%</b>
<i>No Response</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Figure B-4. Reported Self-hauled Contractors and Landscapers, by Facility and Generator Type)  
February 2008 – January 2009 (n=3,948)**

	Algona				Bow Lake			
	Residential	Mixed Residential & Nonresidential	Nonresidential	No Response	Residential	Mixed Residential & Nonresidential	Nonresidential	No Response
Contractors	8%	80%	30%	25%	7%	64%	30%	0%
Landscapers	0%	0%	3%	0%	2%	9%	4%	0%
All Others	92%	20%	68%	75%	92%	27%	66%	100%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Cedar Falls				Enumclaw			
	Residential	Mixed Residential & Nonresidential	Nonresidential	No Response	Residential	Mixed Residential & Nonresidential	Nonresidential	No Response
Contractors	2%	0%	17%	0%	4%	33%	20%	0%
Landscapers	0%	0%	0%	0%	0%	17%	0%	0%
All Others	98%	0%	83%	0%	95%	50%	80%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>0%</b>

	Factoria				Houghton			
	Residential	Mixed Residential & Nonresidential	Nonresidential	No Response	Residential	Mixed Residential & Nonresidential	Nonresidential	No Response
Contractors	18%	43%	31%	100%	19%	75%	41%	0%
Landscapers	2%	0%	7%	0%	1%	0%	6%	0%
All Others	80%	57%	62%	0%	80%	25%	54%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>0%</b>

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**Figure B-3. Reported Self-hauled Contractors and Landscapers, by Facility and Generator Type, Contd.  
February 2008 – January 2009**

	Renton				Shoreline			
	Residential	Mixed Residential & Nonresidential	Nonresidential	No Response	Residential	Mixed Residential & Nonresidential	Nonresidential	No Response
Contractors	3%	0%	41%	0%	10%	75%	52%	0%
Landscapers	1%	0%	0%	0%	1%	0%	12%	0%
All Others	96%	100%	59%	100%	89%	25%	36%	100%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>0%</b>

	Skykomish				Vashon			
	Residential	Mixed Residential & Nonresidential	Nonresidential	No Response	Residential	Mixed Residential & Nonresidential	Nonresidential	No Response
Contractors	0%	0%	0%	0%	4%	0%	0%	0%
Landscapers	0%	0%	0%	0%	1%	0%	0%	0%
All Others	100%	0%	0%	0%	95%	100%	100%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Total				Overall
	Residential	Mixed Residential & Nonresidential	Nonresidential	No Response	
Contractors	10%	52%	33%	9%	13%
Landscapers	1%	4%	4%	0%	1%
All Others	89%	44%	62%	91%	86%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



## Reasons for Self-hauling Waste

**Figure B-5. Reported Reasons for Self-hauling Waste from Residential Generators, by Facility  
February 2008 – January 2009 (n=3,005)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria	Houghton	Renton	Shoreline	Skykomish	Vashon	Overall
<b>Residential</b>											
Cheaper/saves money	23%	22%	15%	31%	8%	8%	21%	10%	67%	30%	18%
Cleaning home or workplace	19%	6%	24%	4%	18%	13%	11%	9%			12%
Convenience	10%	12%	6%	15%	6%	3%	16%	6%		36%	10%
Disaster-related (flood, mud slide, etc)								1%			
Dissatisfied with regular collection service	1%	2%	5%	1%	2%	2%	2%	1%			2%
Do not have garbage service	1%	3%	11%	9%	2%	1%	2%		17%	7%	3%
Dogs get into garbage if left on curb	1%		1%					1%		1%	
Favor for friend/neighbor/family member	2%	3%	1%	1%	5%	3%	3%	3%		4%	3%
Forgot or missed the regular collection service							1%	1%			
Garbage hauler will not pick up this type of waste	1%				1%	3%	1%	1%			1%
Habit			1%	3%	1%		2%	3%		5%	2%
Independent hauler		1%		1%	5%	2%	1%				1%
Items too big to fit into garbage can	3%	4%	12%	5%	8%	16%	11%	7%		2%	9%
Large amount of garbage	16%	23%	4%	10%	16%	17%	11%	30%		3%	16%
Moving home or workplace	5%	6%	1%	5%	8%	6%	4%	3%		1%	5%
Refused to answer	1%	1%			1%					1%	
Remodeling	7%	8%	6%	4%	11%	13%	7%	8%		1%	8%
Roadside litter removal			1%								
Self-sufficiency / do not like government	1%	1%		1%			1%			3%	1%
Small amount of garbage / recycle almost everything	4%		4%	3%	2%	1%	1%	1%	17%	3%	2%
Waste is from vacation home							1%	1%			
Yard debris	4%	3%	7%	3%	3%	9%	5%	12%			5%
<b>Subtotal</b>	<b>97%</b>	<b>97%</b>	<b>99%</b>	<b>96%</b>	<b>96%</b>	<b>99%</b>	<b>98%</b>	<b>97%</b>	<b>100%</b>	<b>99%</b>	<b>97%</b>
<i>Other</i>	3%	3%	1%	4%	4%	1%	2%	3%	0%	1%	3%
<i>No Response</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Figure B-6. Reported Reasons for Self-hauling Waste from Nonresidential Generators, by Facility  
February 2008 – January 2009 (n=148)**

	Algona	Bow Lake	Cedar Falls	Enumclaw	Factoria	Houghton	Renton	Shoreline	Vashon	Overall
<b>Nonresidential</b>										
Cheaper/saves money	13%	12%		29%		4%			33%	7%
Cleaning home or workplace	25%			29%	41%	19%	12%	25%		16%
Convenience	13%	12%	29%		5%	8%	6%	13%	33%	10%
Dissatisfied with regular collection service						4%				1%
Favor for friend/neighbor/family member	6%					4%				1%
Habit		2%								1%
Independent hauler		21%			5%	12%				9%
Items too big to fit into garbage can		2%		14%	18%	19%	35%	13%		12%
Large amount of garbage	19%	17%	29%	29%	18%	8%	24%	38%	33%	19%
Moving home or workplace		2%	14%			8%				3%
Refused to answer					9%					1%
Remodeling		26%				12%	6%	13%		11%
Roadside litter removal			14%							1%
Small amount of garbage / recycle almost everything	6%				5%					1%
Yard debris	6%	2%				4%				2%
<b>Subtotal</b>	<b>88%</b>	<b>98%</b>	<b>86%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>82%</b>	<b>100%</b>	<b>100%</b>	<b>95%</b>
<i>Other</i>	13%	2%	14%	0%	0%	0%	18%	0%	0%	5%
<i>No Response</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

## Willingness to Recycle Wood, Metal, Yard Debris, by Facility

**Figure B-7. Self-hauled Customers, Savings Required to Separate and Recycle, by Facility**

**February 2008 – January 2009 (n=3,851)**

	Algona				Bow Lake			
	Contractor	Landscaper	All Others	Overall	Contractor	Landscaper	All Others	Overall
Savings of \$2/load (\$10/ton)	76%	50%	83%	82%	61%	100%	83%	81%
Savings of \$4/load (\$25/ton)	0%	0%	1%	1%	6%	0%	4%	4%
Savings of \$8/load (\$50/ton)	6%	0%	4%	4%	3%	0%	3%	3%
The materials were free to recycle	6%	50%	1%	2%	6%	0%	1%	1%
Will not separate	12%	0%	11%	11%	24%	0%	9%	11%
<b>Subtotal</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>No Response</i>	0%	0%	0%	0%	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Cedar Falls			Enumclaw			
	Contractor	All Others	Overall	Contractor	Landscaper	All Others	Overall
Savings of \$2/load (\$10/ton)	100%	86%	87%	52%	100%	84%	83%
Savings of \$4/load (\$25/ton)	0%	0%	0%	0%	0%	4%	3%
Savings of \$8/load (\$50/ton)	0%	2%	2%	0%	0%	3%	3%
The materials were free to recycle	0%	2%	2%	0%	0%	1%	1%
Will not separate	0%	9%	9%	48%	0%	8%	10%
<b>Subtotal</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>No Response</i>	0%	0%	0%	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Factoria				Houghton			
	Contractor	Landscaper	All Others	Overall	Contractor	Landscaper	All Others	Overall
Savings of \$2/load (\$10/ton)	60%	69%	76%	72%	67%	77%	75%	74%
Savings of \$4/load (\$25/ton)	6%	0%	4%	5%	5%	0%	7%	7%
Savings of \$8/load (\$50/ton)	6%	0%	6%	6%	3%	0%	4%	3%
The materials were free to recycle	12%	8%	3%	5%	6%	0%	4%	5%
Will not separate	17%	23%	11%	12%	19%	23%	10%	12%
<b>Subtotal</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>No Response</i>	0%	0%	0%	0%	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

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**Figure B-6. Self-hauled Customers, Savings Required to Separate and Recycle, by Facility Contd.  
February 2008 – January 2009**

	Renton				Shoreline			
	Contractor	Landscaper	All Others	Overall	Contractor	Landscaper	All Others	Overall
Savings of \$2/load (\$10/ton)	68%	100%	85%	85%	76%	100%	89%	88%
Savings of \$4/load (\$25/ton)	0%	0%	3%	3%	0%	0%	0%	0%
Savings of \$8/load (\$50/ton)	5%	0%	3%	3%	5%	0%	4%	4%
The materials were free to recycle	0%	0%	2%	1%	2%	0%	1%	1%
Will not separate	26%	0%	8%	8%	17%	0%	5%	7%
<b>Subtotal</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>No Response</i>	0%	0%	0%	0%	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Skykomish		Vashon		
	All Others	Overall	Contractor	All Others	Overall
Savings of \$2/load (\$10/ton)	86%	86%	25%	86%	84%
Savings of \$4/load (\$25/ton)	0%	0%	0%	6%	5%
Savings of \$8/load (\$50/ton)	14%	14%	0%	1%	1%
The materials were free to recycle	0%	0%	0%	2%	2%
Will not separate	0%	0%	75%	6%	8%
<b>Subtotal</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>No Response</i>	0%	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

	Overall			
	Contractor	Landscaper	All Others	Overall
Savings of \$2/load (\$10/ton)	65%	85%	82%	80%
Savings of \$4/load (\$25/ton)	4%	0%	4%	4%
Savings of \$8/load (\$50/ton)	4%	0%	4%	4%
The materials were free to recycle	7%	4%	2%	3%
Will not separate	20%	11%	9%	10%
<b>Subtotal</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<i>No Response</i>	0%	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

## **APPENDIX C.**

### **Quality Control Plan**

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#### **QUALITY CONTROL PLAN: CUSTOMER SURVEYS**

Throughout the 2008 King County Waste Monitoring Customer Survey Study, the execution of the following quality control plan helped ensure quality and consistency during fieldwork, data entry, and reporting.

#### **Train Crews**

Cascadia trained all surveyors on-site at a waste facility. The training consisted of a review of the survey form and possible responses, and it included a practice session in which surveyors administered the questionnaire to customers. A debriefing of the training occurred immediately following the practice surveys to discuss any issues that arose.

To promote consistency, a small team of regular surveyors conducted the questionnaire throughout the project. Cascadia trained any additional surveyors on-site, using the same process.

#### **Administering the Surveys**

Each surveyor received a packet of materials, including photos of various vehicle types, a list of all commercial haulers within King County, and a brief methodology explaining how to collect the information in the survey. The brief methodology included a verbatim script for each question.

The packet of materials also included a list of all cities in King County. If the respondent's waste was from a city or neighborhood not on the list, the surveyor would clarify whether the location was within incorporated King County, in unincorporated King County, outside King County, or from throughout King County. These steps reduced the number of misspelled or unknown cities of origin.

The survey crew posted a "Survey in Progress" sign in front of the gatehouse to alert drivers to the survey. Surveyors also wore hard hats and safety vests for their protection and to ensure that vehicles recognized them and stopped to answer the questionnaire.

#### **Verify the Accuracy of the Surveys Collected**

During the surveyor's first day, the survey task manager was on-site to check the survey process and ensure that the recorded information was complete and accurate. Surveyors had cell phones to call the task manager if any issues arose after the training and field check.

After each monthly survey period, the task manager reviewed the data to ensure accuracy, completeness, and legibility before data entry. Inaccurate, incomplete, or illegible records were discarded.

## **Enter Survey Data**

A designated Cascadia staff member or agent entered the survey data into the database using electronic data-entry forms. To increase accuracy, the data-entry forms included validation rules that prevented “out of range” values. For example, the database would only allow the numbers 1 through 9 to be entered as the vehicle type, since only this range corresponded to specific vehicle types on the survey form.

Other validation rules prevented extraneous information. For example, surveyors asked only self-hauled drivers how often they visited the transfer station, if they subscribed to garbage service, and why they were self-hauling their load. These fields only appeared on the data-entry form if staff entered “self-haul” as the collection type.

# **APPENDIX D.**

## **Field Forms**


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### **Customer Survey Field Forms**

- Survey Fact Sheet
- Survey Instruction Sheet
- Survey Interview Form
- Numbered Card
- Coding Forms
- Vehicle Type Photos

## Waste Sampling Field Forms

**Figure D-1. Survey Fact Sheet (front)**

 <b>King County</b>	Department of Natural Resources and Parks <b>Solid Waste Division</b>
<b>Customer Surveys At Transfer Stations</b>	
<p>The King County Solid Waste Division is surveying customers at transfer stations in King County to update information about the type of waste disposed in the County and where it comes from. The surveys will take place between February 2008 and December 2009.</p>	
<b>Why does the County conduct these surveys?</b>	
<p>The County wants to obtain information on how people use its transfer stations. This information helps the County anticipate the needs of its customers so it can provide appropriate services.</p>	
<b>Why was I selected for the survey?</b>	
<p>We are surveying every customer who visits this transfer station today. By doing so, we will be able to make sure we obtain data that will allow us to draw meaningful conclusions about the use of our transfer stations.</p>	
-over-	

**Figure D-2. Survey Fact Sheet (back)**


<b>Who is administering the survey?</b>
Staff from Cascadia Consulting Group, on behalf of King County.
<b>How do I get more information?</b>
Call Alexander Rist, King County Solid Waste Division, (206) 296-0268. He is the County's program manager for the customer survey.
<b><i>Thank you for participating in today's survey.</i></b>
This material will be provided in alternate formats upon request.
 Printed on recycled paper



Figure D-3. Survey Instruction Sheet (front)

**King County Waste Monitoring Program**  
**Customer Survey Instructions**

**AS THE VEHICLE APPROACHES:**

- Select a **numbered card**; record the number.
- Decide whether the vehicle is a commercial hauler or self-hauler (review the attached list of garbage companies) and record the **collection type**.
- Observe and record the **vehicle type** (from the list on the survey form; ask driver if you are uncertain).
- Observe and record whether they are pulling a **trailer** ("X" if yes).

**STOP THE VEHICLE, THEN BEGIN QUESTIONS:**

**ALL DRIVERS:**

- Introduction: "Hello, King County is conducting a customer survey today."
- Hand the driver the numbered card. "This card will be collected when you leave the facility. Please don't leave without returning the card."
- Ask where the load is from. Refer to the sheet entitled "City of Origin." If the load is from somewhere not on the list of cities, verify whether the load is from Unincorporated King County, all over King County, or Outside King County. Record the **city** on the survey form.
- Ask the driver whether the load is yard waste, construction/demolition (C&D), mixed garbage, or special waste (refer to attached sheet for definition of special waste). Record the **waste type**.
- If the waste type is yard waste or construction/demolition, ask the driver if he/she is a contractor/builder or a landscaper. Record only if he/she is **contractor/builder or landscaper**.
- Ask the driver where the load was generated: single-family residential, multi-family residential, mixed residential, residential and non-residential, or non-residential (business/institutional). Record the **generator** type.

**SELF-HAUL DRIVERS ONLY:**

- Ask the driver how often he/she visits any transfer station. Record the **trips/period** in terms of XX times per DAY, WEEK, MONTH or YEAR only. For example, write down 3/year if he/she says "once every four months."
- Ask the driver from which **ZIP code** the load originated.
- Tell the driver they currently pay about \$90 per ton to dispose of waste at this facility [if small vehicle, \$15.50 per load]. In the future, would you be willing to separate wood, metal, and/or yard waste for recycling here if [if small vehicle, surveyor will ask per load cost]. They could save \$10/ton [\$2.00/load]? If they answer NO or MAYBE ask them how much they would have to save to separate out wood, metal and/or yard waste; if YES, skip to the next question.

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## Figure D-4. Survey Instruction Sheet (back)

### ***Skip if Contractor of Landscaper:***

- Ask the driver whether he/she has curbside **garbage service** (circle yes or no). [This question pertains to: a) home if the driver indicated the load is from his/her home or b) business if the driver indicated the load is from his/her business.]
- Ask the driver **why** he/she is **self-hauling** today. If the driver previously answered “no” to having curbside garbage service, ask why he/she does not subscribe, instead of asking why he/she is self-hauling. Refer to the list provided to code the answer.

### ***ALL DRIVERS***

Record any additional comments the driver may offer. Thank the driver for his/her time and responses.

### ***AS THE VEHICLE DEPARTS THE FACILITY:***

- Remove the numbered card and ask for the transaction receipt.
- *If you have a two-person survey team, the second person will record the **numbered card**'s number and the **ticket number** on the *exit form*.*
- *If only one person is conducting the survey, you will record the **ticket number** on the *survey form*, making sure to write it next to the correct **numbered card** number.*

Figure D-5. Survey Interview Form (front)

As All Vehicles Approach				Ask All Vehicles				Ask Self-Haul Only				Skip if CB/Landscaper		Comments
Numbered Card	Collection Type	Vehicle Type	Trailer	City	Waste Type	Contractor or Landscaper	House/ Business	Trips to Any Station per Time Period		ZIP Code	In the future, would you be willing to recycle wood, metals, and/or yard waste into separate containers if [if small vehicle, ask per load cost];	Subscribe Curbside Garbage Service?	Why Self-Haul?	
	C comm. S self-haul	1 Rear Packer 2 Front Packer 3 Side Packer 4 Drop Box, Loose 5 Drop Box, Compacted 6 Pick-up, Van, SUV 7 Large Other 8 Car 9 Semi Truck	X if yes	If city is not on the list of King County cities, clarify whether it is a rural area inside King County or a city outside King County	Y Yard Waste C Construction/ Demolition M Mixed Garbage S Special Waste	If waste type = Y yard waste or C construction/demo., then ask: CB Contractor/Builder LN Landscaper	1 single-family 2 multi-family 3 both SF & MF 4 res & non-res. 5 non-residential	(Number)	(Circle time period) D day W week M month Y year E ever (or <1 per 10 yrs)		1) If you could save \$10/ton [\$2.00/load]? YES/NO [if NO, continue, if YES, skip to next Q] 2) If you could save \$25/ton [\$4.00/load]? YES/NO [if NO, continue, if YES, skip to next Q] 3) If you could save \$50/ton [\$8.00/load]? YES/NO [if NO, continue, if YES, skip to next Q] 4) The materials were free to recycle? YES/NO 5) Will not separate	Yes No	If "No" to Garbage Service, ask "Why don't you subscribe to curbside garbage service?"	
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		
	C S				Y C M S	CB LN			D W M Y E	98 _____	1 2 3 4 5	Y N		

**Figure D-6. Survey Interview Form (back)**

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***Complete this section for every page***

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Page \_\_\_\_\_ of \_\_\_\_\_

Date	_____	Circle the site:	_____
		Algona	Shoreline
Surveyor(s)	_____	Bow Lake	Houghton
	_____	Cedar Falls	Renton
		Enumclaw	Skykomish
		Factoria	Vashon Island

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***Complete this section for first page only***

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Inclement Weather? \_\_\_\_\_

Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_

***Other Notes about Today's Surveying:***

Figure D-7. Numbered Card (front and back)

<i>Front</i>	<i>Back</i>
<b>4996</b>	<b>Net Weight</b> _____



Figure D-9. Coding Forms (back)

<b>COMMERCIAL COLLECTION VS. SELF-HAUL</b>	<b>REASONS FOR SELF-HAULING</b>																						
<p><b>If one of these company names is printed on the vehicle, it is a COMMERCIAL COLLECTION vehicle:</b></p>	<p><b>Ask the drivers for the MAIN (only one) reason why they are self-hauling today</b></p>																						
<table border="0"> <tr> <td>City of Enumclaw</td> <td>Rabanco Recycling</td> </tr> <tr> <td>Container Hauling Corp.</td> <td>Sea-Tac Diposal</td> </tr> <tr> <td>Eastside Disposal</td> <td>Seattle Disposal Co.</td> </tr> <tr> <td>Emerald City Disposal</td> <td>WM-Northwest</td> </tr> <tr> <td>WM-Federal Way Disposal</td> <td>WM-Rainier Inc.</td> </tr> <tr> <td>Island Disposal (American)</td> <td>WM-Recycling Northwest</td> </tr> <tr> <td>Kent Meridian Disposal</td> <td>WM-RST Disposal Co.</td> </tr> <tr> <td>Lawson Disposal Inc.</td> <td>WM-Seattle</td> </tr> <tr> <td>WM-Nick Raffo Garbage</td> <td>WM-Sno-King</td> </tr> <tr> <td>Pacific Resource Management</td> <td>WM-Tri-Star Disposal</td> </tr> <tr> <td>Rabanco Connections</td> <td></td> </tr> </table>	City of Enumclaw	Rabanco Recycling	Container Hauling Corp.	Sea-Tac Diposal	Eastside Disposal	Seattle Disposal Co.	Emerald City Disposal	WM-Northwest	WM-Federal Way Disposal	WM-Rainier Inc.	Island Disposal (American)	WM-Recycling Northwest	Kent Meridian Disposal	WM-RST Disposal Co.	Lawson Disposal Inc.	WM-Seattle	WM-Nick Raffo Garbage	WM-Sno-King	Pacific Resource Management	WM-Tri-Star Disposal	Rabanco Connections		<ol style="list-style-type: none"> <li>1. Large amount of garbage</li> <li>2. Cheaper / saves money</li> <li>3. Cleaning home or workplace</li> <li>4. Garbage service is not available in my area</li> <li>5. Items too big to fit into garbage can</li> <li>6. Convenience (often: "driveway is too long")</li> <li>7. Yard debris</li> <li>8. Remodeling</li> <li>9. Moving home or workplace</li> <li>10. Garbage hauler won't pick up this type of waste</li> <li>11. Small amount of garbage / recycle almost everything</li> <li>12. Dissatisfied with regular collection service</li> <li>13. Forgot or missed the regular collection service</li> <li>14. Disaster-related (flood, mudslide, earthquake, etc.)</li> <li>15. Self-sufficiency / don't like government</li> <li>16. Favor for a friend/neighbor/family member</li> <li>17. Dogs get into garbage if left on curb</li> <li>18. Waste is from vacation home</li> <li>19. Roadside litter removal</li> <li>20. Other</li> <li>21. Refused to answer</li> <li>23. Independent hauler (business is hauling, but not demo)</li> <li>24. Habit</li> </ol>
City of Enumclaw	Rabanco Recycling																						
Container Hauling Corp.	Sea-Tac Diposal																						
Eastside Disposal	Seattle Disposal Co.																						
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Pacific Resource Management	WM-Tri-Star Disposal																						
Rabanco Connections																							
<p><b>If none of these names appears on the vehicle, it is SELF-HAUL.</b></p>																							
<p><b><i>Waste Type "Special Wastes"</i></b></p>																							
<p>"Special wastes" are petroleum-contaminated soil, sludge, or asbestos. These wastes are rarely (if ever) hauled to the transfer stations.</p>																							

**Table D-1. Vehicle Type Photos**

**Packer**



**Drop Box**



**Large Other**



**Pick-up/Passenger Vehicles**

