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The Solid Waste  
Transfer System

# Solid Waste Transfer System

## Policies

- TS-1 Provide solid waste services to commercial collection companies and self-haul customers at transfer stations, and to self-haul customers at drop boxes.
- TS-2 Provide solid waste transfer services in the urban and rural areas of the county based on local and facility conditions.
- TS-3 Work with cities and communities to develop mitigation measures for impacts related to the construction, operation, and maintenance of transfer facilities, as allowed by applicable local, state, and federal laws.
- TS-4 Incorporate green building principles and practices in all new transfer facilities and seek a Gold or higher rating in the Leadership in Energy and Environmental Design (LEED) certification process.
- TS-5 Provide for collection of recyclable materials at transfer facilities – recognizing resource limitations, availability of markets, and service area needs – focusing on maximum diversion of recyclables from the waste stream and on materials that are not easily recycled at the curb or through a readily available producer or retailer-provided program.

# Solid Waste Transfer System

## Summary of Recommendations

Responsibility		Action	Detailed Discussion
1	County	Continue to implement the transfer system renovation plan set forth in the 2006 <i>Solid Waste Transfer and Waste Management Plan</i> and approved by the King County Council in 2007, except as noted in the next recommendation.	Page 5-2, 5-17
2	County	Although approved for closure under the 2006 <i>Solid Waste Transfer and Waste Management Plan</i> , reserve the option to retain the Renton station until the new urban transfer facilities have been sited and the impact of closure has been fully evaluated.	Page 5-2, 5-17
3	County	Consider adding a second scale and an additional collection container at the Cedar Falls Drop Box to improve capacity.	Page 5-24
4	County	If service-level assessments indicate the need for additional capacity in the rural areas after the siting of two new stations, consider siting drop box facilities in these areas.	Page 5-24
5	County, commercial collection companies	Explore prospects for the transfer of commercial loads of organics through county transfer stations.	Page 5-22
6	County	Evaluate options for ensuring there is adequate transfer capacity and recycling/reuse opportunities for construction and demolition debris now and in the future.	Page 5-6
7	County, cities	In the event of an emergency, reserve the transfer system for municipal solid waste and make the recycling of related debris a priority.	Page 5-27
8	County, cities	Identify potential temporary Debris Management Sites where emergency debris can be stored until it is sorted for recycling or proper disposal.	Page 5-27

# THE SOLID WASTE TRANSFER SYSTEM

Planning, design, and construction are well underway in the development of a new generation of solid waste transfer facilities. Our aging transfer system is in need of extensive improvements after nearly 50 years of service to a growing region. Increased population and advancements in the industry have led to the need to reconstruct or build new facilities to provide greater capacity and update station technology. In addition, the increased focus on environmental stewardship has reshaped the role of transfer stations in managing solid waste, creating the need for more robust and modern facilities that will pave the way for a sustainable system in the future.

Transfer facilities are the public face of the solid waste system. In 2009, county transfer facilities received more than 845,000 tons of garbage, through nearly 780,000 customer visits. The division operates eight transfer stations and two rural drop boxes dispersed throughout the urban and rural areas of the county

(Figure 5-1). Both the transfer stations and the two rural drop boxes accept garbage and, in most cases, recyclable materials from business and residential self-haulers. The transfer stations also provide accessible drop-off locations for garbage picked up at the curb by the commercial collection companies. From these geographically dispersed transfer stations, garbage is consolidated in division transfer trailers and taken to the county-owned Cedar Hills Regional Landfill in the Maple Valley area. Private-sector haulers transport the recyclable materials to material recovery facilities throughout the region.

Using a collaborative, regional approach to solid waste management, the division and its advisory committees – the Solid Waste Advisory Committee (SWAC) and the Metropolitan Solid Waste Management Advisory Committee (MSWMAC) – developed a plan to renovate the transfer system. Given the potential effects of station renovation, siting, and construction on the cities and other stakeholders, it was important to engage them in the early stages of planning. This effort began in 2004 with a comprehensive analysis of the current transfer system and the adequacy of each facility in the network. The division and advisory committees focused initial evaluations on the urban transfer stations.



*The division's regional transfer stations provide a hub for transporting garbage collected at the curb to larger transfer trailers destined for the Cedar Hills Regional Landfill.*



Five of the urban transfer stations, with the exception of the newly constructed Shoreline Recycling and Transfer Station, were evaluated using 17 criteria. In general, the criteria focused on the level of service to users, the capacity of stations to handle garbage and recyclables both now and in the future, structural integrity, and the effects of facilities on surrounding communities. Once the criteria were applied to each urban station, the results were used to evaluate its condition to determine whether the station should be reconstructed in its

current location, whether it should be closed and a new station built in a different location, or whether it should be closed without being replaced.

The advisory committees worked closely with the division to develop and apply the 17 criteria, evaluate options, and formulate recommendations for upgrading the transfer system. The work of the division and the committees culminated in the 2006 *Solid Waste Transfer and Waste Management Plan* (Transfer Plan; KCSWD 2006b), which contains recommendations for the station renovations. This plan was approved by the King County Council in December 2007. The approved recommendations authorize the division to completely reconstruct or build newly sited facilities to replace four outmoded transfer stations and to close three existing stations.



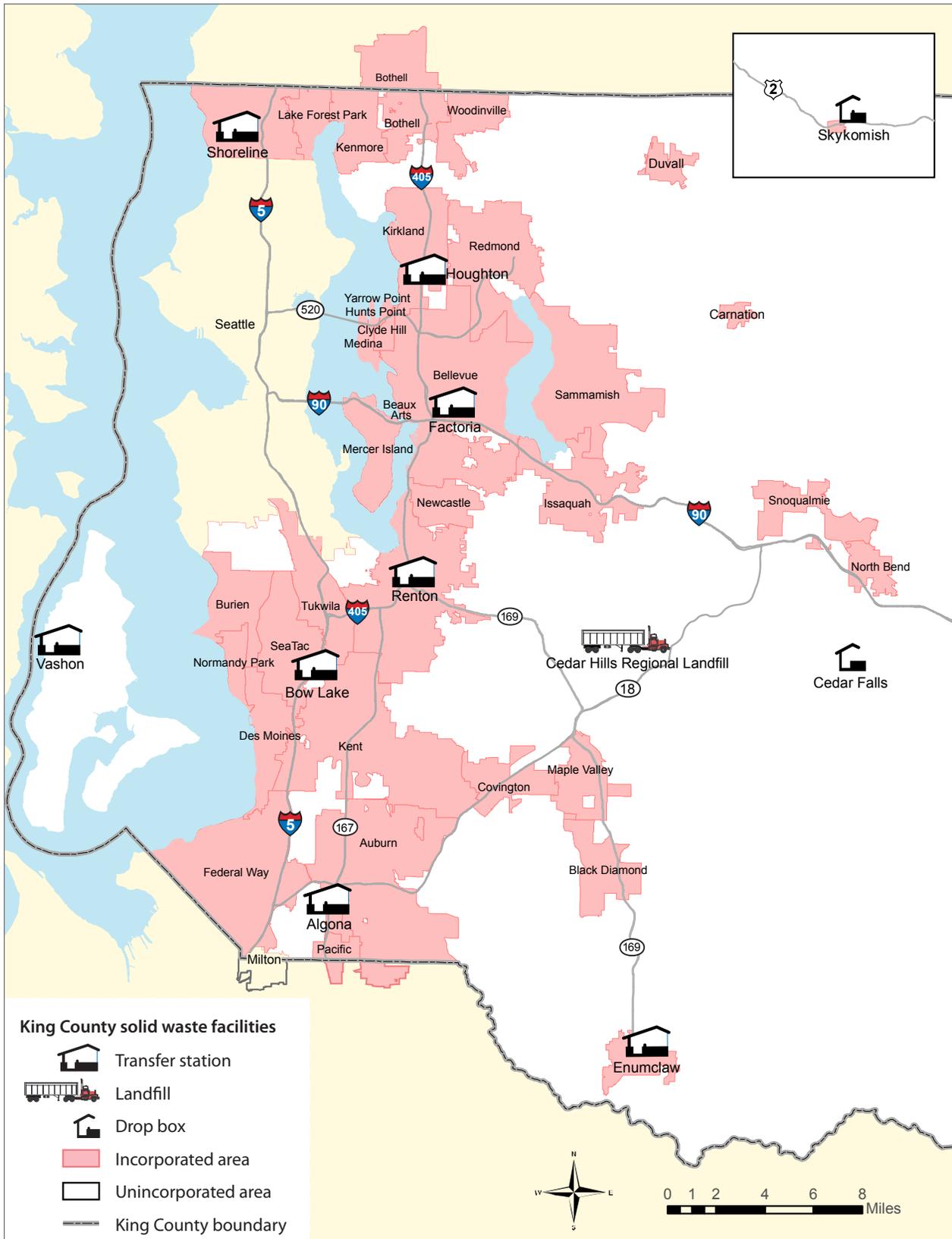
*Site preparations are underway for constructing the new Bow Lake Transfer Station on property just north of the existing station.*

As outlined in the Transfer Plan, the Bow Lake and Factoria stations will both be deconstructed, and new recycling and transfer stations will be built on the existing sites and adjacent properties. Both the Algona and Houghton stations will be closed and replaced with newly sited recycling and transfer stations in the South County and Northeast Lake Washington areas, respectively. The Renton station was approved for closure.

The rural facilities in the transfer network – the Enumclaw and Vashon transfer stations and the drop boxes at Cedar Falls and Skykomish – were assessed after completion of the urban station evaluation using the same 17 criteria. While the Vashon and Cedar Falls facilities each failed one evaluation criterion, improvements can be made on site, and recommendations are provided in this chapter. The analysis of rural service also resulted in a recommendation to reserve the option to retain the Renton station until the new urban transfer facilities have been sited and the impact of closure can be fully evaluated. Should the closure leave Renton and surrounding rural areas underserved, the division may consider retaining the station in some capacity.

This chapter traces the planning process for the solid waste transfer system through the development of the facility renovation plan. What emerges is a system plan that will improve the network's current level of services, with the flexibility to adapt to changing needs and emerging technologies. The chapter also discusses division plans for effectively managing potential local and regional emergencies through early response planning.

Figure 5-1. Locations of solid waste facilities



## THE TRANSFER SYSTEM AND SERVICES

The concept of a regional transfer and disposal network in King County grew out of a nationwide movement in the 1960s to impose stricter standards for protection of public health and the environment. The original purpose of the transfer network was to replace the open, unlined community dump sites in use at the time with environmentally safe transfer facilities where garbage could be delivered by curbside collection trucks and self-haulers. From these transfer sites, garbage could then be consolidated into larger trailers for transport to the Cedar Hills Regional Landfill.



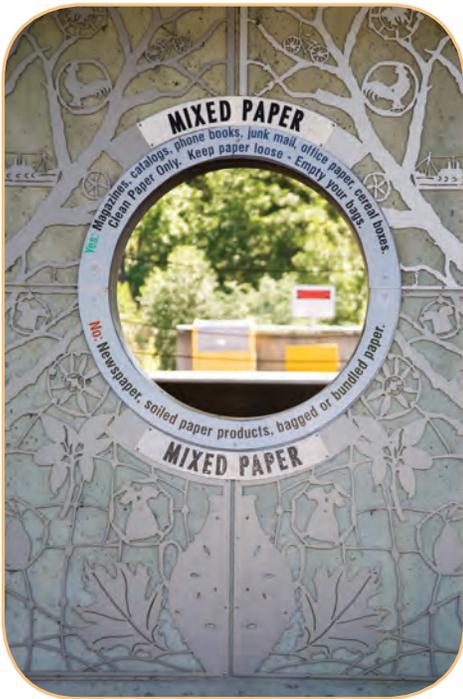
*The Vashon Transfer/Recycling Station replaced the Vashon landfill in 1999.*

Public Health – Seattle & King County (Public Health) is the primary regulatory and enforcement agency responsible for issuing operating permits for both public and private solid waste handling facilities. This includes solid waste, recycling, and composting facilities. Solid waste handling regulations are codified in the Code of the King County Board of Health, Title

10. The permitting process is the vehicle by which Public Health enforces the state's Solid Waste Handling Standards (WAC 173-350) and Criteria for Municipal Solid Waste Landfills (WAC 173-351). Public Health inspects solid waste handling facilities and has the authority to take corrective actions should a facility be out of compliance.

Locations of the eight transfer stations (six urban and two rural) and two rural drop boxes in King County are shown in Figure 5-1. In addition to meeting standards for the safe and environmentally sound transfer of solid waste, the transfer network has reduced the amount of truck traffic on the highways by providing geographically dispersed stations where garbage collected throughout the region can be consolidated into fewer loads for transport to the landfill. While this network has served the region well over the years, it was not built to accommodate the three-fold increase in population that has occurred between the 1960s and 2009, the larger-sized commercial collection vehicles now in use, and the space needed to collect the growing array of recyclable materials. Table 5-1 lists the locations of current transfer facilities, along with the tons of garbage received, numbers of customers served, and recycling services provided for each facility.

As shown in Table 5-1, in addition to accepting garbage, most stations provide for collection of standard curbside recyclables, which include glass and plastic containers, tin and aluminum cans, mixed waste paper, newspaper, and cardboard. Exceptions are the Algona and Factoria stations where space is limited. At Factoria, collection services for household hazardous wastes replaced the area formerly dedicated to the collection of recyclables. Some stations collect additional materials for recycling and reuse as space allows.



*Recycling portals at the Vashon Transfer/Recycling Station blend instruction with public art.*

Table 5-1. Current facilities and services

Facility and Address by Area Served	Year Opened	Garbage Tons Received <sup>a</sup> (2009)	Customer Transactions (2009)	Recycling and Other Services Provided
<b>North County</b>				
<b>Shoreline Recycling and Transfer Station</b> 2300 North 165th St. Shoreline 98133	2008	45,502	60,898 <sup>b</sup>	Standard curbside recyclables, organics (yard waste and food scraps), clean wood, scrap metal, textiles, fluorescent bulbs and tubes, appliances, cell phones, PDAs, 2-way radios, VCR/DVD/CD players, separated residentially generated sharps
<b>Northeast Lake Washington Area</b>				
<b>Factoria Transfer Station</b> 13800 Southeast 32nd St. Bellevue 98005	mid-1960s	139,811	110,156	Household hazardous waste
<b>Houghton Transfer Station</b> 11724 Northeast 60th St. Kirkland 98033	mid-1960s	151,538 <sup>c</sup>	121,516	Standard curbside recyclables, textiles
<b>Central County</b>				
<b>Bow Lake Transfer Station</b> 18800 Orillia Rd. S Tukwila 98188	1977	270,139	180,390	Recycling services stopped in March 2009 to accommodate station reconstruction; significantly expanded recycling service will be offered when the station reopens
<b>Renton Transfer Station</b> 3021 Northeast 4th St. Renton 98056	mid-1960s	66,356	75,035	Standard curbside recyclables, textiles
<b>South County</b>				
<b>Algona Transfer Station</b> 35315 West Valley Hwy. Algona 98001	mid-1960s	141,770	145,397	None

Facility and Address by Area Served	Year Opened	Garbage Tons Received <sup>a</sup> (2009)	Customer Transactions (2009)	Recycling and Other Services Provided
<b>Rural County</b>				
<b>Cedar Falls Drop Box</b> 16925 Cedar Falls Rd. SE North Bend 98045	1990	3,602	19,117 <sup>b</sup>	Standard curbside recyclables, textiles, yard waste
<b>Enumclaw Transfer/ Recycling Station</b> 1650 Battersby Ave. E Enumclaw 98022	1993	20,903	43,333 <sup>b</sup>	Standard curbside recyclables, yard waste, clean wood, scrap metal, appliances, textiles, reusable household goods
<b>Skykomish Drop Box</b> 74324 NE Old Cascade Hwy. Skykomish 98288	1980	840	2,662	Standard curbside recyclables
<b>Vashon Transfer/ Recycling Station</b> 18910 Westside Hwy. SW Vashon 98070	1999	7,776	20,967	Standard curbside recyclables, appliances, textiles, business-generated sharps, construction and demolition debris <sup>d</sup>

<sup>a</sup> Does not include yard waste or other recyclables.

<sup>b</sup> Includes garbage and yard waste transactions.

<sup>c</sup> Includes the 840 tons received at Skykomish, which was taken to Houghton for transport to the landfill.

<sup>d</sup> C&D accepted for disposal only.

## Services for Construction and Demolition Debris

The county does not accept commercial or large loads of construction and demolition (C&D) debris at any of its transfer facilities, except for the Vashon Transfer/Recycling Station. C&D includes debris from the construction, remodeling, repair, or demolition of buildings, other structures, and roads. It includes clean wood, painted and treated wood, gypsum wallboard, roofing, siding, structural metal, wire, insulation, packaging materials, and concrete, asphalt, and other aggregates. The county banned the disposal of large loads of C&D at the transfer stations and Cedar Hills landfill in 1993.

To manage the majority of the region's C&D, the division contracts with two private-sector companies – Allied Waste and Waste Management. Together, these two companies currently operate six facilities, which accept all loads of C&D, both recyclable and non-recyclable. While initially most of the C&D collected

was disposed, these facilities are taking steps to increase their C&D recycling (as discussed in Chapter 4, *Collection and Processing*). In addition to the facilities listed below, there are many other private-sector facilities throughout the region that accept C&D materials for recycling or reuse (discussed in Chapter 4).

<b>C&amp;D Facility</b>	<b>Location</b>
<b>Allied Waste</b>	
Third & Lander Recycling Center & Transfer Station	2733 - 3rd Ave. S Seattle
Black River Recycling & Transfer Station	501 Monster Rd. Renton
<b>Waste Management</b>	
Eastmont Transfer/Recycling Station	7201 W Marginal Way SW Seattle
Cascade Recycling Center	14020 NE 190th Woodinville
Recycling Northwest	701 2nd St. NW Auburn
Argo Yard (intermodal containers only)	5000 Denver Ave. S Seattle

The division's current C&D contracts with Allied Waste and Waste Management are scheduled to expire in 2014. Before the expiration date, the division will evaluate options for ensuring there is adequate transfer capacity and recycling/reuse opportunities for C&D in the future. Options could include negotiating new contracts for C&D handling, allowing C&D to flow to private-sector facilities without division contracts, and accepting more C&D at the new and rebuilt county transfer stations. Criteria used to choose among the options will include the potential to increase the amount of C&D that is recycled, accessibility of the C&D disposal and recycling facilities, and ability to maintain reasonable disposal fees.

## Services for Household Hazardous Wastes

Many common household products, such as pesticides and certain cleaning products, contain ingredients that are toxic, flammable, reactive, or corrosive. Disposed improperly, these products can pose a threat to human health and the environment. Household hazardous waste (HHW) generated in King County is

managed through the Local Hazardous Waste Management Program (LHWMP). This program is jointly managed by King County, the City of Seattle, the 37 cities within our service area, and Public Health – Seattle & King County. The guiding policies and plans are contained in the joint Local Hazardous Waste Management Plan, mandated under RCW 70.105.

The county accepts HHW from residents through two avenues: the traveling Wastemobile and a stationary drop-off site at the Factoria Transfer Station. The City of Seattle operates two HHW collection sites within its borders, which are open to all King County residents. Wastes collected through these services are recycled, beneficially reused, or incinerated, when necessary. None is disposed at the Cedar Hills Regional Landfill. HHW collection for residents is funded through a surcharge on garbage disposal, residential and business garbage collection, and wastewater discharge fees, thus residents using the services are not charged at the drop-off locations. Jurisdictions receive funds from the LHWMP to provide the service.

Created in 1989, the county's Wastemobile was the first program of its kind in the nation. It is a mobile service that travels to communities within King County, staging collection of HHW at each site for one to two days at a time. The Wastemobile is also providing regularly scheduled HHW collection at the Supermall in Auburn on the first and third full weekends of each month. In 26 collection events in 2009, the traveling Wastemobile served more than 14,000 King County residents, collecting 358 tons of hazardous waste. The new bi-monthly Wastemobile service in Auburn provided HHW service to an additional 3,344 customers, collecting more than 76 tons of waste in six months of operation.

The county's Factoria Transfer Station offers HHW drop-off service six days a week. In 2009, nearly 12,000 customers brought about 278 tons of HHW to Factoria.

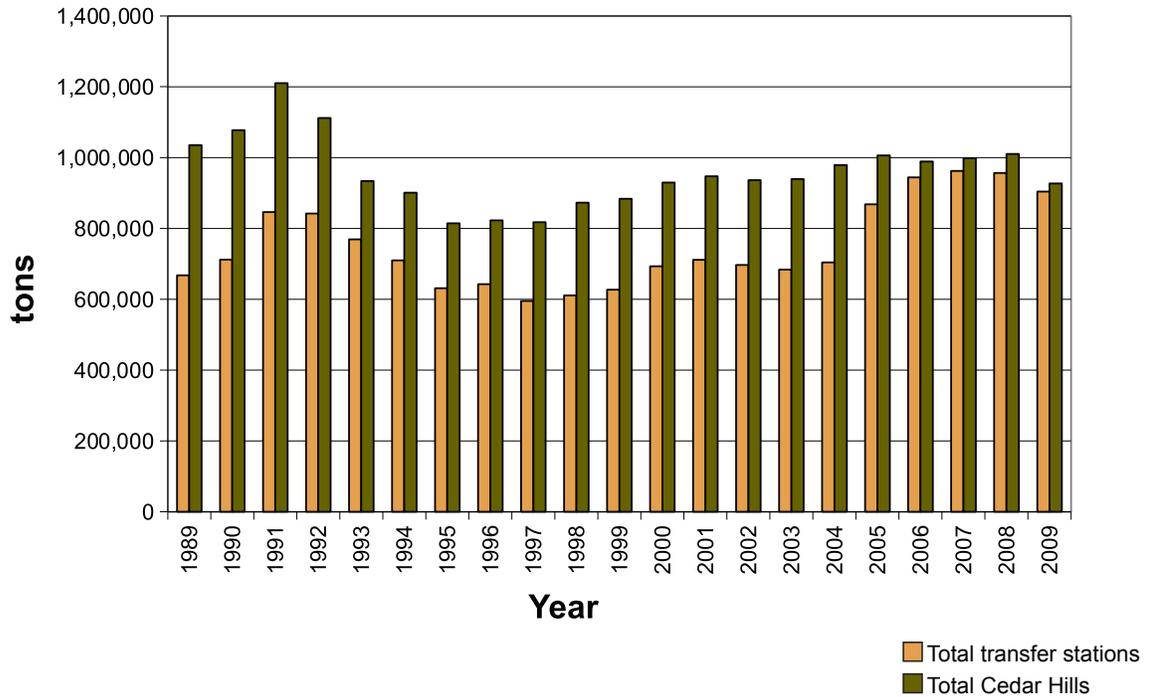
In February 2008, the division initiated a pilot program to accept HHW from small businesses at the Factoria station and the Wastemobile. (Previously only residential customers were offered the service.) Thus far, the collection services have received materials from 145 small businesses. The division will continue to offer and promote the service for small businesses.

## **TRENDS IN TRANSFER STATION USAGE**

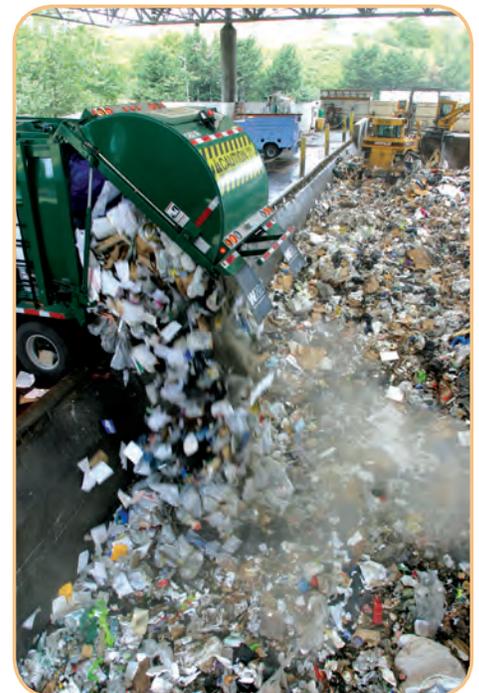
With regional growth and changes in technology over the years, the division has modified its solid waste facilities, where possible, to keep pace. Figure 5-2 shows the tons of garbage received at the transfer stations and the landfill over the last 20 years.

The drop in total tons disposed in the early to mid-1990s is attributable to the success of waste prevention and recycling programs that began in the late 1980s, the withdrawal of the City of Seattle from the county's system in 1991, and the ban on most C&D from the division's solid waste system in 1993. In 2004, the amount of garbage taken directly to Cedar Hills decreased significantly due to an increase in the fee charged to commercial collection companies that were hauling wastes directly to the landfill. The fee increase discouraged this practice, resulting in more wastes being processed through county transfer stations. The economic downturn is responsible for the tonnage reduction from 2007 to 2009. The division expects tonnage to remain at this lower level for several years.

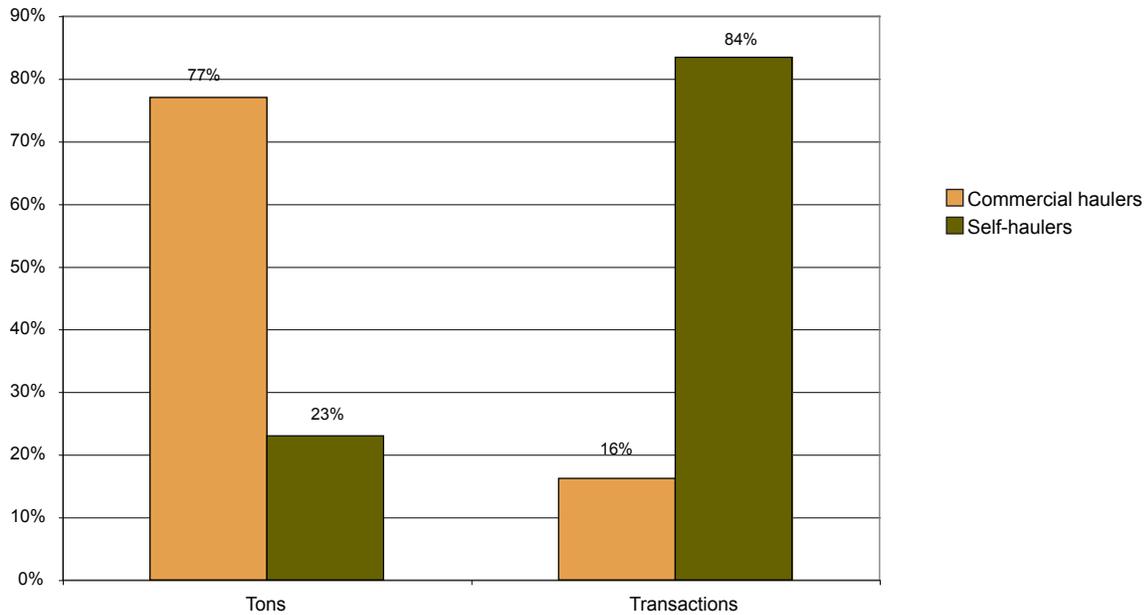
**Figure 5-2. Total tons processed at transfer stations and disposed at Cedar Hills (1989 – 2009)**



In 2009, about 77 percent of the garbage received at the transfer facilities was brought by the larger, commercial curbside collection trucks, with the remaining 23 percent delivered by business and residential self-haulers (shown in Figure 5-3). While the larger garbage loads come from the commercial haulers, self-haulers account for 84 percent of the customer transactions (Figure 5-3). At some of the urban stations that are operating at or near maximum capacity, the mix of self-haul and commercial customers can cause long traffic queues and crowded conditions on the tipping floor. The division has managed these problems, to the extent possible at each station, by providing separate queuing lanes for the two customer types and allowing maximum separation on the tipping floor, for safety as well as efficiency. Potential crowding is further eased by the fact that self-haulers typically use the stations more on weekends, while commercial transactions occur primarily on week days. The division is committed to providing service to self-haulers, viewing the solid waste disposal network as a public system that exists for the benefit of the community.



**Figure 5-3. Percent of total tons and transactions at transfer stations by hauler type (2009)**



To understand who self-hauls to the transfer facilities and why, the division conducts periodic surveys of customers through countywide telephone interviews and on-site questionnaires at each facility. Self-haulers consist of single- and multi-family residents and non-residential customers, such as landscapers, small contractors, industries, offices, stores, schools, government agencies, and, increasingly, independent haulers for hire. The most common type of self-hauler is the single-family resident.

Of the self-haul trips, about 90 percent are made by residential customers, who bring in about 85 percent of the self-haul tons. About 10 percent of the trips are made by non-residential self-haulers, bringing about 15 percent of the self-haul tons.

The number one material disposed by self-haulers is yard waste, followed by wood, C&D, scrap metal, and paper, including cardboard. The division's waste characterization studies indicate that approximately 60 percent of the tons disposed by self-haulers is recyclable.

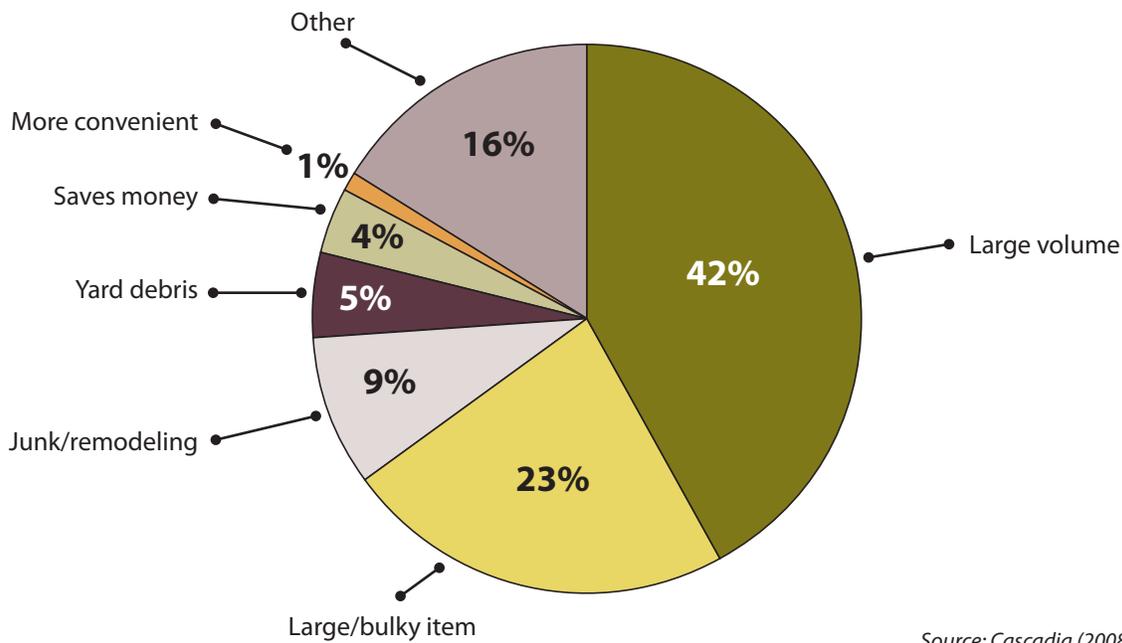
Telephone surveys conducted in 2007 indicate that 47 percent of county residents used a



*A self-hauler unloads a vehicle at the Shoreline Recycling and Transfer Station.*

transfer facility during the previous year. Of those users, 18 percent said they used a transfer facility once during the year, and 8 percent said they used a transfer facility more than four times during the year. The most common reason given for self-hauling to a transfer facility was having a large quantity of waste, while the second most common reason was having a large or bulky item that could not be collected at the curb (Figure 5-4). The surveyors found that residents who subscribe to curbside services use transfer stations occasionally, while those who do not subscribe to collection services use the facilities more often.

**Figure 5-4. Most common customer reasons for self-hauling**



Source: Cascadia (2008b)

A separate survey of self-haulers on-site at the transfer facilities during 2006 provided similar responses. For both residential and non-residential self-haulers, the number one reason for using the transfer station was having a large amount of waste – 24 and 25 percent, respectively. The number two reason for residential self-haulers, 12 percent, was having an item that was too big to fit in the garbage can. The number two reason for non-residential self-haulers, 21 percent, was that they were an independent hauler; in the previous survey in 2002/2003, independent haulers accounted for only 4 percent of non-residential self-haulers.

## EVALUATION AND PLANNING FOR THE URBAN TRANSFER STATIONS

The transfer network has served the region well for nearly five decades; however, all of the urban transfer stations are now outdated and over capacity, with the exception of the newly constructed Shoreline station. Along with the growth in population, the late 1980s brought about an emphasis on recycling to reduce

wastes. Recycling containers have been placed at transfer stations, wherever space allows, to collect some materials brought by self-haulers; however, space constraints continue to limit the number of containers and the range of materials that each site can accommodate. These space constraints prohibit the addition of recycling opportunities for materials that are commonly disposed at the stations, including yard waste, clean wood, and scrap metal. Changes in the industry have also created operational constraints. For example, commercial collection trucks have become larger, making it more difficult to unload the vehicles efficiently. Given these and other factors, in 2004 the division and its advisory committees embarked on a comprehensive analysis of each urban transfer station to determine how best to update the system to meet current needs.

As discussed in detail in Chapter 2, *Solid Waste System Planning*, the division, SWAC, MSWMAC, and the Interjurisdictional Technical Staff Group developed four analytical milestone reports to evaluate the urban transfer stations. These reports culminated in the approved Transfer Plan, which provides recommendations for upgrading the transfer station system and its services.

In the first milestone report (KCSWD and ITSG 2004), the division and advisory committees developed 17 criteria to evaluate the urban transfer facilities. To determine the appropriate standards of performance, the division consulted the local commercial collection companies and other subject experts, and applied national environmental and transportation standards. Details on the application of these evaluation criteria to individual facilities are contained in the second milestone report prepared by the division and advisory committees and approved by the County Council (KCSWD 2005a). Criteria to address costs and rate setting considerations were applied during the development of system alternatives in the final milestone report (KCSWD 2006a).

The evaluation criteria were applied to five of the six urban stations – Algona, Bow Lake, Factoria, Houghton, and Renton. The former First Northeast station was not evaluated because it was in the process of being rebuilt; the newly constructed station opened in 2008 as the Shoreline Recycling and Transfer Station.

For the station evaluations, the 17 criteria were grouped into three broad categories – level of service to customers, station capacity and structural integrity, and effects on surrounding communities. As expected for these five aging facilities, the majority of the criteria were not met, resulting in decisions to reconstruct or close the stations when sufficient replacement capacity was available.



*Two outbound scales at the Algona Transfer Station help keep traffic moving through the station.*

The three categories of evaluation criteria are described below, followed by a table that shows the results of their application to the five urban transfer stations.

## Level of Service

- *Estimated travel time to a facility* – This criterion measures how conveniently located the facilities are for customers, measured by the maximum travel time to the closest facility in their service area. The standard was established as 30 minutes for at least 90 percent of the customers. It provides an indication of whether the transfer stations are well dispersed throughout the county.
- *Time on site* – Time on site measures the time to get in and out of the station, including unloading time. It was evaluated separately for commercial haulers (with a standard of 16 minutes) and business and residential self-haulers (each with a standard of 30 minutes). It provides an indicator of whether a transfer station can efficiently handle customers in a timely manner.
- *Facility hours* – Individual days and hours of operation for each station are set based on the division's usage data and customer trends. Some of the urban stations are open in the early morning or late evening hours to serve the commercial haulers. Currently, the only days that the entire system is closed are Thanksgiving, Christmas, and New Year's Day.
- *Level of Recycling Services* – The final criterion in this category was whether recycling services provided at the stations met the waste prevention and recycling policies established in the last comprehensive solid waste management plan. In general, the policies direct that all stations should 1) provide for collection of the curbside recyclables, including glass and plastic containers, tin and aluminum cans, mixed waste paper, newspaper, and cardboard, 2) where feasible, provide areas for source-separated yard waste collection, and 3) maintain the capacity to add collection of new materials based on market opportunities and community needs.

## Station Capacity

Station capacity is likely the single greatest limitation of the five urban transfer stations, both now and in the future. It was measured using a number of criteria that affect daily operations, future expansion, and emergency capacity.

- *Vehicle and tonnage capacity* – Two major operational considerations measured were station capacity for vehicle traffic and solid waste tonnage, both now and over the 20-year planning horizon. Optimal operating capacity is the maximum number of vehicles and tonnage that can be efficiently processed through the station each hour based on the station design and customer mix. To derive criteria that would indicate how well a station could be expected to perform, the division modeled its criteria after the transportation standards used to measure roadway capacity. The transportation standards were modified to assign measures of capacity to transfer facilities. The optimal level of service was defined as "able to accommodate vehicle and tonnage throughput at all times of the day, except for occasional peak hour times." Based on the criteria, a station that provides the optimal level of service more than 95 percent of the time is considered underutilized, meaning it offers more capacity than required for

the area it serves. A level of service in which capacity is exceeded during 5 to 10 percent of operating hours is considered optimal.

- *Space for 3 days' storage* – Available storage capacity establishes whether a transfer station can continue to operate, or accept garbage, for at least three days in the event of a major regional disaster.
- *Space for station expansion* – Stations were evaluated to determine 1) whether there is space for expansion on the existing property or 2) whether there is adjacent land available on which to expand operations. These two standards were used primarily to determine if the station could be expanded in its current location or if a new location would be needed to efficiently manage current and future needs.
- *Meets facility safety goals* – While all stations hold current permits from Public Health – Seattle & King County and meet health and safety standards, overall safety is a concern as stations become more congested and operations more constricted. The presence of these physical challenges at the stations does not mean they operate in an unsafe manner; it does mean that it takes extra effort by staff and management at the stations to ensure the facilities are operating safely.
- *Roof clearance* – This criterion measures a station's capacity to handle the larger, commercial collection trucks. Through discussions with the commercial collection companies, it was determined that a minimum clearance of 25 feet was needed to allow the new, larger trucks to unload efficiently. The longer truck/trailers with automated lifts, which allow the garbage to slide out the back of the trailers, require higher vertical clearance than they did in the past. At some of the older stations, the collection trucks can hit and potentially damage station roofs, supporting structures, or hanging lights as they unload.
- *Ability to compact waste* – This criterion examines whether the station is equipped with, or has the space to install, a waste compactor. Waste compactors increase efficiency and reduce costs by compressing more garbage into fewer loads for transport to the landfill or other disposal option. When garbage has been compacted, transfer trailers can carry about one-third more tons per trip, resulting in less traffic through host city neighborhoods, less wear on local roads, less fuel use, and a reduction in greenhouse gases.
- *Structural integrity* – The purpose of this criterion is to ensure the facility meets code requirements for seismic, wind, and snow events. All facilities were constructed in compliance with the applicable standards of the time and were grandfathered in in their current condition. They presently meet



the “life safety” standard, meaning the station would not endanger occupants in the event of an emergency. The current standard for assessing new transfer buildings for seismic performance is the Immediate Occupancy standard, developed by the Federal Emergency Management Agency (FEMA). This standard means that the facility could be occupied immediately following a seismic event. Because the King County Emergency Management Plan identifies transfer stations as critical facilities in the event of an emergency, this FEMA standard applies to all new stations.

## Effects on Surrounding Communities

One of the division’s highest priorities is to minimize the effects of its facilities on the host cities and surrounding communities. Through its advisory committees, the division has worked closely with the cities and communities to understand their issues and concerns and bring their perspectives to bear on system planning. Working together, five criteria were developed to evaluate effects on communities.

- *Meets applicable local noise ordinance levels* – This criterion is to ensure that a facility does not violate state or local (city) standards for acceptable noise levels. State and city standards are based on maximum decibel (dBA) levels that consider zoning, land use, time of day, and other factors. Evaluations were based on the existence of any reports of noise violations to the cities and additional noise level measurements performed at each station by a consultant.
- *Meets Puget Sound Clean Air Agency standards for odors* – The primary measure of whether odors are a problem is through complaints by the public or employees. Complaints are typically reported to the Puget Sound Clean Air Agency (PSCAA) or directly to the division. Complaints to PSCAA are verified by an inspector. If an odor is verified and considered to be detrimental, PSCAA issues a citation to the generator of the odor. The division also tracks and investigates any odor complaints.
- *Meets goals for traffic on local streets* – This criterion measures the impacts on local streets and neighborhoods from vehicle traffic and queuing near the transfer stations. The area that could be affected by traffic from self-haulers and commercial collection trucks extends from the station entrance to the surrounding streets. The division hired a consultant to evaluate this criterion based on two standards: 1) that additional traffic meets the local traffic level of service standard as defined in the *American Association of State Transportation Officials Manual* and 2) that traffic does not extend onto local streets during more than 5 percent of the station’s operating hours.



*The new Shoreline Recycling and Transfer Station is fully enclosed to mitigate any potential impacts from noise, odor, and dust.*

- *Existence of a 100-foot buffer between the active area and nearest residence* – A criterion developed by the division is the maintenance of a 100-foot buffer between the active area of the station and the nearest residence.
- *Compatibility with surrounding land uses* – The final criterion used to evaluate the stations was the most subjective and difficult to apply. It looks at consistency with land use plans and zoning regulations, aesthetics, and compliance with state and local regulations. This criterion was evaluated for each station during lengthy discussions between the division and its advisory committees.

The 17 criteria described above were applied to each of the five urban stations. Table 5-2 presents the results of those evaluations.

**Table 5-2. Level-of-service criteria applied to urban transfer stations**

		Algona	Bow Lake	Factoria	Houghton	Renton
1. Estimated time to a transfer facility within the service area for 90% of users	< 30 min=yes	YES	YES	YES	YES	YES
2. Time on site meets standard for 90% of trips						
a. commercial vehicles	< 16 min=yes	NO	YES	NO	NO	NO
b. business self-haulers	< 30 min=yes	YES	NO*	NO*	NO*	YES
c. residential self-haulers	< 30 min=yes	YES	NO*	YES	YES	YES
	* Meets criterion on weekdays, but not weekend days.					
3. Facility hours meet user demand	YES/NO	YES	YES	YES	YES	YES
4. Recycling services . . . meet policies in 2001 Solid Waste Plan						
a. business self-haulers	YES/NO	NO	NO	NO	NO	NO
b. residential self-haulers	YES/NO	NO	NO	NO	NO	NO
5. Vehicle capacity						
a. meets current needs	YES/NO	NO	YES	NO	NO	YES
b. meets 20-year forecast needs	YES/NO	NO	NO	NO	NO	NO
6. Average daily handling capacity (tons)						
a. meets current needs	YES/NO	NO	NO	YES	NO	YES
b. meets 20-year forecast needs	YES/NO	NO	NO	NO	NO	YES
7. Space for 3 days' storage						
a. meets current needs	YES/NO	NO	NO	NO	NO	NO
b. meets 20-year forecast needs	YES/NO	NO	NO	NO	NO	NO
8. Space exists for station expansion						
a. inside the property line	YES/NO	NO	YES	YES	YES	YES
b. on available adjacent lands through expansion	YES/NO	YES	YES	YES	NO	NO

		Algona	Bow Lake	Factoria	Houghton	Renton
9. Minimum roof clearance of 25 ft	YES/NO	YES	YES	NO	NO	YES
10. Meets facility safety goals	YES/NO	NO*	NO*	NO*	NO*	NO*
	* The presence of these physical challenges does not mean that the stations operate in an unsafe manner. It does mean that it takes extra effort by staff and management to ensure the facilities are operating safely, which reduces system efficiency.					
11. Ability to compact waste	YES/NO	NO	NO	NO	NO	NO
12. a. Meets goals for structural integrity	YES/NO	YES	YES	YES	YES	YES
b. Meets Federal Emergency Management Act immediate occupancy standards	YES/NO	YES	NO	NO	NO	YES
13. Meets applicable local noise ordinance levels	YES/NO	YES	YES	YES	YES	YES
14. Meets Puget Sound Clean Air Agency standards for odors	YES/NO	YES	YES	YES	NO*	YES
	* One complaint about Houghton was verified two years preceding the evaluation. No citation was issued.					
15. Meets goals for traffic on local streets						
a. meets level of service standard	YES/NO	YES	NO	YES	YES	YES
b. traffic does not extend onto local streets 95% of time	YES/NO	NO*	NO*	NO*	YES	YES
	* Meets criterion weekdays, but not weekend days. Yes or no rating based on evaluating all days within study period.					
16. 100-foot buffer between active area & nearest residence	YES/NO	YES	YES	YES*	NO	YES
	* Meets 100 ft from residence criterion, but there are businesses within 100 ft.					
17. Transfer station is compatible with surrounding land use	YES/NO	YES	YES	NO*	NO**	YES
	* Factoria station is a 30+ year old facility in need of maintenance that has been deferred over the years. It is visible on the approach to adjacent businesses. The neighborhood is primarily commercial/industrial.  ** Houghton station is a 30+ year old facility in need of maintenance that has been deferred over the years. It is in a residential/recreational area and clearly visible from the road. Transfer station parking is located within 100 ft of nearest residence.					

The results shown in Table 5-2 indicate that the current network of stations is efficiently distributed throughout King County with adequate service hours that meet the needs of our customers. However, most stations require major improvements to address current capacity, service, and operational needs. In addition, structural changes are necessary to improve emergency response and operational efficiency, as well as meet desired safety goals.

## Future Plans for the Urban Transfer Stations

Based on the application of evaluation criteria, the division and its advisory committees developed a plan to modernize the transfer system, including the addition of waste compactors and other changes needed to provide efficient and cost-effective services to the region's customers.

The activities approved by the County Council in the Transfer Plan include the following:

*Bow Lake* – deconstruct the existing transfer station and construct a new recycling and transfer station on the existing site and adjacent property purchased from the Washington State Department of Transportation

*Factoria* – deconstruct the existing transfer station and construct a new recycling and transfer station on the existing site and adjacent properties to the northwest of the site, which the division purchased in 2007

*Algona* – close the station and replace it with a new recycling and transfer station in the South County area

*Houghton* – close the station and replace it with a new recycling and transfer station in the Northeast Lake Washington area

*Renton* – close the station and do not replace it

Although approved for closure, the division recommends reserving options to retain the Renton station, in some capacity, should its closure leave Renton and surrounding rural areas underserved. After the new transfer stations have been sited, the impact of closure can be fully evaluated.

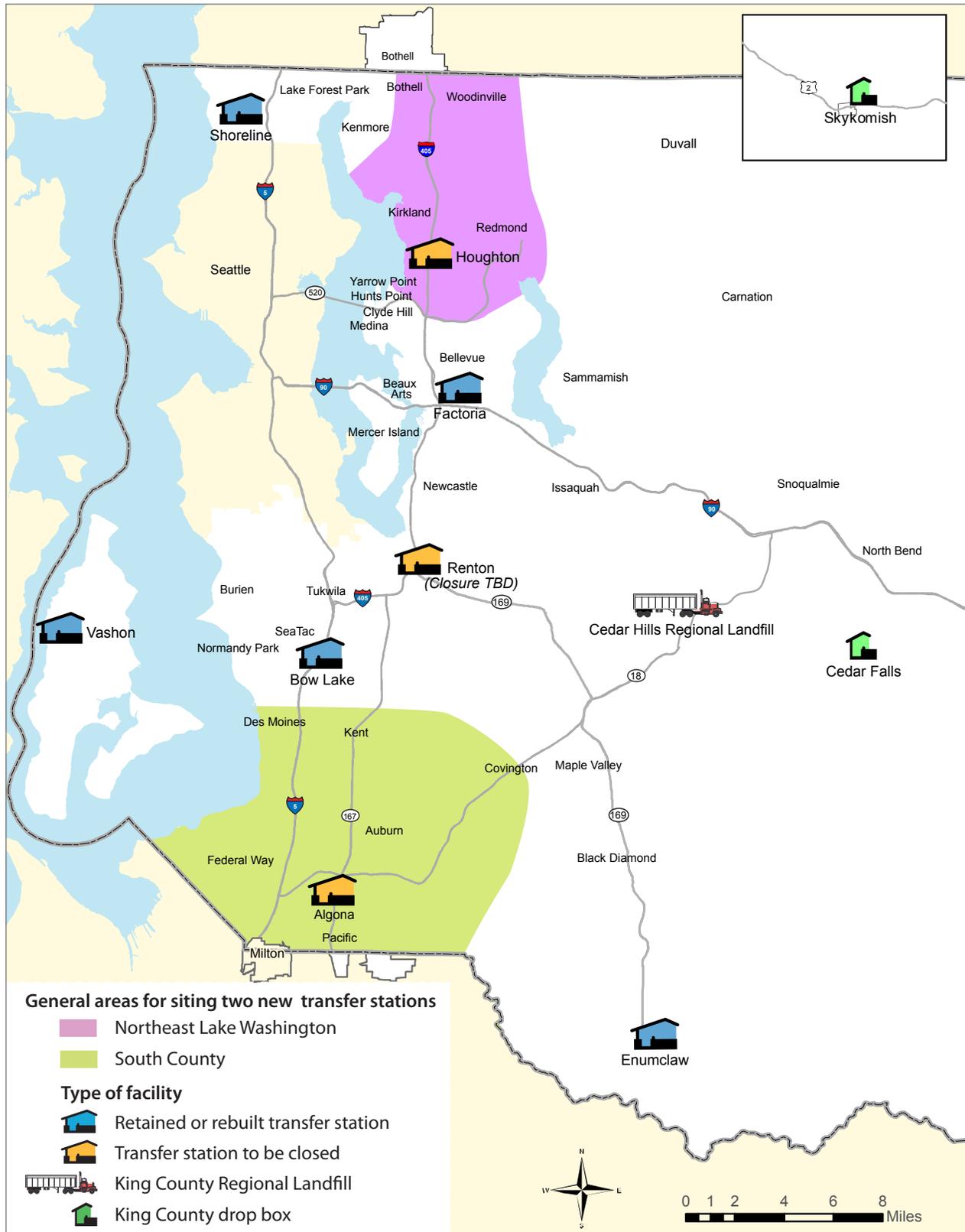
Figure 5-5 shows the planned changes for the urban transfer stations and the two areas identified for construction of new stations. As described on page 5-20, the northernmost station, the new Shoreline Recycling and Transfer Station, exemplifies the public process and station design that will be used for all stations slated for construction.

The Bow Lake station is being constructed on the existing site and on adjacent property purchased from the Washington State Department of Transportation. During construction of the new station, the existing station has remained open to commercial haulers and self-haulers. The new transfer station will open to customers in two phases. In 2012, the new transfer building will open. At that time, work on the existing site will begin, with deconstruction of the original transfer building and construction of the expanded recycling area and a new scalehouse. In 2013, all site construction is expected to be complete.



*The conceptual design of the new Bow Lake transfer building has met with approval in meetings with the City of Tukwila and in public hearings.*

Figure 5-5. Locations of existing and planned solid waste facilities



## Shoreline Recycling and Transfer Station Sets the Bar for New Stations

The Shoreline Recycling and Transfer Station was built to meet the highest standards of environmental sustainability, and is the first transfer station built in the U.S. to be registered with the U.S. Green Building Council. Their nationally recognized rating system – Leadership in Energy and Environmental Design (LEED) – evaluates buildings in the areas of protection of human and environmental health, sustainable site development, water savings, energy efficiency, materials selection, indoor environmental quality, and innovation in design.

The Shoreline station earned a platinum certification, the highest rating possible, under the LEED rating system. A few of the many features that earned the station this rating include:

- **Natural daylighting** – windows and skylights that allow natural light to filter into the building. Sensors also detect the levels of daylight and adjust the lighting accordingly. This feature is reducing energy use at the station.
- **Solar energy** – photovoltaic panels installed on the south-facing roof that generate electricity even on cloudy days, providing about 5 percent of the building's energy needs.
- **Rainwater collection and reuse** – rainwater collected on the rooftop and stored in tanks that provide water for washing station floors and equipment and for flushing toilets. This feature significantly reduces the use of potable water.



*Solar panels*

Running through the Shoreline property is Thornton Creek, which hosts a diversity of wildlife. Protection of the creek was an extremely high priority for the local community. Therefore, the station design incorporates innovative systems to protect and restore the creek corridor through several means:

- Invasive plants were replaced with a buffer of drought-tolerant native vegetation to conserve water, protect creek banks from erosion, and provide habitat for birds and other wildlife
- Paved areas were removed, and the buffer around the creek was increased
- Runoff from roadways was channeled to a stormwater filtration system and detention pond; this system releases stormwater to the creek at a rate that prevents erosion or flooding

The Thornton Creek Alliance recognized the division for working with local residents and alliance members to ensure that improvements at the site would help restore and enhance Thornton Creek. An educational kiosk, which features a mosaic representation of the creek made of recycled glass, was placed overlooking the creek to display the key message that we all share the watershed and to describe the green building features of the station.

At the new station, commercial and self-haul customers use separate entrances and separate sections of the transfer building. Commercial and other large, automated-dump vehicles enter directly onto a flat receiving floor where they can unload garbage, organics, clean wood, and scrap metal. Self-haul vehicles enter onto a raised tipping floor. To dispose of garbage they back their vehicles to a safety wall and unload over the wall onto the lower receiving floor. Garbage is pushed into a compactor chute at the south end of the receiving

floor, which provides a gravity feed for one waste compactor located in the lower tunnel level of the station. The lower floor has provisions for the future installation of a second compactor if needed. Containers for recyclables such as scrap metal and appliances are located at one end of the building; chutes for recycling organics and clean wood are located nearby.



*Rainwater collection system*

In the transfer building, the large, flat-floor design gives the facility the ability to accept surges of waste. Waste can continue to be received even if all trailers on site are full. In an emergency, if the compactor is not functioning, solid waste may be loaded into trailers through top-load chutes. The maximum facility capacity is approximately 9,000 cubic yards on the receiving floor and 25 full trailers.

The Shoreline station was designed to maximize capacity to accept recyclables. The division collaborated with the host city and three other nearby cities to determine the list of materials to collect initially at the new station. A few materials added to the recyclables collected include organics (yard waste and food scraps), clean wood, and scrap metal. The station also has the built-in flexibility to accept additional or different recyclables as markets continue to develop and customer needs change.

To minimize possible traffic impacts of the transfer station on the host community, the division collaborated with King County's Metro Transit on an

agreement with the Washington State Department of Transportation to allow solid waste transfer trailers to share Metro's dedicated access ramps to and from the adjacent Interstate 5. This arrangement will keep solid waste trucks off the neighborhood streets.

In 1973, King County adopted legislation creating the 1% for Art program, whereby capital construction projects set aside 1 percent of the budget, less property cost, for above-grade portions of the project to fund public artwork. The artist selected for this project, Carol dePelecyn worked with the Shoreline/Lake Forest Park Arts Council, the 4 Culture Artist Selection Committee, the City of Shoreline, and the division to develop artistic design elements for the new station. The artist's design concepts call for us to question how our choices affect the environment and consider other uses for items before we throw them away.

In summary, the new Shoreline facility reflects a change in 1) how we approach the planning of new facilities – incorporating early community involvement; 2) how we build them – using the greenest elements possible; and 3) how we operate them – increasing recycling now, with the flexibility to expand as new markets emerge in the future.



*Public artwork at station entrance*

The division is planning to build the new Factoria station on the existing site and adjacent properties purchased by the division for construction of a new facility. The division is exploring options to maintain some level of service during construction of the new station. Final plans will be made when the station permitting and design are complete.

A new Northeast Lake Washington station will be sited and constructed to replace the existing Houghton station, while a new South County station will replace the current facility in Algona. The division is committed to closing the Houghton and Algona stations after the siting and construction process for the new stations is complete.

All new stations will be built to the same standards of service and sustainability as the new Shoreline Recycling and Transfer Station. While there will be some differences to accommodate community needs (e.g., Factoria will maintain a stationary household hazardous waste facility), all stations will have improved capacity, waste compactors, and additional space for recycling more materials. For each new station, the division will seek a Gold LEED certification.

The new Shoreline transfer station also provides additional space and capacity to handle more organics than what comes in from self-haulers alone. One commercial collection company that collects curbside organics in Shoreline has begun bringing some organics directly to the Shoreline station, instead of transporting them to the Cedar Grove Composting facility. Organics are consolidated at the transfer station and then transported to Cedar Grove. This practice reduces truck travel time for the commercial collectors, thereby increasing overall efficiency and sustainability. To further this practice, all new transfer facilities will be built with the capacity to accept organics from commercial collection companies.

The timeline for completing the siting, design, construction, and closure of the urban transfer stations is shown in Table 5-3.

**Table 5-3. Timeline for the facility renovation plan**

	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Bow Lake</b>	Construct new station		Open new transfer building	Open completed transfer station					
<b>Factoria</b>		Design and permit station		Construct new station		Open			
<b>South County</b>		Site new station		Design and permit station			Construct new station		Open
<b>Northeast Lake Washington</b>		Site new station		Design and permit station			Construct new station		Open
<b>Algona</b>									Close
<b>Houghton</b>									Close
<b>Renton</b>									Close or modify operations <sup>a</sup>

<sup>a</sup> Decision to close subject to evaluation after siting of the new South County transfer station.

## EVALUATION AND PLANNING FOR THE RURAL TRANSFER FACILITIES

Historically, the rural areas were served by small community landfills. As those landfills closed, most were replaced by either a transfer station or a drop box; the Duvall and Hobart landfills (near Maple Valley) were closed without replacement. Currently serving rural King County are two transfer stations – in Enumclaw and on Vashon Island – and two drop boxes – in North Bend (Cedar Falls) and Skykomish.

In 2007, the division applied the same 17 criteria used for the urban stations to the rural facilities. Because the drop boxes are essentially collection containers covered by roof structures, there is no building *per se* to evaluate, so many of the criteria did not apply. Criteria specific to the rural system were not developed because a preliminary look indicated that the rural facilities, for the most part, met the standards set for the urban system.

Countywide planning policy, FW-9 d. – *Rural Infrastructure and Service*, states that, “Rural residents outside cities should anticipate lower levels of public services and infrastructure than those available in Urban Areas, maximizing self-sufficiency and independence.” However, the rural transfer stations provide essentially the same garbage and recycling services as the urban stations, although they may be open for fewer hours and days. To provide an appropriate level of service to area residents and the commercial collectors, the division’s two rural transfer stations are currently open five days a week to the public and seven days a week to the commercial collection companies. The Cedar Falls drop box is open five days a week to self-haulers, and the Skykomish drop box is open seven days a week to self-haulers and the City of Skykomish.

The drop boxes are scaled-down facilities, designed to provide cost-effective, convenient drop-off services in the more remote areas of the county. The Skykomish drop box consists of two containers for garbage and a collection area for curbside recyclables. The Cedar Falls drop box has two containers for garbage, one container for yard waste, and a collection area for curbside recyclables; the facility also accepts textiles for recycling.

The Enumclaw Transfer/Recycling Station, which opened in 1993, serves the City of Enumclaw and southeastern King County. The City of Enumclaw provides its own garbage collection service and takes the waste to the Enumclaw transfer station, which is equipped with a waste compactor. Standard curbside recyclables, large appliances, reusable household goods, textiles, clean wood, scrap metal and yard waste are collected for recycling. This station met all of the evaluation criteria, with the capacity to provide a wide range of services and the flexibility to respond to future needs. If additional capacity were needed at the station, it could be accomplished by increasing the hours of operation.



*The rural Enumclaw station provides a wide array of recycling opportunities.*

The Vashon Transfer Station opened in 1999 to serve residents and businesses on Vashon Island. This station accepts the standard curbside recyclables plus textiles and large appliances. Because of its remote island location, the facility accepts some C&D and special wastes for disposal that the other stations do not. The Vashon station met all but one of the evaluation criteria, including the presence of a waste compactor. The only criterion not met was the level of recycling services, because yard waste is not collected at the station. Past studies of customer needs at the Vashon station have indicated there is little demand for yard waste service at the facility, primarily due to the presence of private-sector services on the island and backyard composting; however, the division will reevaluate the need to add yard waste collection at the site. If additional solid waste capacity were needed at this station, it could be accomplished by increasing the hours of operation.



*The Cedar Falls Drop Box provides garbage and recycling services to customers five days a week.*

The Cedar Falls Drop Box, which opened in 1990, serves self-haulers in the North Bend area. Collection containers are provided for curbside recyclables, plus yard waste and textiles. This facility met all applicable evaluation criteria except for vehicle capacity, which is due primarily to heavy weekend use. Currently, there is only one scale shared by both inbound and outbound traffic, which can lead to backups on weekends when the station is most busy. The division is considering the addition of a second scale at the station to address heavy weekend use and an additional collection container, which could be used for garbage or yard waste. If needed, hours of operation could be increased to add weekday capacity at the site.

The most remote facility operated by the division is a drop box in the Town of Skykomish. Built in 1980, the drop box serves Skykomish and the communities of Grotto and Baring. Skykomish provides its own garbage collection service and takes the wastes to the Skykomish Drop Box. The drop box is also used by self-haulers. The Skykomish facility is unstaffed; payment is made at an automated gate using a credit or debit card, or by purchasing a solid waste disposal card from the division or at locations in Skykomish. There are cameras at the site to monitor activities, and division staff make regular visits to the site to perform maintenance. In addition, the King County Roads Department has a facility next door, from which Roads staff help monitor the site. The drop box met all the applicable evaluation criteria and appears to provide an appropriate level of service for the area. The facility received a new roof in 2008, after the old roof collapsed under record snowfall in January of that year.

Some rural area customers may be affected by changes to the urban transfer system, primarily self-haulers who currently use the Houghton or Renton transfer stations. Depending on where new urban facilities in Northeast Lake Washington and South County are eventually sited, they may or may not adequately

meet the service needs of these rural areas. Should it be necessary to provide additional facilities in these areas, the division may consider siting drop box facilities to serve the local area residents. Construction of regional transfer stations in these areas is not being considered as it would be inconsistent with countywide planning policy LU-21, which states, “Regional public facilities which directly serve the public shall be discouraged from locating in Rural Areas.” The division recommends deferring decisions about whether to site drop boxes in these potentially underserved areas and whether to close the Renton transfer station until after the new urban transfer stations have been sited and the impact on service capacity has been fully evaluated.

## HOST CITY MITIGATION

Transfer stations provide an essential and beneficial public service. The stations have the potential, however, to cause undesirable impacts on a community, such as increased litter, odor, noise, road/curb damage, and traffic, as well as aesthetic impacts. The division works to mitigate these impacts in a number of ways, such as collecting litter, landscaping on and around the site, limiting waste kept on-site overnight to reduce the potential for odor, making road modifications, and siting facilities on or near major roadways to keep traffic off local streets.

Seven cities in the division’s service area currently have county-owned transfer facilities within their boundaries:

- **Algona** – the Algona Transfer Station
- **Bellevue** – the Factoria Transfer Station
- **Enumclaw** – the Enumclaw Transfer and Recycling Station
- **Kirkland** – the Houghton Transfer Station
- **Renton** – the Renton Transfer Station
- **Shoreline** – the Shoreline Recycling and Transfer Station
- **Tukwila** – the Bow Lake Transfer Station

As new transfer stations are constructed in the near future, the division will work with cities to build stations that are compatible with the surrounding community. For example, during the design of the new Shoreline Recycling and Transfer Station, the division worked closely with the community to identify impacts and mitigation measures for the surrounding community. One result is that transfer trailers drive directly from the station onto Interstate-5 using King County Metro Transit’s dedicated freeway ramps, rather than using city streets for access. In addition, sidewalks on nearby streets were improved, a new walking path was constructed at nearby Ronald Bog Park, trees were planted, and the portion of Thornton



*An educational kiosk at the Shoreline station highlights the importance of protecting Thornton Creek and its surrounding ecosystem.*

Creek that flows through the site underwent significant restoration. The station building was also moved farther from residences and is now fully enclosed to mitigate impacts from noise, odor, and dust. While mitigation measures will vary depending on the site, all new transfer station buildings will be fully enclosed.

The division is also working closely with the City of Bellevue on the replacement of the Factoria Transfer Station. A new facility was to be constructed on property to the south of and adjacent to the current station, that fronts Interstate-90 (I-90). However, as a result of discussions with Bellevue, the division has purchased two properties to the northwest of and adjacent to the current station, with the intention of building a new facility there. The division could then sell the property that fronts I-90, since it is viewed by the City of Bellevue as more desirable for commercial development.

Additionally, state law, RCW 36.58.080, allows cities or towns to charge counties “to mitigate impacts directly attributable to the solid waste facility: PROVIDED, That any city or town establishes that such charges are reasonably necessary to mitigate such impacts and that revenue generated from such charges is expended only to mitigate such impacts.” No city or town has thus far charged King County for mitigation of impacts. The cost of mitigation beyond what the division is currently performing would need to be included in the solid waste rate.

An area of interest for cities is that the same state law that allows for mitigation of impacts directly attributable to a solid waste facility prohibits cities from charging tax to county-owned solid waste facilities or any other essential public facility. To compensate for potential lost tax revenues, it was suggested by the Interjurisdictional Technical Staff Group in a 2007 governance report (ITSG 2007) that the Business & Occupation Tax that King County currently pays to the State of Washington for transfer station operations be redirected to the host cities as a per ton fee. State law would need to be changed to allow for redirection of these tax revenues. The division is not pursuing this change.

## **TRANSFER FACILITY SITING**

As described earlier in this chapter, identifying the need for new transfer facilities in the Northeast Lake Washington and South County service areas involved a comprehensive analysis of the transfer system network, with extensive involvement of the division’s advisory committees. While this process identified general areas for site locations (Figure 5-5), it did not identify any specific sites or specific site selection criteria.

Technically, the siting of a transfer facility is based on operational needs and site constraints, such as site size and shape; however, a successful siting effort must also be tailored to address the needs and concerns of the service area communities. The siting process involves a number of steps – from development of site selection criteria to final selection of a site – and public involvement plays an important role each step of the way.

Through the ongoing meetings of the division’s advisory committees, public meetings and workshops, and Citizens Advisory Committees (CACs), the public is given the opportunity to learn about and participate in the siting process. An effort is made to engage historically marginalized communities to enable them to

influence decisions, and to work closely with community partners who can both lead and support efforts that ensure fairness for all King County residents.

CAC members are volunteers recruited through letters of invitation to city staff and elected officials of the potential host and surrounding cities, Unincorporated Area Councils, the commercial collection companies, local environmental groups, and other community leaders, and through public meetings and announcements. The CAC helps assess site selection criteria, identifies community concerns and impacts, creates public awareness of the project, provides general review and input throughout the siting process, and has the opportunity to express opinions and preferences to county decision-makers.

Identifying potential sites is an active search for those properties that best match the desired site characteristics. A small number of sites are selected for environmental review. The environmental review, conducted in accordance with the State Environmental Protection Act, identifies potential adverse environmental impacts and reasonable mitigation measures.

Based on the environmental review, cost, community interests, and other established criteria, a preferred site can be selected.

## The U.S. Environmental Protection Agency Identifies Siting Considerations

Siting a transfer facility is a multi-dimensional, multi-step process. The U.S. Environmental Protection Agency identifies the following issues that must be considered when siting solid waste facilities:

- Environmental and health risks – air quality and transportation
- Economic issues – effects on property values and construction and operating costs
- Social issues – equity in site choices, effects on community image, and aesthetics
- Political issues – local elections and the vested interests of community groups

*(Source: Sites for Our Solid Waste: A Guidebook for Effective Public Involvement. 1990. U.S. Environmental Protection Agency; Office of Policy, Planning, and Evaluation; Office of Solid Waste.)*

## TRANSFER SERVICES AFTER AN EMERGENCY

Relatively common emergencies, such as seasonal flooding and winter storms, as well as major events have the potential to create a significant amount of debris that must be properly managed or disposed. Debris generated during these types of events can obstruct roadways, cause power outages, and interrupt essential services. A coordinated and effective plan for managing debris can lessen the impacts on our communities, economy, and the environment.

To minimize disruptions and provide for efficient management of disaster debris, the division prepared the *King County Operational Disaster Debris Management Plan* (Debris Management Plan; KCSWD 2009) for unincorporated King County. The Debris Management Plan is intended to facilitate rapid response and recovery efforts during a disaster. The plan will be updated at least annually, prior to the storm season, or as needed.

The Debris Management Plan supports 37 of the 39 incorporated cities within King County by providing a framework and making recommendations that can be used by the cities to develop their own operational disaster debris management plans. The cities have the flexibility to develop a debris management plan that best addresses their individual needs, but still ensures continuity within the county. The City of Seattle has its own debris management plan and the City of Milton is participating in Pierce County's debris management program. The regional debris management planning process is being conducted under the direction of the Seattle Urban Area Security Initiative, guided by the federal Homeland Security Department and the State of Washington's Emergency Management Division.

The division's Debris Management Plan stipulates that during emergency response and recovery, the roles within the King County solid waste system will remain the same. This means that the division will continue to accept municipal solid waste at the transfer stations to the extent possible and will maximize recycling in accordance with RCW 70.95.010 (8) and KCC Title 10. The transfer facilities will not be used for disposal of emergency debris that could be recycled.

The debris created by a larger event, such as an earthquake, would likely consist primarily of recyclable materials, such as concrete, metal, and wood. The division's Debris Management Plan is coordinated with emergency plans prepared by other jurisdictions to maximize the recycling of these materials. The division is working with the King County Regional Communications and Emergency Coordination Center (RCECC) to coordinate public information and help cities and residents identify recycling options in preparation for and in response to emergency events. Recycling the majority of emergency debris will maximize the division's capacity to continue to handle municipal solid waste.

In the event of an emergency, transfer services may be suspended in the short term. The division's priorities are to:

1. Ensure the safety of staff and customers
2. Confirm the structural integrity of facilities and environmental control systems
3. Coordinate with the RCECC to determine any immediate needs for Solid Waste Division staff or equipment
4. Resume service

The division will attempt to maximize the use of existing transfer facilities after an emergency through operational measures such as increased staffing or hours. If some transfer facilities are closed or damaged as a result of the event, customers will be rerouted to remaining stations, and commercial haulers may be routed directly to the Cedar Hills Regional Landfill. Additionally, the division and the cities may establish temporary Debris Management Sites where debris can be stored until it can be sorted for recycling or proper disposal. It is recommended that potential sites in unincorporated King County and in cities be identified by each jurisdiction in advance of an emergency. The acceptance policies at these sites would be determined in response to the nature of the event and the debris that is generated.



*The new Shoreline station has an overall facility capacity of 9,000 cubic yards on the receiving floor and 25 full trailers.*