



## **CITY OF KIRKLAND**

**Planning and Community Development Department**  
123 Fifth Avenue, Kirkland, WA 98033 425.587-3225  
www.ci.kirkland.wa.us

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### **MEMORANDUM**

**To:** Houghton Community Council  
Sue Tanner, Kirkland Hearing Examiner

**From:** Tony Leavitt, Associate Planner

**Date:** May 8, 2008

**Subject:** HOUGHTON TRANSFER STATION MITIGATION PROJECT, ZON07-00039

At the April 28<sup>th</sup> Joint Hearing for the Houghton Transfer Station Mitigation Project (ZON07-00039), the Houghton Community Council requested the following information from City Staff and King County Solid Waste Division:

1. A complete copy of the 2001 King County Solid Waste Comprehensive Plan
2. Yearly tonnage totals for the Houghton Transfer Station
3. Information about the commercial haulers including weight of vehicles, solid waste capacity of vehicles, etc.
4. Complete copy of the MOU (including complete copy of Attachment A)
5. Any appropriate background information related to the MOU
6. Appropriate Staff Members from KC and COK who were involved in MOU Discussions at the May 27<sup>th</sup> Hearing

The following information has been collected by City of Kirkland Staff and submitted by King County Solid Waste Division to address these items:

- 2001 King County Comprehensive Solid Waste Management Plan (KCSWD)
- Solid Waste Transfer and Waste Export System Plan (KCSWD)
- City Council Memo- Solid Waste Transfer and Waste Export System Plan Update (City of Kirkland)
- Houghton Transfer Station Yearly Tonnage Information (KCSWD)
- 2007 King County Transfer Station Tonnage Information (KCSWD)
- Houghton Transfer Station Trailer Reports for 2006 and 2007 (City of Kirkland)
- Houghton Transfer Station Vehicle Weight Information (KCSWD)
- City Council Agenda Item Regarding Memorandum of Understanding (City of Kirkland)
- Memorandum of Understanding Attachment A
- King County Letter Regarding HTS Position Statement (KCSWD)

Additionally Staff is enclosing two City Council Memorandums that have been drafted over the last couple of years, a 2004 HCC Memorandum discussing the Houghton Transfer Station, and a timeline prepared by the Public Works Department for a neighborhood meeting last year.

In order for the Houghton Community Council and Kirkland Hearing Examiner to have sufficient time to review the materials for the May 27<sup>th</sup> Hearing, Staff is distributing the attached materials early. These materials will be officially entered into the Hearing Record at the Joint Hearing on May 27<sup>th</sup> as Exhibit F. Additionally; Staff is sending a letter or email to each Party of Record to let them know that the materials are available at the City for review or via email.

At May 27<sup>th</sup> Hearing Erin Leonhart, Public Work Facilities & Administrative Manager, will be present to answer questions regarding the drafting and final approval of the Memorandum of Understanding from the City of Kirkland's prospective.

Enclosures:

1. 2001 King County Comprehensive Solid Waste Management Plan
2. Solid Waste Transfer and Waste Export System Plan
3. City Council Memo- Solid Waste Transfer and Waste Export System Plan Update
4. Houghton Transfer Station Yearly Tonnage Information
5. 2007 King County Transfer Station Tonnage Information
6. Houghton Transfer Station Trailer Reports for 2006 and 2007
7. Houghton Transfer Station Vehicle Weight Information
8. City Council Agenda Item Regarding Memorandum of Understanding
9. Memorandum of Understanding Attachment A
10. King County Letter Regarding HTS Position Statement
11. City Council Agenda Item Regarding Local and Regional Solid Waste Issues
12. City Council Agenda Item Regarding Regional Solid Waste Transfer System Options
13. HCC Agenda Item Regarding HTS
14. Houghton Transfer Station Timeline prepared by the COK Public Works Department



## Final 2001 Comprehensive Solid Waste Management Plan

November 2001



**King County**

Department of Natural Resources & Parks

**Solid Waste Division**

King County Solid Waste Division  
201 South Jackson Street, Suite #701  
Seattle, WA 98104-3855  
(206) 296-6542



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# Final 2001 Comprehensive Solid Waste Management Plan

November 2001

## Prepared by

King County Solid Waste Division  
Department of Natural Resources  
201 South Jackson Street, Suite #701  
Seattle, WA 98104-3855  
(206) 296-6542 voice  
711 TTY relay  
<http://dnr.metrokc.gov/swd>

## King County Executive

Ron Sims

## King County Council

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Les Thomas, District 13

## King County Council Staff

Peggy Dorothy  
Nancy Laswell  
Michele McFadden  
Beth Mountsier

## Department of Natural Resources

Pam Bissonnette, Director  
Kurt Triplett, Deputy Director

## Solid Waste Division

Rodney G. Hansen,  
Division Manager  
Donna Kimbrough-Thompson,  
Assistant Manager  
  
Brad Bell,  
Operations Manager  
Geraldine Cole,  
Planning & Communications Manager  
Jeff Gaisford,  
Waste Reduction & Recycling Manager  
Kevin Kiernan,  
Engineering Services Manager  
Ann Shigeta,  
Fiscal Services Manager

---

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This material will be provided in  
alternative formats for individuals  
with disabilities upon request.



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**Glossary of Terms and Abbreviations**

**Responsiveness Summaries**

**Technical Appendices (bound under separate cover)**

- Appendices A through D – Volume I
- Appendices E through H – Volume II



Chapter  
**1**

## Plan Summary

The *Final 2001 Comprehensive Solid Waste Management Plan* presents King County's strategy for managing the solid waste system's garbage and recycling services over the next 20 years. It will guide us through a time of many significant changes – including closure of the last active landfill in King County.

The area that this Plan covers includes all of King County's incorporated and unincorporated areas, except for the City of Seattle, which has its own solid waste system, and Milton, which is part of Pierce County's system.

In mapping out a plan for the solid waste system, several fundamental objectives emerged:

- Keep pace with the region's population and economic growth
- Continue to provide the vital services that residents have come to expect
- Monitor industry changes and advances to keep the system as efficient and effective as possible
- Continue to be a steward of the environment and a leader in resource conservation
- Control system costs and continue to keep disposal rates stable and low

These fundamental objectives underlie the planning for each facet of the regional solid waste system – from promotion of waste reduction and recycling to transfer station improvements to planning for long-term disposal. The common theme running through the Plan is to build upon the system's existing infrastructure and past successes to shape our future.

This final 2001 Plan is the culmination of a system-wide planning effort. The recommendations presented throughout its pages were developed with input from local government leaders, private industry representatives, and King County citizens. The County will continue to work closely with these planning participants as the recommendations in this Plan are implemented and the region's future unfolds.

## Guide to the Plan

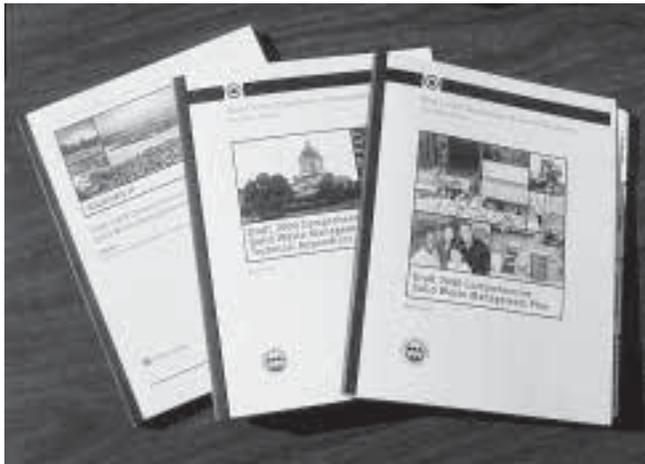
The purpose of a Comprehensive Solid Waste Management Plan is to provide the overarching goals and policies that will guide solid waste and recycling programs and services in the system. While it presents a framework for the future, it is not intended to be a work plan for specific policies, rates, programs, or capital improvements. Implementation of specific recommendations will be accomplished through the County and cities' annual work plan processes.

This 2001 Plan is organized to guide the reader through the planning process from demographic forecasting to the assessment of garbage disposal fees. Chapter 2 sets the stage for the reader by providing a brief look at the history of solid waste management in the county, the process for developing the Plan, and the governing policies for the solid waste management system. Chapter 3 looks at projected population and employment growth and how that

growth and other factors are used to develop waste generation, recycling, and disposal forecasts. Chapters 4 through 10 discuss the various facets of the solid waste system, including:

- Chapter 4 – Waste Reduction, Recycling, and Market Development
- Chapter 5 – Collection of Recyclables and Mixed Municipal Solid Waste (MMSW or Garbage)
- Chapter 6 – The Regional Transfer System
- Chapter 7 – Disposal of MMSW
- Chapter 8 – Construction, Demolition, and Landclearing Debris (CDL), and Special Wastes
- Chapter 9 – Enforcement
- Chapter 10 – Solid Waste System Financing and Rates

These chapters present the background, governing policies and current issues associated with each element of the system, followed by recommendations for the 20-year planning period. The recommendations might propose specific actions, suggest a continuation of current practice, or identify the need for further dialogue or additional studies. For ease of locating recommendations within each chapter, they are noted with the symbol to the right. A brief summary of the key recommendations from each chapter is presented below.



▲  
*The Plan presents recommendations for all facets of the regional solid waste system*

## **Chapter 4 – Waste Reduction, Recycling, and Market Development**

With the increases in population and employment projected for King County in the upcoming years, it is critical to continue our focus on waste reduction and recycling as the highest priorities for managing solid waste. The recommendations in Chapter 4 build on existing waste reduction and recycling programs by expanding educational and technical assistance in our communities, businesses, and schools, and developing strong partnerships with cities and public agencies to coordinate our mutual efforts in this area.

The Plan describes measurable goals and targets for our waste reduction and recycling efforts. It also reaffirms the policy that waste reduction and recycling programs must be cost effective as well as aggressive.

One element of the Plan's recommendation is to expand recycling and reuse opportunities at the County's transfer stations and pursue other venues for collection, such as special community events. In addition, more commodities are being looked at for their recycling potential in the marketplace, such as certain plastics, textiles, construction debris, food wastes, and others. Regional markets and technologies are routinely studied to assess the market potential for an array of recycled and reused products. The County will continue to work with the cities, regional agencies and organizations, and area residents, businesses, and manufacturers to pursue sustainable markets to support our waste reduction and recycling goals.

Some of the newer programs slated for more attention include increased recycling and reuse of organic materials, such as yard wastes and agricultural wastes; product stewardship among consumers, businesses, and manufacturers; and promotion of "green" or sustainable building principles throughout our communities.

## **Chapter 5 – Collection of Recyclables and Mixed Municipal Solid Waste**

Nearly all of the residents in King County subscribe to curbside collection services for garbage and recyclables. One recommendation in Chapter 5 is to research the costs and benefits of combining curbside recyclables (except for glass) into a single bin for collection and adding new materials for pick-up, such as polycoated papers, juice boxes and similar containers, textiles, and more plastics. These changes were recently made by the City of Seattle's solid waste system.

Other recommendations in the chapter focus on providing collection opportunities that reduce the need for customers to bring wastes to the transfer stations in their own vehicles, thereby reducing traffic and congestion at the stations. One reason customers typically give for bringing material to the transfer stations is that they have bulky or extra items that could not be put out at the curb, such as debris from a household cleaning or remodeling project. To develop alternative ways for residents to dispose of bulky and extra items, the County will work with the cities to coordinate more special collection events and with the private collection companies to examine the feasibility of establishing efficient and economical pick-up services.

The County will also be studying the possibility of establishing a stationary collection site for household hazardous waste at a transfer station. This service would augment collection provided by the County's Wastemobile, which travels throughout the county to collect these types of wastes.

### **Chapter 6 – The Regional Transfer System**

The current transfer system is a mix of public and private facilities, and the Plan recommends that this balance remain the same in the future. The private solid waste handling companies presented several alternatives to increase their role in providing transfer services. After a thorough analysis of the alternatives, no benefit to the ratepayers of King County was identified from further privatization of part or all of the public transfer system.

The County's 1992 Plan called for a major construction program to build a number of new and replacement transfer stations. The 2001 Plan makes the best use of existing facilities and optimizes capital outlay by concentrating investment at "expandable" stations and making repairs and safety and operational improvements at the remaining stations, where there is limited space for expansion. This Plan does recognize that some of the transfer stations are operating very close to capacity, and some new facilities may be necessary, primarily in the northeast part of the county.

When the Cedar Hills Regional Landfill closes in about 2012, the County will make the transition to waste export. To prepare the regional transfer system for export, waste compactors will be installed at County transfer stations. Studies of similar utilities that have made the transition to waste export show that consolidating garbage into compacted loads makes transport considerably more economical. Other upgrades will be made at the transfer stations to improve traffic flow and queuing and to complete necessary maintenance and repairs at some of the older stations. The County will also be pursuing ways to manage traffic patterns and traffic flow at the transfer stations to better serve the customers.



▲  
*The County opened Refuse Area 5 of the Cedar Hills Regional Landfill in 1999*

### **Chapter 7 – Disposal of MMSW**

The County's aggressive waste reduction and recycling efforts in the past have led to a substantial reduction in the amount of garbage that reaches the landfill. In fact, one outcome of these efforts has been to extend the life of the Cedar Hills Regional Landfill by about 8 years. Even so, the landfill is expected to reach its permitted capacity and close in 2012. The Plan recommends that the County fol-

low the path of other local jurisdictions and begin to export wastes to a landfill outside of King County once Cedar Hills closes.

Adoption of this Plan is only the first step in preparing for waste export. There will be extensive public and city involvement in the planning process before export begins. Together, we will develop a new system for disposing of the region's waste by 2012.

One alternative examined in some detail in the draft and final Plans was whether to begin exporting waste before Cedar Hills is full, in order to extend the life of the landfill. This idea did not prove to be a cost-effective alternative. There are compelling operational and economic reasons to continue sending all of King County's waste to the landfill until it reaches its permitted capacity and then closing the facility. However, the County will remain open to considering proposals for initiating waste export prior to the 2012 closure of Cedar Hills should circumstances warrant. A transition plan will also be needed as the closure date approaches.

### **Chapter 8 – Construction, Demolition, and Landclearing Debris (CDL)**

Private-sector solid waste management companies currently handle the system's CDL waste and recycling under contract with King County. King County facilities accept only limited quantities of CDL. Contracts with the private companies expire in 2004. Before this date, targeted studies will be conducted to determine how to best handle CDL in the future. The primary goal of any selected plan will be to increase the amount of CDL that is recycled from both commercial work sites and disposal sites.

### **Chapter 9 – Enforcement**

The key recommendation in Chapter 9 is to continue to coordinate system-wide efforts to control litter and illegal dumping. The County and other jurisdictions at the state and local level have established a cooperative effort to tackle the problem. Recommendations in the Plan include continuing with existing programs and task forces, increasing targeted education programs, establishing an illegal dumping hotline, and possibly pursuing legislative remedies to strengthen enforcement.

### **Chapter 10 – Solid Waste System Financing and Rates**

All of the program and service recommendations for the regional transfer and disposal system are designed to strike a balance between system improvements and cost.

There are two primary recommendations in this chapter of the Plan. First, the County plans to provide more technical assistance to the cities. Grants provide critical funding to city programs for waste reduction and recycling, and the County will assist cities in locating and taking advantage of grant opportunities. The County will also serve as a clearinghouse of information about programs, contracts, and ideas that can be shared among the cities. Also recommended is the formation of a Solid Waste Policy Work Group. The work group is intended to share responsibility for analyzing and developing solid waste policies and rate structures. Proposals developed by the group will go to the King County Executive for consideration in future rate design.



▲  
*Curbside recycling is available to nearly all of the County's residents*

Recommendations formulated in the Plan were developed through extensive research and analyses. Each chapter cites various supporting documents, studies, and technical papers that are provided in the *2000 Comprehensive Solid Waste Management Plan Technical Appendices*. These appendices are bound in two volumes under separate cover.

A glossary of important terms and abbreviations is presented following the Plan chapters. The final attachment to this Plan is the *Responsiveness Summaries*, which present the County's response to public comments received on the draft Plan issued in April 2000. The summaries provide a guide on how the Plan incorporates comments from the individuals and groups that participated in developing the Plan.

## The Regional Planning Effort

Issuance of this Plan follows a comprehensive planning effort involving all of the key players in the solid waste system. This effort began in the spring of 1999 as the County's Solid Waste Division asked for suggestions and ideas about the future direction of solid waste programs and services. The Division met individually with –

- Elected officials and solid waste coordinators from the 37 cities that are part of the regional system
- Representatives from the private solid waste management companies
- The unincorporated area councils
- The Solid Waste Advisory Committee
- The Regional Policy Committee
- The Utilities and Technology Committee

To be sure that private citizens were heard, the County hosted six public meetings across the county. These meetings were attended by some 250 people who contributed their ideas and expectations about services in the region as well as in their own communities.

From the diverse ideas gathered during this process, the Division prepared the draft Plan, which was issued in April 2000. The draft Plan laid out various alternatives and proposed recommendations for regional services and programs.

The public comment period for the draft Plan extended from May through September 2000. During this period, Division staff again met with all of the key players to introduce the major components of the Plan and the process for providing comments. Meetings were held with the cities both individually and jointly to discuss the Plan contents and process for revision and adoption. Five more public meetings were held around the County.

The final Plan was developed after careful consideration of all the comments received in response to the draft Plan. Those comments are included with the *Responsiveness Summaries* bound in this document. The two *Responsiveness Summaries* show how and where the Executive's 2000 Plan addressed the public and city comments and how they were addressed in this final 2001 Plan adopted by the King County Council.

## Process for Adopting and Amending a Final Plan

The final Plan must be adopted by the cities and the King County Council and approved by the Washington Department of Ecology before implementation. The process for development and adoption of the Plan is described in Figure 1-1.

**Figure 1-1.** Process for Development, Review, and Adoption of the Plan

<b>Draft Plan Development</b>	
May-Oct. 1999	Meetings with the public, cities, solid waste industry, and other groups
Oct. 1999-April 2000	Preparation and issuance of the draft Plan
Dec. 1990-Aug. 2000	Preparation and issuance of the draft Environmental Impact Statement (EIS)
<b>Draft Plan Review and Response to Comments</b>	
April-Sept. 2000	Public review and comment period for draft Plan and for the draft EIS (Aug.-Sept.)
	Work with Plan participants
	Briefings for the King County Council's Utilities & Technology Committee and Regional Policy Committee on the draft Plan
<b>Draft Plan and Draft EIS Revision</b>	
Oct. 2000-Feb. 2001	Additional analysis and revision of draft Plan and EIS based on review of public comments
<b>Consideration of Final Plan and EIS by King County Council</b>	
March 2001	King County Executive releases final 2000 Plan and EIS
March-Oct. 2001	Utilities & Technology and Regional Policy Committee Review of Plan recommendations
<b>Adoption of Final Plan</b>	
Oct. 15, 2001	Adoption of the <i>Final 2001 Comprehensive Solid Waste Management Plan</i> by the King County Council
Oct. 25, 2001	The Regional Policy Committee, acting as Solid Waste Interlocal Forum, recommends that the cities approve the Plan
Dec. 1, 2001-March 31, 2002	The 120-day period for city adoption begins
April 1, 2002	Ecology's 45-day approval period for adopted Plan begins

The ILAs require that adopted solid waste management plans be reviewed, and any necessary revisions proposed, at least once every three years, or more frequently if warranted. Elements to be updated will be assessed to accommodate new needs and opportunities and to make corrections necessary to achieve adopted goals and implement adopted policies.

An amendment process was developed and agreed upon by the cities and the County in 1990. If issues requiring a plan amendment are identified and resolved between the County and the affected city or cities, the parties develop the plan amendment, take formal action to adopt it, and then implement it.

If an issue arises and agreement cannot be reached between the affected jurisdictions, a formal request is made by the County or affected city(ies) to the Regional Policy Committee (replacing the former Solid Waste Interlocal Forum) to consider a plan amendment. If the Regional Policy Committee determines that a plan amendment is necessary, the committee determines which cities are affected by the issue, and reviews and approves the proposed plan amendment. Once approved, the County and all other affected cities would act to adopt the amendment. Ecology would then approve the amendment, and it would be distributed to all cities that are covered by the Plan.



Chapter  
**2**

## **The System History, Mechanics of the Planning Process, and Governing Policies**

This comprehensive solid waste management plan is both a planning tool and a guide. It sets the groundwork for management of the regional solid waste transfer and disposal system in King County from 2000 through 2020. It establishes goals, governing policies, and strategies for the operational, programmatic, and financial elements of the system.

This chapter of the Plan provides a brief history of how the system has evolved over the last 40 years and takes a quick look at some of the major issues for the current planning period. It then describes some of the mechanics of the planning process, including the participants and their roles, the legal and regulatory authorities that guide solid waste management planning and operations, and the other regional documents that are incorporated in the development of this Plan. The chapter concludes with a description of the organization of the King County Solid Waste Division and its mission and goals in relation to the overall planning process, followed by the overall governing policies for the system.

### **Evolution of the Regional Transfer and Disposal System**

This section summarizes the major historical influences in the development of our current system and some of the issues we face in the coming years. A more detailed chronology of events is provided in Table 2-1 beginning on page 2-4.

Prior to 1958, solid waste was typically dumped in fifteen open, unlined landfills in King County. The usual care and maintenance of these sites was to cover the waste with dirt twice a week; no environmental monitoring was required. In the late 1950s and early 1960s a number of these landfills were forced to close because they were located along the proposed construction routes for Interstates 5 and 405. Historical records show the affected landfills were handling more than 75 percent of the County’s solid waste. During this same time, the Washington Utilities and Transportation Commission began to issue certificates that would allow private companies to set up franchises to provide solid waste collection in cities and unincorporated areas in the state. The intent of the certificate system was to ensure public health and safety and the provision of affordable services in both urban and rural areas. This combination of events provided the impetus to develop the regional transfer station and landfill disposal system in place today.

In the early 1960s, the Cedar Hills Regional Landfill was opened, and the first County-operated transfer stations were built. With this new transfer system concept, wastes were taken by private solid waste handling companies in the county, and by the public, to the transfer stations, where loads of solid waste were consolidated and then transported to Cedar Hills for disposal. This waste handling system has evolved over the years and now comprises eight transfer stations and two drop boxes operated by the County, as well as two transfer stations operated by private companies that provide solid waste management services in the region.

Beginning in the late 1960s, several key pieces of legislation were enacted that drove sweeping environmental changes in solid waste management. In 1965, the federal Solid Waste Management Act was passed, which established the first national regulatory standards for landfills. The state followed in 1969 by passing its own Solid Waste Management Act (RCW 70.95), with regulatory standards for landfills and

other solid waste facilities, and later the state’s first Minimum Functional Standards (MFS) codified in the Washington Administrative Code. In 1976, the federal Resource Conservation and Recovery Act (RCRA) amended the earlier federal Solid Waste Management Act, setting more stringent standards for landfills, including requirements for landfill liners and daily cover. In response to the passage of RCRA, the state revised its MFS for solid waste facilities. Pursuant to the new MFS, actions were taken at the County’s landfills to ensure compliance. Environmental actions included placing daily cover over solid waste at the operating landfills and closing and remediating all of the original rural landfills.

In addition to regulating solid waste handling and disposal, the state also established a framework for preparing comprehensive solid waste management plans, delegating



▲  
Glass recycling pilot program at the Vashon Island Landfill in 1972

authority to the counties and the cities to develop the plans. With this Plan, the concept has been taken a step further by joining the efforts of King County, the 37 cities participating in the King County system, the privately owned solid waste management companies, the citizens, and others to effect comprehensive planning and operation of our system. The recommendations presented throughout this Plan reflect input from all of these key players.

Since the late 1980s, waste reduction and recycling have been the priority methods of managing wastes within King County’s solid waste system. Incineration of solid waste was considered in the 1970s and 1980s, but met with considerable opposition by the public because of concerns for the environmental impacts of ash and air emissions. Instead, in 1988, the County adopted an aggressive goal of 50 percent waste reduction and recycling to be achieved by 1995; that goal was met through the cooperative efforts of the cities, residents, businesses, private recycling firms, solid waste management companies, and the County. Since 1995, the single numerical recycling goal has been expanded to a two-tiered goal. The first component is a mission – to divert as much material as possible from disposal in a manner which reduces the overall costs of solid waste management to County residents and businesses, conserves resources, protects the environment and strengthens the County’s economy. The second component is a way in which to measure our success in attaining this mission. It consists of a set of specific measurable targets for residential and business recycling and disposal, as well as targets for individual programs (see Chapter 4 for more details). Through extensive public outreach programs for residents, schools, and businesses, both the County and the cities have become leaders in the promotion of waste reduction and recycling.

And what does the future hold? This 20-year planning period will see us through the closure of the Cedar Hills Regional Landfill. Following closure, the recommendation for disposing of waste generated in King County is to export it to another landfill (see Chapter 7). The move to waste export will require future modifications at the transfer station facilities, such as the installation of waste compactors.

There will be a continued emphasis on waste reduction and recycling in the future. Educational outreach programs for households, schools, and businesses will be enhanced, with the greatest emphasis on reducing the amount of waste produced.

One concern that has been expressed repeatedly by the cities that contract for solid waste collection services is how to maintain competitiveness in the solid waste hauling industry. There are currently only two major haulers in the area – Waste Management, Inc. and Rabanco, who handle nearly all of the mixed solid waste collection business in the region.



*The first load delivered to Area 5 of the Cedar Hills Regional Landfill in 1999*

The later chapters of this Plan present policy direction and recommendations for the future of our comprehensive solid waste system. An underlying objective of all the recommendations is to maintain viable systems and programs that meet our customers' future needs while keeping rates stable and as low as possible.

**Table 2-1.** Chronology of the Development of the Regional Solid Waste Management System

<p><b>Prior to 1958</b></p> <ul style="list-style-type: none"> <li>• Seattle-King County Department of Public Health manages the solid waste disposal system, dumping wastes in 15 open, unlined rural landfills across the County</li> </ul>
<p><b>1958 through the mid-1960s</b></p> <ul style="list-style-type: none"> <li>• The state Attorney General's Office issues an opinion that it is the duty of counties in the state to provide for solid waste disposal sites for the public health of the inhabitants of the county (AGO 55-57 No. 245)</li> <li>• The proposed construction routes for Interstates 5 and 405 force the closure of several of the rural landfills</li> <li>• The King County Sanitary Operations Department is organized to establish a solid waste transfer system to handle wastes that can no longer be accommodated at the rural landfills</li> <li>• Five rural landfills – Duvall, Cedar Falls, Hobart, Enumclaw, and Vashon – are taken over and managed by the Sanitary Operations Department</li> <li>• The Cedar Hills Regional Landfill site is leased from the state and begins operation</li> <li>• The First Northeast, Kent, and Bow Lake Transfer Stations are constructed; the Kent station later closes; roofs are added at the First Northeast and Bow Lake stations; and the Algona, Renton, Factoria, and Houghton stations are opened</li> <li>• The federal Solid Waste Management Act is passed in 1965</li> </ul>
<p><b>1961</b></p> <ul style="list-style-type: none"> <li>• The Washington Utilities and Transportation Commission begins issuing Certificates of Public Convenience and Necessity, which grant private companies the right to collect solid waste in defined geographic areas (RCW 81.77)</li> </ul>
<p><b>1969</b></p> <ul style="list-style-type: none"> <li>• The King County Sanitary Operations Department is renamed the King County Solid Waste Division and made a part of the Department of Public Works</li> <li>• The state Solid Waste Management Act (RCW 70.95) is passed, which:             <ul style="list-style-type: none"> <li>- Assigns primary responsibility for solid waste handling to local government</li> <li>- Requires that each county, in cooperation with the cities, prepare a comprehensive solid waste management plan</li> </ul> </li> <li>• Tipping fees are 75¢ per ton at the transfer station and 50¢ per ton at the landfill</li> </ul>

**Table 2-1.** *continued*

**1972**

- Seattle and King County ask the Municipality of Metropolitan Seattle (Metro) Council to develop a County-wide solid waste plan in response to requirements of RCW 70.95
- Metro directs the River Basin Coordinating Committee (RIBCO) to undertake the planning effort
- The state adopts the first MFS for solid waste facilities (WAC 173-301)



**1974**

- Metro publishes RIBCO's first solid waste management plan for Seattle and King County, which recommends:
  - Regional management of solid waste
  - Consolidation of functions into a single agency
  - A feasibility study of an energy resource and recovery system, and construction of that system by 1981

▲  
*Self-haul customers at  
the Bow Lake Transfer  
Station*

**1975**

- Metro Council adopts the RIBCO Plan

**1976**

- RCRA is passed, amending and replacing the federal Solid Waste Management Act of 1965; RCRA sets more stringent standards for lining landfills, providing daily cover, and putting a higher priority on recycling

**1977**

- The RIBCO Plan is approved by the Washington Department of Ecology (Ecology)
- The Bow Lake Transfer Station is rebuilt and expanded to its present configuration

**1978**

- The Tulalip Landfill closes and Rabanco begins to haul waste to Cedar Hills from its Pier 35 transfer station
- The Seattle-King County Department of Public Health adopts local MFS for solid waste facilities (KCBOHC Title 10)

**1981**

- RCRA and the newly adopted MFS require remediation and conformance measures at the Cedar Hills Regional Landfill

**Table 2-1.** *continued*

<p><b>1982</b></p> <ul style="list-style-type: none"> <li>• King County delegates preparation of the comprehensive solid waste management plan to the Puget Sound Council of Governments (PSCOG); the plan developed by PSCOG was never approved by Ecology</li> <li>• Tipping fees are \$15 per ton</li> </ul>
<p><b>1983</b></p> <ul style="list-style-type: none"> <li>• The state adopts revised MFS (WAC 173-304) for solid waste handling facilities that supercede WAC 173-301</li> <li>• Bayside Disposal opens the Eastmont Transfer Station in Seattle, which becomes the second private transfer facility to operate as part of the regional transfer and disposal system; the station is currently owned and operated by Waste Management, Inc.</li> <li>• Tipping fees are \$26.50 per ton</li> </ul>
<p><b>1986</b></p> <ul style="list-style-type: none"> <li>• King County Council passes an ordinance authorizing the County to prepare a new plan for solid waste, taking back the planning authority delegated to PSCOG</li> <li>• Seattle and Kent join the regional system after Seattle is required to shut down its Kent-Highlands Landfill; Seattle's agreement contained a 6-year deadline for either developing its own disposal system or deciding to remain part of the regional system</li> <li>• Tipping fees go to \$47 per ton</li> </ul>
<p><b>1988</b></p> <ul style="list-style-type: none"> <li>• King County considers solid waste incineration, but decides not to pursue it in the 1989 solid waste plan because of opposition from the public</li> <li>• King County Council establishes an aggressive waste reduction and recycling goal of 50 percent in 1995 and 65 percent by the year 2000</li> </ul>
<p><b>1989</b></p> <ul style="list-style-type: none"> <li>• The Waste Not Washington Act passes, updating RCW 70.95; the Act establishes waste reduction and recycling as the priority methods of managing waste in the state</li> <li>• Cities in King County (excluding Seattle and Milton) sign Interlocal Agreements to participate with the County in the development of the comprehensive solid waste management plan and operation of the system; these agreements:             <ul style="list-style-type: none"> <li>- Hold the County responsible for providing regional solid waste management services, including transfer and disposal of mixed municipal solid waste</li> <li>- Name the County as the solid waste planning authority</li> <li>- Recognize the cities' responsibilities for waste collection</li> <li>- Commit the cities to make use of the regional transfer and disposal system provided by the County</li> </ul> </li> </ul>

**Table 2-1.** *continued*

- King County issues the *1989 Comprehensive Solid Waste Management Plan and Programmatic EIS*, which covers unincorporated areas and 29 cities in the County
- The King County Commission for Marketing Recyclable Materials is created to promote products made from recycled materials

**1990**

- The 1989 Plan is adopted by the King County Council and the cities, and approved by Ecology

**1991**

- Curbside recycling is made available throughout most of the County
- Seattle compensates the County for expenses incurred and then withdraws from the regional system after developing its own waste export disposal system
- The National Association of Counties recognizes the Cedar Hills Regional Landfill for its best management practices

**1992**

- The Solid Waste Division prepares the *Draft 1992 Comprehensive Solid Waste Management Plan and EIS*
- Tipping fees are \$66 per ton

**1993**

- The *Final 1992 Comprehensive Solid Waste Management Plan and EIS* is issued
- The state adopts new MFS for mixed municipal solid waste landfills (WAC 173-351)
- The County's Enumclaw Transfer Station is opened
- Rabanco's Third & Lander facility replaces the Rabanco Pier 35 facility; Rabanco continues to deliver wastes to Cedar Hills from its transfer station
- The Cedar Hills Regional Landfill is again recognized by the National Association of Counties for its best management practices

**1994**

- The 1992 Plan is adopted by the King County Council and the cities, and approved by Ecology
- The King County Council denies a proposed rate increase for solid waste disposal by the County Executive for 1995 through 1998



▲  
*King County's  
Enumclaw Transfer/  
Recycling Station  
opened in 1993*

**Table 2-1.** *continued*

<p><b>1995</b></p> <ul style="list-style-type: none"> <li>• The King County Council passes Ordinance 11949, which establishes the following policies:             <ul style="list-style-type: none"> <li>- Once the Cedar Hills Regional Landfill closes, it will not be replaced with another landfill in King County, and the County will pursue waste export as its long-term disposal option</li> <li>- The County will optimize capital investment and promote recycling and the marketing of recyclable materials</li> <li>- The new waste reduction and recycling goal will be to “divert as much material as possible from disposal in a manner which reduces the overall costs of solid waste management to county residents and businesses, conserves resources, protects the environment and strengthens the county’s economy”</li> </ul> </li> </ul>
<p><b>1996</b></p> <ul style="list-style-type: none"> <li>• The King County Council passes Ordinance 12378, which establishes a policy that waste export should begin once the Cedar Hills Regional Landfill reaches capacity</li> <li>• The Solid Waste Division issues the <i>Final Policy Report to the Metropolitan King County Council</i>, which presents the results of analyses recommended in Ordinance 11949, and a proposal for a two-step rate increase over the next four years</li> </ul>
<p><b>1997</b></p> <ul style="list-style-type: none"> <li>• King County Council adopts the two-step rate increase</li> <li>• Tipping fees are \$74.25 per ton</li> </ul>
<p><b>1999</b></p> <ul style="list-style-type: none"> <li>• The Vashon Transfer Station opens, replacing the existing landfill at that site</li> <li>• The second step of the rate increase is implemented, and tipping fees go to \$82.50 per ton</li> </ul>
<p><b>2000</b></p> <ul style="list-style-type: none"> <li>• The <i>Draft 2000 Comprehensive Solid Waste Management Plan and Programmatic EIS</i> are issued and comments are received</li> </ul>
<p><b>2001</b></p> <ul style="list-style-type: none"> <li>• The <i>Final 2001 Comprehensive Solid Waste Management Plan</i> is adopted by the King County Council and transmitted to participating cities for ratification</li> </ul>

## Authorities, Responsibilities, and Governing Legislation

Solid waste handling, as defined in RCW 70.95.030, includes management, storage, collection, transportation, treatment, utilization, processing, and final disposal. The administration of solid waste handling systems in Washington is divided among the state, counties, jurisdictional health departments, and the cities. The governmental roles and authorities are delineated in legislation, regulations, and agreements.

The state establishes authorities, minimum standards, and planning requirements and delegates responsibility for implementation to the counties and cities. As such, state law authorizes counties to prepare coordinated comprehensive solid waste management plans in cooperation with the cities within its boundaries. Cities may choose to either prepare their own plans, or participate in the development of a single plan that covers the incorporated and unincorporated areas of the county (RCW 70.95.080). Within King County, 37 cities (all cities in the County except Seattle and Milton) have chosen to participate in the development of a single plan, and have signed Interlocal Agreements (ILAs) with the County that establish the County as the solid waste planning authority.

The ILAs are contracts between the County and each city that establish the respective responsibilities between the parties for the management of the regional solid waste system. In addition to establishing the County as the solid waste planning authority, the ILAs establish cities or their agents as the solid waste collection authority, commit the cities to make use of the regional transfer and disposal system provided by the County, commit the County to provide technical assistance for waste reduction and recycling programs, commit the County to provide solid waste transfer and disposal services, and indemnify and hold the cities harmless against any claims related to the County's solid waste operations.

The ILAs are 40-year agreements that run through 2028, but do provide for review and renegotiation of certain terms and provisions, including the length of the agreement. A city that terminates its ILA and leaves the system would be responsible for covering its proportional share of existing County solid waste debt and liabilities. An estimate of solid waste disposal by the city's residents and businesses would be used to determine its share of responsibility. The city would also have to take on the solid waste management responsibilities and liabilities currently performed by the County. These include developing its own solid waste plan that must be coordinated with the County (RCW 70.95.080), contracting for its own transfer and disposal services, and fully funding its own waste reduction and recycling programs. The city would also be responsible for any related legal obligations. County tipping fee revenues lost because of the departure of a city would result in higher County tipping fees overall or a reduction in County solid waste services for the residents of cities remaining in the system.

In King County, private solid waste management companies collect most solid waste and recyclables. These private companies conducting business in unincorporated King County, and in cities that do not contract for services or provide collection of their own,

are regulated by the Washington Utilities and Transportation Commission (WUTC). The WUTC uses the County’s Plan and other supporting ordinances when setting rates and regulating these companies. On tribal lands in King County, solid waste is collected by WUTC-regulated haulers and the City of Auburn’s contracted hauling company.

Table 2-2 lists the planning authorities, roles, and guiding legislation for solid waste planning, administration, and collection services in King County. The complete texts of the key pieces of guiding legislation are provided in Appendix E. The governing county solid waste management policies are provided at the end of this chapter. If any text discussion in this Plan is inconsistent with that in the policies, the policies are controlling.

**Table 2-2.** Authorities and Roles

<b>Authority for Regional Planning and Administration</b>		
<b>Authority</b>	<b>Role</b>	<b>Guiding Legislation, Regulation, or Agreement</b>
Washington Department of Ecology	Establish solid waste regulations for management, storage, collection, transportation, treatment, utilization, processing, and final disposal	Revised Code of Washington (RCW) 70.95
	Delegate authority to the counties to prepare joint comprehensive solid waste management plans with the cities in its boundaries, and review and approve those plans	RCW 70.95
	Set MFS for implementing solid waste regulations and establishing planning authorities and roles	Washington Administrative Code (WAC) 173-304 and 173-351
Washington Utilities and Transportation Commission	Review the cost assessment prepared with the comprehensive solid waste management plan	RCW 70.95.096

Table 2-2. *continued*

Authority	Role	Guiding Legislation, Regulation, or Agreement
King County Board of Health	Permit solid waste handling facilities, including permit issue, renewal, and, if necessary, suspension (handling facilities include landfills, transfer stations, and drop boxes)	King County Board of Health Code (KCBOHC) Title 10
	Make and enforce rules and regulations regarding methods of waste storage, collection, and disposal to implement the state's MFS	KCBOHC Title 10
	Perform routine facility inspections	KCBOHC Title 10
King County	Prepare the comprehensive solid waste management plan and associated cost assessment	RCW 70.95.080 and Interlocal Agreements with the cities
	Establish disposal fees at the landfill, transfer stations, and drop boxes to generate necessary revenue to cover solid waste management costs, including: <ul style="list-style-type: none"> <li>• Facility operation</li> <li>• Capital improvements</li> <li>• Waste reduction and recycling</li> <li>• Grants to cities for recycling programs and special collection events</li> <li>• Self-haul and rural service</li> <li>• Administration and overhead</li> </ul>	RCW 36.58.040 and Interlocal Agreements with the cities
	Establish level of service and hours of operation for all King County transfer and disposal facilities	King County Code Title 10
Regional Policy Committee	Act as the Solid Waste Interlocal Forum	King County Motion 9297
Cities	Participate in the Plan process with the County and help to jointly implement the Plan	RCW 70.95.080 and Interlocal Agreements with the County

**Table 2-2.** *continued*

<b>Authority for Collecting Wastes and Recyclables</b>		
<b>Authority</b>	<b>Role</b>	<b>Guiding Legislation, Regulation, or Agreement</b>
Washington Utilities and Transportation Commission	Certify and regulate recycling and garbage collection in unincorporated areas of the county and in cities that choose not to regulate collection themselves	RCW 81.77.030
	Require compliance with local solid waste management plans and related implementation ordinances	RCW 81.77.030
	Regulate the setting of collection rates and safety of operations	RCW 81.77.030
	Supervise the relationship between solid waste companies and the public	RCW 81.77.030
King County	Review impacts of the Plan on solid waste and recycling rates	RCW 70.95
	Establish solid waste and recyclables handling and collection systems in unincorporated areas of the county	RCW 36.58.040
	Designate minimum service levels for recyclables collection in urban and rural areas	RCW 70.95.092
Cities	May choose to contract directly with commercial solid waste haulers and/or recycling companies to provide collection services, to collect garbage and recycling themselves, or to allow WUTC to regulate these services	RCW 35.21.120
	Set rates for garbage and recyclables collection if they provide for it themselves	RCW 35.21.120

## Participants in the Planning Process

This Plan has been prepared by the King County Solid Waste Division with participation and input from many sources. The Plan was developed in conjunction with the cities, private solid waste management companies, Unincorporated Area Councils, the Solid Waste Advisory Committee, Division employees, and the public. The Plan also reflects comments provided by the Regional Policy Committee and the Utilities & Technology Committee of the King County Council. The following sections describe the role of each participant in the planning process.

### Cities

The cities are partners with the County in cooperatively planning for and managing solid waste and recyclables in King County. The cities are responsible for providing collection services within their boundaries. They also administer recycling promotions, education, and collection programs for their residents and local businesses.

All of the cities in King County, except for Seattle and Milton, are part of the County's regional system through Interlocal Agreements. Seattle has its own solid waste system and plan, and Milton is part of Pierce County's system. Bothell, which straddles the King-Snohomish County line, participates in King County's regional system. The thirty-seven participating cities are:

Algona	Federal Way	Pacific
Auburn	Hunts Point	Redmond
Beaux Arts	Issaquah	Renton
Bellevue	Kenmore	Sammamish
Black Diamond	Kent	SeaTac
Bothell	Kirkland	Shoreline
Burien	Lake Forest Park	Skykomish
Carnation	Maple Valley	Snoqualmie
Clyde Hill	Medina	Tukwila
Covington	Mercer Island	Woodinville
Des Moines	Newcastle	Yarrow Point
Duvall	Normandy Park	
Enumclaw	North Bend	

Currently, the cities participate in the solid waste planning process through several mechanisms. The cities' solid waste/recycling coordinators meet at least quarterly with County staff to discuss policies and programs. The cities also have representatives on two advisory committees – the Solid Waste Advisory Committee and the Regional Policy Committee (discussed later in this section).

The cities have been actively involved in developing the Plan throughout the process. City elected officials, administrators, managers, and solid waste/recycling coordinators have met with Division staff to discuss issues and recommendations for the 2001 Plan. The cities must also approve the final Plan, which requires adoption by cities representing three-quarters of the total population of the cities that act on the Plan during the 120-day adoption period.

### **Private Solid Waste Management Companies**

The County’s waste transfer activity is shared between the public and private sector. Two private solid waste management companies – Waste Management, Inc. and Rabanco – collect more than 99 percent of the wastes set out at the curb. Waste Connections Inc. provides collection services on Vashon Island. Waste Management and Rabanco have provided specific input and proposals that are presented and evaluated in later chapters of the Plan.

### **Ratepayers**

Division staff held more than ten public meetings in developing the draft and final Plans to gather input from residents around the County. Meetings were held in Auburn, Bellevue, Duvall, Federal Way, Issaquah, Renton, and Shoreline. Division staff also met separately with the Unincorporated Area Councils, which represent unincorporated County residents. Both city and unincorporated area residents expressed similar concerns and a consistent interest in waste reduction and recycling. Their input was central to the development of recommendations in the Plan.

### **Solid Waste Advisory Committee**

An ordinance passed in 1984 established the Solid Waste Advisory Committee (SWAC) to assist in developing programs and policies for solid waste handling. The 15-member committee represents a range of community interests, including private citizens, public interest groups, businesses, the waste management and recycling industry, and local government. One SWAC member represents the Suburban Cities Association. The SWAC advises the County on all aspects of solid waste management planning, including the development of programs and policies, and review of proposed rules, policies, and ordinances. The SWAC has contributed to the Plan at each stage of its development.

### **Division Employees**

This Plan incorporates input from Solid Waste Division employees who are directly involved in providing transfer, disposal, and recycling services to the public. Formal meetings were held with employees to discuss long-term goals and recommendations. Division staff also coordinated involvement among all Plan participants, conducted the analyses and forecasts required to evaluate recommendations presented in the Plan, and wrote and produced the document.

### **Regional Policy Committee and Utilities & Technology Committee**

The Regional Policy Committee, which assumed the duties of the Solid Waste Interlocal Forum, is the policy advisory body for regional issues governed by Interlocal Agreements between the County and the cities. The Committee consists of elected officials from the King County Council, the suburban cities, and the City of Seattle. Each

year the King County Council establishes a committee made up of King County Council members charged with review of solid waste and other utility issues. Both committees advise the Council on solid waste and other regional issues. These committees review the Plan and make recommendations to the King County Council on its adoption.

**Washington Department of Ecology**

Ecology sets guidelines for development of the Plan and delegates responsibility to the County and cities. Ecology has reviewed and commented on the draft Plan, and must approve the final Plan once adopted by the County and the cities.



**Related Regional Planning Documents**

The comprehensive solid waste management plan is just one component of regional planning for land use, development, and environmental protection in King County. Table 2-3 lists the various plans that are incorporated by reference or considered in preparation of this Plan.

**Table 2-3.** Relationship of the County’s Plan to Other Plans and Regulations

<b>Plans Incorporated by Reference</b>	
<b>Seattle’s Solid Waste Plan – On the Path to Sustainability, August 1998</b>	
Published by:	City of Seattle
Elements:	Strategy for collection and disposal of the city’s residential, commercial, and special wastes, as well as goals for recycling and waste reduction.
Relationship:	The City of Seattle is not included in King County’s solid waste plan. Pursuant to RCW 70.95 080, King County reviews the Seattle plan to ensure consistency with the County’s plan. Seattle’s plan was considered in the preparation of this Plan.
<b>Local Hazardous Waste Management Plan for King County, May 1997</b>	
Published by:	City of Seattle Public Utilities Department, King County Department of Natural Resources and Parks (DNRP), Seattle-King County Department of Public Health, and cities within King County
Elements:	Plan for managing hazardous wastes produced in small quantities by households and businesses/institutions, and for preventing these wastes from entering the municipal waste streams or being indiscriminately disposed in the environment.
Relationship:	King County’s Solid Waste and Water and Lands Resources Divisions are two of the partners in the preparation and implementation of this Plan.

**Table 2-3.** *continued*

<b>Regional Wastewater Services Plan, December 1999</b>	
Published by:	King County Wastewater Treatment Division
Elements:	Plan addressing management of biosolids, which are a by-product of wastewater treatment; recommends continued emphasis on recycling biosolids as an agricultural soil amendment, and developing new technologies to improve the quality of biosolids for that use.
Relationship:	Although biosolids are solid waste, they do not enter the region’s mixed municipal solid waste stream; biosolids management is addressed in the Regional Wastewater Services Plan.
<b>Related Plans</b>	
<b>King County Comprehensive Plan, Updated annually</b>	
Published by:	King County Office of Regional Policy and Planning
Elements:	Guide for land use and development in the unincorporated areas of King County, building upon the Smart Growth Initiative and its major themes – Livable Communities, Linking Land Use and Transportation, Rural Legacy, and Environmental Protection. Also delineates Urban and Rural Areas of the County to be consistent with the state’s Growth Management Act. Implemented through the zoning code and clearing and grading code, which include standards and processes addressing solid waste facilities.
Relationship:	This plan adopts by reference the current solid waste management plan. It holds King County Solid Waste Division, in cooperation with waste haulers certified by the Washington Utilities and Transportation Commission, responsible for managing solid wastes generated by unincorporated area residents and businesses in a manner that protects quality of the air, water, and public health. The Plan calls for the County to divert as much material as possible from disposal to reduce overall costs and conserve resources. It also holds that solid waste disposal capacity should be provided on a regional basis and facilities dispersed throughout the County in an equitable manner.

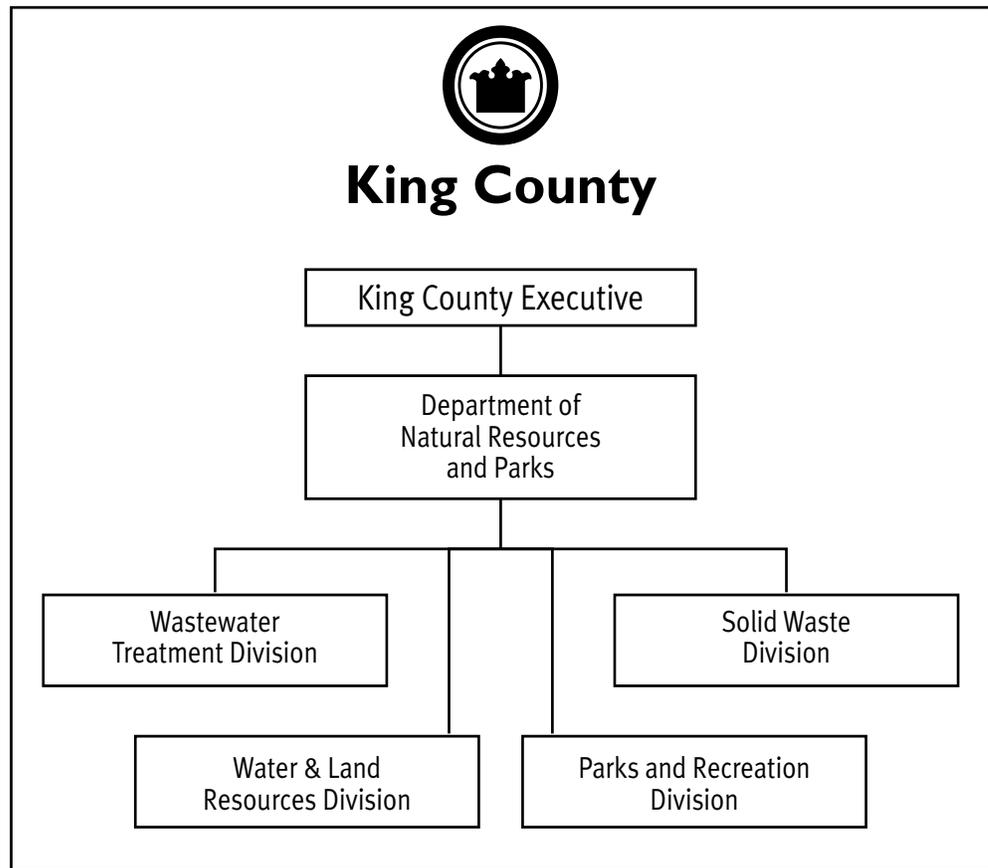
**Table 2-3.** *continued*

<b>Ground Water Management Plans for:</b>	
East King County, 1999; Issaquah Creek Valley, 1999; Redmond-Bear Creek Valley, 1999; South King County, 1999; and Vashon-Maury Island, 1999	
Prepared by:	Regional Ground Water Management/Advisory Committees
Published by:	King County DNRP and Seattle-King County Department of Public Health; adopted by Ecology
Elements:	Sets goals to protect groundwater quality and ensure groundwater quantity for current and future uses.
Relationship:	King County is responsible for protecting groundwater from contamination by leachate from both active and closed landfills.
<b>Surface Water Management Plans, including:</b>	
Bear Creek Basin Plan, 1995; Coal Creek Basin Plan, 1987; East Lake Sammamish Basin – Watershed Management Committee Basin and Nonpoint Action Plan, 1992; Green-Duwamish Watershed Nonpoint Action Plan, 1989; Hylebos Creek and Lower Puget Sound – Executive Proposed Basin Plan, 1991; Issaquah Creek Watershed Management Committee Basin and Nonpoint Action Plan, 1996; Lower Cedar River Basin and Nonpoint Pollution Action Plan, 1997; May Creek Basin Action Plan, 1998; and Soos Creek Basin Plan, 1990	
Published by:	King County and Associated Cities, Councils, Committees, and Citizen Groups
Elements:	Sets forth a cooperative plan for basin-wide protection of habitat and water quantity and quality from both point and nonpoint sources.
Relationship:	The Solid Waste Division is responsible for ensuring that it avoids sensitive watersheds when siting facilities and that it conducts operations and monitoring to eliminate any harmful impacts from surface water runoff.

## Organizational Structure and Mission of DNRP and the Division

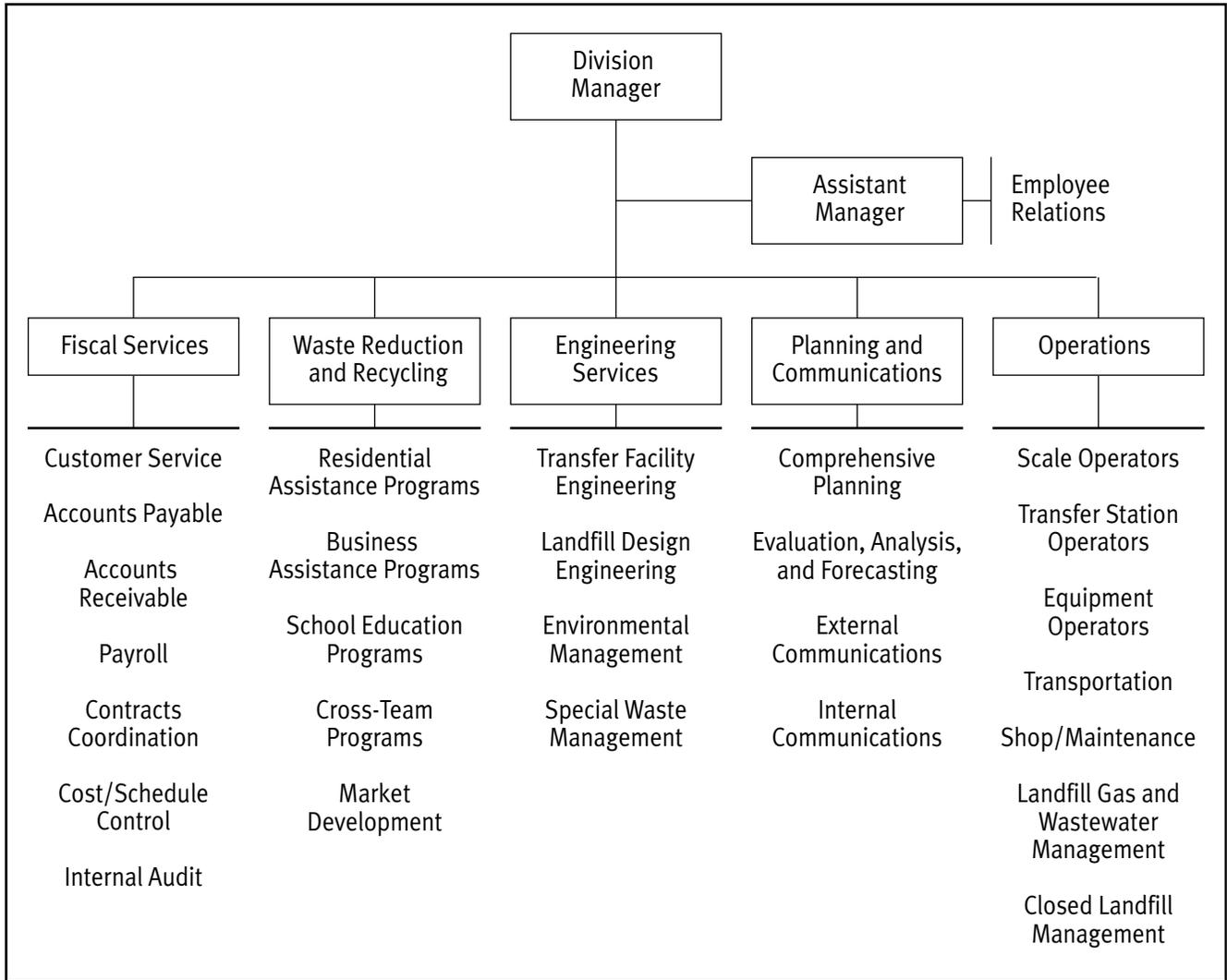
The Solid Waste Division is part of the King County Department of Natural Resources and Parks (DNRP). Figure 2-1 shows the organizational and reporting structure of the Department. The overall mission of DNRP is to “Be the steward of the region’s environment and strengthen sustainable communities by protecting our water, land and natural habitats, safely disposing of and reusing wastewater and solid waste, and providing natural areas, parks and recreation programs.”

**Figure 2-1.** King County Department of Natural Resources and Parks Organizational Chart



The Solid Waste Division, in cooperation with the other divisions within DNRP, is responsible for carrying out this mission. In keeping with DNRP’s mission, the Division’s mission statement is to protect human health and the environment by providing quality services that responsibly manage King County’s solid waste. The organizational structure of the Solid Waste Division is shown in Figure 2-2 on the following page.

**Figure 2-2.** King County Solid Waste Division Organizational Chart



## Governing Policies

The policies that follow were adopted by Ordinance 14236 by the King County Council on October 15, 2001. If any text discussion in this Plan is inconsistent with that in the policies, the policies are controlling.

### County Planning Policies

**PL-1.** The county shall continue to monitor the type, amount and generation sources of waste entering the county's solid waste system.

**PL-2.** The county shall monitor and prepare an annual report on the amount of solid waste disposal at public transfer stations and at the regional landfill.

**PL-3.** The county shall complete a survey of self-haul customers at county transfer facilities, using zip codes to obtain more accurate information on where self-haul customers live.

**PL-4.** The county should support state legislation that would require the private haulers to provide accurate reports on curbside collection and recycling and disposal at private transfer stations.

**PL-5.** The county should continue to conduct waste characterization studies every three years as part of its ongoing waste-monitoring program.

**PL-6.** Forecasts for waste tonnages should be updated every year to allow responsive planning for facilities and operations.

### County Waste Reduction and Recycling Policies

**WRR-1.** The council finds that existing county policies for waste reduction and recycling have been valuable for guiding the efforts of King County, suburban cities and the private sector. These policies recognize that successful waste reduction and recycling efforts depend on changing the behavior of individuals and organizations rather than accommodating existing behavior. Based on these findings, the mission of King County's waste reduction and recycling programs is to divert as much material as possible from disposal in a manner which reduces the overall costs of solid waste management to county residents and businesses, conserves resources, protects the environment and strengthens the county's economy. The county should evaluate its success in achieving this mission through measures that are consistent with:

1. Decreasing the total amount of waste generated and disposed per county resident, acknowledging that business activities, average household size and other external factors affect this amount.
2. Recycling additional materials out of its disposal stream at least as long as such action is likely to create a long-term, net economic benefit compared to the costs of disposal. An analysis of the costs and benefits of recycling should include current and projected values for collection, hauling and processing costs and the return in commodity prices for recycled materials versus the current and projected costs of collection, hauling and disposal of the same materials.

**WRR-2.** The county should enhance existing waste reduction and recycling programs, add more recycling opportunities at county transfer stations, pursue markets for additional diversion of organic materials, and increase marketing efforts to support and further waste reduction and recycling goals.

**WRR-3.** The county and cities should manage solid waste generated by their respective agencies in a manner that demonstrates leadership for residents, businesses, and institutions.

**WRR-4.** The county shall encourage and promote waste reduction and recycling in order to reduce the amount of solid waste disposed in the Cedar Hills Regional Landfill or through waste export.

**WRR-5.** The county should use the following measurement targets to identify the region’s effectiveness in meeting objectives in waste reduction and recycling. These targets should be evaluated at least every three years when data becomes available from the waste monitoring studies.

1. Disposal rates per residential customer should be held constant throughout the planning period. The residential target is 18.5 pounds of solid waste per person per week calculated by dividing the estimated amount of waste disposed by households by the estimated number of residents in the county’s solid waste system.
2. Disposal rates for per employee should be held constant throughout the planning period. The employee target is 23.5 pounds of solid waste per employee per week calculated by dividing the estimated amount of waste disposed by businesses in the county by the estimated number of employees.
3. The curbside and on-location recycling rates for single family, multi-family and non-residential entities should be increased over the planning period as follows:

Year	Single Family (1 to 4 Dwelling Units)		Multi-Family (5 or more Dwelling Units)		Non-Residential
	Curbside Recycling Rate (percent)	Curbside Disposal Rate (lbs/household/week)	Recycling Rate (percent)	Disposal Rate (lbs/household/week)	Recycling Rate (percent)
2006	50%	31.4 lbs.	35%	20.8 lbs.	43%
2012	52%	30.7 lbs.	40%	20.3 lbs.	46%
2018	53%	30.5 lbs.	40%	20.1 lbs.	48%

**WRR-6.** The county should provide grant funding to cities to support their waste reduction and recycling programs for which all cities will be eligible. Grant funds are intended to implement recommendations in this plan, based on the communities’ prioritized needs.

**WRR-7.** The county shall coordinate with cities in planning and implementing waste reduction and recycling programs, and in designing and conducting future studies and market assessments for the region.

**WRR-8.** The county and cities should hold annual meetings to coordinate work plans and ensure that grant-funded and county programs are coordinated and complementary.

**WRR-9.** The county should provide drop box collection sites for primary recyclables to serve areas where household collection is not provided.

**WRR-10.** The county should, where feasible, provide areas for expanded collection of secondary recyclable and reusable materials at new and upgraded transfer stations.

**WRR-11.** The county and the rural cities should periodically assess the feasibility of expanding curbside collection of recyclables in rural areas not currently receiving this service.

**WRR-12.** The county and cities should add secondary recyclables to collection programs when feasible and supported by the community.

**WRR-13.** Cities should consider providing scheduled events to collect secondary recyclables at selected sites.

**WRR-14.** Those cities exercising contracting authority for solid waste collection should consider including collection of recyclables in the waste collection service offered to both residents and businesses.

**WRR-15.** The cities and county should provide coordinated education, promotion, incentive, and technical assistance programs to businesses, residents and schools for waste reduction, source reduction, resource conservation and recycling.

**WRR-16.** The county should provide technical assistance to manufacturers in the use of recycled materials and the application of product stewardship principles.

**WRR-17.** The county should encourage the cities to establish rate-based incentives for solid waste collection services that encourage participation in recycling programs and reduced generation of garbage.

**WRR-18.** The county should promote environmentally sound management of all organic materials in the mixed municipal solid waste stream.

**WRR-19.** The county should implement programs that are designed to increase the demand for recycled and reused products, create and sustain markets for recycled materials, and integrate waste reduction and recycling programs with other resource conservation activities.

**WRR-20.** Using waste characterization studies and market assessments, the county should regularly evaluate regional recycling markets and technologies to ensure that programs and services support the region's recycling and waste reduction goals.

**WRR-21.** The county should work with cities and private collection companies to develop programs to improve the recycling rate in the small business community.

**WRR-22.** The cities and the county should address the needs of small businesses by providing technical assistance and programs that target recycling and waste reduction in the workplace.

**WRR-23.** The county should promote material exchanges and reuse centers and evaluate other venues for reuse.

**WRR-24.** The cities and county should provide for collection of primary recyclables including glass, tin and aluminum cans, mixed waste paper, newspaper, #1 and #2 plastic bottles, and yard waste and evaluate adding other materials as either primary or secondary recyclables by targeting specific commodities.

**WRR-25.** The county should target primary residential recyclables, yard debris, food waste and compostable paper, non-residential paper and cardboard, and green and urban wood for future diversion from the waste stream through recycling or waste reduction.

**WRR-26.** The county shall update the list of secondary recyclables yearly in its annual report based on state recycling survey data and information from city and county programs.

**WRR-27.** The county should work with the cities, commercial haulers and the public to identify new materials to be designated as primary recyclables.

**WRR-28.** The county should develop and implement a regional product stewardship strategy, provide technical assistance to manufacturers in the use of recycled materials and the application of product stewardship principles.

**WRR-29.** The county should pursue product stewardship strategies to reduce costs of waste disposal, to place more responsibility on manufacturers to reduce toxicity of their products, to conserve energy, and to plan for product reuse and recycling in product development.

**WRR-30.** The county shall maintain government procurement policies that favor the use of recycled and environmentally preferable products.

**WRR-31.** The county should implement and promote the green building principles in all county-funded capital projects.

**WRR-32.** The county should foster sustainable development through promotion of sustainable building principles in construction projects throughout the county.

**WRR-33.** The county should promote reuse and recycling of source separated construction, demolition and land clearing materials through participation in organizations like the Reusable Building Materials Exchange.

**WRR-34.** The county should foster sustainable building principles through public education and partnerships with organizations such as the U.S. Green Building Council.

**WRR-35.** The department of natural resources and parks should develop and promote landscape best management practices, including water conservation, reduced use of pesticides, and grasscycling.

**WRR-36.** The county shall make recycling a priority at new and renovated transfer stations by maximizing recycling opportunities while taking into consideration user needs, site constraints, costs and benefits, and market availability. The county should evaluate the potential for accepting new recyclable materials at county facilities. Potential new recyclable materials include, but are not limited to: scrap and processed metal, used oil and antifreeze, computers, recyclable construction and demolition debris, household hazardous waste, and reusable household items.

**WRR-37.** Where feasible, the county should provide areas for source-separated yard waste collection at all existing, new or upgraded transfer stations and drop boxes.

**WRR-38.** The county shall implement programs to provide for affordable collection and recycling of woody debris generated by major storm events or for residents in areas affected by the Puget Sound Clear Air Agency's burn ban.

**WRR-39.** The county should work to convert landfill gas, a valuable green resource, into a marketable energy product as soon as possible.

### **County Collection Policies**

**CP-1.** The county solid waste system shall provide for and designate urban collection service levels for mixed municipal solid waste, recycling and yard waste for residents in all parts of the county except for Vashon Island, Skykomish Valley, and Snoqualmie Pass.

**CP-2.** The county should promote collection service that has as little impact as possible on roadways and traffic. The cities should consider using their contracting authority to specify which transfer stations the collection companies use.

**CP-3.** The county and cities should seek to manage demand for self-haul services for customers who self-haul regularly, by encouraging subscriptions to curbside collection.

**CP-4.** The county shall seek to manage demand for self-haul services for customers who self-haul occasionally, by working with cities and private collection companies to develop cost effective options for disposing of bulky wastes.

**CP-5.** The county should not consider the possibility of eliminating service to self-haulers, as this would conflict with the county's goals of environmental protection and customer service.

**CP-6.** A solid waste collection district may be established for the purpose of requiring mandatory curbside collection service if the county and the cities agree that it is in the public interest and necessary for the protection of public health.

**CP-7.** The county, in consultation with the cities and Solid Waste Advisory Committee should explore the benefits and costs of a uniform method of recycling collection throughout the region.

**CP-8.** The county should host special recycling collection events and investigate options for expanding this recycling option.

**CP-9.** If authorized by the state legislature, the county should work with the cities to establish region-wide waste disposal incentive rates that encourage recycling and reduce disposal.

**CP-10.** The county, in conjunction with the city of Seattle, the cities within the region and Public Health – Seattle & King County shall offer collection of household hazardous waste in conformance with the adopted local hazardous waste management plan prepared under chapter 70.105 RCW.

**CP-11.** The county should improve collection services for household hazardous waste in the eastern and southern portions of the county in conformance with the local hazardous waste management program. Enhancements should include implementing a pilot stationary collection service at a transfer station and implementing a pilot program to augment current mobile collection services.

**CP-12** The county should work with the cities, regional businesses, and regional manufacturers to develop alternative collection opportunities and product stewardship programs.

### **County Regional Transfer System Policies**

**RTS-1.** The county's objectives for its transfer system are:

1. Meeting customer needs for convenient, uniform services;
2. Seeking to maintain operating costs for solid waste management lower than those in other jurisdictions;
3. Preparing the mixed municipal solid waste transfer system for eventual waste export;
4. Keeping rates stable and rate increases as low as possible while meeting the costs of managing the system and providing services to solid waste customers; and
5. Protecting environmental quality and public health and safety while providing cost efficient services.

**RTS-2.** The county should provide for the future of the solid waste transfer system by maximizing use of existing transfer stations, making existing transfer stations as efficient as possible, evaluating the need for new transfer facilities, and focusing capital improvements on balancing service needs of commercial and self-haulers.

**RTS-3.** The county should focus capital investment to:

1. Maintain the county's system facilities in a safe condition for both the system's customers and the system's employees;
2. Upgrade its transfer facilities to serve a future waste export system when the Cedar Hills regional landfill reaches its permitted capacity, or at such earlier time as the county may decide;
3. Improve transfer stations to improve efficiency, capacity and customer service; and
4. Expand, relocate or replace, or any combination thereof, transfer stations when safety, efficiency, capacity or customer services needs cannot be met by existing transfer facilities.

**RTS-4.** The county should prioritize efficient service to commercial haulers while still providing services for self-haul customers, provided that nothing in this policy permits limiting standard hours of operation at county transfer facilities for self-haul customers without council approval by ordinance.

**RTS-5.** Compactors should be installed at transfer stations in order to achieve operating efficiencies by processing waste more quickly in less space, reducing truck trips between the stations and the disposal site, saving transportation and equipment costs, reducing odors and litter, and preparing for economical waste export. The county should prioritize, to the extent practicable, compactor installation at those transfer stations with the greatest tonnages.

**RTS-6.** The county shall evaluate the feasibility of siting an additional transfer facility to serve residents of northeast King County.

**RTS-7.** The county shall establish criteria and standards for determining when a county owned and operated transfer station has exceeded its capacity to efficiently serve the needs of its customers and where new or relocated transfer facilities are needed.

**RTS-8.** Before restricting access to any customer class at a specific transfer station, the executive shall transmit for council approval by motion a demand management plan for that transfer station. The demand management plan shall identify strategies such as incentive rates, programmatic changes and structural changes designed to minimize conflicts between commercial haulers and self haulers and improve customer service. The demand management plan shall include an evaluation of the costs and benefits of these strategies, the impact of implementing these strategies on different sectors of commercial and self haulers that use the transfer station, and impacts on illegal dumping. The demand management plan shall be formulated with the participation of affected cities.

**RTS-9.** The county, in coordination with affected cities, should continue to improve county transfer station operations to ensure efficient queuing, unloading and exiting.

**RTS-10.** The county shall designate county-owned transfer stations as either capable of being expanded on-site or constrained from on-site expansion. The purpose of this designation is to maximize the use of existing sites by concentrating capital investment on sites where significant improvements are both physically possible, and supported by the host city. Facilities capable of being expanded may require new construction or major rebuilding in order to provide a full range of solid waste disposal and recycling services for county residents and businesses. Facilities constrained from on-site expansion will receive necessary safety and efficiency improvements, including compactors.

**RTS-11.** In designating transfer stations as either capable of being expanded on-site or constrained from on-site expansion, the county shall consider the size of the site, other physical characteristics and constraints, the level of support for needed improvements by the host city. The system as a whole shall be assessed to maximize the equitable distribution of full service facilities.

**RTS-12.** The following transfer stations are designated as capable of being expanded on site: First Northeast, Factoria, Bow Lake, Enumclaw and Vashon.

**RTS-13.** The following transfer stations are designated as constrained from on-site expansion: Houghton, Renton, and Algona.

**RTS-14.** The following transfer stations are authorized by the county as adjunct transfer stations to receive, consolidate and deposit mixed municipal solid waste into larger transfer vehicles for transport to and disposal at county authorized disposal sites: Waste Management's Eastmont and Rabanco's Third and Lander facilities.

**RTS-15.** The county should maintain the use of drop boxes to serve rural customers in the Skykomish and Cedar Falls area until periodic analyses of demographic and disposal trends in the rural areas determine that improvements in the type and level of service and facilities may be needed. The county should explore the use of an access card to provide access to drop box facilities for residents and property owners in the area so that individual property owners could be billed on a monthly basis.

**RTS-16.** The county should continue to provide solid waste services through the county transfer facilities. However, the county will remain open to considering and implementing future private sector proposals for the transfer system as part of its annual evaluation of the timing of waste export. In evaluating future private sector proposals for the transfer system, the county should

balance financial costs and benefits with other relevant factors, including environmental considerations and fairness to existing labor. The county should consider expanding the role of collection companies in the provision of transfer services when the collection companies demonstrate that such expansion reduces the overall costs of solid waste management to county residents and businesses, maintains or improves service levels, and advances the goal that solid waste disposal facilities be dispersed throughout the county in an equitable manner. The county's goal will be to make the transition to waste export as equitable as possible to those affected by the transition.

**RTS-17.** All public and private transfer facilities shall comply with applicable federal, state, and local laws and proposed facility improvements shall be required to meet applicable legal requirements. Legal requirements include, but are not limited to those regarding environmental protection, public health and safety, procurement and labor.

**RTS-18.** The county shall prepare the capital improvement program required to implement the Final 2001 Comprehensive Solid Waste Management Plan under K.C.C. 4.04.200 through 4.04.270. Proposed capital improvements are subject to council appropriation and the county's annual budget process. The proposed capital improvement program should demonstrate how the following considerations are addressed:

1. Protecting the safety of customers and employees at any solid waste facility;
2. Planning for permit acquisition requirements and timing;
3. Mitigating impacts to the surrounding community including but not limited to noise, traffic, dust, odor and litter;
4. Including public comment and input, including comment and input from the host jurisdictions, in project development;
5. Preparing for waste export;
6. Minimizing service disruption at transfer facilities and throughout the system during capital construction;
7. Ensuring that no more than one transfer station is closed for capital improvements at any time;
8. Demonstrating the extent to which sites requiring capital improvements are functioning at or near operating capacity for either traffic or tonnage;
9. Demonstrating how the planned capital improvements were evaluated according to the criteria and standards for transfer facility efficiency; and
10. Achieving operating savings.

**RTS-19.** The capital improvement program for King County shall only fund projects and improvements at facilities owned and operated by King County.

**RTS-20.** Prior to making any improvements to transfer stations or locating new transfer facilities, the executive shall work with affected communities to develop mitigation measures for environmental impacts created by the construction, operation, maintenance or expansion of transfer facilities.

**RTS 21.** The county is encouraged to exceed minimum environmental requirements in the operation of its solid waste handling facilities where feasible. The county shall investigate the use and cost of technology and equipment that may allow the county to exceed minimum legal environmental requirements, including, but not limited to, those related to concerns such as air quality and sound.

**RTS-22.** The county shall evaluate the potential for establishing a special services transfer facility to handle bulky wastes and recycling, and serve self-haul customers.

## County Disposal Policies

**DSW-1.** All county landfills, both active and inactive, shall be designed, operated, and monitored to meet or exceed applicable federal, state, and local standards for protection of public health and the environment.

**DSW-2.** The county should not seek to site a replacement landfill for the Cedar Hills regional landfill in King County. Upon council approval by ordinance, the county shall initiate solid waste export.

**DSW-3.** The county shall contract for long-term disposal capacity at an out-of-county landfill or landfills. It is anticipated that export of the region's mixed municipal solid waste will begin when the Cedar Hills regional landfill has reached its permitted capacity. However, the county will remain open to considering and implementing private sector proposals for early waste export. An orderly transition to waste export should occur before Cedar Hills is closed.

**DSW-4.** The county shall continue to monitor waste export prices and the availability of landfill space and report back to the region on its findings at least annually to determine if future landfill space should be reserved and purchased in advance of use. The policy of King County shall be to monitor and analyze conditions impacting the appropriateness, feasibility and timing of waste export on a continuous basis. The executive shall report to the council at least once every three years and more if circumstances warrant on such conditions. When such conditions warrant, and upon council approval by ordinance, the division shall initiate solid waste export.

**DSW-5.** It is expected that rail hauling will be the preferred method of exporting the county's solid waste in the future. The county shall continue to monitor the long-term availability of future rail capacity to ensure that adequate transport capability exists.

**DSW-6.** The county shall plan for implementing waste export and include in the county's plan details on the sequence of phasing in waste export, the financial and staffing impacts, and the status and future capacity of rail transportation.

**DSW-7.** At least one year prior to the initiation of waste export, the county should develop comprehensive emergency response procedures for the region's waste export system.

**DSW-8.** If the need arises for the county to develop one or more such facilities, the process for siting intermodal facilities where containers are transferred from trucks to rail cars or barges shall include:

1. Involving all affected jurisdictions and interested parties in the siting process in decision making, and providing access to relevant information to affected jurisdictions and interested parties;
2. Listening and responding to input from all affected jurisdictions and interested parties; and
3. Developing jointly with all affected jurisdictions and interested parties criteria for identifying prospective sites that comprehensively evaluate environmental, technical, financial, and community needs.

**DSW-9.** The county shall continue to monitor and maintain closed landfills that fall under its jurisdiction.

**DSW-10.** The county shall continue to work with cities, the state, and federal agencies to explore beneficial reuse options for all closed landfills. Any future monitoring or environmental system installation shall be designed to facilitate reuse of the sites.

### **County Construction, Demolition and Landclearing Debris (CDL) Policies**

**CON-1.** The county shall ensure a satisfactory level of CDL transfer and disposal in the county, and encourage and expand recycling of CDL.

**CON-2.** The county shall continue to limit CDL disposal as provided in the King County Code, the existing CDL contracts and the Solid Waste Acceptance Policy at least until May 31, 2004 when existing contracts expire.

**CON-3.** The county should support private efforts to reduce the overall amount of CDL being disposed of in the county solid waste system by encouraging separation of recyclable or reusable portions of CDL from the waste stream. Separation can occur at a construction or demolition site or at one of the CDL receiving facilities, or at a landfill.

**CON-4.** The county should encourage a CDL management system that maximizes reuse and recycling and provides for the safe and efficient disposal of the remaining CDL.

**CON-5.** In keeping with state and regional system goals and recommendations for waste reduction and recycling, the preferred method for managing CDL is to separate out the recyclable or reusable portions of the CDL waste stream and reduce the overall amount of CDL waste disposed of in the county's solid waste system. Separation can occur at a construction or demolition site, at one of the CDL receiving facilities, or at a landfill.

**CON-6.** The executive in consultation with the Solid Waste Advisory Committee and appropriate staff from cities in the region shall propose to the council alternatives for future handling of CDL that will best suit the region as a whole. A goal of the preferred alternative should be to increase the amount of CDL recycled from work and disposal sites. The council shall approve the CDL handling program by ordinance.

### **County Special Wastes Policies**

**SPW-1.** The county shall accept contaminated soil only at the Cedar Hills regional landfill. After the Cedar Hills regional landfill closes contaminated soil should be handled by the private sector.

**SPW-2.** The county shall accept asbestos-containing materials for disposal only at the Cedar Hills regional landfill if accompanied by required federal, state or local asbestos disposal documentation. After the Cedar Hills regional landfill closes, asbestos-containing materials should be handled by the private sector.

**SPW-3.** The county shall evaluate providing one solid waste transfer facility that would accept small volumes of asbestos-containing materials from residential customers.

**SPW-4.** The county shall make safety and public health the top priorities in managing the disposal of biomedical wastes. The county shall accept treated biomedical wastes at the Cedar Hills regional landfill and county transfer facilities only if it has been treated according to standards contained in the county Solid Waste Regulations. After the Cedar Hills regional landfill closes treated biomedical wastes should be handled by the private sector. The county shall also evaluate the possibility of accepting small volumes of treated biomedical wastes at county transfer stations after the Cedar Hills regional landfill closes.

**SPW-5.** The county shall evaluate providing a separate receptacle for disposal of small quantities of sharps generated by residents or small businesses at some or all transfer facilities.

**SPW-6.** The county should develop and implement educational programs for residents on the proper disposal practices for sharps and other biomedical wastes.

**SPW-7.** The county should work with pharmacies and health care providers to educate individuals on proper disposal of medical waste, and to establish voluntary take-back programs for home-generated sharps and other used medical supplies.

**SPW-8.** The county shall accept disposal of de-watered vector wastes only at the Cedar Hills regional landfill. The county should reevaluate and revise recommendations from the 1994 Vector Waste Disposal Plan to provide wet vector waste management alternatives after the Cedar Hills regional landfill closes.

**SPW-9.** The county should develop and implement long-term management solutions for the special handling required for de-watered vector wastes. The county should dispose of de-watered vector wastes through future waste export contracts after the Cedar Hills regional landfill closes unless other management options are identified in the county's evaluation of long-term management solutions.

**SPW-10.** The county should accept limited numbers of waste tires at transfer stations and should dispose of limited numbers of waste tires at the Cedar Hills regional landfill. Once the Cedar Hills regional landfill is closed, the county should dispose of waste tires through future waste export contracts.

**SPW-11.** The county shall authorize disposal of controlled solid waste that cannot be handled by the county facilities at locations outside the county on a case-by-case basis.

### **County Enforcement Policies**

**ENF-1.** The county shall exercise its enforcement authority to ensure that the county solid waste management system meets all applicable standards for the protection of human health and environmental quality in the region.

**ENF-2.** Enforcement shall be achieved through permitting and compliance for solid waste handling facilities; management of waste flows within the region; regulation of acceptance of special wastes; and control of illegal dumping and litter.

**ENF-3.** The county, cities and towns should work cooperatively to manage waste flows within the region. The responsibilities for waste handling and process for managing waste flow are established by interlocal agreement.

**ENF-4.** The county shall not accept hazardous and dangerous wastes, as defined under federal, state and local law, for disposal at county facilities.

**ENF-5.** The county should maintain a waste-screening program at county disposal facilities to ensure that material in the solid waste stream is handled in conformance with county and state regulations. The purpose of the waste-screening program is to safely process solid wastes and to prohibit hazardous and dangerous wastes from the county waste facilities.

**ENF-6.** The county should implement a comprehensive public outreach and education program to assure that proper waste handling practices are observed.

**ENF 7.** The county should develop programs and strategies designed to reduce illegal dumping and littering.

**ENF-8.** The county should continue the community litter cleanup program administered by the solid waste division of department of natural resources and parks as long as financial assistance from the state is available.

**ENF-9.** The county should continue to seek state funding to support efforts by the county and the cities to clean up illegal dumping and litter on public lands and waterways.

**ENF-10.** The county should reconvene the illegal dumping task force to improve coordination among county agencies, cities, and other relevant public agencies responsible for illegal dumping cleanup, education and prevention programs.

**ENF-11.** The county should implement a coordinated effort to develop an illegal dumping clean-up, education and prevention program targeted at county-owned or controlled properties.

**ENF-12.** The county should establish an illegal dumping hotline to provide a single point of contact for the public to report illegal dumping. To the extent possible, this hotline should be coordinated with other similar hotlines.

**ENF-13.** The county should consider legislation to strengthen enforcement against illegal dumping and litter in the unincorporated areas of the county.

#### County Financing and Rates Policies

**FIN-1.** The county shall maintain, conduct, operate and account for the disposal of solid waste as a utility of the county. The solid waste system shall be a self-supporting utility financed primarily through fees for disposal.

**FIN-2.** The county shall charge garbage disposal fees directly to users of the solid waste disposal system to pay for solid waste services.

**FIN-3.** The county shall maintain a rate structure based on tonnage, recognizing that the structure does not provide a self-hauler subsidy, unless the executive demonstrates that a different rate structure would benefit the system as a whole.

**FIN-4.** The county should keep garbage disposal fees as low as possible and should manage the solid waste system to keep rate increases as low as possible while meeting the costs of managing the system and providing service to solid waste customers.

**FIN-5.** The county should provide technical assistance to the cities in developing collection contracts and grants.

**FIN-6.** The county should develop and implement a grant program for the cities that will consolidate grant programs and contracts wherever possible. The county should provide technical assistance to aid the cities in identifying, applying for and administering grants.

**FIN-7.** The county should provide opportunities to expand the role of cities in developing and reviewing regional solid waste policies and rates by establishing a Solid Waste Policy Work Group to work in conjunction with the Solid Waste Advisory Committee to make recommendations regarding system operations to the King County executive. As part of these recommendations, the executive shall evaluate the costs and benefits of alternative rate structures on individual customer classes.

**FIN-8.** The county is committed to working with the cities that are impacted by transfer stations to explore funding to mitigate potential impacts from these facilities. Any statutorily authorized host fees should be in amounts directly attributable to the solid waste facility provided that the cities can establish that the fee is reasonably necessary to mitigate for impacts of the solid waste facility as required in state law.



Chapter  
**3**

## Fundamentals of Planning for the Region's Future Needs

One important element in planning the future of solid waste services is forecasting what and how much waste we will reduce, recycle, and dispose. This information, combined with an understanding of who uses the system, enables us to ensure that we have adequate services and facilities for the future.

A myriad of variables can affect how many tons of waste we generate. For example, increases in population, employment activity, and personal income are likely to lead to more consumption and hence more waste generated. These types of demographic trends, along with the County's existing data on the tons of garbage disposed each year, are used to develop planning forecast models. These models show how different variables affect disposal and recycling rates – both now and in the future – and provide the basis for system planning.

This chapter answers two fundamental questions needed for future planning:

- How much waste are system users currently generating and expected to generate in the future?
- What does the solid waste management system look like today and who uses it?

By answering these questions, we build the foundation upon which the recommendations presented throughout this Plan are based.

### County Planning Policies

County policies that guide the planning process, set out in Ordinance 14236, are as follows:

**PL-1.** The county shall continue to monitor the type, amount and generation sources of waste entering the county's solid waste system.

**PL-2.** The county shall monitor and prepare an annual report on the amount of solid waste disposal at public transfer stations and at the regional landfill.

**PL-3.** The county shall complete a survey of self-haul customers at county transfer facilities, using zip codes to obtain more accurate information on where self-haul customers live.

**PL-4.** The county should support state legislation that would require the private haulers to provide accurate reports on curbside collection and recycling and disposal at private transfer stations.

**PL-5.** The county should continue to conduct waste characterization studies every three years as part of its ongoing waste monitoring program.

**PL-6.** Forecasts for waste tonnages should be updated every year to allow responsive planning for facilities and operations.

## Snapshot of the Planning Area

King County spans more than 2,200 square miles, with an estimated population of 1.69 million. It is the most populated of Washington's 39 counties, and the 12th most populated in the nation.

King County's regional solid waste management system serves the citizens of all the unincorporated areas of the County as well as 37 of the 39 cities, excluding only Seattle and Milton. The system's service area has a population of about 1.14 million, or about 68 percent of King County's population as a whole. An estimated 55 percent of the jobs in King County are within this service area. Most of the system's customers live in incorporated areas.

Annual rates of population and employment growth typically vary with high and low periods of economic activity. Population in the system's service area has grown about 80 percent over the past 25 years. Employment has grown at an even faster rate – more than 200 percent over the same time period, and a higher proportion of the County's population is now in the workforce. Following a period of rapid growth in the mid-1990s, the region's rate of population and economic growth has showed signs of slowing. But

the service area's population is still growing by about 10,000 people per year. Of these new residents, approximately 6,000 will enter the region's workforce.



▲  
*King County is the 12th most populated county in the nation, covering an area of more than 2,200 square miles*

## Our Waste Stream – Past and Current

Plain and simple – people generate waste. And the rate at which solid waste is generated has been increasing because of growth in the region’s economy, population, and number of households. The Solid Waste Division routinely monitors the quantities and types of wastes disposed at the regional solid waste facilities to answer three fundamental questions:

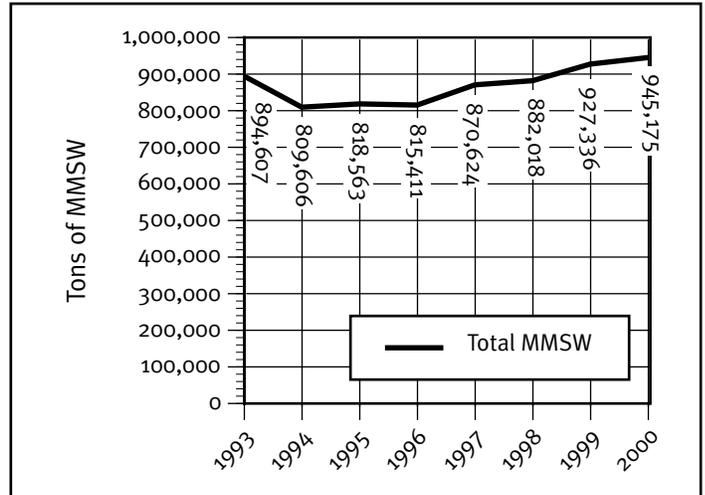
- How much waste do we dispose?
- What are we throwing away?
- Who is generating the waste?

Answers to these questions follow.

### How Much Waste Do We Dispose?

The largest component of our regional system is the transfer and disposal of mixed municipal solid waste (MMSW) – or garbage. MMSW is the waste that residents and businesses put out at the curb for collection or bring to a transfer station for eventual disposal. In 2000, 945,175 tons of MMSW were disposed at the Cedar Hills Regional Landfill. Figure 3-1 shows the tons of MMSW received annually since 1993. (The drop in total tonnage delivered between 1993 and 1994 was due to a ban on construction, demolition, and landclearing debris at Cedar Hills that began in mid-1993.)

**Figure 3-1.** Tons of MMSW Received Annually Since 1993



Source: King County Solid Waste Division tonnage records

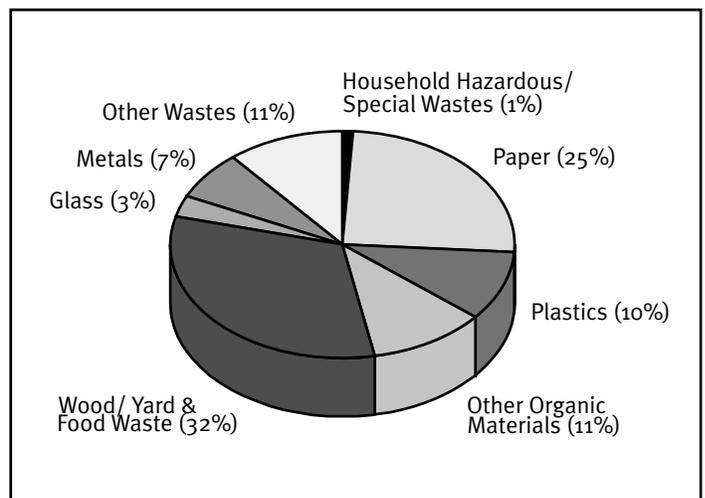
### What Are We Throwing Away?

In addition to quantity, it is important to understand the kinds of wastes disposed. This information helps target programs for waste reduction and recycling to meet future goals.

To characterize the composition of wastes received in the regional system, the Solid Waste Division conducts waste characterization studies every three years as part of its ongoing Waste Monitoring Program. These studies provide an estimate of the types of garbage being thrown away at the transfer stations and Cedar Hills. Figure 3-2 shows the results of the most recent waste characterization study (Cascadia 2000).

More detailed information about the County’s waste stream and the Waste Monitoring Program can be found in the *1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys – Final Report* (Appendix A-2).

**Figure 3-2.** Composition of the Disposed Waste Stream



Source: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys – Final Report

### Who Is Generating the Wastes?

Wastes that enter King County's solid waste system originate from both residential and non-residential sources. Non-residential sources include businesses, industry, government, and institutions. The Solid Waste Division estimates that residential wastes account for about 55 to 60 percent of the total waste stream, while non-residential wastes account for the remainder.

### Forecasting for the Future

The King County Solid Waste Division plans for future needs through forecasting. Forecasts are built by combining historical data on waste generation with information about a number of variables known to affect it. The previous section of this chapter presented information on the region's past and current waste disposal stream. The forecast of the future waste disposal stream looks at projections for growth in the region. This information is folded into econometric models that give a baseline prediction of future waste generation. The final step in forecasting is to account for the expected effectiveness of future programs for reducing waste disposal in the region, as discussed in Chapter 4 of this Plan.

This section presents a brief look at the development of the waste generation forecast. More detailed information about the forecast methodology is provided in Appendix A-1.



▲  
Demographic projections help define the customers and the types of waste they will generate

### Demographic Projections

Projections about population growth, regional employment, household size, and per capita income can help define who the customers of our system will be and what kinds and amounts of waste they will likely generate. These projections are used in the planning forecast model to estimate the tons of waste expected to be generated in future years.

The demographic projections presented in this chapter reflect data for the service area. Data used in making 20-year projections were obtained from the Puget Sound

Regional Council, who routinely prepares long-range forecasts for the region based on U.S. Census and other data sources (PSRC 1999). These 20-year projections were then adjusted for short-term variations using data provided in two reports – the *King County Annual Growth Report* and the *Economic Forecaster* (KCORPP 1999; Conway and Pedersen 1999). These latter reports are used to supplement data from the 20-year projections, particularly for the short term, because they are published more frequently, provide data in less than 10-year increments, and incorporate more specific data on individual communities in the system. Combining data from several sources allows for the best and most up-to-date estimate of trends for the future.

A brief summary of projections for several key planning variables is presented here. More detailed information on the methods used to develop these projections is provided in Appendix A-1.

**Population** is expected to grow by about 1 percent annually through 2020, about 10,000 people per year. The population growth rate is significant for planning purposes since the amount of waste generated increases as population increases.

**Employment** in the region is expected to increase at an annual rate of about 1.3 percent through 2010, reflecting a strong economy and the growth of job opportunities outside the City of Seattle. Since the 1980s, employment in the region has grown faster than population, averaging about 2.5 percent in the 1990s. In 2010 to 2020, the employment growth rate is expected to drop below 1 percent, due to factors such as the higher number of retired persons in the region. Employment is an important forecasting variable because its growth reflects an increase in economic activity, which in turn leads to increased consumption and waste generation.

**Household size** is expected to decrease by about 0.5 percent per year through 2010, reflecting national trends toward smaller family size and an aging population. A decrease in average household size means that the number of households is growing faster than the population as a whole, resulting in more households per population. Since a “household” implies a certain level of maintenance, mail, purchasing, and so on, a decrease in household size tends to increase waste generation.

**Per capita income** is expected to increase around 1 percent per year during the planning period. During the 1990s, per capita income (adjusted for inflation) increased approximately 2.4 percent per year, due primarily to the influx of higher-paying technology jobs in the region and a strong local economy. Increases in income generally result in increases in consumption, and likewise in wastes generated.

A question frequently asked is why waste generation – which is defined in this Plan as *waste disposal + recycling* – continues to rise even though as individuals we are recycling more than ever before. At least three primary factors come into play:

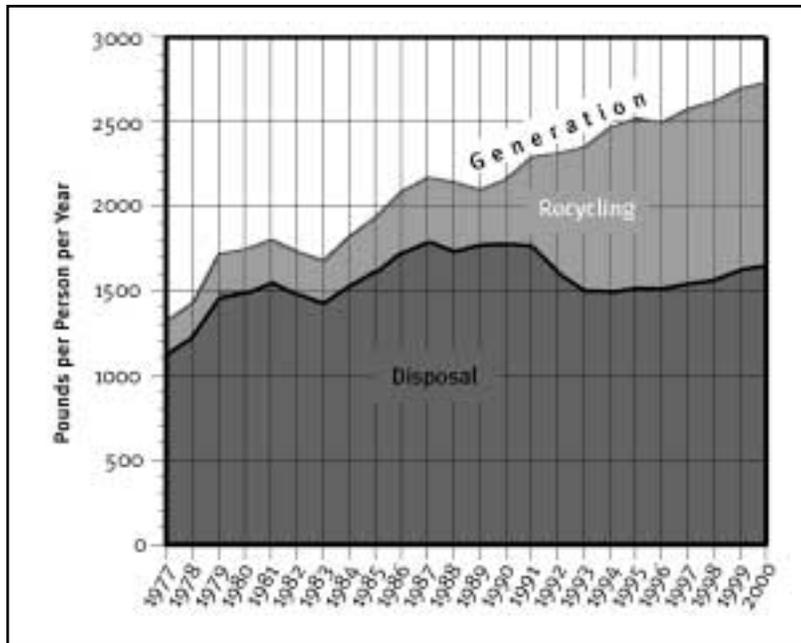
- First, the number of people and jobs in the region continues to grow
- Second, household sizes are smaller, which means there are more households with fewer residents per home; each household adds a certain quantity of disposable packaging, junk mail, food waste, yard waste, and other types of household wastes to the stream
- Third, when economic growth is occurring, people consume more, buy more goods, and in the process create more wastes

All of these factors keep generation of solid waste on the rise. Figure 3-3 shows the trends in recycling, disposal, and generation per person since the 1970s. During this period, recycling increased from an estimated 250 pounds per person per year in the late 1970s to around 1,000 pounds per person today. The sharp increase in per capita recycling coincided with a dip in disposal in the early 1990s. Overall, as the chart shows, per capita waste generation has continued to rise while per capita recycling has stabilized. More information about the recycling challenges facing the system is contained in Chapter 4.

### The Forecasting Methodology and Results

Forecasting future waste generation entails a two-step modeling process (a detailed explanation of the forecasting process is provided in Appendix A-1). In this Plan, waste generation is predicted using both waste disposal and recycling. The first step is to develop econometric models that relate historical data for disposal and recycling to past demographic trends in the region. In the Solid Waste Division’s forecasting process, separate models are used to predict the waste disposal and recycling portions of

**Figure 3-3.** Estimated Generation, Disposal, and Recycling Per Person



Source:  
 - King County Solid Waste Division tonnage records and estimates  
 - Recycling estimates from consultant R.W. Beck (1977-1987), Washington Department of Ecology survey data (1988-1996), and Solid Waste Division regression model  
 - Population estimates compiled by King County and Puget Sound Regional Council

the equation. Once developed, the models are used to predict future waste generation by plugging forecasts of the demographic variables (discussed above) through 2020 into the models to see how they affect future disposal and recycling.

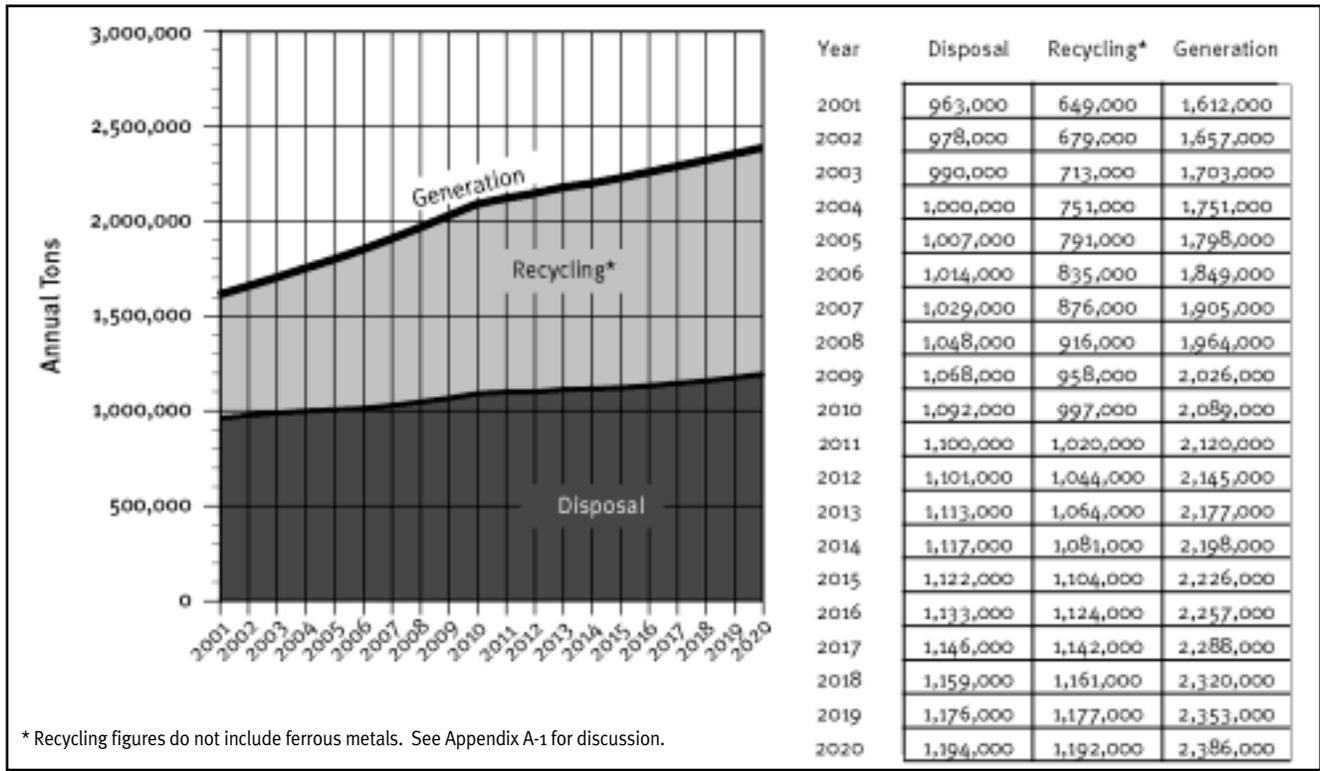
This first step produces what is called a baseline disposal forecast. The term baseline means the forecast assumes that only existing waste reduction and recycling programs are in place. It does not account for any additional waste diversion from baseline disposal expected to result with the implementation of future waste reduction and recycling programs and policies presented in this Plan. Thus, the second step in the forecasting process is to adjust the baseline forecast to reflect the expected additional waste diversion.

Since 1995, the policy set by the King County Council has been, in part, to divert as much material as possible from disposal in a manner that reduces the overall costs of solid waste management. As discussed in

Chapter 4, the recommended approach in this Plan is to strengthen current waste reduction and recycling programs and to implement new programs aimed at market demand. To complete the forecast, additional waste reduction and recycling is estimated and applied to the baseline forecast. The estimated amount of reduction and recycling is subtracted from the amount of waste predicted by the disposal model, and the increased amount recycled is added to the amount predicted by the recycling model. The result is an adjusted estimate of waste disposal and recycling that completes the final forecast of waste generation.

Once complete, the two-step modeling forecast incorporates the projected demographics of the area, waste generation history, and the recommendations of this Plan

**Figure 3-4.** 20-Year Forecast of Waste Generation in the King County Regional System



Source: MMSW Waste Reduction and Recycling Measurement Technical Paper (Appendix B-1)  
 Methodology: Solid Waste Forecast Methodology Technical Paper (Appendix A-1)

into a best estimate of how many tons of waste we can expect to generate annually through 2020. Figure 3-4 presents the final forecast. Table 3-1 (on page 3-8) presents a further breakdown of the forecast by facility. Projected tonnages shown in Table 3-1 do not account for unexpected changes in business practices within the system over time and are for illustrative purposes only.

It should be noted that a forecast is just that – a best estimate of future trends based on data from the past and projections about the future. The Solid Waste Division has refined the forecasting approach over the past decade, as more data have become available and more is understood about factors that influence waste generation and disposal. As described in detail in Appendix A-1, however, the forecast model is subject to uncertainty, including future projections of economic and demographic growth, unforeseen influences on generation patterns from policies and programs, and under or over estimates of the anticipated success of waste reduction and recycling programs. For example, forecasts prepared in 1995 projected that disposal tonnage in 1999 would be 846,000 tons, which turned out to be about 11 percent lower than actual tons disposed that year. The difference between actual vs. realized tonnage can largely be attributed to the unanticipated economic growth in the County between 1995 and 2000. After 2001, the tonnage may change due to the actual and anticipated economic downturn in the county.

**Table 3-1.** 20-Year Forecast of Waste Generation by Facility <sup>a</sup>

Transfer Station and Drop Box Waste	2001	2005	2010	2015	2020
Factoria	164,600	173,000	189,000	193,200	204,500
Houghton	181,900	191,400	209,200	217,100	233,300
Renton	67,200	69,900	75,200	76,100	79,800
Algona	95,500	100,900	110,900	116,800	127,300
Bow Lake	123,200	128,300	138,500	143,800	154,500
First Northeast	58,400	59,500	62,300	61,600	62,900
Enumclaw	20,500	20,900	21,900	20,900	20,600
Cedar Falls Drop Box	3,800	4,000	4,300	4,400	4,700
Skykomish Drop Box <sup>b</sup>	1,000	1,000	1,100	1,100	1,200
Vashon	8,800	8,900	9,300	9,300	9,500
<b>Subtotal Transfer Stations/Drop Boxes</b>	<b>723,900</b>	<b>756,800</b>	<b>820,600</b>	<b>843,200</b>	<b>897,100</b>
<b>Cedar Hills</b>					
Regional Direct	222,700	232,800	252,500	259,400	276,100
Special Waste	2,000	2,000	3,000	3,000	3,000
Other Waste	16,400	17,400	18,900	19,400	20,800
<b>Subtotal Cedar Hills</b>	<b>965,000</b>	<b>1,009,000</b>	<b>1,095,000</b>	<b>1,125,000</b>	<b>1,197,000</b>
<b>MMSW Total</b>	<b>963,000</b>	<b>1,007,000</b>	<b>1,092,000</b>	<b>1,122,000</b>	<b>1,194,000</b>

Notes: a) The forecast is consistent with the Plan as drafted in March 2001, with the following uncertainties:

- Facility tonnage levels are highly variable, primarily due to significant fluctuations in patterns of transfer station use among commercial haulers. These fluctuations are due to internal business reasons, changes in the proportion of tonnage brought as regional direct, changes in traffic patterns, and changes in collection contracts between haulers and cities.
- Since it is not possible to predict changes in hauler patterns, the facility area forecasts listed here are merely the current distribution of tonnage among facilities multiplied by the annual tonnage forecasts, adjusted slightly to account for externally provided forecast changes in population in the area surrounding existing transfer stations.
- The use of these forecasts is very limited: they only reflect the potential distribution of tonnage among facility areas, assuming no changes in patterns of customer use.

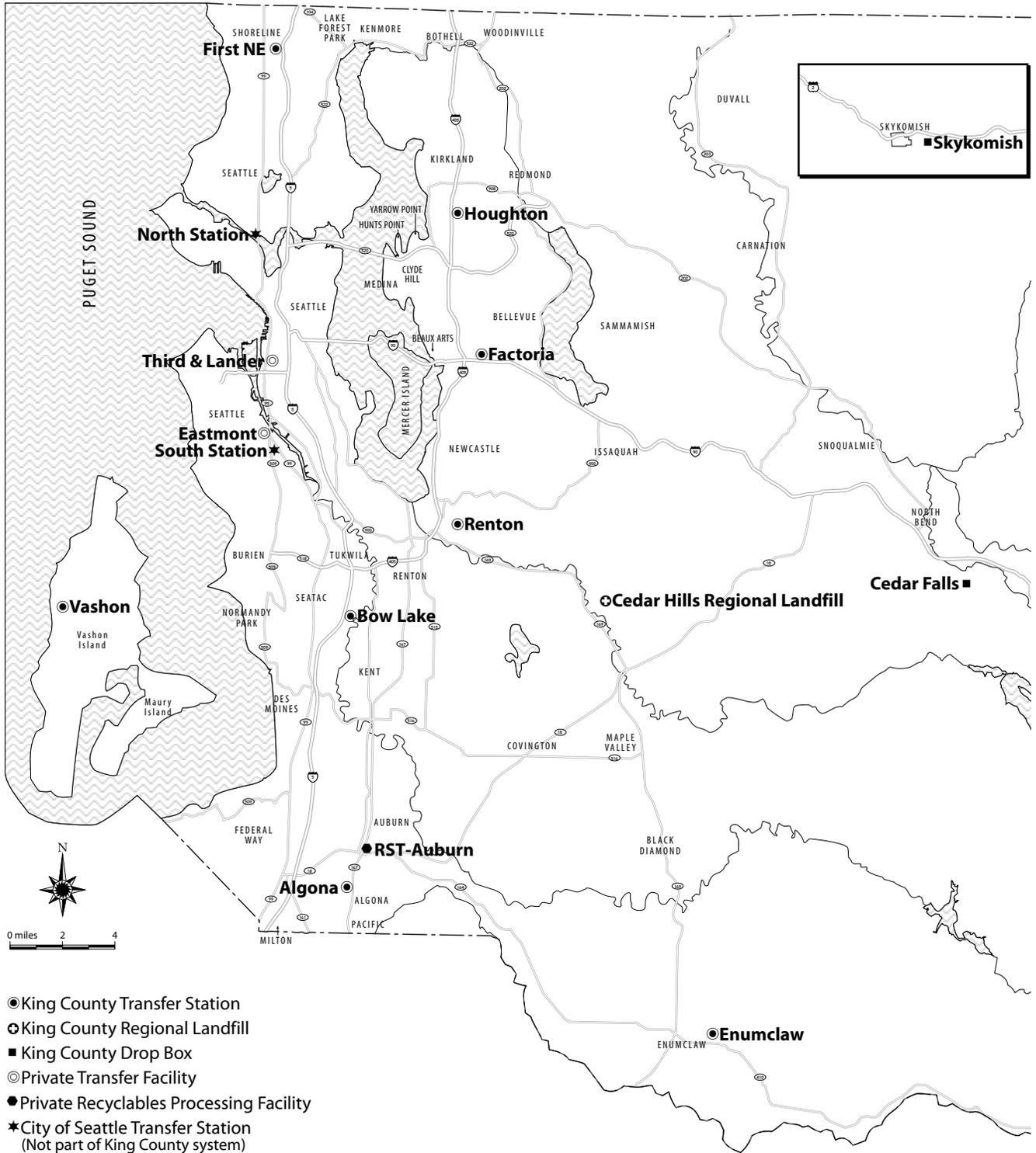
b) Skykomish tonnage is not added to totals (is taken to Houghton and is included in Houghton’s tonnage).

## The Regional Transfer and Disposal System and Its Users

The first part of this chapter describes waste generation by the area’s population – past, present, and future. The other important component in planning for the future is understanding how the existing regional transfer and disposal system works and who uses it.

Figure 3-5 shows the layout of the system of mixed municipal solid waste (MMSW) and mixed recyclables handling facilities across King County, with locations of MMSW transfer stations, drop boxes, mixed recyclables processing facilities, and the Cedar Hills Regional Landfill. King County operates eight of the transfer stations shown in the figure and the two private solid waste management companies in the region operate

Figure 3-5. MMSW and Mixed Recyclables Handling Facilities



two. Both Rabanco's transfer station at Third & Lander and Waste Management's Eastmont transfer station are located in Seattle and serve both the King County and Seattle systems. Seattle also operates two transfer stations in addition to the privately operated stations in its territory. There is also a small recyclables processing facility in Auburn, owned by Waste Management, where some residual wastes are separated from recyclables and transported to the landfill. Disposable MMSW that is transported from County and privately owned transfer facilities within the service area is disposed at the Cedar Hills Regional Landfill. There are four privately owned construction, demolition and landclearing debris handling facilities. Two, the Black River facility and Third & Lander facility are operated by Rabanco. The other two, Eastmont and Argo Yard, are operated by Waste Management. The discussion that follows presents a profile of the regional transfer and disposal system and the customers who use it.



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*A commercial hauler unloads at the Enumclaw Transfer/Recycling Station*

### **Curbside Collection**

Data collected by the Solid Waste Division indicate that about 90 percent of households in the system's service area subscribe to curbside collection. Approximately 87 percent of these households also have recyclables collection. About 75 percent of the waste disposed in the service area is taken to the County's transfer stations where it is consolidated and delivered to the Cedar Hills Regional Landfill. About 23 percent of the waste is transported to the two privately owned transfer stations and then to Cedar Hills for disposal. A small amount of waste, collected from households near Cedar Hills, is also transported directly to the landfill.

Most non-residential customers subscribe to collection services. Only about 5 percent of the waste from the non-residential sector is hauled to the transfer station by the generator instead of a private hauling company.

### **Use of the Transfer Facilities**

Since 1990, the Solid Waste Division has conducted waste monitoring studies and customer surveys at its transfer stations, and made random telephone calls to residents, to characterize the wastes being received and the customers who bring them. About 68 percent of the households in the system's service area report that they never visit a transfer station or drop box. Those that do visit these facilities can be categorized into two basic types of users – the commercial garbage hauler and the self hauler. The commercial garbage haulers provide garbage and recycling collection across the service area. The self haulers are the residential and non-residential customers who choose to bring the garbage and recyclables they generate to the transfer stations themselves.

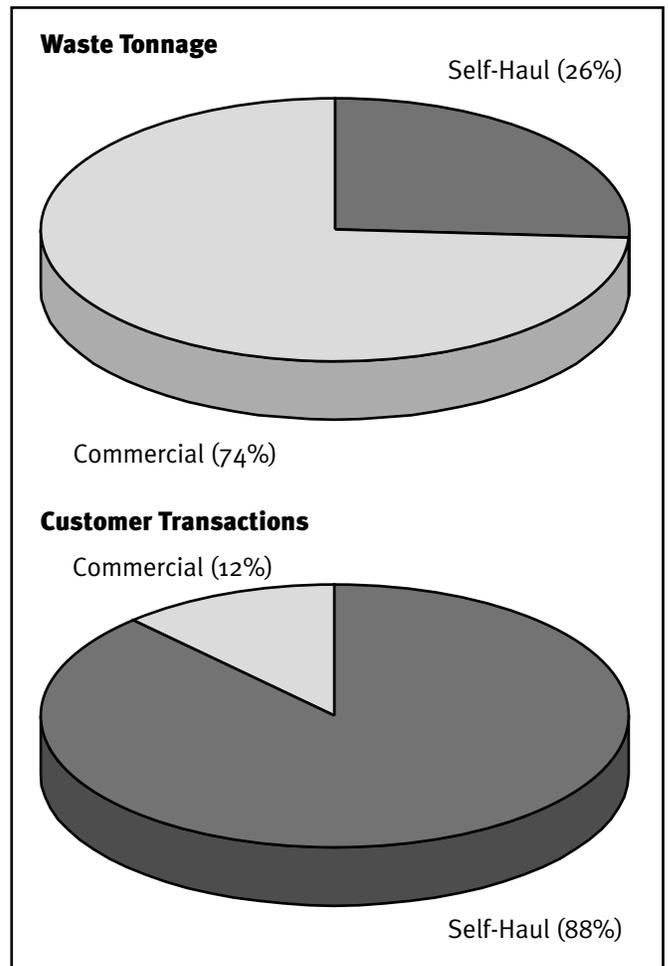
In 2000, Waste Management and Rabanco processed 175,536 and 38,199 tons of the King County system’s MMSW, respectively, through their own privately operated transfer stations. In that same year, County-operated transfer stations and drop boxes received 711,562 tons of MMSW. Seventy-four percent of the waste delivered to the County-operated facilities was brought by the commercial haulers, carrying loads averaging 5.5 tons each. Self haulers brought the remaining 26 percent, with loads averaging around a quarter of a ton. Of the 758,910 individual vehicle transactions at the transfer stations, 88 percent were with self haulers. Figure 3-6 illustrates the mix of tons of wastes and the customers who bring them.

As shown in Figure 3-6, while the majority of the County’s waste tonnage is received from commercial haulers, the overwhelming majority of the transactions are with self haulers. This high level of activity by self haulers has a significant effect on the way the County staffs and manages its transfer facilities.

To gain a better understanding of who the self haulers are and why they self haul, the Solid Waste Division conducts routine customer surveys at the system’s transfer stations. Detailed information about the survey methodology and results is contained in the transfer station customer survey report (Cascadia 2000; Appendix A-2). In summary, the most common reason customers give for bringing their wastes to the transfer station themselves is that they have a large amount of garbage or yard waste, or items too big for curbside pickup. Often a trip to the transfer station is the result of a major cleaning project, remodeling, or landscaping work at a home or business. Of those who use the transfer stations, 27 percent visit no more than once every 6 months; this group represents about 17 percent of the region’s service population.

Nine percent of the self-haul customers visit a transfer station at least once a month; these more frequent customers account for 43 percent of all self-haul trips. Among this group, the most common reasons for self hauling are that they don’t subscribe to curbside collection and they believe that hauling it themselves costs less.

**Figure 3-6.** Mix of Waste Tonnage and Customer Transactions at County Transfer Stations



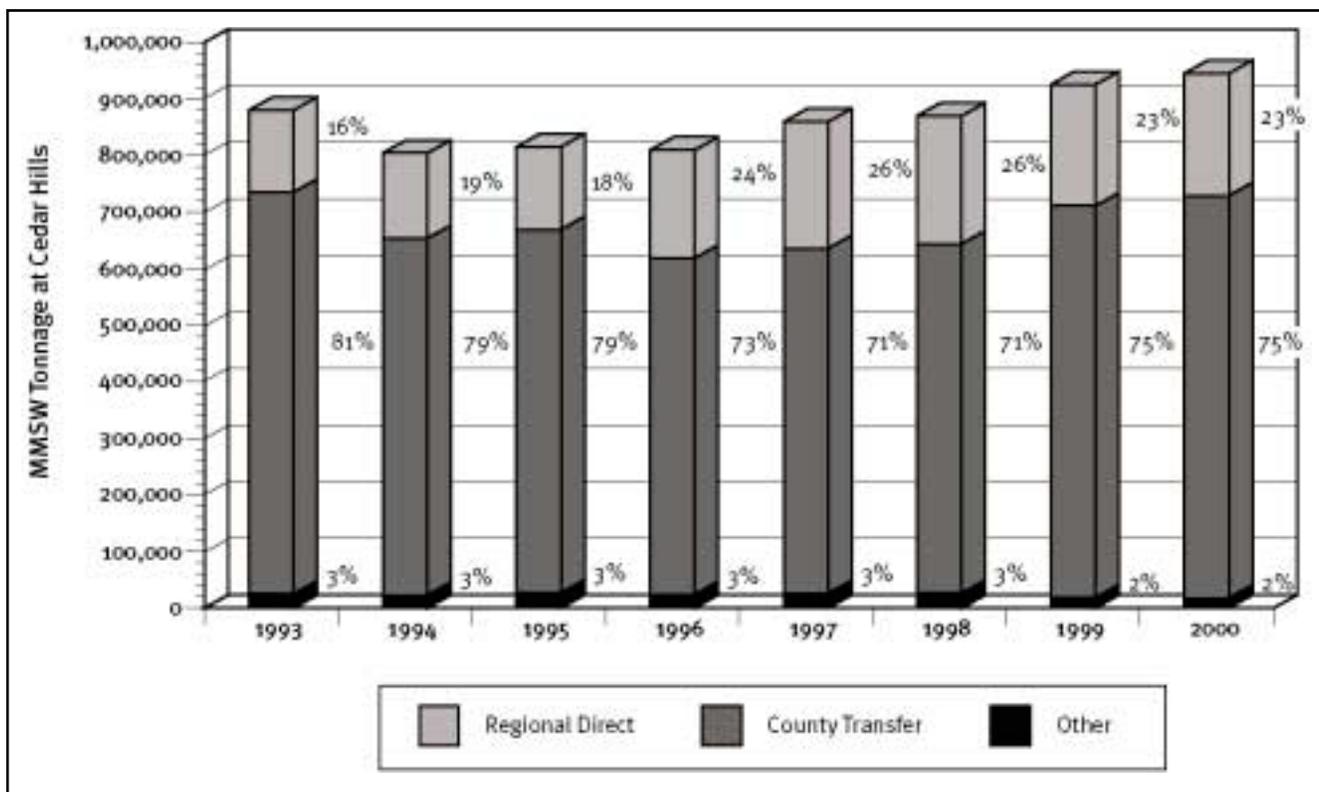
Source: King County Solid Waste Division tonnage and transaction records

### Regional Direct Disposal at the Landfill

When commercial haulers choose to transport wastes via their own transfer stations to the Cedar Hills Regional Landfill, they are charged a lower disposal fee. This fee is called the regional direct fee, which is currently \$23 less than the transfer station tipping fee charged at the County facilities (see Chapter 10 for discussion).

According to County tonnage records, the amount of regional direct waste entering the landfill increased from 16 to 26 percent between 1993 and 1998, but took a downturn in 1999 to 23 percent. Figure 3-7 shows the comparison since 1993. (The drop in total tonnage delivered between 1993 and 1994 was due to a ban on construction, demolition, and landclearing waste at Cedar Hills that began in mid-1993.)

**Figure 3-7.** Trends in Regional Direct Activity at the Landfill



Source: King County Solid Waste Division tonnage and transaction records

## Where Do We Go From Here?

This chapter of the Plan provides a foundation for the chapters that follow. The recommendations presented in Chapters 4 through 10 build upon the current status of the regional customer base and facility infrastructure, as well as projections of future growth and development in the service area.

The King County Solid Waste Division will continue to monitor the type, amount, and generation sources of waste entering the system. This information will be used to formulate and update recommendations regarding facility improvements and operations in the future.

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Chapter  
**4**

## **Waste Reduction, Recycling, and Market Development**

As our regional population and economy continue to grow and waste generation is on the rise, reduction and recycling continue to be our most important allies for managing solid waste in the future. With this Plan, we build upon policies and programs that began in the late 1980s when King County established waste reduction and recycling as top priorities for managing solid waste. King County’s recycling estimates, along with Washington Department of Ecology survey data, show that the amount of waste diverted each year from the Cedar Hills Regional Landfill to the recycle bin has increased by more than 250 percent since 1987. Waste reduction and recycling have proven to be environmentally sound and cost-effective strategies for managing solid waste – strategies that are backed by strong public support. The question for the future becomes – how do we build on this momentum?

This chapter sets out to answer that question. The chapter first presents the County’s policies on waste reduction and recycling. The remainder of the chapter helps to set the stage by first reviewing the history and successes that have been achieved since the late 1980s, when the cities and the County launched many of the programs that have helped us reach our goals thus far. Following this review is discussion of the new regional goal for waste reduction and recycling that will carry us through the next 20 years, with quantitative targets for measuring our success in reaching that goal. Next is a summary of the County’s methods for assessing the recyclables market in the region – information that is critical in establishing appropriate program levels. And finally, the chapter presents the multi-faceted recommendation for waste reduction and recycling, with all of its associated enhancements to regional programs, services, and facilities.

### **County Waste Reduction and Recycling Policies**

The County policies for waste reduction and recycling are as follows:

**WRR-1.** The council finds that existing county policies for waste reduction and recycling have been valuable for guiding the efforts of King County, suburban cities and the private sector. These policies recognize that successful waste reduction and recycling efforts depend on changing the behavior of individuals and organizations rather than accommodating existing behavior. Based on these findings, the mission of King County's waste reduction and recycling programs is to divert as much material as possible from disposal in a manner which reduces the overall costs of solid waste management to county residents and businesses, conserves resources, protects the environment and strengthens the county's economy. The county should evaluate its success in achieving this mission through measures that are consistent with:

1. Decreasing the total amount of waste generated and disposed per county resident, acknowledging that business activities, average household size and other external factors affect this amount.
2. Recycling additional materials out of its disposal stream at least as long as such action is likely to create a long-term, net economic benefit compared to the costs of disposal. An analysis of the costs and benefits of recycling should include current and projected values for collection, hauling and processing costs and the return in commodity prices for recycled materials versus the current and projected costs of collection, hauling and disposal of the same materials.

**WRR-2.** The county should enhance existing waste reduction and recycling programs, add more recycling opportunities at county transfer stations, pursue markets for additional diversion of organic materials, and increase marketing efforts to support and further waste reduction and recycling goals.

**WRR-3.** The county and cities should manage solid waste generated by their respective agencies in a manner that demonstrates leadership for residents, businesses, and institutions.

**WRR-4.** The county shall encourage and promote waste reduction and recycling in order to reduce the amount of solid waste disposed in the Cedar Hills Regional Landfill or through waste export.

**WRR-5.** The county should use the following measurement targets to identify the region's effectiveness in meeting objectives in waste reduction and recycling. These targets should be evaluated at least every three years when data becomes available from the waste monitoring studies.

1. Disposal rates per residential customer should be held constant throughout the planning period. The residential target is 18.5 pounds of solid waste per person per week calculated by dividing the estimated amount of waste disposed by households by the estimated number of residents in the county's solid waste system.
2. Disposal rates for per employee should be held constant throughout the planning period. The employee target is 23.5 pounds of solid waste per employee per week calculated by dividing the estimated amount of waste disposed by businesses in the county by the estimated number of employees.

3. The curbside and on-location recycling rates for single family, multi-family and non residential entities should be increased over the planning period as follows:

Year	Single Family (1 to 4 Dwelling Units)		Multi-Family (5 or more Dwelling Units)		Non-Residential
	Curbside Recycling Rate (percent)	Curbside Disposal Rate (lbs/household/week)	Recycling Rate (percent)	Disposal Rate (lbs/household/week)	Recycling Rate (percent)
2006	50%	31.4 lbs.	35%	20.8 lbs.	43%
2012	52%	30.7 lbs.	40%	20.3 lbs.	46%
2018	53%	30.5 lbs.	40%	20.1 lbs.	48%

**WRR-6.** The county should provide grant funding to cities to support their waste reduction and recycling programs for which all cities will be eligible. Grant funds are intended to implement recommendations in this plan, based on the communities' prioritized needs.

**WRR-7.** The county shall coordinate with cities in planning and implementing waste reduction and recycling programs, and in designing and conducting future studies and market assessments for the region.

**WRR-8.** The county and cities should hold annual meetings to coordinate work plans and ensure that grant-funded and county programs are coordinated and complementary.

**WRR-9.** The county should provide drop box collection sites for primary recyclables to serve areas where household collection is not provided.

**WRR-10.** The county should, where feasible, provide areas for expanded collection of secondary recyclable and reusable materials at new and upgraded transfer stations.

**WRR-11.** The county and the rural cities should periodically assess the feasibility of expanding curbside collection of recyclables in rural areas not currently receiving this service.

**WRR-12.** The county and cities should add secondary recyclables to collection programs when feasible and supported by the community.

**WRR-13.** Cities should consider providing scheduled events to collect secondary recyclables at selected sites.

**WRR-14.** Those cities exercising contracting authority for solid waste collection should consider including collection of recyclables in the waste collection service offered to both residents and businesses.

**WRR-15.** The cities and county should provide coordinated education, promotion, incentive, and technical assistance programs to businesses, residents and schools for waste reduction, source reduction, resource conservation and recycling.

**WRR-16.** The county should provide technical assistance to manufacturers in the use of recycled materials and the application of product stewardship principles.

**WRR-17.** The county should encourage the cities to establish rate-based incentives for solid waste collection services that encourage participation in recycling programs and reduced generation of garbage.

**WRR-18.** The county should promote environmentally sound management of all organic materials in the mixed municipal solid waste stream.

**WRR-19.** The county should implement programs that are designed to increase the demand for recycled and reused products, create and sustain markets for recycled materials, and integrate waste reduction and recycling programs with other resource conservation activities.

**WRR-20.** Using waste characterization studies and market assessments, the county should regularly evaluate regional recycling markets and technologies to ensure that programs and services support the region's recycling and waste reduction goals.

**WRR-21.** The county should work with cities and private collection companies to develop programs to improve the recycling rate in the small business community.

**WRR-22.** The cities and the county should address the needs of small businesses by providing technical assistance and programs that target recycling and waste reduction in the workplace.

**WRR-23.** The county should promote material exchanges and reuse centers and evaluate other venues for reuse.

**WRR-24.** The cities and county should provide for collection of primary recyclables including glass, tin and aluminum cans, mixed waste paper, newspaper, #1 and #2 plastic bottles, and yard waste and evaluate adding other materials as either primary or secondary recyclables by targeting specific commodities.

**WRR-25.** The county should target primary residential recyclables, yard debris, food waste and compostable paper, non-residential paper and cardboard, and green and urban wood for future diversion from the waste stream through recycling or waste reduction.

**WRR-26.** The county shall update the list of secondary recyclables yearly in its annual report based on state recycling survey data and information from city and county programs.

**WRR-27.** The county should work with the cities, commercial haulers and the public to identify new materials to be designated as primary recyclables.

**WRR-28.** The county should develop and implement a regional product stewardship strategy, provide technical assistance to manufacturers in the use of recycled materials and the application of product stewardship principles.

**WRR-29.** The county should pursue product stewardship strategies to reduce costs of waste disposal, to place more responsibility on manufacturers to reduce toxicity of their products, to conserve energy, and to plan for product reuse and recycling in product development.

**WRR-30.** The county shall maintain government procurement policies that favor the use of recycled and environmentally preferable products.

**WRR-31.** The county should implement and promote the green building principles in all county-funded capital projects.

**WRR-32.** The county should foster sustainable development through promotion of sustainable building principles in construction projects throughout the county.

**WRR-33.** The county should promote reuse and recycling of source separated construction, demolition and land clearing materials through participation in organizations like the Reusable Building Materials Exchange.

**WRR-34.** The county should foster sustainable building principles through public education and partnerships with organizations such as the U.S. Green Building Council.

**WRR-35.** The department of natural resources and parks should develop and promote landscape best management practices, including water conservation, reduced use of pesticides, and grasscycling.

**WRR-36.** The county shall make recycling a priority at new and renovated transfer stations by maximizing recycling opportunities while taking into consideration user needs, site constraints, costs and benefits, and market availability. The county should evaluate the potential for accepting new recyclable materials at county facilities. Potential new recyclable materials include, but are not limited to: scrap and processed metal, used oil and antifreeze, computers, recyclable construction and demolition debris, household hazardous waste, and reusable household items.

**WRR-37.** Where feasible, the county should provide areas for source-separated yard waste collection at all existing, new or upgraded transfer stations and drop boxes.

**WRR-38.** The county shall implement programs to provide for affordable collection and recycling of woody debris generated by major storm events or for residents in areas affected by the Puget Sound Clear Air Agency's burn ban.

**WRR-39.** The county should work to convert landfill gas, a valuable green resource, into a marketable energy product as soon as possible.

## What Have We Gained through Our Regional Efforts?

In the late 1980s, waste reduction and recycling became the primary methods of managing solid waste in the King County regional system (RCW 70.95 and KCC 10.22).

The County worked with the private hauling companies and cities to establish curbside recycling throughout the region. To support the shift in strategy from waste disposal to reduction and recycling, the cities and the County also established numerous programs for education and technical assistance and conducted extensive research to find new ways to recycle and reuse material that would otherwise be thrown away. Programs have been developed to address the needs of our diverse customers, from households and businesses to schoolchildren. The *Master Recycler Composter Program*, the *Green Works Business Recycling Program*, and *Hazards on the Homefront* are just a few of the popular programs offered in King County.

Many of the city and County programs have received recognition and awards for their successes at the national, state, and local levels.

The cities and the County have become leaders in the promotion of waste reduction and recycling by working cooperatively on a number of region-wide programs. The



More and more businesses in King County are recycling plastic films such as shrink wrap and pallet wrap

cities provide programs and services for their residents and businesses, while the County’s Waste Reduction & Recycling Section supports programs regionally and in unincorporated areas. In addition, the Solid Waste Division of the King County Department of Natural Resources and Parks researches and supports vital markets for recyclable materials. A comprehensive list of programs and activities, and associated responsibility for carrying them out, is presented in Table 4-3 at the end of this chapter.

Provided below is a brief snapshot of the history of waste reduction and recycling in the region, followed by a look at current public opinions.

**The History**

In 1987, about 800,000 tons of mixed municipal solid waste (MMSW) was disposed at King County’s landfills, resulting in an overall disposal rate of about 1,800 lbs per person per year (King County disposal records and *Annual Growth Reports*). The trends for waste disposal were rising steeply, up from an annual disposal rate of about 1,120 lbs per person in 1975. Solid Waste Division (Division) forecasts during this period predicted that the Cedar Hills Regional Landfill would be filled to its permitted capacity by 2004. The availability of replacement landfills was uncertain, and County plans to construct incineration plants proved to be infeasible because of public concerns about health and environmental impacts.

In 1989, the state adopted the Waste Not Washington Act to ensure that recycling services were made available to all residents living in urban areas. By 1988, the King County Council had already established a more aggressive goal for waste reduction and recycling – to divert 50 percent of the waste stream from disposal by 1995 and 65 percent by the year 2000. To respond to Council and state legislative directives, numerous waste reduction and recycling programs were set in motion to preserve the life of the landfill and delay the need to construct any new disposal facilities. Educational and technical assistance programs to promote and educate about recycling and reuse were offered to a diverse audience of community residents, businesses, and schools.

Through the cooperative efforts of the cities, County, residents, businesses, private recycling firms, and solid waste management companies, between 1987 and 1992 the region’s waste reduction and recycling rate increased from around 18 to 35 percent. This success was due in large part to the implementation of residential curbside recycling throughout the

King County regional system. In 1995, we reached the 50 percent mark, through continued improvements in recycling habits and more attention to waste reduction.

It soon became clear, however, that it was difficult to accurately measure the two very different activities of reduction and recycling with a single, combined numerical goal. First, it is difficult to quantify waste that is never generated when successful



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Recycle Week programs encourage the public to improve their recycling habits and to practice waste reduction

reduction programs are implemented. Second, the amount of waste being recycled has not been well documented among the different agencies and private firms that handle it. In 1995, the King County Council replaced the single, numerical goal with a two-tiered goal. The first component is a mission – to divert as much material as possible from disposal in a manner which reduces the overall costs of solid waste management to county residents and businesses, conserves resources, protects the environment and strengthens the county’s economy (KCC 10.22.035). The second component is a more comprehensive and understandable method for measuring our progress in attaining this mission, including specific targets for residential and business recycling and disposal, as well as measures of the success of specific programs.

Since 1995, the amount of material recycled and reduced has continued to increase, but so has overall waste generation in the region, due to population, economic, and employment growth (discussed in more detail in Chapter 3). After declining to about 1,500 lbs per year in 1996, the per capita disposal rate has risen to 1,650 lbs per year in 2000 (King County disposal records). Again, this increase can be explained by regional economic growth, which leads to increases in production and consumption, and hence waste generation. It is important to note that this per capita disposal rate is still far lower than the 1989 prediction for per capita disposal of 2,486 lbs in 2000, which was expected in the absence of waste reduction and recycling programs (*1989 Comprehensive Solid Waste Management Plan*). Figure 4-1 shows the per capita recycling and disposal in lbs per year from 1977 to 2000.

It is difficult to quantify the many benefits of our regional waste reduction and recycling efforts over the last 12 years. Four benefits, however, are clear:

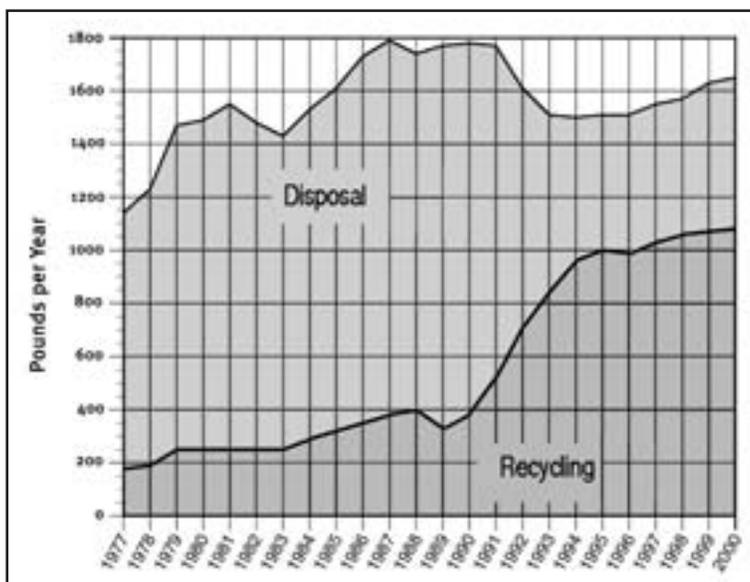
#### Extended life of the Cedar Hills Regional Landfill

The life of the landfill has been extended by approximately 8 years. In addition, successes in waste reduction and recycling have given the County flexibility in how the landfill is developed.

#### Avoided disposal costs

According to surveys conducted by the Washington Department of Ecology and the forecasting model generated by the County, from 1988 through 1999, about 5 million tons of waste was recycled (excluding ferrous metals) in King County. At an avoided disposal cost of \$20 per ton (the approximate direct cost per ton of disposing MMSW at Cedar Hills), the total savings in avoided costs was about \$100 million for County ratepayers.

Figure 4-1. Per Capita Recycling and Disposal Since 1977



### Avoided collection and transfer costs

A 1996 cost/benefit analysis prepared for the County by the Sound Resource Management Group estimated that the net marginal benefit of curbside recycling is \$40 per ton. This estimate includes savings in transfer and short-haul costs and benefits from the sale of recyclable material, less the costs of collection, transfer, and processing. The estimate applies to curbside recyclables only, and is in addition to the avoided disposal costs.



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King County's private-sector recycling industry employs more than 3,000 people

### Economic opportunities

The growth in the recycling industry has also resulted in growth of the King County economy. In 1995, a Division survey found that more than 3,000 people in King County were employed in the private-sector recycling industry, and almost \$160 million worth of private capital was invested in recycling activities (*Summary Report of 1995 Surveys of Washington State Recycled Material Collectors and Haulers, Transporters, Processors, and End Users*, 1996).

### Public Opinion About Waste Reduction and Recycling

Waste reduction and recycling goals are only attainable through public involvement and support. King County surveys have consistently shown strong public support for these activities. In 2000, the Division conducted a telephone survey of King County residents and found the following:

- 77 percent of residents who live in single-family homes or buildings with four units or less participate in curbside recycling; 82 percent of them indicate they are “satisfied” or “very satisfied” with their service
- 64 percent of residents said they recycle for environmental/conservation reasons; other motivators include financial benefits, convenience, and civic responsibility

This is the kind of support that will help ensure success in meeting our future goals for waste reduction and recycling.

### Where Do We Go From Here?

Both public attitudes and the numbers support the continuation of waste reduction and recycling programs and services in our region. With this 20-year planning period, the King County Council asked the Division and the cities to review the numerical waste reduction and recycling goal and consider developing a new goal that better expresses our long-term objectives and incorporates a way to measure our effectiveness more accurately (KCC 10.22.035). The section that follows presents a new recommended goal, on which our plan for the future is based.

## Development of the Region’s Waste Reduction and Recycling Goal for the Next 20 Years

As stated earlier, the combined, numerical goal for waste reduction and recycling proved difficult to accurately measure over time. Through the cooperative efforts of the County, the cities, and the Solid Waste Advisory Committee, a single two-tiered goal was developed. The first tier of this goal consists of six broad-based objectives established to guide the region’s programs and policies for the future. The second tier comprises specific ways to evaluate our progress in fulfilling those objectives – called measurement targets. These objectives elaborate on the mission for waste reduction and recycling, established by the King County Council in 1995, to divert as much material as possible from disposal.

The six objectives, comprising the first tier of the goal, are as follows:

1. Increase efforts to encourage and promote waste reduction and its long-term benefits
2. Increase the region’s recycling successes by continually improving recycling programs, while increasing incentives for waste reduction
3. Increase the demand for recycled and reused products, and create and sustain markets for recycled materials
4. Enhance resource conservation efforts by integrating waste reduction and recycling with other programs and promoting product stewardship
5. Foster sustainable development through promotion of sustainable building principles in construction projects throughout King County
6. Manage solid waste generated by city and King County governmental agencies in a manner that demonstrates leadership for residents, businesses, and institutions

The second tier of the goal – the measurement targets – warrant more explanation. The challenge is to identify reliable ways to measure the region’s effectiveness in achieving the waste reduction and recycling mission. For reasons explained below, two types of measurement targets were developed – referred to as first-level and second-level targets. All of the targets are intended to be easy to understand, measurable using available data, and useful in evaluating the effectiveness of individual programs.

Data to track these targets will come from a variety of sources, such as waste monitoring reports, Division disposal records, collection reports submitted to the Division by the private collection companies, the Washington Department of Ecology Annual Recycling Survey, and others. Appendix B-1 discusses these targets and how they are measured in greater detail.

*The Green Globe Awards program recognizes the outstanding efforts of businesses to reduce waste and recycle*



### First-Level Measurement Targets

The recommended first-level measurement targets, which will hold per resident and per employee disposal rates constant throughout the planning period, are as follows:

- **Per resident disposal rate of 18.5 lbs per week.** This rate is calculated by dividing the estimated amount of waste disposed by households by the estimated number of County residents.
- **Per employee disposal rate of 23.5 lbs per week.**

This rate is calculated by dividing the estimated amount of waste disposed by businesses in the County by the estimated number of employees.

These measurements are considered first-level targets for several reasons:

- The targets focus on disposal and indicate the combined effects of waste reduction and recycling by tracking the progress of both desired behaviors. By contrast, a recycling rate only measures progress in recycling - not waste reduction.
- The targets are overall indicators of success in recycling and waste reduction among households and businesses. They provide a comprehensive measure of progress, rather than detailed information about specific programs or waste materials.
- The targets are meaningful and easy to comprehend. Individual citizens can understand and control the amount of waste they dispose of each week.

There are several reasons why these particular first-level measurement targets (per-resident and per-employee disposal) were selected:

- The targets allow residential and non-residential waste disposal activity to be tracked separately (alternatively, having a per-capita disposal measure would combine residential and non-residential disposal). This is important because factors affecting residential disposal can differ from those affecting non-residential disposal, and different policies and programs are often directed at residences and businesses. Having two measures allows for a snapshot of how well residences and businesses are doing at recycling and reducing waste.
- The targets are specified in terms of per-resident or per-employee and they adjust for the fact that overall disposal levels will increase due to growth in the number of residents and employees.
- The targets allow for flexibility in how they are attained. Over the next 20 years, new waste types and/or sources may emerge, requiring additional program enhancements and priorities. For example, to keep residential disposal constant, it is possible that increased attention will be paid to reducing organic materials in the waste stream, or additional attention might be paid to reducing disposal among multi-family residents.
- The targets are relatively easy to measure using data on total disposal (from Solid Waste Division tonnage and transaction records), the portion of waste disposed by residential vs. non-residential customers (from waste monitoring studies), and the number of residents and employees in the County (compiled annually in the *King County Annual Growth Report*).

The Plan proposes that these targets be evaluated every three years, when new data become available from the waste monitoring studies.

First-level targets for the planning period are consistent with the tonnage forecasts in this Plan. They were derived by dividing forecasts of residential and non-residential disposal by forecasts of future population and employment, respectively. The disposal forecasts factor in the implementation of proposed enhancements in the County's waste reduction and recycling programs. As a result, the disposal targets reflect projected reductions of certain commodities in the waste stream. The targets are aggressive because several external factors tend to increase overall waste disposal. Historical data show that disposal increases when income and employment activity rise and household size decreases. Such trends are anticipated to continue into the future, suggesting that without additional waste reduction and recycling, per resident and per employee disposal would increase. Meeting the first-level targets, therefore, hinges on reducing the amount of waste disposed in the region through aggressive waste reduction and recycling practices.

## Second-Level Measurement Targets

The second-level measurement targets are more detailed than the first-level targets. They provide more information about progress in waste reduction and recycling among specific generator types and commodity groups. These targets are more useful for evaluating the success of specific programs and services, and for identifying trends in recycling and disposal activity. In some cases, information to evaluate the targets is limited. As a result, they are generally more appropriate for program managers than the general public.

The second-level measurement targets include:

- Recycling rates for single- and multi-family households and non-residential entities
- Disposal rates for single- and multi-family households
- Per resident and per employee disposal rates by specific commodities, such as yard debris, food, and paper
- Individual program successes

As with the first-level targets, the second-level targets will be reviewed in conjunction with the cycle of waste monitoring studies and will be adjusted as new information becomes available and program priorities or market conditions change.

The numerical targets for recycling and disposal rates over time are shown in Table 4-1. They are intended to be consistent with the first-level targets. The purpose, definition, and data sources underlying each of these targets is explained in Appendix B-1. However, it is important to briefly explain them here:

- The *single-family curbside recycling rate* is the annual tons of MMSW recycled by single-family households through curbside programs divided by the total annual tons of single-family curbside MMSW collected. A measure for curbside programs is included because it is an important component of many cities' recycling programs.

**Table 4-1.** Second-Level Measurement Targets for Recycling and Disposal

Year	Single Family		Multi-Family		Non-residential
	Curbside Recycling Rate (percent)	Curbside Disposal Rate (lbs/household/wk)	Recycling Rate (percent)	Disposal Rate (lbs/household/wk)	Recycling Rate (percent)
2000 (estimated)	47%	32.4	34%	21.4	37%
2006	50%	31.4	35%	20.8	43%
2012	52%	30.7	40%	20.3	46%
2018	53%	30.5	40%	20.1	48%

- The *single-family curbside disposal rate* measures the pounds of MMSW disposed per household per week. This measure differs from the first-level target of per resident disposal because the measure only includes single-family residences; it does not include residential waste brought by self-haulers; and it is expressed in per-household terms rather than per-resident. The curbside disposal target decreases over time, largely because national demographic trends strongly suggest that average household sizes will decrease. If the first-level target is met (per-resident disposal remains constant), and there are fewer people per household, household disposal will decrease.
- The *multi-family recycling rate* is the annual tons of MMSW recycled by multi-family residences divided by the annual tons generated (recycled and disposed). Although data sources for this measure are not very well developed, the measure is included because multi-family recycling is becoming an increasingly important component of county-wide recycling programs.
- The *multi-family household disposal rate* is an estimate of the commercially collected MMSW disposed by multi-family households, divided by the estimated number of multi-family households in the County.
- The *non-residential recycling rate* is the estimated annual tons of MMSW recycled by non-residential sources, divided by the annual tons generated by such sources. Similar to multi-family recycling, data for this measure are limited. However, the measure is included because non-residential recycling is an important component of county-wide recycling programs.

Although too detailed to list here, targets for measuring success in recycling or reducing disposal of specific commodities – such as primary and secondary recyclables, and organic materials – are provided in Appendix B-1. These targets will help measure the success of individual programs directed at these commodities.

Most individual programs for waste reduction and recycling incorporate built-in mechanisms for measuring their success. For example, the region’s ability to foster sustainable development is measured by tracking the number of houses built under the *Built Green*™ program each year or the number of commercial buildings certified under the *Leadership in Energy & Environmental Design* program sponsored by the U.S. Green Building Council.

The Solid Waste Division of the King County Department of Natural Resources and Parks is developing measurements to evaluate markets for recycled products, monitor consumer preference for recycled-content materials, and track sales of recycled-content products.

The six objectives and associated measurement targets together form the recommended regional goal for future waste reduction and recycling efforts.

## Designation of Recyclable Materials

State statute RCW 70.95.090(7)(c) requires that local solid waste plans include a process for designating which materials will be collected for recycling. King County has classified recyclables into two categories – primary and secondary. Primary recyclables include:

- Newspaper
- Cardboard
- High-grade office paper
- Computer paper
- Mixed paper (may include paper grades listed above)
- PET (#1) and HDPE (#2) bottles, clear and colored
- Yard waste (less than 3 in. in diameter)
- Glass containers (flint, amber, and green)
- Tin cans (steel cans)
- Aluminum cans



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*Primary recyclables are collected at the curb*

The private solid waste management companies that provide curbside collection services in the region are required to collect these materials, at a minimum. Drop boxes that serve the rural areas, operated by the County or cities, must also accept these materials.

Secondary recyclables are those with generally limited markets, a lack of collection systems, or a limited number of generators of the material. They include:

- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li>• Polycoated paper-board</li> <li>• All plastics except PET and HDPE bottles, which are primary recyclables</li> <li>• Bulky yard waste (greater than 3 in. in diameter)</li> <li>• Wood</li> <li>• Food waste</li> <li>• Compostable paper</li> <li>• Appliances (white goods)</li> </ul> | <ul style="list-style-type: none"> <li>• Other ferrous metals</li> <li>• Other non-ferrous metals</li> <li>• Textiles</li> <li>• Stable wastes (animal manure and bedding)</li> <li>• Motor oil</li> <li>• Oil filters</li> <li>• Latex paint</li> <li>• Antifreeze</li> <li>• Brake fluid</li> <li>• Carpet</li> </ul> | <ul style="list-style-type: none"> <li>• Electronics</li> <li>• Reusable household and office goods</li> <li>• Reusable building materials</li> <li>• Concrete</li> <li>• Toilets</li> <li>• Tires</li> <li>• Batteries</li> </ul> |
|---|---|--|

Cities that contract for recyclable collection can opt to add these materials to household collection, commercial collection, or drop box programs. Unincorporated King County and cities where solid waste collection is regulated by the Washington Utilities and Transportation Commission (WUTC) can add these materials to residential household collection through amendments to service-level ordinances and WUTC notification procedures.

To designate new materials as primary recyclables, King County, the cities, and the private collection companies must agree that the material can be collected economically throughout the County and that there are sustainable markets for the material. To determine if there is such a consensus will require that the County work with the cities, the collection companies, and the public. Any changes in the list of primary recyclables must be coordinated with the existing city collection contracts. Changes must be coordinated with the collection companies as well to minimize their capital investment costs associated with any added collection. This process will be initiated as conditions warrant throughout the planning period.

It is expected that the list of secondary recyclables will continue to grow as new beneficial uses are found for materials currently disposed in King County. The list of secondary recyclables will be updated annually by the Division based on state recycling survey data and information from city and County programs.

## Assessment of Recycling Potential in the Region

In addition to measuring the effectiveness of existing programs and services, it is important to continually evaluate regional markets and technologies to ensure those programs and services are doing everything they can to support the region's goals. The Division uses two primary tools for that purpose – periodic waste characterization studies and market assessments conducted under the Division's ongoing Waste Monitoring Program (reports contained in Appendix A-2 and B-3, respectively). The County will work more closely with the cities in designing and conducting future studies and market assessments for the region.

An important step in establishing regional measurement targets is understanding what makes up the disposed waste stream and how much of that stream could be cost effectively recycled, reused, or reduced. Some of the key questions to consider include:

- What are the largest components of the waste stream that, because of their quantity, offer the greatest potential for reducing disposed tonnage?
- Are existing collection systems fully utilized?
- What is the capacity of processing facilities and end markets to handle additional tonnage?
- What are the costs and challenges involved in developing alternative collection systems to divert additional materials?
- How much ability does local government have to influence markets for specific materials?
- What smaller components of the waste stream are good targets for diversion programs because of their high value end use?

The Division conducts a waste characterization study every three years that provides detailed information about what materials are being disposed and by whom – single family residents, multi-family residents, or businesses. The most recent study was completed in 2000.

The 2000 waste characterization study identified several materials that are still prevalent in the disposed waste stream and thus are likely targets for increased diversion through waste reduction or recycling:

- **Primary residential recyclables:** There are still more than 100,000 tons per year of recyclable paper grades, glass, steel and aluminum containers, and #1 and #2 plastic bottles in the residential waste disposal stream. Curbside recycling is available for these materials in most of King County, and is often more cost effective than disposal. A 1995 study prepared for the Division by Sound Resource Management Group estimated that each additional ton diverted from residential disposal to existing curbside recycling programs would reduce the per ton cost by \$2.00.
- **Yard debris:** About 70,000 tons per year of yard debris is being disposed. Nearly half of the yard debris is taken to transfer stations by self haulers because of the limited availability of facilities that accept source-separated debris.
- **Food waste and compostable paper:** About 138,000 tons per year of food waste is disposed, in addition to about 50,000 tons of compostable paper (paper not suitable for recycling as mixed waste paper). Food waste represents a growing percentage of the waste stream, increasing from around 12 percent in 1994 to 15 percent in 2000. Food waste can be composted and used as a soil amendment product. Currently, there is not sufficient capacity among the existing regional compost facilities to handle the volume of food waste generated. In addition, there are cost and environmental issues associated with collecting source-separated food wastes.
- **Non-residential paper and cardboard:** About 80,000 tons of paper and cardboard, one of the largest components of the non-residential waste stream, is still being disposed. These materials are generally of higher value than the mixed paper collected from residences. Unlike residential collection, non-residential recycling costs are not embedded in the garbage collection rate. Consequently, non-residential recycling costs vary according to fluctuating commodity markets, and recycling service may not be economical for small or outlying businesses.
- **Green and urban wood:** About 67,000 tons of recyclable wood is still disposed. Green wood consists of materials such as stumps, limbs, and small trees. Urban wood is primarily building materials and pallets. Like commercial paper, there are established facilities for using these types of wood, but fluctuating market prices do not always encourage recycling.

*Consumer preferences and sales of recycled content products are evaluated through programs such as Get in the Loop*



Every three years, the Solid Waste Division conducts market assessments for recyclable materials in the King County area to adapt its programs to emerging market needs. They look not only at the amount of materials being recycled but also at opportunities to influence the market in using those recycled materials. The market assessments seek to answer the following questions:

- What problems, if any, exist with the supply, demand, or infrastructure – *is there a need?*
- What potential exists to either expand demand or increase supply to existing or anticipated end markets – *is there an opportunity?*
- Can King County on its own or in partnership with other local governments affect the supply, demand, or infrastructure for each targeted material – *is there an ability to influence?*

The Solid Waste Division uses information from these assessments to rank recyclable materials as high, medium, or low priority and then focus technical assistance and marketing programs on the materials with the highest rankings. Using this information along with the waste characterization study, the Division is able to assess the potential for recycling specific materials and develop programs that target them. Table 4-2 lists various recyclable and reusable commodities ranked by priority and summarizes the status of the market for each, as well as existing and planned programs. This information was used in the development of recommendations presented in this chapter.

## Issues

Several broad issues need to be addressed to enable the region to meet the aggressive goals for waste reduction and recycling for the next 20 years, including:

- How to improve opportunities for the collection and composting of organic materials
- How to improve the overall availability of recyclable materials collection and processing
- How to foster product stewardship
- How to improve recycling opportunities for construction, demolition, and landclearing debris (CDL)
- How to identify and develop future markets for recyclable materials
- How to foster sustainable building practices throughout King County

Each of these issues is discussed in some detail in the sections that follow. A final section presents the proposed recommendation for this planning period and a detailed account of the programmatic and administrative changes that would accompany it.

**Table 4-2.** Market Assessment for Recyclable and Reusable Commodities

Commodity Group	Year 2000 Estimated Tons Disposed as MMSW <sup>a</sup>	Percentage of MMSW Stream	Challenges to Increasing Diversion	State of the Market	Existing Program Coverage	Proposed Action
<b>Market Potential: High</b>						
Food waste and combustible paper	186,200	19.7%	Resolving issues regarding cost and environmental impacts of collection	Potentially insufficient processing capacity; if diversion increases, additional end-product markets needed	Initial studies and pilot programs; generator profiles, growth trials, consumer attitudes toward source separation; additional study of processing options underway	Initiate pilot programs to test residential collection with yard waste; develop strategies to increase processing capacity and strengthen end-use markets, as needed
Urban wood <sup>b</sup>	65,000	6.9%	Achieving greater participation in on-site source separation programs; providing drop-off facilities for self-haulers	Improved access to markets needed for wood processors	Technical assistance and education to businesses and construction industry on waste reduction and recycling options; sustainable building programs; collection area at Enumclaw; collection events; Green Works™ Recognition Program; LinkUp, a technical assistance program for manufacturers; exploring the use of specific markets to enhance commodity	Continue existing programs; increase recycling opportunities at upgraded County transfer stations
Mixed waste paper	66,100	7%	Increasing participation by small and outlying businesses, which often have high collection costs; increasing participation and efficiency of residential collection programs; reducing excess packaging	Potential growth in the supply of mixed waste paper will increase the need for processing capacity and end-product markets	Curbside residential collection and education programs; business technical assistance, education and recognition; packaging reduction program; LinkUp, a technical assistance program for manufacturers	Continue existing programs; expand product stewardship programs

Table 4-2. continued

Commodity Group	Year 2000 Estimated Tons Disposed as MMSW <sup>a</sup>	Percentage of MMSW Stream	Challenges to Increasing Diversion		State of the Market	Existing Program Coverage	Proposed Action
Mixed/sorted glass <sup>b</sup>	19,400	2.1%	Increasing participation and efficiency of residential collection programs	Processing capacity and markets for mixed glass needed because collectors are beginning to reduce color sorting, which has previously commanded strong markets	Curbside residential collection and education programs; collection areas at transfer facilities; <i>LinkUp</i> , a technical assistance program for manufacturers	Continue existing programs	
<b>Market Potential: Medium</b>							
Yard waste <sup>c</sup>	70,100	7.4%	Increasing drop-off opportunities for self-haulers and landscapers; increasing on-site management of yard waste	The supply of yard waste and demand for composting products appear in balance, but could be altered by any significant change in supply of organic material or processing capacity	Curbside residential collection and education programs; collection areas at Enumclaw, Factoria, Vashon, and Cedar Falls; grass-cycling mower and backyard compost bin distribution programs; pilot program to permit on-farm yard waste composting facilities; research on land application of minimally processed yard debris	Continue existing programs add yard waste collection areas at upgraded transfer facilities	
Livestock waste <sup>d</sup>	Not disposed as MMSW	N/A	Improving on-site manure management; developing manure collection and processing opportunities	Inadequate processing capacity for increased tonnages; additional end-product markets needed	On-site management technical assistance	Continue on-site technical assistance; expand collection opportunities; develop strategy to increase processing capacity and end-use markets	

Table 4-2. continued

Commodity Group	Year 2000 Estimated Tons Disposed as MMSW <sup>a</sup>	Percentage of MMSW Stream	Challenges to Increasing Diversion	State of the Market	Existing Program Coverage	Proposed Action
Gypsum <sup>b</sup>	12,900	1.4%	Increasing source separation at construction sites	Percentage of recycled gypsum that can be used in wallboard is limited; increase in end-use demand is needed	Technical assistance and education	Continue existing programs
Film	49,800	5.3%	Increasing collection opportunities for smaller commercial generators; expanding to residential generators	Markets for plastic film limited; a potential building composite application may provide basis for a finished product supply network	Provide information to generators about private collection opportunities	Continue to provide information; periodically reassess opportunities for expansion to residential generators
Other plastic containers (not #1 or #2 bottles)	7,400	0.8%	Revising existing service levels and city collection contracts; re-educating public	Regional infrastructure limited; end markets will need assistance when plastic containers are collected curbside	Collection at special recycling events	Evaluate markets and collection/processing costs; coordinate with cities to add to curbside programs if feasible
Green wood <sup>c</sup>	2,000	0.2%	Expanding collection opportunities	Current end-market adequate, though market demand could grow over time	Collection at Esuncław and special recycling events	Continue existing programs; increase recycling opportunities at upgraded County transfer stations
<b>Market Potential: Low</b>						
Cardboard and kraft	58,300	6.2%	Increasing curbside and commercial collection participation	Little opportunity for King County to influence global markets	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities; packaging reduction programs	Continue existing programs

Table 4-2. continued

Commodity Group	Year 2000 Estimated Tons Disposed as MMSW <sup>a</sup>	Percentage of MMSW Stream	Challenges to Increasing Diversion	State of the Market	Existing Program Coverage	Proposed Action
Newspaper	31,400	3.3%	Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs
Other ferrous metals	29,200	3.1%	Lack of convenient drop-off sites for recycling	Markets fairly stable and well defined	Collection area at Enumclaw	Expand collection areas at upgraded transfer stations
Textiles	17,900	1.9%	Degree of coverage by charities providing collection services unknown	Markets fairly stable and well defined	Collection areas at First Northeast and Bow Lake	Expand collection areas at upgraded transfer stations
High grade paper	13,600	1.4%	Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs
Steel cans	8,000	0.8%	Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs
Aluminum cans	4,300	0.5%	Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs

Table 4-2. continued

Commodity Group	Year 2000 Estimated Tons Disposed as MMSW <sup>a</sup>	Percentage of MMSW Stream		Challenges to Increasing Diversion	State of the Market	Existing Program Coverage	Proposed Action
HDPE #2	4,400	0.5%		Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs
PET #1	3,800	0.4%		Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs
Aluminum scrap	2,300	0.2%		Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs
White goods <sup>x</sup>	Not disposed as MMSW	NA		High diversion rate achieved	Markets fairly stable and well defined	Disposal ban; directory of recycling opportunities; collection at Emuclaw and special collection events	Continue existing programs
<b>Market Potential: Not Ranked</b>							
Other <sup>b</sup>	292,500	31%					
<b>TOTAL</b>	<b>945,500<sup>c</sup></b>	<b>100.0%</b>					

**Footnotes for Table 4-2:**

- a. Estimated waste tonnages were obtained by applying waste composition percentages to estimated year 2000 MMSW disposal tonnage (rounded to nearest 100 tons). Categories in the table conform to those described in the *Assessment of Markets for King County Recyclable Materials* (Appendix B-3)
- b. Urban wood includes building materials such as wood packing, construction and demolition waste, cabinet and furniture trimmings, dimensional lumber, and panelboard, as well as pallets and engineered wood products. A significant amount of urban wood and gypsum is received as CDL waste at private CDL handling facilities. The figures here only represent the amount of these materials disposed as MMSW.
- c. The table estimates the total amount of mixed and container glass in the MMSW stream. These two subcategories are treated separately. Mixed glass is ranked high for market potential, whereas sorted glass ranks low.
- d. Yard waste does not include large prunings, which are included as green wood.
- e. An estimated 290,000 annual tons of livestock waste (primarily horse manure and bedding) is currently not disposed as MMSW, but is managed on-site in a variety of ways, including land application, stockpiling, and composting. Additional environmentally beneficial off-site management options are needed.
- f. Green wood includes unmilled wood such as stumps, limbs, roots, small-diameter tress, prunings, and other woody material.
- g. White goods are currently not disposed in the MMSW stream, but are recycled.
- h. Other includes a variety of materials, such as CDL, diapers, and tires that do not individually comprise a significant portion of the MMSW stream.
- i. Year 2000 MMSW tonnage rounded to the nearest 1,000 tons; totals may not add due to rounding.

## Management of Organic Materials

Programs for collecting and composting yard waste have been successful in reducing the volumes that enter our regional waste stream; however, yard debris, food, vegetative and wood wastes, and soiled paper still comprise approximately 30 percent of the mixed municipal solid waste stream in King County (Cascadia 2000; Appendix A-2). The technology now exists to recycle and reuse these materials, on a municipal or regional scale, in a way that is beneficial to the environment and the economy.

Additional organic materials are being studied for their reuse potential, including agricultural wastes and biosolids (a by-product of wastewater treatment). Currently, state laws and County ordinances hold animal owners responsible for managing agricultural wastes on their properties. All biosolids are beneficially reused, and a portion of the biosolids generated in the region is managed through a composting program established by the Wastewater Treatment Division. Potential methods for managing these two organic wastes along with other organic materials, or separately, need to be studied further.

There is currently one large and a few small-to-medium sized organic material-processing facilities operated by private companies in the region. Most of these facilities, however, currently compost only yard waste and some food waste. One of the facilities is permitted to compost horse manure. If new programs are implemented and significant volumes of additional organic materials are diverted from disposal, more capacity might be needed in the future to handle the growing volume of yard wastes and other materials.

Several options are available for expanding the reuse of organic materials, including land application, on-farm composting, and development of more small handling facilities in the region. Ongoing activities include examining the need for additional composting capacity, coordinating with other public and private agencies regarding collection and management options, and evaluating comparative costs of the increased use of sewage digesters for food waste.

## Collection and Management of Recyclable Materials

### Level of Services Provided at Collection Facilities

Almost all primary recyclables (newspaper, mixed paper, PET and HDPE bottles, glass containers, tin and aluminum cans) are accepted at the County's eight transfer stations and two drop boxes, except at the Algona Transfer Station, where there is presently no recyclables collection. Areas for collecting source-separated yard waste are available only at the Enumclaw and Cedar Falls facilities, and the Factoria station dur-

### Soils and Organics Recycling

In the coming years, more attention will be paid to the role that organics recycling has in improving soil quality. Soils play a critical role in the natural environment. They naturally regulate the flow of water, and help to bind and degrade pollutants. Billions of organisms living in healthy soils consume organic material and help it retain air and water.

Human activity often compacts, removes, and erodes healthy, native soils. The resulting decrease in organic matter inhibits the soil's ability to hold water, thereby increasing surface water runoff. In addition, plant growth is suppressed due to lack of nutrients, thus requiring the need for chemical fertilizers and pesticides. Using composted organic materials to replace organic content can help to restore the soil's environmental function and role in the ecosystem.



▲  
*Several private companies operate organic-material processing facilities in King County*

ing the night shift. At the public meetings conducted during Plan development, citizens expressed a strong desire for more recycling services at the transfer stations.

The County will be developing programs to provide for affordable collection and recycling of woody debris generated by major storm events or for residents in areas affected by the Puget Sound Clean Air Agency's burn ban.

### **Residential Collection**

As discussed in more detail in Chapter 5, additional materials are being considered for recyclables collection at both the curb and the transfer facilities. These materials include polycoated paper, aseptic packages (such as juice

boxes and similar containers), textiles, all plastic containers (Numbers 1 through 7), and food wastes for composting. In addition, the County and the cities have begun looking at commingled (one large bin) instead of separate bins for collecting recyclable materials at the curb. The City of Seattle recently converted to this type of collection system. Both of these issues are discussed further in Chapter 5.

### **Commercial Collection**

As with residential recycling, recycling in the business community is voluntary. Where it is economical for businesses to participate in recycling programs, they do. In some cases, however, it costs businesses more money to recycle than to simply dispose of their wastes. This is especially true for small businesses where recyclables collection may be difficult because of location or smaller volumes of materials. Currently, a large quantity of recyclable paper and cardboard (20 percent of the non-residential waste stream; Appendix A-2) is still being disposed; however, addressing the special collection needs of small businesses would most likely improve that recycling rate.

The County will be working with the cities and private collection companies to improve recycling in the small business community. The County will also work to address the recycling needs of small businesses through more technical assistance, with programs that target recycling and waste reduction in the workplace.

Increased participation in recycling by businesses could also be achieved through legislative and regulatory means. For example, bans can be established on the disposal of designated materials or requirements can be set for the minimum recycled content in a certain product, such as 50 percent recycled content in newsprint.

### **Processing Facilities for Recyclable Materials**

Materials that are collected in recycling programs are usually transported to a local facility that processes the raw materials and transforms them into commodities to be sold in the marketplace. Historically, the processing of recyclables in King County has

been done by the private sector. For some materials, such as the paper and containers collected in curbside programs, processing facilities clean and bale the materials and sell them as feedstock for use in the manufacture of products, both within and outside of the region. For other materials, the processing facility manufactures a final product. As additional recyclable materials are collected, more processing capacity in the region may be needed.

To be consistent with the policies and guidelines in this Plan, processing facilities in King County, including composting facilities, must meet the following criteria:

- Materials must be source separated by the generators prior to collection for delivery to the processing facility
- All residual materials from a processing facility must be disposed within the King County disposal system
- Facilities must comply with solid waste permit requirements of Public Health – Seattle & King County
- Facilities must comply with the Minimum Functional Standards established by the Washington Department of Ecology and codified in the Washington Administrative Code
- Facilities must comply with all applicable land use, site development, water quality, and air quality regulations and requirements



### Integration with Other Resource Management Programs

Another challenge facing waste reduction and recycling in the future is to ensure that King County residents and businesses are aware of available programs and services. Increasing coordination among organizations and agencies that offer similar programs may help show the link between waste reduction and recycling and broader environmental concerns such as water quality, habitat management, and agricultural preservation. For example, the *Soils for Salmon* initiative promotes the beneficial reuse of organic materials to preserve and enhance native soils and support salmon recovery. This program teams the efforts of the Washington Organics Recycling Council and other Puget Sound agencies to work with the construction industry in preventing the disturbance and removal of native soils during construction and demolition projects. Under another program, discarded Christmas trees have been used for habitat restoration along salmon-bearing streams.

### Product Stewardship

Product stewardship is a principle that directs all who come in contact with a product during its life cycle to minimize the impacts of that product on the environment. This principle applies to designers, suppliers, manufacturers, distributors, retailers, consumers, recyclers, and disposers. Everyone shares in the responsibility.

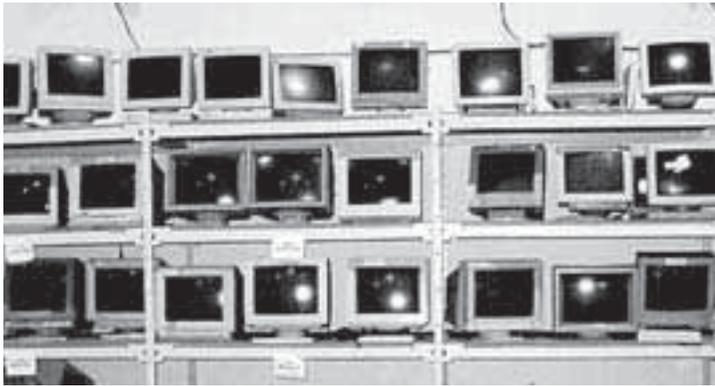
*Many businesses may reduce waste and their disposal costs through waste paper recycling*

There are four primary reasons for instituting product stewardship policies in King County:

- Lost resources, including energy and raw materials
- Increasing amounts of garbage
- Rising costs to ratepayers for managing waste materials
- Potential harm from exposure to toxic materials used in products

Currently, manufacturers have little incentive to design products that minimize environmental impacts. Product stewardship encourages manufacturers to think differently about resources and materials, so that toxicity reduction, energy conservation, reuse, and recycling are considered at the product design stage. By placing greater responsibility on manufacturers and purchasers, product stewardship can also reduce the costs to government and citizens for pollution control, energy usage, and disposal of non-recyclable products.

*In its first four months, the County's Computer Recovery Program netted more than 3,500 computer monitors for recycling*



In many parts of the world, including most European countries, mandatory “extended producer responsibility” policies have been established that require manufacturers to take responsibility for end-of-life management of their products. In the United States, there has been little support at the federal level for such regulatory policies; however, several state and local governments, with the help of the U.S. Environmental Protection Agency (EPA), have been exploring product stewardship options that can be implemented at the regional level.

The Solid Waste Division has joined with other governmental agencies, including Seattle Public Utilities, Snohomish County Solid Waste, EPA Region 10, Washington Department of Ecology, Oregon Department of Environmental Quality, Clark County, City of Portland, and Portland Metro, to form the Northwest Product Stewardship Council (NWSPSC). The mission of NWSPSC is to integrate product stewardship into the policy and economic structures of the Pacific Northwest. In 1999, NWSPSC hosted a series of meetings with representatives from industry, academia, and environmental groups to look at opportunities for voluntary product stewardship as well as regulatory options that could be implemented at the regional level. A regional conference drawing more than 200 attendees was held in April 2000 to gain better insights on programs and policies that are working elsewhere. The NWSPSC plans to continue fostering dialogue with the private sector to develop criteria for evaluating voluntary efforts, and to provide information about product stewardship policy options to local and state decision makers.

The following product stewardship projects are underway in King County in partnership with other jurisdictions:

- The pilot *Computer Recovery Program* (King County, Seattle, Local Hazardous Waste Management Program) has developed a network of collection points at retail outlets for old computers and monitors
- The *Environmentally Preferable Computer Purchasing Project* (NWPSC, funded by King County and Seattle) has published a guidebook for public and private purchasing managers and is working with major purchasing entities to develop a pilot program
- The *Retail Apparel Product Stewardship Demonstration Program* (King County, Seattle) is working with major retail apparel companies based in the Northwest to phase out non-recyclable packaging, expand reuse of shipping containers, and take back spent products
- The *Retail Grocery Product Stewardship Demonstration Program* (King County, Seattle) is working with grocers and local producers to expand the use of reusable shipping containers
- The *Medical Industry Waste Prevention Roundtable* (King County, Seattle, EPA) convenes representatives from medical institutions and biotech laboratories throughout the region to develop strategies for reducing and improving management of medical waste

*About 90 percent of the CDL materials from the Kingdome implosion have been recycled*

### Recycling of Construction, Demolition, and Landclearing Materials

The recycling and reuse of CDL materials in King County has proven to be economical for construction contractors as well as beneficial to the economy and the environment in general. There are dozens of privately operated CDL processing facilities and recycling drop-off locations in King County and the surrounding region. Easily recycled CDL materials include concrete, asphalt, rock and brick, wood, metals, and cardboard. In recent years, CDL recycling opportunities have expanded to include carpet, ceiling tile, asphalt roofing, and gypsum drywall.

The location and convenience of recycling and drop-off facilities, as well as transportation costs, can play a large part in the decision to recycle or reuse CDL materials. Increasing the number of locations that can accept various CDL materials for recycling is needed. For example, there is only one recycling facility that accepts asphalt roofing, located in Pierce County. This location is far more convenient for contractors working in south King County than in the north end. CDL recycling could be expanded by upgrading existing private CDL receiving facilities in the region; however, this expansion may



require amending their current permits with Public Health – Seattle & King County to incorporate new recycling equipment or processes. Expanding the reuse of salvaged or recycled building materials is also necessary to support increased CDL recycling and recovery activities. Currently, there are limited opportunities to purchase these materials because of the large warehouse space necessary to store them. Only three major retail outlets exist in King County today, and they cater primarily to the residential market.

To further promote CDL recycling and reuse, King County subscribes to and actively promotes the Reusable Building Materials Exchange (RBME). RBME is an online, user-driven Internet site that allows commercial builders and residents to list and browse available building materials. The RBME site is being expanded so users can post pictures of available items. The RBME site has grown to more than 300 plus listings per month. It can be accessed at <http://dnr.metrokc.gov/swd/rbme/>. The success of the RBME site led the Division to create a website that will allow for the exchange of all types of materials between residents and businesses. Currently called The Exchange, this Internet-based service recently became available online.

### King County Leads by Example

The recently constructed King Street Center is the first large County building project in which major sustainable design features have been incorporated. Built by a partnership of public agencies and private contractors, the eight-story building models the latest in resource-saving materials and energy efficiency. It houses the Departments of Transportation and Natural Resources and Parks. Sustainable building design features include:

- *A water reclamation system used for flushing the toilets:* Rainwater is collected in three 5,400-gallon tanks on the roof, then filtered and pumped to the toilets. This system saves approximately 1.4 million gallons of domestic water use a year.
- *Pre-owned carpet that has been refurbished and re-dyed with a new pattern:* Using refurbished carpet throughout the building spared approximately 160 tons of used carpeting from landfill disposal.
- *A lighting system that operates on only 0.86 watts per square foot:* The Washington Energy Code allows designers to use up to 1.3 watts per square foot. The County's lighting system is about 28.4 percent more efficient than the code requires.
- *An 80 percent recycling and salvage rate for job-site construction materials.*
- *Art throughout the building that incorporates recycled materials.*



### Fostering Sustainable Building Principles

A number of educational outreach efforts have been used to promote sustainable, or green building, in construction projects throughout King County. Because sustainable building involves many disciplines, the most effective approach to conveying the message has been to partner with professional associations whose members have a particular interest in learning about green building methods. Partnerships with the American Institute of Architects, the Master Builders Association, and the U.S. Green Building Council have proven very effective in reaching a large contingent of commercial and residential building professionals. Exploring the links between sustainable building and other environmental issues has also proven effective. For example, salmon recovery projects tie in well with several sustainable building strategies and will continue to be a driver in our region with continued developments under the Endangered Species Act.

The *Built Green*<sup>™</sup> program was kicked off in 2000. A partnership of King County, Snohomish County, and the Master Builders Association, this environmental building program has set a goal of making 5,000 *Built Green*<sup>™</sup> homes available to consumers by 2010. Visit [www.builtgreen.net](http://www.builtgreen.net) for more information. King County has also led the effort to create a local chapter of the national U.S. Green Building Council here in Puget Sound, involving architects, designers, and builders. The goal is to hasten the adoption of green building practices into mainstream use, in part through increased support for educational events such as the American Institute of Architects *What Makes It Green?* conferences, and the Master Builders *Build Green for Profit* workshops.

The County also offers on-line access to information about recycled-content products and sustainable building practices. The website – *EnCompass: Map of Recycled-Content Buildings* found at <http://dnr.metrokc.gov/market/encompass> – is designed for architects, developers, builders, engineers, and others to see what recycled-content construction materials are currently used in the Puget Sound area. The site provides information on how to contact the project proponents as well as access to an on-line map that shows where specific projects are located.

### Market Development for Recyclable Materials

In 1989, the King County Council established the King County Commission for Marketing Recyclable Materials (Marketing Commission). The Marketing Commission was charged with maintaining and developing viable markets for recyclable materials to complete the recycling loop. This entailed working with businesses to incorporate recycled materials in their products and manufacturing processes, and promoting the purchase and use of recycled materials and products by consumers and businesses. In 2001, the Marketing Commission was disbanded, and its programs were incorporated into the Solid Waste Division's Waste Reduction and Recycling Section.

Two key programs run by the Clean Washington Center and the Washington Department of Ecology, which supported market development in the past, are no longer active. The absence of these programs has left a void at the state level. In the past, County programs focused on consumers to promote the demand for recyclable materials. Recently, the County has developed programs to work with manufacturers as well, addressing the development of the market infrastructure as a whole.

To guide the development of the market infrastructure, in 1998 the Marketing Commission prepared the *Assessment of Markets for King County Recyclable Materials* (Appendix B-3). Some of the key challenges identified in the report include:

- **Enduring the consequences of a sustained downturn in global commodity markets:** Investments in recycling and the development of a recycling infrastructure have occurred over the last 10 years, when the local economy has been robust



Paper makes up a high percentage, by weight, of the materials recycled at the curbside

and growing. The positive economics of recycling are due in large part to the prices paid for these recycled commodities in the marketplace. The potential exists, however, for a sustained downturn in these global commodity markets – putting prices for all recyclables at historic lows for a considerable period of time.

- **Maintaining the viability of fragile markets for mixed waste paper and glass:** Markets for glass and mixed paper, which make up a very high percentage of the curbside mix by weight, are vulnerable because of the limited uses for them. Market development efforts are needed to ensure that diverse stable markets continue to exist for these materials.
- **Ensuring that there is a balance in the supply and demand for organic materials:** The collection and composting of food and animal wastes could significantly increase the recycling rate in King County. Any increase in supply, however, must be matched by a corresponding increase in processing capacity and demand for organic materials. Market development activities will need to increase if collection programs expand to take in these materials.
- **Being more proactive:** The public sector can seize opportunities to develop markets, especially for materials such as plastics and engineered/composite wood products. The public sector has an important role in taking forward-looking action to ensure that markets are maintained or enhanced.

### Utilization of Landfill Gas

Another waste the Solid Waste Division is turning into a resource is the gas generated by garbage decomposition in the Cedar Hills Regional Landfill. The gas is currently collected at the landfill using a series of wells, trenches, and piping, and then burned off using a system of flares.

The Solid Waste Division is evaluating ownership and financing methods to use the landfill gas in an energy generation facility either on or off the landfill property. There is high interest among both public and private energy companies and utilities. When implemented, the new facility would become one of the largest landfill gas generation facilities in the nation.

## Recommendations

Criteria used to develop a recommendation for waste reduction and recycling include the cost of providing service, impact on waste diversion, feasibility of implementation, and public acceptance. Concerns and ideas from the cities and the citizens, both during initial development of the Plan and during the public comment period for the draft, have been folded into the final recommendation.

As discussed in more detail below, the final recommendation is to enhance existing waste reduction and recycling programs, to add more recycling opportunities at the transfer stations, to pursue markets for additional diversion of organic materials, and to increase marketing efforts to support and further program goals. The draft Plan looked at several modified approaches that were ruled out for various reasons. One approach

was to maintain existing programs as they are. Since this approach would fall short of the region's goals for waste reduction and recycling in the future, it was not selected. Another approach was to dramatically increase the diversion of organic materials in the region. This approach was not selected because unanswered questions remain about costs and environmental concerns. Before promoting the diversion of additional quantities of organic materials, the Division will need to address concerns about the capacity of processing facilities in the region for handling increased volumes and the cost effectiveness and public health impacts of alternative collection systems. A third approach looked at increased legislation, such as bans on certain materials in the waste stream and mandatory recycling, to reach system goals. This approach was not considered in the final recommendation because it is costly to implement and is generally unpopular with the public. More information on the three approaches that were not selected is presented in Appendix A-1.

In developing the final recommendation, the cities and County were assumed to have the following roles and responsibilities:

- The cities and County will continue to provide educational programs and technical assistance to promote waste reduction and recycling to businesses, residents, and schools
- The cities and County will maintain and enhance current residential collection service levels for recyclables
- The County will continue to provide grant funding to cities to support their waste reduction and recycling programs
- The County will play an increased role in developing diversion opportunities for animal manure and other organic materials
- The County will continue to develop markets for recycled material
- The County will provide technical assistance to manufacturers in the use of recycled materials and the application of product stewardship principles
- The County will continue to promote recycled-content products in the marketplace

More information on specific programs offered by the cities and the County is provided in Table 4-3 at the end of this chapter.



Key components of the Plan's recommendation for waste reduction and recycling are presented below. Specific steps to promote, educate, or assist the region in increasing waste reduction and recycling accompany each component.

**1. Continue and expand education, promotion, incentive, and technical assistance programs related to waste reduction, source reduction, resource conservation, and recycling**

- Work directly with residents and businesses as well as through the news media. Identify information needs, and target messages and programs to meet those needs.

- Publicize what residents and businesses can do through individual action – such as reducing junk mail, grasscycling, composting, making smarter purchasing choices, repairing goods rather than throwing them away, purchasing reusable items, and more.
- Educate residents about the benefits of using compost to enhance soils.
- Target specific behaviors that will increase waste reduction and recycling. These behaviors could include changing shopping habits, such as buying recycled products, reusing shopping bags, or buying in bulk; choosing to use services that incorporate environmental practices; and encouraging office practices such as double-sided copying and printing. Incentives, such as recognition programs, will be incorporated where appropriate.



- Target specific commodities, such as computers, where there is significant opportunity to reduce waste or increase recycling.
- Expand the use of Master Recycler Composter volunteers for outreach activities determined to be regional priorities, such as grasscycling and multi-family household recycling.
- Educate children about waste reduction, recycling, and conservation issues. Programs will be offered in schools as well as through other community organizations and activities.
- Expand the cities' and County's efforts to eliminate or reduce waste at the source, and promote successes as models for businesses.

▲  
*Composting is one of the actions individuals can take to practice waste reduction and resource conservation*

**2. Continue to collect primary recyclables including glass, tin and aluminum cans, mixed waste paper, newspaper, #1 and #2 plastic bottles, and yard waste and evaluate adding other materials as either primary or secondary recyclables by targeting specific commodities**

- Look at materials for increased diversion and/or reduction, based on the following criteria:
  - quantity in the waste stream that could potentially be diverted
  - resources and energy saved by reduction or recycling
  - availability of markets
  - compatibility with existing collection/processing systems
  - public acceptance
  - cost effectiveness.
- Consider commodities such as all plastics, textiles, computers, commercial paper, and CDL debris (these commodities would be considered secondary recyclables, unless they are added to the curbside collection program).

### 3. Continue and expand promotion of existing material exchanges and reuse centers; evaluate development of other venues for reuse

- Promote exchanges to bring useful commodities together with the people who need them. Support and promote private-sector and non-profit waste reduction and reuse opportunities, such as Second Harvest and the Computer Charity Bank, and help create new programs as needed.
- Expand opportunities for recovery of reusable items at the County's transfer stations – such as the Reuse Collection Project at the First Northeast Transfer Station in cooperation with Seattle Goodwill.

### 4. Develop and implement a regional product stewardship strategy

- Emphasize product stewardship as a method of minimizing the environmental impacts of material use throughout a product's life cycle.
- Take a leadership role in analyzing regional and national policies to advance product stewardship through participation in the National Product Stewardship Council.
- Support state and national legislative efforts that offer feasible regulatory strategies for increasing product stewardship, including recycled-content legislation and take-back initiatives.
- Promote the ethic of product stewardship to the public and businesses.
- Provide education and assistance and, as appropriate, develop partnerships with manufacturers and other businesses to reduce packaging and incorporate environmental considerations into product design.
- Develop and implement programs to reduce disposal of electronics, including computers and televisions, and pursue partnerships to increase capacity for take-back and disassembly of electronic equipment.
- Coordinate with local hazardous waste management programs to promote take-back of household and small-quantity generator hazardous wastes such as motor oil, paint, fluorescent light bulbs, and household batteries.
- Assess opportunities to expand retail take-back efforts for latex paint, nicad batteries, and electronics.



Events such as the EnviroExpo provide opportunities to integrate recycling messages with related messages

### 5. Integrate programs with other conservation activities

- Support innovative joint projects with research institutes for sustainable building, organic materials recovery, product stewardship, and related programs.

- Work more closely with the Northwest Coalition for Waste Reduction and the National Waste Reduction Coalition to plan and execute promotion, education, and assistance programs that encourage source reduction, reuse, and resource conservation.
- Continue to integrate waste reduction and recycling with other related environmental information. Help people make the link between waste reduction and recycling and water quality, wildlife habitat, open space protection, and other environmental programs promoted by the Department of Natural Resources and Parks.
- Coordinate with other agencies to develop and promote best landscape management practices, including water conservation, reduced use of pesticides, and grasscycling.
- Focus on the “pollution prevention ” angle. Use strategies adopted elsewhere in the country that focus on prevention as a model for educating and assisting at schools, residences, and businesses.
- Work with conservation groups on joint issues such as grasscycling. Complement and, when appropriate, coordinate efforts with non-governmental and other non-profit organizations that support resource conservation.
- Leverage available dollars by joining forces with cities, other counties, and organizations on projects that address regional issues.

#### **6. Evaluate recycling opportunities at County transfer stations**

- Add source-separated yard waste collection areas at transfer stations wherever possible. Institute a yard waste disposal ban for self haulers after these areas are provided.
- Maximize recycling and reuse opportunities for materials collected at transfer stations, taking into consideration user needs, site constraints, costs and benefits, and market availability.
- Make waste reduction and recycling a priority at new and renovated transfer stations.
- Improve on-site education opportunities for customers to increase recycling and reuse, and to improve the quality of materials collected.
- Evaluate the potential for adding new materials for recycling at transfer stations, including appliances, scrap and processing metals, used oil and antifreeze, computers, CDL, household hazardous waste, and reusable household items.

#### **7. Promote environmentally sound management of organic materials**

- Develop initiatives for improving organic materials management within the Department of Natural Resources and Parks.
- Develop programs for affordable collection and recycling of woody debris generated by major storm events or for residents in areas affected by burn bans.

- Promote improvement of soil quality to support pollution prevention.
- Provide training and assistance to farmers to help them obtain permits that allow them to compost organic materials.
- Encourage education to reduce the amount of bedding used by horse owners.
- Implement pilot manure collection programs to test the feasibility of collecting manure from individual farms.
- Expand manure exchange programs whereby residents who have horse manure are put in touch with residents that need compost materials.
- Continue funding education about on-site compost bins.
- Expand organic material waste reduction programs, such as backyard composting, grasscycling, and on-site yard waste chipping.
- Implement and evaluate pilot programs to expand food waste collection, both residential and commercial.
- Coordinate with biosolids recycling programs.

#### 8. Develop ways to improve the recycling rate in the small business community

- Consider using smaller collection containers that could be handled in the same manner as those used for single-family residences.
- Work with the WUTC, the cities, and private collection companies to improve the collection system for small businesses, provide better information about recycling options, make it more economical for them to recycle, and establish incentives for recycling and waste prevention in the workplace.
- Work with the cities to develop zoning codes that will allow adequate space for recycling for small businesses.



*The Reuse Collection Project in cooperation with Seattle Goodwill at the First Northeast Transfer Station*

#### 9. Expand market development programs for recyclable materials

- Design and enhance marketing and technical assistance programs that develop markets for recyclable materials, with particular attention to materials identified in the *Assessment of Markets for King County Recyclable Materials* (see Appendix B-3).
- Work to integrate the use of recycled materials into broader sustainable efforts, especially product design and manufacturing, architecture, and construction.
- Bring consideration of recyclable materials into product stewardship activities.
- Continue and enhance promotion of consumer and business use of recycled materials and products.

**10. Expand recycling/reuse options for CDL materials**

- Evaluate the existing infrastructure for CDL recycling and work with the private sector to expand recycling opportunities in all areas of the County.
- Work with the permitting agencies in King County to educate and instruct the building industry on the availability of CDL recycling facilities in the region.
- Assess the feasibility of requiring recycling plans for demolition and building permits in King County.

**11. Continue and expand promotion of green building programs**

- Promote the Green Building Initiative in all capital projects throughout the County.
- Provide training and assistance on the *Leadership in Energy & Environmental Design* (LEED) green building standards.
- Promote green building in the private sector through continued support of rating programs, such as *Built Green*<sup>TM</sup> for residential buildings and the LEED program for commercial structures.
- Continue funding green building educational workshops with partners such as the U.S. Green Building Council and the American Institute of Architects.
- Continue the regional leadership role of the Solid Waste Division as chair of the U.S. Green Building Council Education Subcommittee.



**12. Increase coordination between the Solid Waste Division and cities in planning and implementing waste reduction and recycling programs**

- Continue to promote broad education campaigns, covering cities and unincorporated areas, while cities continue with the more specific community education.
- Work with cities on integrated resource conservation programs already in place; showcase their successful programs as models for other efforts and work together to design joint, integrated efforts.
- Continue to provide support to cities on the consolidation of the Waste Reduction and Recycling Grant Program and City Optional grant programs into a single Waste Reduction and Recycling grant program. All cities are eligible for grant program funds. The formula for allocating funding includes a base amount plus a percentage based on population and employment. Cities are using the grant funds to implement Plan recommendations based on each community's prioritized needs.
- Provide County assistance to cities in obtaining grants from other sources, as discussed in Chapter 10.

- Facilitate the adaptation of successful programs implemented by larger cities to smaller cities with fewer resources. Provide County funding for the necessary elements, such as computer technology or educational components, to make the transfer from city to city possible.
- Coordinate among the County, cities, and the private solid waste management companies to improve the available data on recycling and waste reduction in the commercial sector.
- Coordinate among the County and the cities in developing future market assessments.
- Coordinate Division Waste Reduction and Recycling Section work plans with city work plans.
- Coordinate between the County and cities to develop consistent evaluation procedures for programs.
- Coordinate between the County and cities on developing consistent program evaluation procedures.

## City and County Roles and Responsibilities

In the 1992 Plan, numerous programs for waste reduction and recycling were recommended for implementation by the cities and the County. Since then, most of these programs have been implemented and even expanded to meet our regional goals for reducing waste. A summary of the status of 1992 programs is provided in Appendix B-2.

As in 1992, the cities and King County share responsibility for some programs, while each is solely responsible for implementing others. With more coordinated development of city and County work plans, as recommended above, greater program efficiency and sharing of innovative ideas is expected.

A complete list of ongoing programs and activities and who is responsible for implementation of each is provided in Table 4-3.

## References

Cascadia. 2000. *Waste Monitoring Program: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys*. Final Report. Prepared by Cascadia Consulting Group, Inc., for King County Department of Natural Resources, Solid Waste Division, Seattle, WA.

**Table 4-3.** Waste Reduction and Recycling Recommendations

Program or Activity	Strategy	Responsibility for Implementation
<b>Required Collection</b>		
Household collection of primary recyclables	Provide household collection of primary recyclables to all urban single and multi-family residences, and to unincorporated areas as specified in KCC 10.18.020 (B).	Cities, County
Rural drop box collection of primary recyclables	Provide drop box collection sites for primary recyclables to serve areas where household collection is not provided.	County
Special collection events	Provide scheduled events to collect secondary recyclables at sites that serve unincorporated areas of King County.	County
Yard waste collection areas	Provide areas for source-separated yard waste collection at existing Cedar Falls, Factoria and Enumclaw facilities, and at all new or upgraded transfer stations, where feasible.	County
<b>Optional Collection</b>		
Rural household collection of primary recyclables	Periodically assess the feasibility of expanding curbside collection of recyclables in rural areas not currently receiving this service (Vashon, Skykomish, Snoqualmie Pass).	Cities, County
Household collection of secondary recyclables	Add secondary recyclables to collection programs when feasible and supported by community.	Cities, County
Special collection events	Provide scheduled events to collect secondary recyclables at sites serving primarily cities.	Cities
Non-residential collection of primary recyclables	Evaluate options for providing contract recyclable collection service to businesses in jurisdictions that exercise contracting authority.	Cities, County
Drop box collection of primary recyclables at County disposal facilities	Continue to provide collection of primary recyclables at existing transfer stations where space allows, unless an evaluation shows that space would be better used for collection of secondary recyclables.	County
Expanded secondary recyclable collection at County disposal facilities	Provide areas for expanded collection of secondary recyclable and reusable materials at new and upgraded transfer stations, where feasible.	County

Table 4-3. *continued*

Program or Activity	Strategy	Responsibility for Implementation
<b>Policies</b>		
Collection rate incentives	Consider establishing rate incentives for solid waste collection that encourage participation in recycling programs and reduced generation of garbage, such as mini-can garbage service; recycling-only rates for non-garbage customers; embedded recycling costs in garbage fees; and substantial volume-based cost differentials for garbage service.	Cities
Residential yard waste source separation requirements	Continue to implement requirements that yard waste not be discarded as garbage picked up from households by haulers.	Cities, County
Yard waste disposal ban	Ban disposal of yard waste as garbage at County facilities if there is sufficient processing capacity and there are sufficient drop site collection options for landscapers and self haulers.	County
Procurement policies	Continue the adoption of government procurement policies that favor the use of recycled and environmentally preferable products.	Cities, County
Green building	Help implement and promote the Green Building Initiative in all County-funded capital projects.	County
Designation of recyclables	Update list of designated secondary recyclables yearly in Division's annual report.	County
In-house waste reduction and recycling programs	Manage solid waste generated by city and County agencies in a manner that demonstrates leadership for residents, businesses, and institutions.	Cities, County



Table 4-3. *continued*

Program or Activity	Strategy	Responsibility for Implementation
<b>Waste Reduction and Recycling Programs – continued</b>		
Integrated resource conservation programs	Integrate waste reduction and recycling programs with other resource conservation efforts, including air and water quality, salmon restoration, and soils management: <ul style="list-style-type: none"> <li>• Complement and coordinate programs</li> <li>• Leverage dollars to address regional issues</li> <li>• Present a clear, consistent message to citizens on how resources are linked and how they can be conserved</li> </ul>	County, City Voluntary
Organics programs	Implement recommended programs and policies: <ul style="list-style-type: none"> <li>• Improve soil health and organics management in new development</li> <li>• Improve soil health and organics management in existing development</li> <li>• Improve manure management practices</li> <li>• Consider and promote recovery and beneficial use of food waste</li> <li>• Increase recycling of yard waste</li> <li>• Expand markets for compost</li> <li>• Expand organics processing capacity, as needed</li> </ul>	County, City Voluntary
Product stewardship	Promote an environmental management strategy under which those who design, produce, sell, or use a product take responsibility for minimizing the products's environmental impact throughout all stages of the product's life cycle: <ul style="list-style-type: none"> <li>• Coordinate with other jurisdictions through the Northwest Product Stewardship Council</li> <li>• Develop partnerships with the private sector to focus on reducing disposal of specific materials, such as electronics and carpet</li> <li>• Support regional efforts to implement product stewardship policies</li> </ul>	County, City Voluntary

Table 4-3. continued

Program or Activity	Strategy	Responsibility for Implementation
<b>Waste Reduction and Recycling Programs – continued</b>		
Regional market development	Continue to foster the development and expansion of markets for recyclable materials in King County and the region: <ul style="list-style-type: none"> <li>• Consumer outreach: Increase consumer awareness and use of recycled products</li> <li>• Sustainable landscaping: Encourage the use of recycled products and other environmentally sensitive products and practices in landscaping</li> <li>• Assistance to manufactures (<i>LinkUp</i>): Create markets for recyclable materials by providing technical and marketing assistance to manufacturers of recycled products and manufacturers interested in converting from virgin to recycled materials</li> <li>• Market infrastructure: Support market development through strategies applying economic development tools, such as financial incentives and commodity specifications</li> </ul>	County
<b>City-County Coordination</b>		
Waste reduction and recycling grant program	Provide annual County grant funding to support education and collection of secondary recyclables. Cities choose how to allocate funding in ways that are most useful in their community.	County, Cities
Annual Waste Reduction and Recycling Program Work Plan	Hold annual meetings with the Division and the cities to coordinate work plans and ensure that grant-funded and County programs are coordinated and complementary.	County, Cities



Chapter

**5****Collection of Curbside  
Recyclables and Mixed  
Municipal Solid Waste**

About 90 percent of the residents in the King County system subscribe to curbside garbage collection services. According to telephone surveys conducted by the Solid Waste Division, about 87 percent of those subscribers also put their recyclable materials at the curb for collection. This chapter discusses the collection of curbside recyclables and garbage, referred to as mixed municipal solid waste (or MMSW), within the incorporated and unincorporated areas of King County.

Private solid waste management companies provide collection throughout most of the region's service area, except in Enumclaw and Skykomish, where the cities operate their own collection systems. According to County records, two private collection companies – Waste Management, Inc. and Rabanco – provide about 99 percent of the collection services in the region. Waste Connections, Inc. provides collection on Vashon Island only. Through these companies and the cities, curbside collection of MMSW and recyclables is available to nearly everyone in the County.

The following sections set out the County collection policies and describe the MMSW and recycling collection systems in King County. Since different legal authorities govern each collection system, they are discussed separately. The system for MMSW collection is discussed first because it predates recycling collection and helped establish the infrastructure for both systems. These discussions are followed by a description of major issues and recommendations for collection services in the region for the next 20 years.

### **County Collection Policies**

The County policies set out for collection are as follows:

**CP-1.** The county solid waste system shall provide for and designate urban collection service levels for mixed municipal solid waste, recycling and yard waste for residents in all parts of the county except for Vashon Island, Skykomish Valley, and Snoqualmie Pass.

**CP-2.** The county should promote collection service that has as little impact as possible on roadways and traffic. The cities should consider using their contracting authority to specify which transfer stations the collection companies use.

**CP-3.** The county and cities should seek to manage demand for self-haul services for customers who self-haul regularly, by encouraging subscriptions to curbside collection.

**CP-4.** The county shall seek to manage demand for self-haul services for customers who self-haul occasionally, by working with cities and private collection companies to develop cost effective options for disposing of bulky wastes.

**CP-5.** The county should not consider the possibility of eliminating service to self-haulers, as this would conflict with the county's goals of environmental protection and customer service.

**CP-6.** A solid waste collection district may be established for the purpose of requiring mandatory curbside collection service if the county and the cities agree that it is in the public interest and necessary for the protection of public health.

**CP-7.** The county, in consultation with the cities and Solid Waste Advisory Committee should explore the benefits and costs of a uniform method of recycling collection throughout the region.

**CP-8.** The county should host special recycling collection events and investigate options for expanding this recycling option.

**CP-9.** If authorized by the state legislature, the county should work with the cities to establish region-wide waste disposal incentive rates that encourage recycling and reduce disposal.

**CP-10.** The county, in conjunction with the city of Seattle, the cities within the region and Public Health – Seattle & King County shall offer collection of household hazardous waste in conformance with the adopted local hazardous waste management plan prepared under chapter 70.105 RCW.

**CP-11.** The county should improve collection services for household hazardous waste in the eastern and southern portions of the county in conformance with the local hazardous waste management program. Enhancements should include implementing a pilot stationary collection service at a transfer station and implementing a pilot program to augment current mobile collection services.

**CP-12.** The county should work with the cities, regional businesses, and regional manufacturers to develop alternative collection opportunities and product stewardship programs.

## Collection of Mixed Municipal Solid Waste

The most dramatic change in the collection industry nationally in recent years has been the consolidation of solid waste management companies and a trend toward expanding their range of services. The private solid waste management companies in King County have become vertically integrated, meaning they are able to provide services ranging from collection to landfilling.

Two national companies – Waste Management, Inc. and Allied Waste Industries, Inc. – have purchased most of the smaller companies in the region. Industry consolidations in 1998 included the purchase of Rabanco by Allied Waste Industries, Inc. and the purchase of Waste Management, Inc. by U.S.A. Waste (who took on the Waste Management name). In early 1999, Waste Management purchased RST Disposal and its affiliated companies, and Rabanco purchased the WUTC-certificated area near Issaquah and Sammamish from Waste Connections, Inc. Rabanco also purchased Northwest Waste Industries, which operates mainly in Seattle. Also in 1999, Waste Connections, Inc. purchased American Disposal, the company that provides collection services on Vashon Island. These consolidations

have reduced the number of collection companies operating in the County to three, which has created less opportunity locally for competition for city contracts. Also, these companies are all large national corporations, instead of the local companies that used to operate in most of the region.

Legal authority for the collection and disposal of MMSW is shared among the state – acting through the Washington Department of Ecology (Ecology) and the Washington Utilities and Transportation Commission (WUTC) – the counties, and the cities.

Table 2-1 in Chapter 2 lists the planning authorities, their roles, and the guiding legislation for collection in King County. The complete texts of the key pieces of legislation are provided in Appendix E.

Under RCW 81.77 and 36.58, counties are prohibited from collecting MMSW or regulating solid waste collection companies. Either the WUTC or the cities regulate this service. The WUTC regulates collection in all of the unincorporated areas and in cities that choose not to regulate or provide the service. The other cities contract for collection directly, issue licenses for collection, or provide collection themselves.

RCW 36.58 authorizes counties to set up collection districts with the intent of establishing mandatory collection throughout a region. Cities may also participate in the collection districts at their discretion. To date, however, King County and the cities have not chosen to utilize this authority.



▲  
Through industry consolidations, two national companies now control nearly all of the region's solid waste collection business

The WUTC sets and adjusts rates and requires compliance with the adopted solid waste management plan and related ordinances. The WUTC issues certificates to private collection companies for providing services in designated areas. These certificates specify not only the collection territory, but also the type of waste to be collected. The certificates exist in perpetuity in the certificated area unless the certificate holder fails to provide adequate service, in which case the WUTC can revoke or suspend the certificate. Other persons or companies can also purchase certificates from the existing holders.

If a city opts to manage solid waste collection itself, it can do so via three mechanisms:

- **Municipal:** A city can operate its own collection systems and establish its own collection rates.
- **License:** A city can grant licenses to private collection companies, which augment the WUTC certificates. These licenses provide for joint regulation of collection and allow the city to review rates and generate revenues from collection.
- **Contract:** A city can enter into contracts with private collection companies to collect residential and commercial wastes. These contracts supercede the WUTC certificate. Contracts are awarded through a formal bidding process or through direct negotiations.

Table 5-1 summarizes the roles and authority under the various collection scenarios.

**Table 5-1.** Roles and Authorities for MMSW Collection

Role	A U T H O R I T Y			
	WUTC-Certified	Municipal	License	Contract
MMSW Collection	Collection Company	City	Collection Company	Collection Company
Regulation of Services	WUTC	City	WUTC	City
Rate Approval	WUTC	City	WUTC	City
Billing	Collection Company	City	City or Collection Company	City or Collection Company

Private collection companies holding WUTC certificates in the King County service area are listed in Table 5-2.

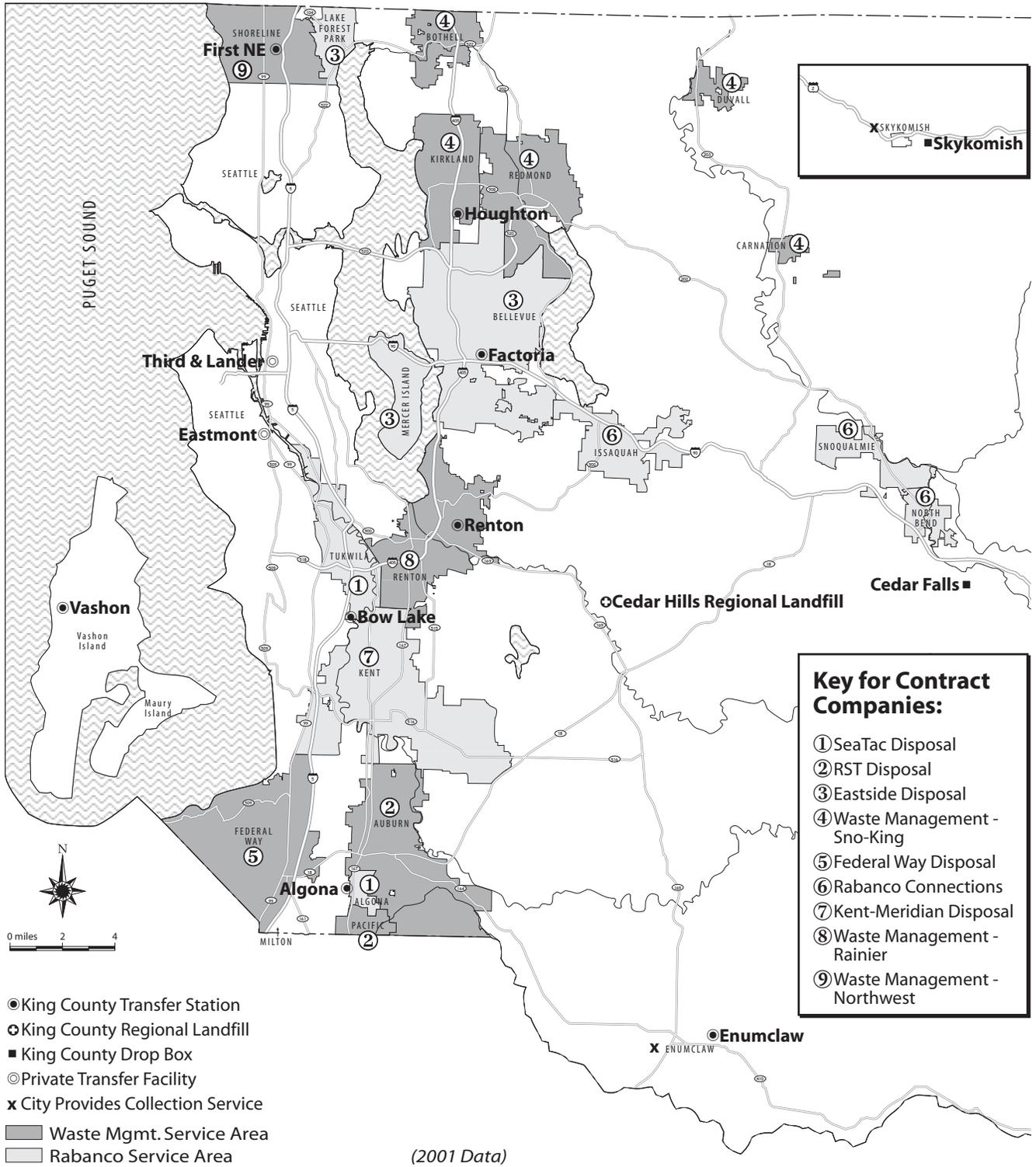
**Table 5-2.** WUTC Certificate Franchise Holders in King County

<b>Rabanco</b>	[G-12,G-60, G-41] dba Eastside Disposal, Kent-Meridian Disposal, SeaTac Disposal, and Rabanco Connections 54 South Dawson Street, Seattle, WA 98134
<b>Waste Management, Inc.</b>	[G-237] dba WM–Seattle, WM–Northwest, WM–Rainier, WM–Sno-King, WM–Federal Way Disposal, WM–RST Disposal, WM–Nick Raffo Garbage Company, and WM-Tri-Star Disposal 13225 NE 126th Place, Kirkland, WA 98034
<b>Waste Connections, Inc.</b>	[G-87] dba American Disposal P.O. Box 399, Puyallup, WA 98371
Note: Franchise numbers provided in brackets.	

Figures 5-1 and 5-2 on the following pages show the certificate areas and collection territories held under contract by each company.



Figure 5-2. Cities with Collection Contracts



## Collection of Curbside Recyclables

RCW 70.95 provides legal authority to the County and the cities in the regional system to develop this Plan. The Plan establishes the regional policy and standards for recyclables collection, as well as waste reduction and recycling programs. As with solid waste, the cities have the authority over collection of residential recyclables within their jurisdictions.

Residential curbside recycling is available nearly region-wide for the collection of primary recyclables, which includes newspaper, mixed paper, PET and HDPE bottles, glass containers, tin and aluminum cans, and yard wastes.

In the unincorporated areas, the County can direct the collection companies through service level ordinances to pick up certain recyclable materials and to provide a minimum level of services. Cities can influence collection services through their contracts with collection companies. One goal of both the County and the cities is to provide a high level of collection services to customers while maintaining reasonable rates.

For the unincorporated areas, RCW 36.58 authorizes counties to set minimum service levels (what to collect and how often) and to contract for collection of recyclables from residences. In addition, counties may impose fees on these services to fund their waste reduction and recycling programs. King County has opted to not contract for

recycling services, but rather has allowed the WUTC to regulate recyclables collection in the unincorporated areas. In King County, the WUTC regulates collection in accordance with the minimum service level standards established by King County Code 10.18. The County collects a fee from unincorporated area residential accounts (22 cents per account per month) to help fund waste reduction and recycling programs.

Recycling collection areas are the same as those established for MMSW (Figures 5-1 and 5-2). According to RCW 70.95.092, the County must designate which services will be available in urban areas and which will be available in rural areas. In 1993, King County passed Ordinance 10942, which extended urban service levels into most rural portions of the County. Currently, all urban and rural areas are

provided a uniform level of recycling and yard waste collection services, except for Vashon Island, the Skykomish Valley, and Snoqualmie Pass. These areas are not yet provided the urban level of service because collection services are not readily available for their residents.

Collection of non-residential recyclables presents different challenges. There are diverse businesses and industries in the region, which has made it infeasible to establish uniform requirements for collection containers and equipment that could serve every need. Thus, there are no state or local regulations that require a standard level of non-residential recycling service. A few cities do provide for collection services for non-residential recyclables within their jurisdictions, but businesses may choose an alternative service or



▲  
*Residential curbside recycling is available region-wide*

choose not to participate at all. In the unincorporated areas, non-residential recycling service is available through the private collection companies. These non-residential generators can work individually with the private collection companies to establish the type of service they need, or choose not to have any collection service.

## Issues

For this 20-year planning period, several issues need to be addressed to respond to industry changes and to ensure the continued effectiveness of our regional MMSW and recyclables collection services:

- **Waste Flow and Hauling Patterns:** Private collection companies are not always using the closest transfer station to dispose of their waste loads. Some cities are interested in changing this practice to help keep collection rates low.
- **Demand Management at Transfer Stations:** Strategies such as incentive rates, programmatic changes, and structural changes to transfer stations are needed to improve customer service and minimize conflicts in use between commercial haulers and self-haulers at the County's transfer stations.
- **Collection of Curbside Recyclables:** Changes in the industry and the region may affect how curbside recyclable materials are picked up and what is collected in the future. Under consideration are whether to continue with source-separated collection or convert to commingled collection, and what additional materials might be collected.
- **Special Collection Events:** Special events for collecting bulky items and extra waste are offered by the County and the cities. This chapter discusses how special collection events can be coordinated and staged more economically.
- **Household Hazardous Waste Collection:** The Wastemobile currently provides for the collection of household hazardous wastes. This chapter discusses a recent study of this service and the study's recommendations for improving household hazardous waste collection in the region.
- **Incentive Rates:** Offering incentive rates to households can help promote recycling. If incentive rates were offered, a structure for implementing them region-wide would need to be developed.
- **Alternative Collection Opportunities:** Newly developed programs provide opportunities for County and city residents to take products, such as leftover latex paint and used motor oil, for reuse or recycling to the retailers or manufacturers of the products. This chapter discusses a few of the programs that are currently in place.



▲  
*The King County  
Wastemobile provides  
disposal services for  
household hazardous  
wastes*

## Recommendations

The issues presented above are discussed in more detail in this section, followed by the recommendation for this planning period.



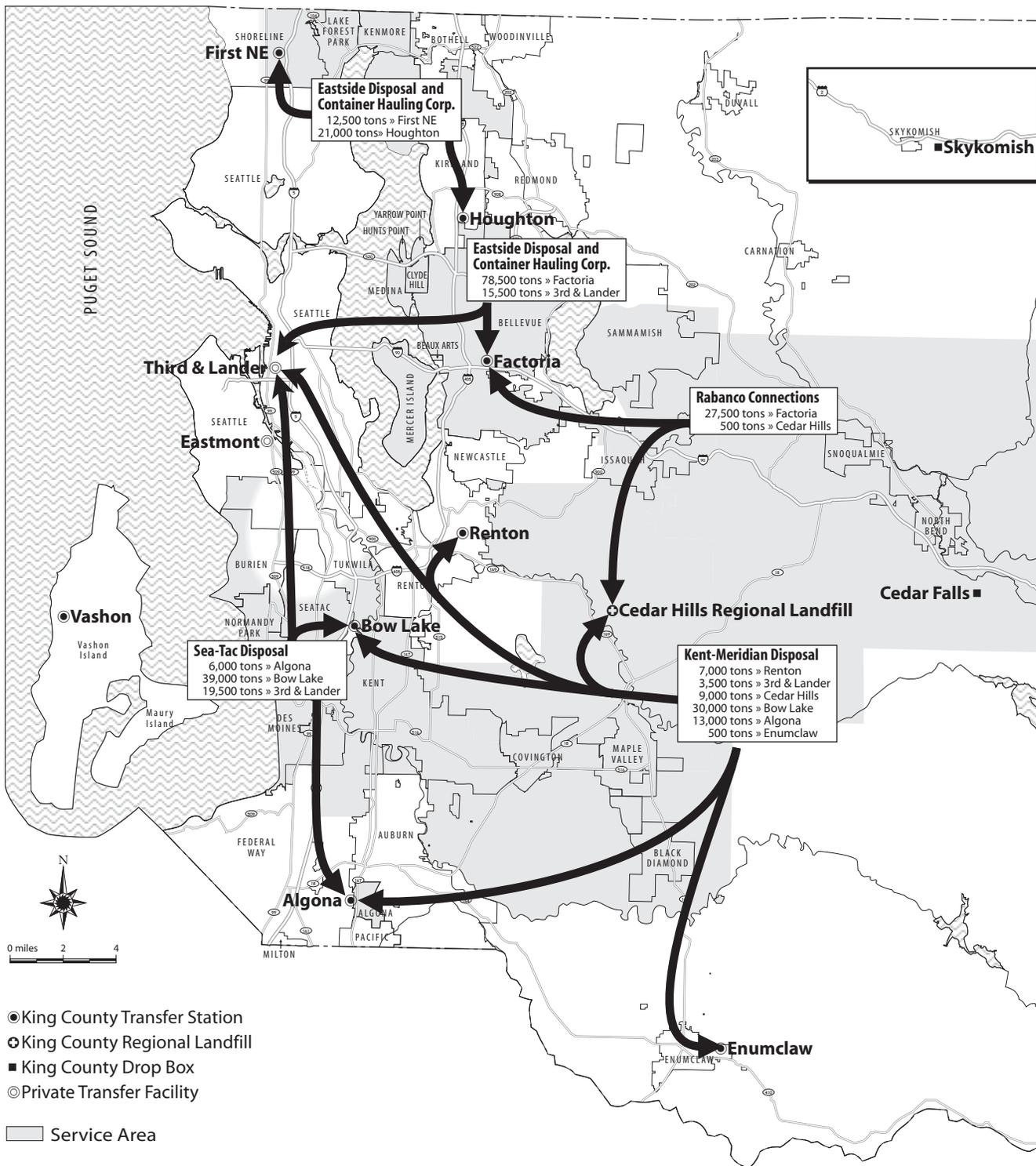
### Waste Flow and Hauling Patterns

King County's eight transfer stations are located conveniently throughout the County and have the capacity to handle all of the MMSW generated in the region; however, the private collection companies do not always haul their loads of MMSW to the nearest County transfer station. Instead, County tonnage and transaction records show that about 23 percent of these loads are driven to the private companies' own transfer stations in Seattle before being transported to the Cedar Hills Regional Landfill. Figures 5-3, 5-4, and 5-5 on the following pages show the hauling patterns and associated tons transported to facilities in the County and to the privately owned stations in Seattle.

MMSW collected in the cities and unincorporated areas, but transported through the private transfer stations in Seattle, is ultimately delivered to Cedar Hills, where the collection companies are charged a regional direct disposal fee. This rate is \$23 less than the transfer station tipping fee (see description of the regional direct fee in Chapter 10).

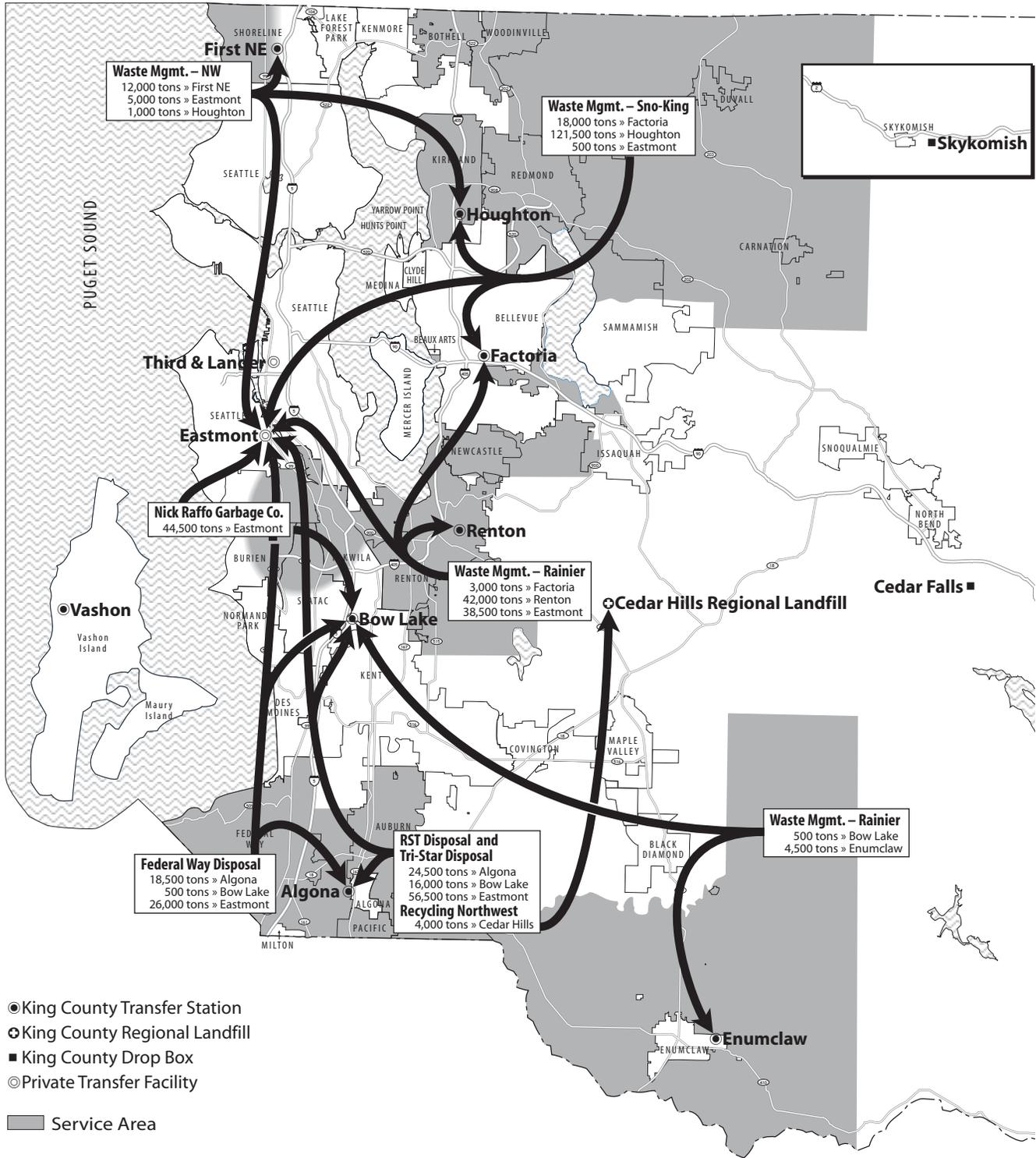
When private collection vehicles bypass closer County transfer stations to take advantage of the regional direct fee, it increases their travel time and distance. This additional time on the roadways uses more resources, increases road wear and pollution, and leads to increased collection costs. To encourage the private collection vehicles to use County transfer stations, the County must ensure that vehicles are processed efficiently through the station queue. In meetings with the private solid waste management companies during Plan development, representatives asked that the County seek ways to reduce congestion and long lines at County transfer stations.

Figure 5-3. Waste Transport by Rabanco Companies



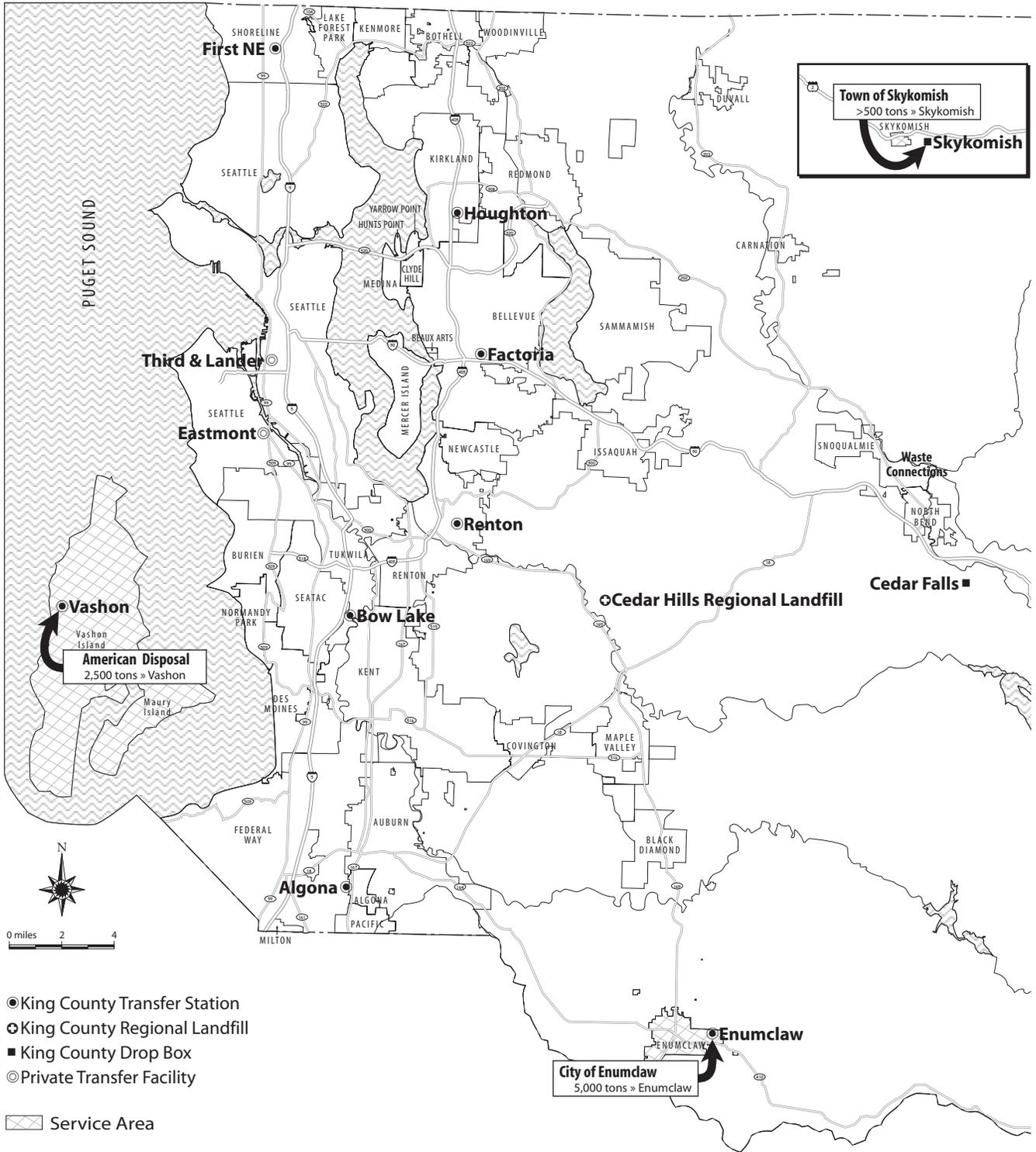
1999 Tonnage figures rounded to the nearest 500 tons.  
 Source: King County disposal data, hauler collection reports, and facility flow reports.

Figure 5-4. Waste Transport by Waste Management Companies



1999 Tonnage figures rounded to the nearest 500 tons.  
 Source: King County disposal data, hauler collection reports, and facility flow reports.

Figure 5-5. Waste Transport by Other Collection Services



1999 Tonnage figures rounded to the nearest 500 tons.  
 Source: King County disposal data.

During Plan development, citizens and a number of cities expressed a desire to maintain an MMSW collection service that is efficient, keeps collection costs down, and has as little impact as possible on the roadways and traffic. Under their Interlocal Agreements with King County and their contractual agreements with the private collection companies, cities can use their contracting authority to specify which transfer stations the collection companies use. They are currently using their authority to direct MMSW to disposal sites designated in the County's

*1992 Comprehensive Solid Waste Management Plan*. Further specification in their contract language can ensure that MMSW is taken to the closest transfer station.

Figure 5-6 presents an example of contract language that could be used to direct private collection companies to the closest station. This language is provided as an example of what cities could choose to do.

**Figure 5-6.** Potential Contract Language

**EXAMPLE**

**Designation of Disposal Site.** The Contractor shall deliver, at their cost, all garbage, refuse or other mixed municipal solid waste to the *[name of disposal site or sites]* that *[is/are]* part of the regional solid waste management system, as identified in the adopted King County Comprehensive Solid Waste Management Plan and approved by the Department of Ecology. When *[this/these]* *[name of disposal site or sites]* are unavailable due to emergency or repair, the Contractor may use other disposal sites that must be a part of the regional solid waste management system. Use of these sites shall be limited to the duration of the emergency or repair period. In no circumstance shall the Contractor use any disposal site that the City would be prohibited from using were the City to collect and dispose of garbage, refuse or other mixed municipal solid waste with its own employees and equipment.

The Contractor shall notify the City of any proposed change to using *[name of disposal site or sites]* as its designated disposal site(s) at least forty-five (45) days prior to the proposed change taking effect. Such proposal shall include the name or names of disposal sites within the regional solid waste management system to be used, a statement of the reason for the change in disposal sites, and an estimate of the impact of the change on monthly collection costs to households and businesses within the City. The City shall either approve or deny the Contractor's proposal within forty-five (45) days of its receipt, and shall base its decision on a review of the information provided by the Contractor and the adopted King County Comprehensive Solid Waste Management Plan.

Source: This language builds upon language in existing municipal solid waste collection contracts in the state, obtained through the Municipal Research and Services Center. This language is provided as example only and should be reviewed by the appropriate legal counsel before use.



**Demand Management at Transfer Stations**

Residential and non-residential customers who choose to bring their MMSW or primary recyclables to the transfer stations themselves are referred to as self haulers (discussed in more detail in Chapter 3). The two main types of self haulers are those that have curbside collection but haul occasionally when they have extra wastes or large, bulky items (including small business self-haulers such as remodelers and landscapers), and those that do not subscribe to curbside collection and haul their household garbage and recycling to the transfer stations regularly. Tonnage and transaction

records compiled by the County for 2000 indicate that 88 percent of the vehicle transactions at County transfer stations were with self haulers, collectively carrying 26 percent of the overall tons of waste received.

The challenge with managing self-haul traffic is to balance the needs of the self haulers with those of the private collection company vehicles that bring in most of the waste. High volumes of self-hauling activity can cause heavy traffic and congestion at the County transfer stations. This congestion can cause delays in service for the private collection vehicles that are hauling larger loads. It also increases capital costs for transfer station upgrades, as more vehicle queuing capacity is needed.

Any recommendations for managing self-haul traffic must consider potential negative impacts from changes in service at the transfer stations, such as increases in illegal dumping. For this reason, no changes will be recommended until alternatives are identified for maintaining a high level of service both at the curb and at the transfer stations (discussed in greater detail in Chapter 6).

Several alternatives were considered for managing self-haul activity through changes or enhancements in collection services. The recommended alternatives are to encourage subscription to curbside collection and to manage the need for occasional self hauling by improving pick-up service for bulky and extra wastes. Another alternative evaluated was to implement mandatory curbside collection of MMSW. It is not recommended at this time because of the lengthy regulatory process required, the lack of public and political support, the limited effect it would have on self-haul traffic, and its unavailability or inconvenience to many rural area self-haul customers. The County does, however, intend to continue to monitor its potential advantages and disadvantages in the future.



### Subscriptions to Curbside Collection

One way to manage self-haul traffic is to maximize customer subscriptions to curbside collection. In nearly all cases, curbside collection is the most efficient way to provide waste disposal services for households. Several methods will be used over the next few years to try to increase subscription levels. Mailings will be sent out in areas with low subscription levels to tell customers how to sign up, how self hauling may be costing them more, and what kinds of construction projects are coming up at the transfer stations that will make service reductions necessary for periods of time. Incentives will be offered for new subscribers who sign up for a year. These methods will be evaluated for cost effectiveness and adjusted accordingly.

### Household Statistics on Curbside Subscription and Self Hauling

- 90% subscribe to curbside garbage collection
- 87% also have curbside recyclables pick-up
- 68% never go to a transfer station
- 27% go to transfer stations, but no more than once every 6 months
- 9% go to transfer stations at least once a month
- 43% self-haul transactions at the transfer stations that are from that 9% of frequent self haulers





### Pick-up Service for Bulky and Extra Waste

As discussed in Chapter 3, the most common reason that residents self haul is that they have bulky or extra waste to dispose. Bulky waste is large items like old furniture, appliances, and wood waste that will not fit in a standard curbside collection vehicle. Extra waste is waste that can be set out at the curb but will not fit in a residential curbside collection can, either because of size or volume.



King County residents must self haul or arrange for pick up and disposal of bulky items such as this couch

Residents who accumulate bulky or extra waste have four basic options. They can haul the waste themselves to a transfer station, they can set the extra waste out at the curb along with their collection can and pay an established fee, they can arrange to have the bulky or extra waste picked up, or they can take their bulky items to special community collection events. Because of the costs involved, most people choose to haul the waste themselves.

Fees for putting extra waste out at the curb vary among cities and areas of the County, ranging from about \$2 to \$4 per extra bag or can. Since bulky waste is too heavy or will not fit in a standard collection vehicle, it requires a scheduled pick-up in a different type of truck. Private collection companies have WUTC-approved rates for bulky waste collection that range from \$28 to \$75 per hour, plus disposal costs. Customers also have the option to hire a non-regulated service to do clean-up, then take their wastes to the transfer station. Both of these options are currently more costly than the average self-haul transaction charge at a transfer station, which was \$23 in 2000.

To discourage the practice of self hauling bulky and extra wastes would require that collection services be made more affordable and accessible to residents. The County plans to work cooperatively with the cities and private collection companies to identify options for residents to choose from. One option is to work with the cities to schedule more community collection events for bulky and extra wastes, for both recyclable and disposable materials. Another option is to work with the collection companies to establish regularly scheduled routes for bulky waste pick-up that will make the service more efficient and economical to the ratepayer. The County will also help inform residents of the full range of services provided by the private collection companies, including schedules for services and their costs.

To ensure that the interests of the ratepayers, the County, the cities, and the private collection companies are all considered, the Solid Waste Advisory Committee and city solid waste coordinators will be involved in developing recommendations for service improvements.



### Mandatory Curbside Collection of MMSW

Mandatory curbside collection requires that all residents within a defined area sign up and pay for a minimum level of service. It has been suggested that mandatory collection would help significantly to manage the demand for self hauling.

Cities can require mandatory curbside collection of MMSW within their jurisdictions, and fourteen cities in the County have done so. The primary reasons for taking this step are to minimize illegal dumping and littering and to distribute the costs of recycling and solid waste management equitably among all residents. In addition, it is the most efficient way to provide the service because of economies of scale.

To require mandatory collection in an unincorporated area or county-wide, the County would form an MMSW collection district as described in RCW 36.58A. The statute requires the County to hold public hearings on the issue and get approval by the King County Council. The Council could approve a mandatory collection district in all or part of the County if it was deemed in the public interest and necessary for the protection of public health. In that event, the cities could join the district or could pass their own mandatory collection ordinances. The County and the cities would have to coordinate the implementation of these ordinances.

Establishment of collection districts is authorized under this Plan when approved by the Council for the public interest or preservation of public health. At this point, however, it is not recommended county-wide because there is no evidence that it would impact the demand for self-haul service. Survey data from the County's

1999/2000 *Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys* (Appendix A-2) show that there is no discernable effect on self-hauling traffic in the fourteen cities in the region that have mandatory collection compared with those that do not. The City of Seattle, which has had mandatory collection since 1961, also has data that support the finding that mandatory collection does not significantly affect self-hauler demand.



Eighty-eight percent of transactions at King County transfer stations are with self haulers



Changes in the recycling industry may affect how curbside recyclable materials are picked up and what additional materials may be candidates for recycling in the future.

Currently, there are two common methods for collecting primary recyclable materials. One method is source separated, where the household or business sorts materials into three separate bins for collection. The other method is commingled, where all of the recyclable materials, except for glass and some metals, are collected in one large bin.

The City of Seattle recently signed new contracts that could have an impact on how recyclables are collected in all of King County. Seattle is making collection uniform by converting all areas of the city to a commingled bin system. By converting to commingled collection, Seattle estimates it will be able to reduce transportation costs and increase recycling over time. Instead of having recyclables picked up every week in the northern part of the city and once a month in the southern part, recyclables are now picked up every other week city-wide. Yard waste is also picked up every other week, on opposite weeks from recycling. The cities of Tacoma and Olympia have made similar changes to their collection systems.

Because the same collection companies are serving both the King County service area and the City of Seattle, it is possible the companies may wish to establish a uniform method of collection throughout the entire region. For this reason, the County and the cities have begun looking at commingled collection and its potential implications within our regional system, as well as changes to the frequency of collection.

Another issue is whether additional types of recyclable or reusable materials could be collected at the curb. Additional materials being considered include polycoated paper, aseptic packages (such as juice boxes and other similar containers), textiles, all plastic containers (Numbers 1 through 7), and food wastes for composting. The City of Seattle added to its collection services polycoated paper, aseptic packages, and plastic container Numbers 1 through 5, which include plastic grocery bags and rigid plastic containers, except those made of polystyrene.

Table 5-3 shows the amounts of these additional materials under consideration that are currently disposed in the County’s waste stream. Tonnage is calculated from the year 2000 forecast, and percentages are taken from the Solid Waste Division’s most current waste characterization study (Cascadia 2000; Appendix A-2).

**Table 5-3.** Additional Wastes Considered for Collection and Amounts Currently Disposed

Material	Tons	Percent of Overall Waste Stream
Polycoated paper and aseptic packages	3,792	0.4
Textiles	18,012	1.9
All plastic containers (Numbers 1-7)	16,116	1.7
Food waste and compostable paper	202,872	21.4

Food wastes comprise a substantial portion of the MMSW stream. These wastes could be collected separately or perhaps be combined with yard waste. King County and the City of Seattle have conducted several pilot programs to study collection issues, to test composted food waste, to demonstrate on-site food waste composting, and to survey residential customers on their opinions about food waste collection. Chapter 4 provides more detailed discussion on the recycling and composting of food wastes.

The County and the cities will continue to research the benefits of using a commingled collection system, changing the frequency of collection, and adding materials for collection. The implementation of these changes in other areas of the Puget Sound

is being further evaluated to analyze their benefits and costs. If these changes are implemented within our regional system, procedures will be developed to make it easier for cities with collection contracts to make the changes as contracts are renewed.



### Special Collection Events

King County and the cities hold special recycling collection events twice a year during which residents can recycle items that are not collected at the curb or in drop box programs, such as tires, refrigerators and other appliances, clothing, furniture, electronics, and scrap metal.

Currently, King County sponsors events for residents in unincorporated areas, and the cities sponsor events for their residents with funding provided by the County through grants. In 2000, King County and the cities held 51 events and collected 3,514 tons of materials from 21,969 vehicles.

The County and the cities will look at more ways to coordinate special collection events, and potentially reduce administrative costs for staging them.



Special collection events provide residents with the opportunity to dispose items that are not accepted at the curbside



### Household Hazardous Waste Collection

The Local Hazardous Waste Management Program provides household hazardous waste (HHW) collection throughout King County. The program is sponsored by King County, the City of Seattle, the cities within our regional system, and Public Health – Seattle & King County. The program is guided by the Local Hazardous Waste Management Plan mandated under RCW 70.105 and adopted in March 1998. The City of Seattle operates two HHW collection sites within its city limits, which are open to all King County residents. The County's Household Hazardous Wastemobile also provides services to King County residents, traveling to designated sites or special events to collect HHW.

The Local Hazardous Waste Management Program recently completed a study to look at services currently provided in the region. The study found that services need to be improved in the southern and eastern portions of the County. Recommendations from the study included:

- Implementing a pilot stationary collection service at a transfer station
- Implementing a pilot program to augment current mobile collection services
- Continuing to provide collection through the County's Wastemobile and Seattle HHW collection sites



The King County Wastemobile travels to more than 30 cities each year

The recommended pilot programs will be implemented in 2001 and 2002. During the same period, the City of Seattle will be conducting a pilot program to collect HHW from home-bound residents who are unable to bring the wastes to a collection site themselves. All of these pilot programs will be evaluated under the Local Hazardous Waste Management Program to determine the most effective way to enhance HHW collection services in the region.



### **Incentive Rates**

According to information gathered from the cities, the WUTC, and the private collection companies, collection rates for MMSW vary among the cities and certificated areas (Table 5-4, Figure 5-7). Rates are affected by population size and density, size and type of commercial and industrial sectors, distance to the transfer station, age and size of the collection vehicle fleet, and any administrative program and billing costs added by the cities. Also, services may vary in numerous ways, including location of pick up, whether yard waste is included, and what materials are collected.

Incentive or variable rates can be used to encourage recycling. Residents pay for garbage service based on the size and number of garbage cans they put out on a weekly basis. The more they recycle – in other words the less garbage they put out at the curb – the less they pay. The rates are structured so that each additional can of garbage costs incrementally more. The WUTC is not currently authorized to establish incentive rates; therefore, in unincorporated King County and in cities regulated by the WUTC, incentive rates are not used. In many of the cities with collection contracts, however, incentive rates are used to encourage recycling, and have proven to be effective in reducing disposal.

During the 2000 session, the state legislature considered a bill that would allow the County and cities to establish a structure for incentive rates in the *Final 2001 Comprehensive Solid Waste Management Plan*. If such a bill passes in the future, ordinances establishing this new rate structure would have to be passed within each jurisdiction.

Since incentive rates have proven to be an effective means of encouraging recycling within the City of Seattle and elsewhere, if the new legislation for incentive rates passes, the County, the cities, and the WUTC will work together to develop a framework for structuring and implementing incentive rates.



### **Alternative Collection Opportunities**

An idea gaining support is taking responsibility for the entire life of a product. One way to encourage this practice is to provide a means for collecting products that can be reused or recycled. For example, take-back programs have been started that allow consumers to return products to the store where they purchased them. Programs are in place for the return of leftover latex paint, used motor oil, and nicad batteries. Other programs, sponsored by charitable organizations, have been developed to take back used clothing and household goods. The manufacturers, retailers, charitable organizations, or public/private entities may sponsor these programs.

The County and the cities, in conjunction with regional businesses and manufacturers, are working to increase the number of alternative collection opportunities available in the region. This Plan supports and encourages such product stewardship efforts.

## References

Cascadia. 2000. *Waste Monitoring Program: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys*. Final Report. Prepared by Cascadia Consulting Group, Inc., for King County Department of Natural Resources, Solid Waste Division, Seattle, WA.

**Table 5-4.** 2000 Residential Collection Services and Rates Throughout the King County System

Jurisdiction	Form of Collection Regulation	Collection Company	Solid Waste Collection Mandatory	Rate Includes Cost of Recycling	Rate Includes Cost of Yard Waste Collection	COLLECTION RATES		
						Mini-can	One-can	Two-can (64-gal)
Algona	CONT	Sea-Tac (R)	■	■		\$8.27	\$13.14	\$18.59
Auburn	CONT	RST (WM)	■			\$7.74	\$9.36	\$20.69
Beaux Arts	CERT	Eastside (R)		■		\$10.15	\$12.72	\$15.81
Bellevue	CONT	Eastside (R)		■	■	\$7.84	\$14.20	\$19.91
Black Diamond	CERT	Kent-Meridian Disposal (R)		■		\$10.11	\$13.21	\$16.93
Bothell	CONT	Sno-King(WM)	■	■	■	N/A	\$16.53	\$23.66
Burien	CERT	Sea-Tac (R)		■		\$9.72	\$12.69	\$16.94
		Nick Raffo (WM)				\$10.26	\$15.95	\$20.89
Carnation	CONT	Sno-King(WM)	■			N/A	\$17.80	\$35.39
Clyde Hill	CERT	Eastside (R)		■		\$10.15	\$12.72	\$15.81
Covington	CERT	Kent-Meridian Disposal (R)		■		\$10.11	\$13.21	\$16.93
Des Moines	CERT	Sea-Tac (R)		■		\$10.64	\$13.97	\$16.94
Duvall	CERT	Sno-King(WM)	■			\$11.90	\$14.40	\$20.15
Enumclaw	CITY	City of Enumclaw/RST (WM)	■	■		\$10.09	\$16.43	\$23.00
Federal Way	CONT	Federal Way Disposal (WM)		■		\$8.52	\$13.65	\$20.48
Hunts Point	CERT	Eastside (R)		■	■	\$16.06	\$18.63	\$22.52
Issaquah	CONT	Rabanco Connections (R)		■	■	\$5.83	\$9.91	\$20.46
Kenmore	CERT	Eastside (R)		■		\$10.15	\$12.72	\$15.81
Kent	CONT	Kent-Meridian Disposal (R)		■		\$9.45	\$10.98	\$16.50
Kirkland	CONT	Sno-King(WM)	■	■	■	\$18.68/ weekly, unlimited		
Lake Forest Park	CONT	Eastside (R)		■	■	\$9.54	\$16.17	\$22.73
Maple Valley	CERT	Kent-Meridian Disposal (R)		■		\$10.11	\$13.21	\$16.93
Medina	CERT	Eastside (R)	■	■	■	\$16.63	\$19.20	\$23.09

Table 5-4. continued

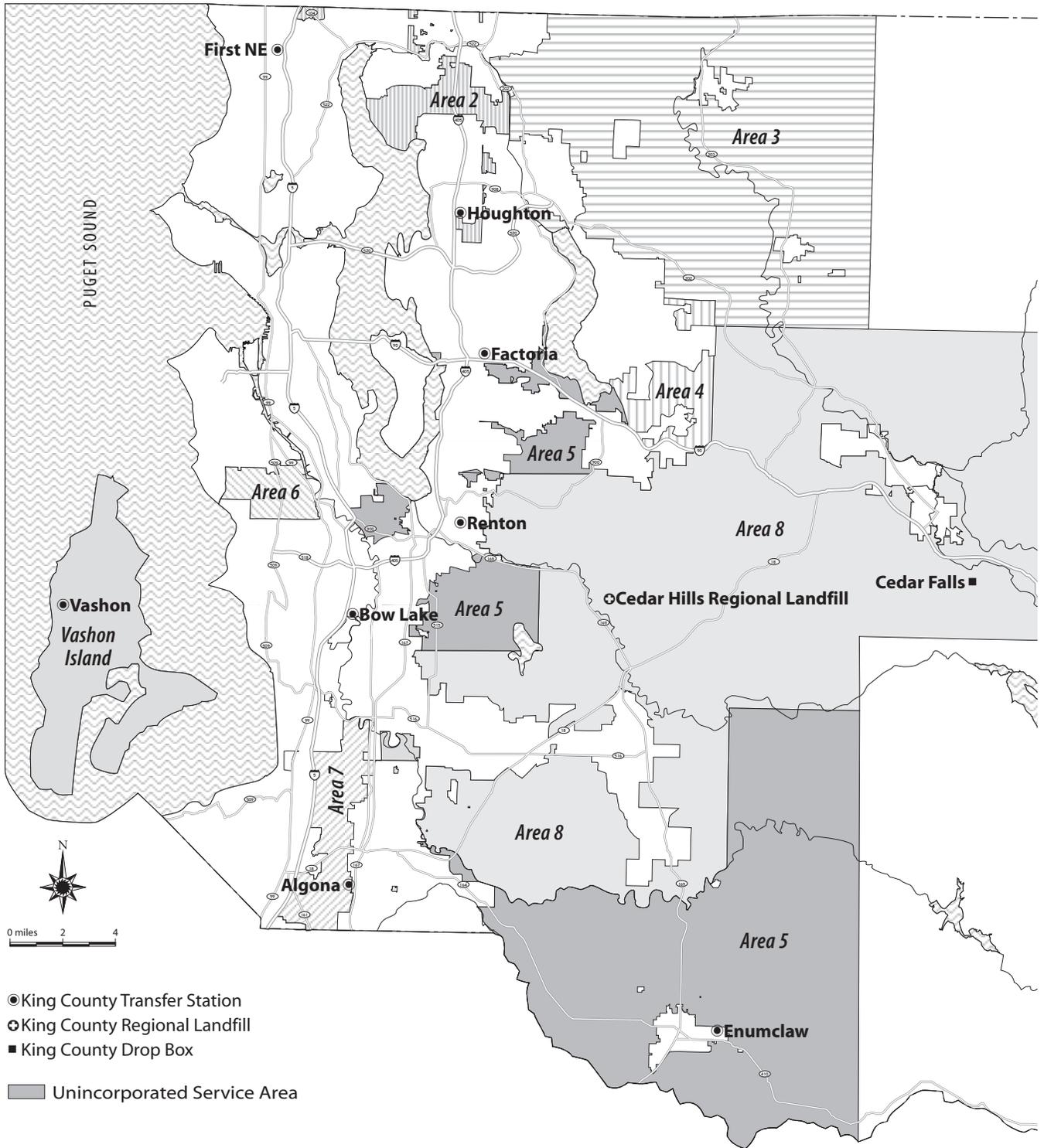
Jurisdiction	Form of Collection Regulation	Collection Company	Mandatory Solid Waste Collection	Rate Includes Cost of Recycling	Rate Includes Cost of Yard Waste Collection	COLLECTION RATES		
						Mini-can	One-can	Two-can (64 gal)
Mercer Island	CONT	Eastside (R)		■	■	\$9.90	\$16.43	\$25.44
Newcastle	CERT	Rainier (WM)		■		\$11.90	\$15.00	\$21.00
Normandy Park	CERT	Sea-Tac (R)	■	■		\$9.37	\$12.34	\$16.94
North Bend	CONT	Rabanco Connections (R)	■	■		\$10.48	\$13.57	\$27.14
Pacific	CONT	RST (WM)	■			\$6.00	\$13.14	\$26.43
Redmond	CONT	Sno-King(WM)		■	■	\$6.47	\$9.16	\$18.20
Renton	CONT	Rainier (WM)	■	■	■	\$6.10	\$12.80	\$20.35
Sammamish	CERT	Rabanco Connections (R)		■		\$9.60	\$13.73	\$20.10
		Sno-King(WM)		■		\$11.90	\$14.40	\$20.15
SeaTac	CERT	Sea-Tac (R)		■		\$6.30	\$9.27	\$13.83
		Nick Raffo (WM)		■		\$7.94	\$12.12	\$16.91
Shoreline <sup>a</sup>	CONT	Northwest (WM)		■		\$9.73	\$11.25	\$15.53
Skykomish	CITY	Town of Skykomish	■			N/A	\$15.00	\$21.00
Snoqualmie	CONT	Rabanco Connections (R)	■	■		\$10.33	\$13.35	\$26.69
Tukwila <sup>b</sup>	CONT	Sea-Tac (R)		■		\$8.08	\$10.84	\$16.18
Woodinville	CERT	Sno-King(WM)		■		\$11.90	\$14.40	\$20.15
Yarrow Point	CERT	Eastside (R)		■		\$10.15	\$12.72	\$15.81
<b>Unincorporated King County</b> (see Figure 5-7 for locations)								
Service Area 2	CERT	Eastside (R)		■		\$10.15	\$12.72	\$16.61
Service Area 3	CERT	Sno-King(WM)		■		\$11.90	\$14.40	\$20.15
Service Area 4	CERT	Rabanco Connections (R)		■		\$9.60	\$13.73	\$20.88
Service Area 5	CERT	Rainier (WM)		■		\$11.90	\$15.00	\$21.00
		Sea-Tac (R)		■		\$9.72	\$12.69	\$16.94
Service Area 6	CERT	Sea-Tac (R)		■		\$9.72	\$12.69	\$16.94
		Nick Raffo (WM)		■		\$10.26	\$15.95	\$20.84
Service Area 7	CERT	Sea-Tac (R)		■		\$9.72	\$12.69	\$16.94
		RST (WM)		■		\$9.81	\$14.16	\$20.87
Service Area 8	CERT	Kent-Meridian Disposal (R)		■		\$10.11	\$13.21	\$17.83
Vashon Island	CERT	American Disposal (WC)				\$10.85	\$15.22	\$20.88

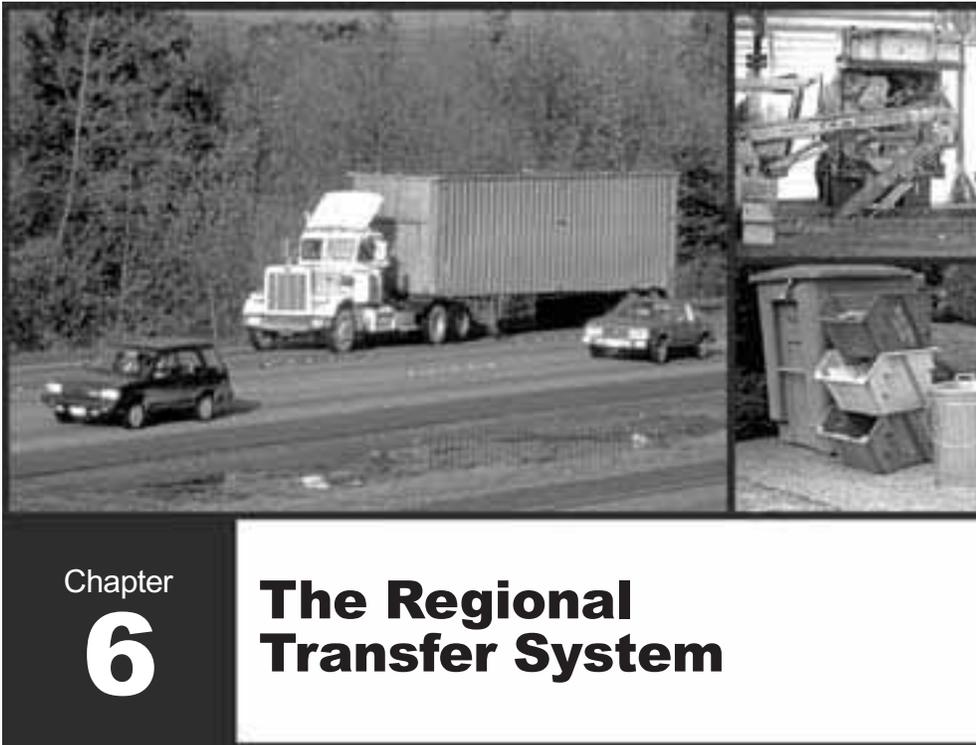
Key: **CONT**–Contract; **CERT**–Certificate; **CITY**–City; **(WM)**–Waste Management; **(R)**–Rabanco; **(WC)**–Waste Connections; **N/A**–Not Available.

a) City contracted with WM-Northwest in March 2001. b) City contracted with Sea-Tac in May 2001

Source: Telephone surveys conducted by the Solid Waste Division of the cities, WUTC, and private collection companies. Rates may have changed since this document was published.

Figure 5-7. Unincorporated Service Areas of King County





Chapter  
**6**

## The Regional Transfer System

The concept of a regional solid waste transfer and disposal system in King County was developed in the early 1960s. Its primary purpose was, and continues to be, the protection of public health and the environment. Prior to its development, solid waste was hauled directly to open, unlined landfills across the County. The heightened environmental concern and protection standards that grew out of the 1960s and 1970s, and the tremendous growth in the region over the last 40 years, have shaped the system in operation today. The current transfer system serves three main functions:

- It provides geographically dispersed, convenient, and safe collection points around the County for mixed municipal solid waste (MMSW) from both commercial and self haulers
- It provides collection points for recyclable materials from self haulers
- It reduces traffic on the highways and at the landfill by providing stations where smaller loads can be consolidated into fewer, larger loads for transport

The transfer system continues to evolve to accommodate regional growth and the changing needs of the customers. The most significant change for this 20-year planning period will be the closure of the County's only active landfill – the Cedar Hills Regional Landfill. This closure is expected when the landfill reaches capacity in approximately 2012. As the date approaches, the regional transfer system must be readied for waste export (as discussed in Chapter 7). Before waste export is implemented, transfer stations will be equipped to load waste efficiently into trailers that are then exported to

an out-of-County landfill. These and other changes needed at the transfer stations are the subject of this chapter.

The chapter begins with the County’s policies on the regional transfer system. Then the chapter contains a brief description of how the regional transfer system operates today and the issues involved in maintaining an efficient and cost-effective system in the future. This description is followed with separate discussions of recommendations for service-level and facility changes during the planning period.

The recommendations are designed to meet the following criteria:

- Provide needed services that benefit the community
- Ensure rates remain low and stable over time
- Support regional goals for waste reduction and recycling
- Comply with all federal, state, and local laws

### **County Regional Transfer System Policies**

The County policies for the operation and maintenance of an efficient and cost-effective transfer system are as follows:

**RTS-1.** The county’s objectives for its transfer system are:

1. Meeting customer needs for convenient, uniform services;
2. Seeking to maintain operating costs for solid waste management lower than those in other jurisdictions;
3. Preparing the mixed municipal solid waste transfer system for eventual waste export;
4. Keeping rates stable and rate increases as low as possible while meeting the costs of managing the system and providing services to solid waste customers; and
5. Protecting environmental quality and public health and safety while providing cost efficient services.

**RTS-2.** The county should provide for the future of the solid waste transfer system by maximizing use of existing transfer stations, making existing transfer stations as efficient as possible, evaluating the need for new transfer facilities, and focusing capital improvements on balancing service needs of commercial and self-haulers.

**RTS-3.** The county should focus capital investment to:

1. Maintain the county’s system facilities in a safe condition for both the system’s customers and the system’s employees;
2. Upgrade its transfer facilities to serve a future waste export system when the Cedar Hills regional landfill reaches its permitted capacity, or at such earlier time as the county may decide;
3. Improve transfer stations to improve efficiency, capacity and customer service; and
4. Expand, relocate or replace, or any combination thereof, transfer stations when safety, efficiency, capacity or customer services needs cannot be met by existing transfer facilities.

**RTS-4.** The county should prioritize efficient service to commercial haulers while still providing services for self-haul customers, provided that nothing in this policy permits limiting standard hours of operation at county transfer facilities for self-haul customers without council approval by ordinance.

**RTS-5.** Compactors should be installed at transfer stations in order to achieve operating efficiencies by processing waste more quickly in less space, reducing truck trips between the stations and the disposal site, saving transportation and equipment costs, reducing odors and litter, and preparing for economical waste export. The county should prioritize, to the extent practicable, compactor installation at those transfer stations with the greatest tonnages.

**RTS-6.** The county shall evaluate the feasibility of siting an additional transfer facility to serve residents of northeast King County.

**RTS-7.** The county shall establish criteria and standards for determining when a county owned and operated transfer station has exceeded its capacity to efficiently serve the needs of its customers and where new or relocated transfer facilities are needed.

**RTS-8.** Before restricting access to any customer class at a specific transfer station, the executive shall transmit for council approval by motion a demand management plan for that transfer station. The demand management plan shall identify strategies such as incentive rates, programmatic changes and structural changes designed to minimize conflicts between commercial haulers and self haulers and improve customer service. The demand management plan shall include an evaluation of the costs and benefits of these strategies, the impact of implementing these strategies on different sectors of commercial and self haulers that use the transfer station, and impacts on illegal dumping. The demand management plan shall be formulated with the participation of affected cities.

**RTS-9.** The county, in coordination with affected cities, should continue to improve county transfer station operations to ensure efficient queuing, unloading and exiting.

**RTS-10.** The county shall designate county-owned transfer stations as either capable of being expanded on-site or constrained from on-site expansion. The purpose of this designation is to maximize the use of existing sites by concentrating capital investment on sites where significant improvements are both physically possible, and supported by the host city. Facilities capable of being expanded may require new construction or major rebuilding in order to provide a full range of solid waste disposal and recycling services for county residents and businesses. Facilities constrained from on-site expansion will receive necessary safety and efficiency improvements, including compactors.

**RTS-11** In designating transfer stations as either capable of being expanded on-site or constrained from on-site expansion, the county shall consider the size of the site, other physical characteristics and constraints, the level of support for needed improvements by the host city. The system as a whole shall be assessed to maximize the equitable distribution of full service facilities.

**RTS-12.** The following transfer stations are designated as capable of being expanded on site: First Northeast, Factoria, Bow Lake, Enumclaw and Vashon.

**RTS-13.** The following transfer stations are designated as constrained from on-site expansion: Houghton, Renton, and Algona.

**RTS-14.** The following transfer stations are authorized by the county as adjunct transfer stations to receive, consolidate and deposit mixed municipal solid waste into larger transfer vehicles for transport to and disposal at county authorized disposal sites: Waste Management's Eastmont and Rabanco's Third and Lander facilities.

**RTS-15.** The county should maintain the use of drop boxes to serve rural customers in the Skykomish and Cedar Falls area until periodic analyses of demographic and disposal trends in the rural areas determine that improvements in the type and level of service and facilities may be needed. The county should explore the use of an access card to provide access to drop box facilities for residents and property owners in the area so that individual property owners could be billed on a monthly basis.

**RTS-16.** The county should continue to provide solid waste services through the county transfer facilities. However, the county will remain open to considering and implementing future private sector proposals for the transfer system as part of its annual evaluation of the timing of waste export. In evaluating future private sector proposals for the transfer system, the county should balance financial costs and benefits with other relevant factors, including environmental considerations and fairness to existing labor. The county should consider expanding the role of collection companies in the provision of transfer services when the collection companies demonstrate that such expansion reduces the overall costs of solid waste management to county residents and businesses, maintains or improves service levels, and advances the goal that solid waste disposal facilities be dispersed throughout the county in an equitable manner. The county's goal will be to make the transition to waste export as equitable as possible to those affected by the transition.

**RTS-17.** All public and private transfer facilities shall comply with applicable federal, state, and local laws and proposed facility improvements shall be required to meet applicable legal requirements. Legal requirements include, but are not limited to those regarding environmental protection, public health and safety, procurement and labor.

**RTS-18.** The county shall prepare the capital improvement program required to implement the Final 2001 Comprehensive Solid Waste Management Plan under K.C.C. 4.04.200 through 4.04.270. Proposed capital improvements are subject to council appropriation and the county's annual budget process. The proposed capital improvement program should demonstrate how the following considerations are addressed:

1. Protecting the safety of customers and employees at any solid waste facility;
2. Planning for permit acquisition requirements and timing;
3. Mitigating impacts to the surrounding community including but not limited to noise, traffic, dust, odor and litter;
4. Including public comment and input, including comment and input from the host jurisdictions, in project development;
5. Preparing for waste export;
6. Minimizing service disruption at transfer facilities and throughout the system during capital construction;
7. Ensuring that no more than one transfer station is closed for capital improvements at any time;
8. Demonstrating the extent to which sites requiring capital improvements are functioning at or near operating capacity for either traffic or tonnage;
9. Demonstrating how the planned capital improvements were evaluated according to the criteria and standards for transfer facility efficiency; and
10. Achieving operating savings.

**RTS-19.** The capital improvement program for King County shall only fund projects and improvements at facilities owned and operated by King County.

**RTS-20.** Prior to making any improvements to transfer stations or locating new transfer facilities, the executive shall work with affected communities to develop mitigation measures for environmental impacts created by the construction, operation, maintenance or expansion of transfer facilities.

**RTS 21.** The county is encouraged to exceed minimum environmental requirements in the operation of its solid waste handling facilities where feasible. The county shall investigate the use and cost of technology and equipment that may allow the county to exceed minimum legal environmental requirements, including, but not limited to, those related to concerns such as air quality and sound.

**RTS-22.** The county shall evaluate the potential for establishing a special services transfer facility to handle bulky wastes and recycling, and serve self-haul customers.

## The Transfer System Today

The regional transfer system now comprises a mix of public and private facilities, including eight transfer stations and two rural drop boxes operated by the County and two transfer stations operated by the two major private solid waste management companies in the county – Waste Management, Inc. and Rabanco.

Figure 6-1 on the following page shows the locations of the County system’s transfer facilities and the Cedar Hills Regional Landfill. Transfer stations are dispersed geographically throughout the county to maximize the efficiency of solid waste collection.

According to County transaction data, about 75 percent of the system’s MMSW is transported through the County transfer facilities before disposal at the Cedar Hills Regional Landfill. About 23 percent of the remaining MMSW is transported to the privately owned transfer stations in Seattle, where loads are consolidated and hauled to Cedar Hills. The remaining 2 percent is hauled directly to Cedar Hills because the landfill is the closest facility, or the waste is difficult to handle (see Chapter 8 on special wastes).

Waste Management and Rabanco are the primary commercial haulers in the region. Waste Management owns and operates a transfer station at its Eastmont facility in Seattle, and Rabanco owns and operates a transfer station at Third & Lander, also in Seattle. These two private facilities are part of the solid waste management systems for both King County and the City of Seattle, serving primarily collection vehicles from their own companies and subsidiaries.

In addition to serving the commercial haulers, the County facilities serve self haulers. Self haulers are residential and non-residential customers who choose to bring their garbage and recyclables to the transfer facilities themselves.



▲  
The Enumclaw  
Transfer/ Recycling  
Station is one of the  
newest stations in the  
regional system

Figure 6-1. Locations of Solid Waste Facilities

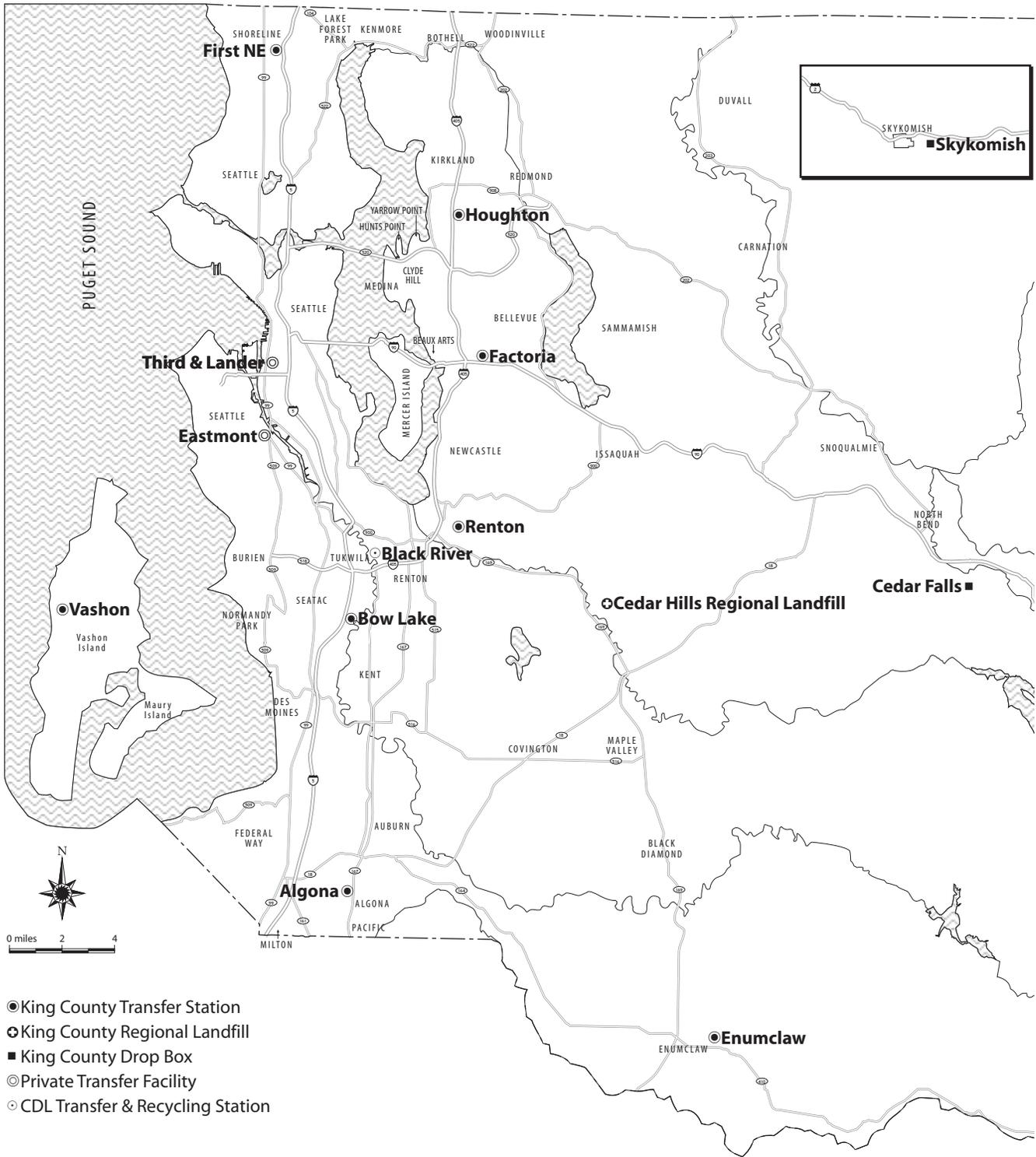


Table 6-1 gives the location and level of service provided at each transfer facility. All County-operated transfer stations are open to self haulers and commercial haulers from at least 8:00 a.m. to 5:30 p.m., 362 days a year. The Factoria Transfer Station is open weekdays from 6:15 a.m. to 11:30 p.m. Days and hours of operation are set by ordinance by the King County Council (codified in KCC Title 10). According to their plans of operation, Waste Management's Eastmont transfer station is open weekdays from 6:00 a.m. to 6:00 p.m. and Saturday from 7:00 a.m. to 4:00 p.m., and Rabanco's Third & Lander transfer station is open weekdays from 7:00 a.m. to 5:30 p.m. and Saturday from 8:00 a.m. to 3:30 p.m. Both private stations have extended hours to serve their own collection vehicles.

County-operated drop boxes are located at Cedar Falls and Skykomish. These facilities are provided as a convenience to self haulers in the rural areas; they are not intended to serve commercial collection vehicles. Table 6-2 shows their locations, services provided, and hours of operation.

**Table 6-1.** Services Provided at Each Transfer Station

<b>Stations Publicly Owned and Operated by the King County Solid Waste Division</b>			
<b>Transfer Station and Address</b>	<b>Facility Type and Services Provided</b>	<b>Acres Occupied</b>	<b>Round Trip Miles to Cedar</b>
<b>Algona</b> 35315 West Valley Hwy. Algona, 98001	Two-trailer direct load facility. Receives MMSW from commercial and self-haul customers.	4.6	41
<b>Bow Lake</b> 18800 Orillia Rd. South Seattle, 98188	Push-pit facility. Receives MMSW from commercial and self-haul customers and recyclables, including tin, glass, aluminum, mixed paper, newspaper, cardboard, and #1 and #2 plastic.	16.9	33
<b>Enumclaw</b> 1650 Battersby Ave. E. Enumclaw, 98022	Compactor-equipped facility with push pit. Receives MMSW from commercial and self-haul customers and recyclables, including tin, aluminum, glass, mixed paper, newspaper, cardboard, #1 and #2 plastic, yard waste, clean wood, and appliances.	25.0	42
<b>Factoria</b> 13800 SE 32nd St. Bellevue, 98005	Two-trailer direct load facility. Receives MMSW from commercial and self-haul customers and recyclables, including tin, aluminum, glass, mixed paper, newspaper, cardboard, #1 and #2 plastic, and yard waste.	7.8	36

Table 6-1. *continued*

<b>Transfer Station and Address</b>	<b>Facility Type and Services Provided</b>	<b>Acres Occupied</b>	<b>Round Trip Miles to Cedar</b>
<b>First Northeast</b> 2300 N. 165th St. Seattle, 98133	Two-trailer direct load facility. Receives MMSW from commercial and self-haul customers and recyclables, including tin, aluminum, glass, mixed paper, newspaper, cardboard, and #1 and #2 plastic. Reusable items for Goodwill also collected.	12.5	73
<b>Houghton</b> 11727 NE 60th St. Kirkland, 98033	Two-trailer direct load facility. Receives MMSW from commercial and self-haul customers and recyclables, including glass, tin, aluminum, mixed paper, newspaper, cardboard, and #1 and #2 plastic.	8.4	48
<b>Renton</b> 3021 NE 4th St. Renton, 98056	Two-trailer direct load facility. Receives MMSW from commercial and self-haul customers and recyclables, including glass, tin, aluminum, mixed paper, newspaper, cardboard, and #1 and #2 plastic.	9.0	24
<b>Vashon</b> 18910 Westside Hwy. SW Vashon, 98070	Compactor-equipped facility with surge pit. Receives MMSW from commercial and self-haul customers and recyclables, including tin, aluminum, glass, mixed waste paper, newspaper, cardboard, #1 and #2 plastic, yard waste, and appliances.	9.4	90
<b>Stations Owned and Operated by Private Companies</b>			
<b>Eastmont</b> (Waste Mgmt.) 7201 W Marginal Way SW Seattle, 98106	Compactor-equipped facility. Receives MMSW from its own collection and container vehicles, and CDL waste, petroleum-contaminated soils, and asbestos from its own vehicles and contractors.	2.7	72
<b>Third &amp; Lander (Rabanco)</b> 2733 Third Avenue Seattle, 98134	Compactor-equipped facility. Receives MMSW from its own collection and container vehicles, and petroleum-contaminated soils, CDL waste, yard wastes, and asbestos from its own vehicles and contractors. Accepts pre-sorted and general recyclables.	13	70
Source: <i>Facility operations plans.</i>			

**Table 6-2.** Services Provided at the Drop Boxes

Location and Address	Services Provided	Hours of Operation
<b>Cedar Falls</b> 16925 Cedar Falls Rd. SE North Bend, 98045	Receives MMSW from self haulers only, and recyclables, including tin, aluminum, glass, mixed waste paper, newspaper, cardboard, plastic, and yard waste.	8:00 a.m.–5:00 p.m. Pacific Daylight Time; 9:00 a.m.–6:00 p.m. Pacific Standard Time
<b>Skykomish</b> 74324 NE Old Cascade Hwy. Skykomish, 98288	Receives MMSW from self haulers and the City of Skykomish, and recyclables, including tin, aluminum, glass, mixed waste paper, newspaper, cardboard, and plastic.	8:00 a.m.–5:00 p.m.

Public Health – Seattle & King County (the Health Department) is the primary local authority for ensuring that all of the system’s transfer stations and drop boxes meet all applicable federal, state, and local laws and regulations for the protection of human health and the environment. It is the primary mission of the Solid Waste Division to maintain and operate its facilities in a manner that meets or exceeds those standards. Appendix E-3 summarizes the standards that each facility must comply with under the King County Board of Health Code, Title 10.

## Issues in Planning for the Future of the Transfer System

The 1992 *Final Comprehensive Solid Waste Management Plan* recommended an aggressive strategy for upgrading the County’s transfer system, including the siting and construction of three to four new transfer stations. The cost for building the new stations and upgrading others was estimated at the time to cost approximately \$191 million (in 2000 dollars).

In 1995, the King County Council rejected a rate proposal that was designed, in part, to implement the transfer station improvements set forth in the 1992 Plan. The Council also directed that the Solid Waste Division take measures to reduce or eliminate the need for any new stations (KCC 10.22). Subsequent discussions with the cities, the public, and the private solid waste management companies showed support for that direction. The consistent message was to make existing facilities as efficient as possible prior to constructing new facilities, while keeping rates low and stable over time.

The 2001 Plan continues to follow the policy directive set forth in 1995, as well as the input that has been received since then. The recommendations in this chapter are discussed with the following in mind – to minimize required capital investments by focusing on service and facility improvements that address the needs of today’s customers, as well as the future direction of MMSW and recyclables handling.



▲  
 Customers make use of the recyclables collection area at the Vashon Transfer Station

New facilities could be considered where existing capacity has been optimized.

Since 1992 the County has made few changes at the transfer stations that would expand the physical structures or services; however, the region's population and customer base have continued to grow. The primary challenge is to see that County facilities can keep pace with continued growth and provide the level of services customers have come to expect. There are two broad categories of issues to consider during this planning period:

- **Service-Level Issues:** Providing efficient service to the commercial haulers who bring in most of the waste by getting them in and out of the station quickly. At the same time, providing adequate services for the self-haul customers.
- **Facility Issues:** Preparing for eventual waste export when the Cedar Hills Regional Landfill closes in approximately 2012, as well as upgrading facilities so they can handle the increased generation of MMSW and recyclables forecast for the region over the next 20 years. Also, establishing criteria and standards for determining when a County-owned facility has exceeded its capacity to efficiently serve the needs of its customers, and where new or relocated transfer facilities are needed.

These issues and the proposed recommendations are discussed in the following sections.

## Service-Level Issues

The County is committed to serving all of the system's customers while maximizing the efficiency of its facilities and services. Currently, however, resources at many of the County transfer stations are stretched by the high volume of traffic during peak hours of use. The County stations serve two distinct types of customers – the private solid waste management companies (referred to in this chapter as commercial haulers) and the self haulers. The commercial haulers work under contract with the cities to collect MMSW within their boundaries, or operate under Washington Utilities and Transportation Commission certificates to perform the same function for other areas of the region. The commercial haulers deliver large loads of MMSW to the transfer stations, averaging 5.5 tons per load. Self haulers are those who bring garbage and recyclables to the stations themselves.

Through its Waste Monitoring Program, the County collects data about the solid waste system customers and how they use County facilities, as well as why some customers choose to self haul rather than use curbside collection services. The data collected are supplemented by transaction records from the individual facilities and through annual telephone surveys conducted by the County. These data are an important tool for developing strategies to manage the use of County facilities.

County transaction records show that Waste Management and Rabanco delivered about 74 percent of the MMSW received at County transfer stations in 2000. Self haulers brought the remaining 26 percent. By contrast, 12 percent of the transactions were with commercial haulers, while 88 percent were with self haulers. These figures show that while the majority of the County's waste tonnage is received from commercial haulers, the overwhelming majority of the transactions are with the self haulers.

There are some self-haul customers who regularly haul their waste to County transfer stations. Some of these self-haul customers are located in the rural unincorporated portions of the county and self haul because of personal preference. There are other self-haul customers who occasionally haul their waste to County transfer stations. The most common reasons these customers give for self hauling are that they have a large amount of garbage or items that are too big for curbside pickup (see Chapter 5). This intermittent self hauling of extra or bulky wastes often results from a household move or a major cleaning, remodeling, or landscaping project.

The most recent telephone survey of a random sampling of residences in the service area indicates that about 9 percent of the households in King County visit a transfer station at least once a month. These customers account for about 43 percent of the self-haul transactions. An estimated 68 percent of the households never visit transfer stations. One reason customers commonly give for self hauling is they believe it is cheaper than curbside collection. Collection rate information obtained from the Washington Utilities and Transportation Commission and the cities that contract for collection service shows that the average curbside collection rate is \$14.13 per month for weekly, single-can pickup in King County (includes incorporated and unincorporated areas). The minimum fee at the transfer facilities is \$15.25, including tax and surcharge. The curbside collection rate usually includes collection of recyclables as well (see Chapter 5 for more discussion of curbside collection fees).

Table 6-3 shows the number of tons delivered and transactions that occurred at the County and private transfer stations in 2000. Rabanco's Third & Lander station receives some self-haul customers, while Waste Management's Eastmont station accepts self-hauled wastes from businesses but not residents.

*Commercially hauled loads of MMSW delivered to the transfer stations average 5.5 tons*



**Table 6-3.** Numbers of Tons Received and Transactions Reported at Regional Transfer Stations in 2000

Transfer Station	Commercial MMSW Tons	Self-Hauled MMSW Tons	Total MMSW Tons	Commercial Transactions	Self-Haul Transactions	Total Transactions
Algona	71,154	31,229	102,382	14,942	121,941	136,883
Bow Lake	85,946	27,923	113,868	16,762	90,309	107,071
Enumclaw	10,774	10,315	21,089	2,077	41,804	43,881
Factoria	132,166	31,909	164,075	21,890	101,548	123,438
First Northeast	24,537	31,978	56,515	4,716	115,095	119,811
Houghton	144,087	30,537	174,625	26,199	102,748	128,947
Renton	50,229	16,084	66,312	7,781	69,242	77,023
Vashon	2,472	6,353	8,824	457	21,399	21,856
Eastmont (Waste Mgmt.)	175,536	ND	175,536	ND	ND	ND
Third & Lander (Rabanco)	38,199	ND	38,199	ND	ND	ND
<b>County System Total</b>	<b>735,099</b>	<b>186,326</b>	<b>921,426</b>	<b>94,824</b>	<b>664,086</b>	<b>758,910</b>
Eastmont (City of Seattle <sup>a</sup> )	91,722	ND	91,722	ND	ND	ND
Third & Lander (City of Seattle <sup>a</sup> )	136,695	ND	136,695	ND	ND	ND

a) City of Seattle tonnage is not part of the King County solid waste system. The Seattle tonnage that is reported is handled by the two private facilities that serve both the County and Seattle. The remaining Seattle tonnage (247,715 tons) is handled at two Seattle-owned facilities.

Note: ND– no data available

Source: Data for County-operated stations taken from transaction records; data for the private stations taken from the private companies' reports to the Health Department, and Seattle Public Utilities' tonnage reports.

Transaction data show that commercial hauling vehicles that enter the stations are typically unloading an average of 5.5 tons each, while self-hauling vehicles are carrying anywhere from a few hundred pounds to a quarter of a ton. Queuing studies conducted by the County and transaction data show that even with considerably larger loads commercial haulers take less time to empty their trucks because the beds tip to allow garbage to flow into the trailers or pit. These data show that it takes commercial haulers approximately 10 minutes to weigh in, unload, and weigh out, while self haulers average about 30 minutes to do the same.

The goal of the recommendations presented below is to provide efficient service to the system's customers, while optimizing capital investment and retaining the system's ability to serve self-haul customers. As disposal and recycling tonnage and the number of transactions are projected to increase from year to year, providing a high level of service for both the commercial haulers and self haulers requires that the transfer system be modernized, and in some cases new facilities built.

## Recommendations for Service-Level Improvements

County transfer stations offer a high level of service to the system's customers. The County recognizes that providing self-haul service at County transfer stations is necessary now and in the future. The question then becomes how to provide this service while maintaining efficient service for the commercial haulers, who collect most of the region's waste.

The objectives for this planning period are to:

- Manage the overall demand for self-haul services in coordination with the County, the cities, and the commercial haulers
- Provide system improvements at individual transfer stations, based on detailed master plans
- Add new transfer facilities as needed



*Self-haul customers must complete their transactions at the scalehouse*



### Managing the Demand for Self-Haul Services

The demand for self-haul services can be managed by increasing subscriptions to curbside garbage and recyclables collection, providing economical services for collecting extra and bulky wastes, and expanding recycling and reuse opportunities in the community. The policies support three primary strategies:

#### Incentive Rates

- The Solid Waste Division is considering implementing a pilot program to issue a money-saving coupon to a portion of County residents. Residents could choose to redeem the coupon for one of several purposes, including:
  - Dollars off a new subscription for curbside collection
  - Payment toward a one-time curbside collection of bulky or extra waste by a hauler
  - Dollars toward covering the tipping fee at a transfer station during off-peak hours
  - Payment toward recycling materials that are charged a fee, such as appliances or monitors

If successful, the coupon pilot program may be offered to all residents of the County. The program will be evaluated to see which services are effective at managing self-haul trips and are most appealing to residents. Details of program implementation will be coordinated with the cities and the commercial haulers.

- The County will also consider the use of incentive rates to encourage self-haul customers to use transfer facilities at particular hours of the day, to reduce conflicting use, and to ease traffic at the transfer stations.

**Programmatic Changes  
(Cooperative Promotions with the Cities and Commercial Haulers)**



▲  
*Setting garbage and recyclables at the curb is the most efficient method for managing household wastes*

- The Solid Waste Division will work with the cities and commercial haulers to pursue methods to manage self-haul traffic. Some of the methods under consideration include:
  - Staging more community collection events
  - Promoting subscriptions for curbside garbage and recyclables collection
  - Providing economical on-call or monthly pick-up of bulky waste and extra garbage

**Structural Changes**

- The County will be making structural changes at transfer facilities that will separate commercial haulers from self haulers at the facilities, such as separate queuing and tipping areas where space allows.
- Demand management plans are required before the County will consider restricting access to any customer class at a specific transfer station. The plans will identify strategies designed to minimize conflicts between commercial hauler and self hauler use of the transfer stations and improve customer service.

**Facility Issues**

King County’s transfer system is aging – five of the eight County-operated transfer stations are more than 35 years old. Major improvements are needed during this planning period to meet long-term environmental and operational requirements at these older stations.

The County plans to install waste compactors at its transfer stations when operating efficiencies and tonnages handled justify the investment. Waste compactors will allow the County to process waste more quickly in less space, reduce truck trips between the stations and disposal site, save transportation and equipment costs, and reduce odors and litter.

Installation of waste compactors at County transfer stations will also ready the transfer system for waste export by the time the Cedar Hills Regional Landfill closes in about 2012 (see Chapter 7). The City of Seattle and Snohomish County have already implemented waste export within their jurisdictions. In discussions with County staff, both reported that their waste export contracts require or provide financial incentives for compacting wastes at the transfer stations prior to export. Compacting MMSW increases the amount that can be shipped in a single load from an average of 17 tons to 27 tons. The current reported costs for long-hauling uncompacted wastes are almost 1.5 times higher. Currently, only two of the County’s newer transfer stations – Enumclaw and Vashon – are equipped with compactors.

In addition to receiving MMSW, County transfer facilities provide for collection of recyclable materials. The older transfer stations were originally built to process MMSW,

but not to provide for recyclables collection or reuse opportunities. Recycling services have been added wherever possible at County facilities, but often the demand for space has exceeded what is currently available. Primary recyclables – newspaper, mixed paper, PET and HDPE bottles, glass containers, and tin and aluminum cans – are collected at all of the stations except the Algona Transfer Station. Yard waste is collected separately only at the Factoria, Enumclaw, and Cedar Falls facilities. The newer stations at Enumclaw and Vashon were designed and built to provide efficient MMSW disposal and recyclables collection services. In addition to accepting primary recyclables, clean wood and appliances are collected at these two stations. The County’s drop boxes appear to be adequate to serve rural customers in the Skykomish and Cedar Falls areas for the 20-year planning period; however, the County will conduct periodic analyses of demographic trends to determine when additional services and facilities may be needed.



*The transfer system  
needs to be readied  
for waste export in  
the future*

All capital improvements to County facilities are subject to appropriation of funds by the King County Council as part of the annual budget process. During the next three-year planning cycle, the County will establish criteria and standards for determining when a County-owned and operated transfer station has exceeded its capacity to efficiently serve the needs of its customers, and where new or relocated transfer facilities are needed. For example, the County will evaluate the feasibility of siting an additional transfer station to serve residents of northeast King County. Capital investments to expand or relocate transfer stations, or any combination thereof, will be considered when safety, efficiency, capacity, or customer service needs cannot be met by existing facilities.

The siting of, or significant improvements to, facilities for the transfer or export of solid waste also includes completion of a comprehensive public involvement process. Steps in the process include:

- Early public notification and opportunities for comment throughout the siting process via face-to-face meetings, written notices and surveys, and on-line Internet surveys and information sources
- Establishment of citizen advisory committees and task forces to explore siting options
- Involvement of community leaders and neighborhood organizations
- Workshops and other forums for public input
- Development of evaluation criteria that incorporate local issues
- Analysis of community impacts
- Dissemination of project information through brochures, advertisements, and public notices

This public information process was successfully used to guide the siting and design of the County’s Enumclaw, Factoria, and Vashon Transfer Stations.

## Recommendations for Facility Improvements

As discussed earlier, the County's transfer system is aging. During this planning period, the system must be prepared for the challenges of a growing region and changing technologies. Facilities will need to be upgraded to handle projected increases in disposal and recycling tonnage and to ready the system for waste export once the Cedar Hills Regional Landfill closes (see Chapter 7 for details).

The recommendations proposed below are designed to maximize the utility of regional transfer and disposal facilities while keeping disposal fees low and stable. They take into consideration the capacities and limitations at each transfer station, as well as projected growth trends, and tailor modifications and capital investments accordingly. The estimated \$75 million capital program over the next 12 years builds in the capacity and flexibility for future growth while keeping projected rate increases as low as possible. The aim is to ensure that King County customers have access to vital services for garbage disposal and recycling.

### Input on Facility Improvements

The transfer system recommendations were shaped by a number of issues that arose during Plan development and on policy direction from the King County Council, which include the following:

- King County Council directives require that any plan to improve the transfer system keep capital investment costs low and customer rates stable. Council direction further specifies that proposals from the private sector be solicited and considered.
- The cities and the public indicated a desire for expanded recycling services at the transfer stations. Most frequently mentioned items were appliances, yard waste, clean wood, and recyclable construction, demolition, and landclearing (CDL) debris. The collection of moderate risk waste at the transfer stations was also requested. The cities and the public also indicated that stations need to be flexible to new technologies, as well as changes in activities or handling practices over time.
- Long-term queuing capacity at the transfer stations needs to be addressed. Queuing lanes at some facilities need to be reconfigured to meet projected future demand and keep customers off adjacent streets, and to be a good neighbor. Separate queuing lanes for commercial haulers and self haulers would also allow the commercial haulers to get through the system faster. In some cases, site constraints do not allow for additional mitigation, and methods to move some of the business to other transfer stations may be necessary.
- Private-sector proposals were received during the input phase for this Plan. The two major solid waste management companies that serve the region have proposed to expand their MMSW transfer activities in King County.

*Public meetings were held throughout the County to hear input on the draft 2000 Plan*



- Applicable civil service laws generally prohibit public employers from contracting with private entities to perform work which regularly could be, and historically has been, performed by public employees, and which could continue to be performed by public employees.
- Policy of the King County Council's Management, Labor and Customer Service Committee states that contracting out of work currently performed by represented County employees shall not be proposed to the Council until a work program has been completed that involves the affected bargaining unit in exploring other alternatives to meet management goals (Appendix C-3).
- The King County Executive's policy is not to contract out County work that is being performed by County workers.
- Most cities expressed concern about private vs. public ownership of the transfer system. They are concerned that industry consolidations have limited market competition in the private sector. Many of the cities have indicated that their influence over service levels and rates is best maintained by continued public ownership of the majority of the MMSW transfer system.
- All transfer facilities must comply with applicable federal, state, and local laws. As such, any proposed facility improvements would be required to meet all laws covering issues such as environmental protection, public health and safety, procurement, and labor before they could be implemented.

### Summary of Alternatives Considered

In the draft 2000 Plan issued in April, several alternatives for the transfer system were put forward for consideration. These alternatives were further discussed and analyzed among all of the Plan participants during the public comment period for the draft. Aside from the recommendation proposed herein, one alternative considered in the draft Plan was to maintain the transfer system in its current condition, with capital improvements limited to those required for general maintenance and public health and safety. This alternative was rejected during Plan development because it would result in the overall degradation of the transfer system and levels of service in the region. In addition, this alternative did not incorporate the installation of waste compactors necessary to make an efficient and economical transition to waste export in the future.

The draft Plan also looked at proposals from the private solid waste management companies – Rabanco and Waste Management, Inc. – to expand their roles within the regional system. Rabanco's proposal called for closing the County's Renton Transfer Station and replacing its function entirely with their own Black River CDL Transfer and Recycling Station, which is also in Renton. In a second proposal, Waste Management suggested that the County implement a competitive process that would allow both public and private service providers to vie for new facilities and system improvements in the future. Both of these proposals were examined in detail to weigh possible advantages and disadvantages to the regional system and its ratepayers. In these analyses, neither proposal showed benefits to the ratepayers in terms of improved service levels or reduced costs. Therefore, the proposals are not recommended for further consideration at this time. A more detailed evaluation of the proposals and analyses is presented in this chapter following discussion of the proposed recommendation.



### Details of the Recommendation

The proposed recommendation for the future of the solid waste transfer system provides a blueprint for achieving the following objectives:

- Meeting customer needs for convenient, uniform services
- Seeking to maintain operating costs for solid waste management that are lower than those in comparable jurisdictions
- Preparing the MMSW transfer system for eventual waste export
- Keeping rates stable and rate increases as low as possible while meeting the costs of managing the system and providing quality services to solid waste customers
- Protecting environmental quality and public health and safety while providing cost-effective services

The strategy is to make maximum use of the existing transfer stations located within the service area; to install waste compactors at the transfer stations to achieve operating efficiencies; to prepare for waste export at the transfer stations, with priority given to the transfer stations with the largest volumes where practicable; and to improve the capacity for providing the full range of collection services for MMSW and recyclable materials at the larger sites. The recommendation designates three categories of stations – expandable stations, constrained stations, and adjunct stations.

*Expandable stations* are located on larger sites that have room for physical expansion of transfer buildings and services. Expandable stations can be enlarged and upgraded to serve commercial haulers and self haulers separately throughout the site, and provide primary and some secondary recycling collection services (such as yard waste and appliances collection) to self haulers. *Constrained stations*, on the other hand, are generally located on smaller sites where it is not possible to enlarge existing transfer buildings or expand services beyond what is currently available. At these stations, the separation of self haulers from commercial haulers for garbage disposal will remain at the tipping floor only, and the stations will only be able to accommodate collection of primary recyclables from self haulers. *Adjunct stations* are the two privately owned transfer stations in Seattle, which add overall capacity and flexibility to the system. The

County and private stations are designated as follows:

- **Expandable Stations** – First Northeast, Factoria, Bow Lake, Enumclaw, and Vashon: These sites can accommodate enlarged facilities and expanded services. The Factoria Transfer Station in particular is recognized as being important to improve soon, as it meets the objectives of waste export preparation at a high volume station and it relieves the pressure on the Houghton Transfer Station. The Enumclaw and Vashon Transfer Stations are relatively new and are not expected to need expansion in the planning period. They were built to accommodate extensive recyclables collection and are already equipped with compactors for waste export.

The Factoria Transfer Station is a proposed expandable station



- **Constrained Stations** – Houghton, Renton, and Algona: These transfer stations are located where expansion is not possible. The transfer buildings can be upgraded but not enlarged. As such, no expansion of services is planned for these sites – with the noted exception of Algona where the provision of primary recyclables collection services is planned. These stations will get waste compactors to achieve operating efficiencies and to prepare for waste export, with the highest volume stations being prioritized for the installation of waste compactors.
- **Adjunct Stations** – Waste Management’s Eastmont and Rabanco’s Third & Lander transfer stations: These two privately owned facilities within Seattle serve primarily their own commercial hauling vehicles. MMSW is currently hauled from these stations directly to the Cedar Hills Regional Landfill.
- **New Facilities** – The County will study the feasibility of building a new transfer facility to serve customers in northeast King County.

Proposed facility improvements will be based on facility master plans approved by the County Council. Submittal of facility master plans to the King County Council will begin by January 2002. The County Council has previously reviewed plans and approved a budget for the expansion of the Factoria Transfer Station and has given direction to go forward with the project.

Facility improvements for safety and efficiency at most County transfer stations and major improvements at the three older expandable stations are recommended. Table 6-4 shows the planned improvements and projected costs. These proposed capital improvements are subject to the County’s annual budget process and County Council appropriation. As such, proposed capital improvements will demonstrate how the following considerations are addressed:

- Protecting the safety of customers and employees at any solid waste facility
- Planning for permit acquisition requirements and timing
- Mitigating impacts to the surrounding community including, but not limited to, noise, traffic, dust, odor, and litter
- Including public comment and input, with comment and input from the host jurisdictions, in project development
- Preparing for waste export
- Minimizing service disruption at transfer facilities and throughout the system during capital construction
- Ensuring that no more than one transfer station is closed for capital improvements at any time
- Demonstrating the extent to which sites requiring capital improvements are functioning at or near operating capacity for either traffic or tonnage
- Demonstrating how the planned capital improvements were evaluated according to the criteria and standards for transfer facility efficiency
- Achieving operating savings

**Table 6-4.** Recommended Capital Improvements and Costs<sup>a</sup>

<b>Facility</b>	<b>Improvements</b>	<b>Year Completed</b>	<b>Total Cost</b>
Factoria	Build replacement station, install compactor; improve queuing; expand recycling area	2004	\$24,800,000
First Northeast	Rebuild or replace transfer building; improve queuing; expand recycling area; install compactor	to be determined	\$4,000,000- \$14,400,000
Bow Lake	Retrofit transfer building; expand recycling area; install compactor	2006	\$11,600,000
Algona	Install compactor	2008	\$ 6,000,000
Houghton	Install compactor <sup>b</sup>	to be determined	\$ 4,000,000
Renton	Install compactor	to be determined	\$4,000,000
Possible new transfer station in Northeast King County	Build new transfer facility, install compactor	to be determined	unknown
Sub total			\$54,800,000- 64,800,000
All Stations (except Enumclaw and Vashon)	Scalehouse replacement, repairs, and major maintenance as needed	varies	\$10,200,000
<b>Total Cost</b>			<b>\$75,000,000</b>

a) All improvements other than at the Factoria station are subject to approval of facility master plans by the King County Council.

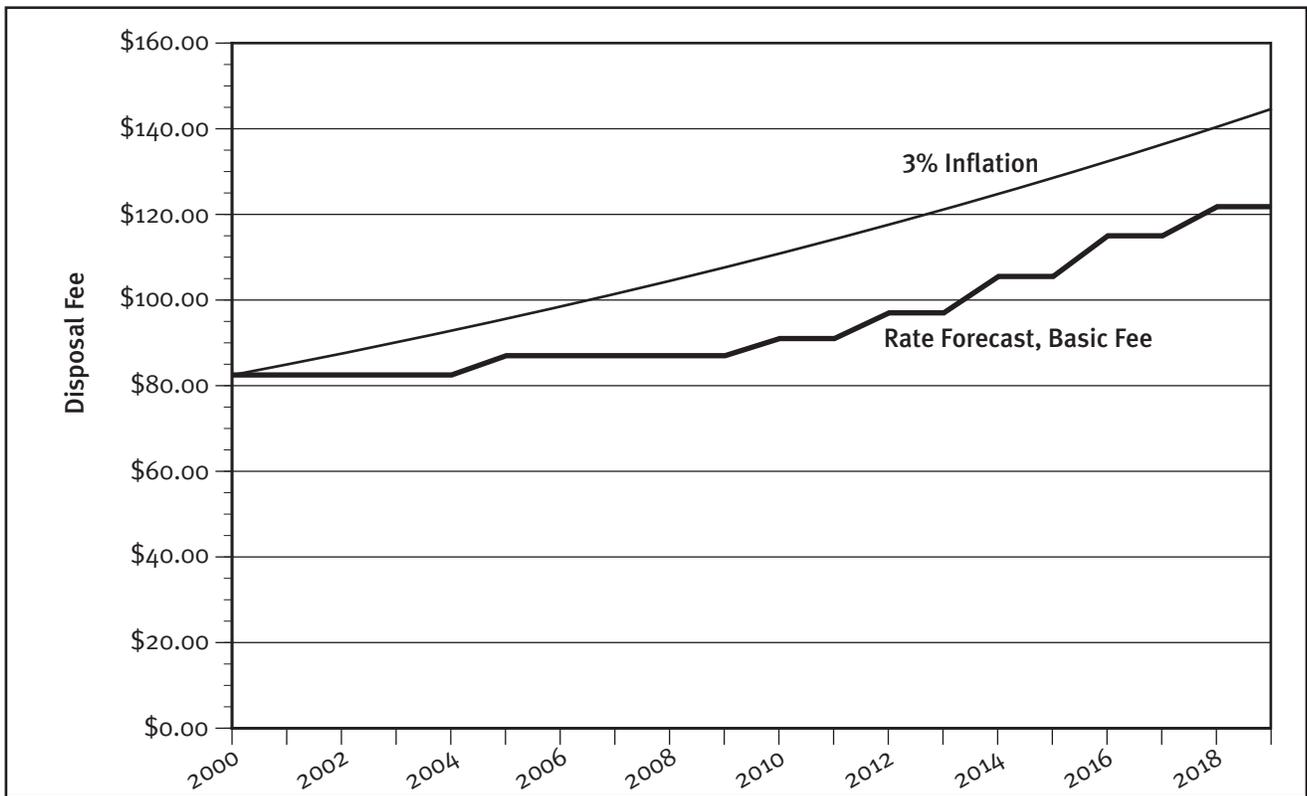
b) Improvements to Houghton are linked to the analysis of a possible new transfer station in northeast King County. Closure of Houghton may be possible if the new transfer station and Factoria can more efficiently serve the Houghton Transfer Station customer base.

By 2012, all stations will be equipped with waste compactors to achieve operating efficiencies and prepare for waste export (see Chapter 7). All of the planned improvements at transfer stations should result in adequate tipping stalls and queuing space to efficiently handle both commercial and self-haul traffic. If customer service needs cannot be met by the planned improvements to existing facilities, additional capital investment to expand or relocate transfer stations, or any combination thereof, will be evaluated.

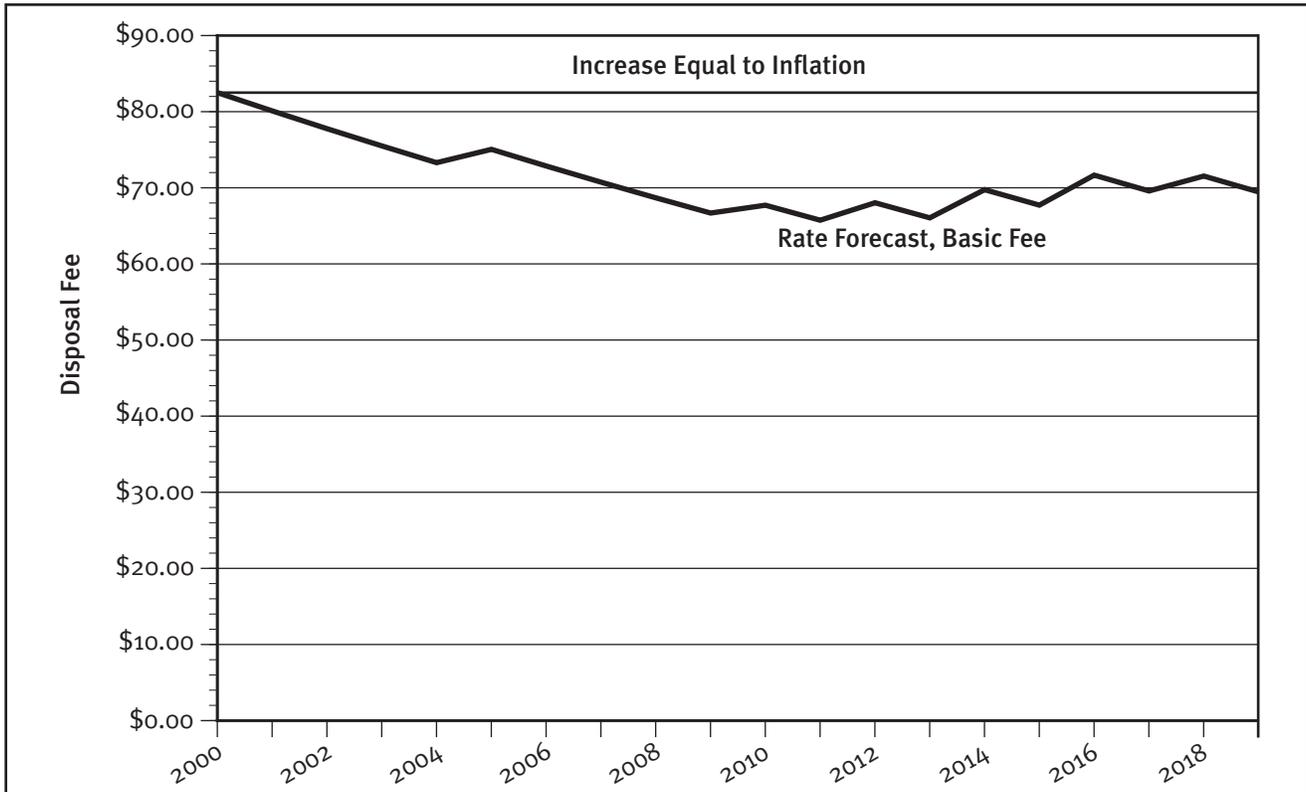
A goal of the planned Capital Improvement Program (CIP) is to expand recyclables collection at transfer stations, wherever practicable. At the expandable stations, additional items considered for collection are appliances, yard waste, clean wood, and recyclable CDL debris. Collection of used oil and antifreeze will also be considered. At the constrained stations, additional recyclables collection is subject to space constraints. Moderate risk waste will be collected wherever site conditions allow, with approval and agreement from the Local Hazardous Waste Management Program and local jurisdictions (see Chapter 5).

Implementation of this CIP will accommodate projected future growth and build in the flexibility to respond to changing collection and handling technologies. Needed capital improvements can be made while keeping rate increases low. Figures 6-2 and 6-3 show the County’s current forecast of the basic fee through 2020. Figure 6-2 shows the basic fee as it rises relative to inflation; Figure 6-3 shows the current forecast of the basic fee adjusted for inflation. As the figures illustrate, the most substantial rate increases occur when projected waste export costs are phased in after 2012. Earlier rate increases cover the cost of recommended capital improvements (see Table 6-4 for details) and expected increases in operating and program costs. Assumptions used in developing this forecast are presented in Appendix F-1.

**Figure 6-2.** Forecast of the Basic Fee Through 2020 (with inflation)



**Figure 6-3.** Forecast of the Basic Fee Adjusted for Inflation (Year 2000 Dollars)



The projected forecast of basic fees includes a three percent annual inflation rate. This is based on current short-term economic forecasts. Using other measurements of inflation or different assumptions about the rate of change in the Consumer Price Index would yield essentially the same result. These forecasts will need to be updated periodically to monitor all system costs.

**Analysis of Private-Sector Proposals**

The County will remain open to considering and implementing private-sector proposals for the transfer system as part of its annual evaluation of the timing of waste export. In evaluating private-sector proposals for the transfer system, the County will balance financial costs and benefits with other relevant factors, including environmental considerations and fairness to existing labor. The following private-sector proposals were examined in developing this Plan.

Rabanco and Waste Management each proposed separate alternatives to the County to expand their roles within the regional transfer and disposal system. As mentioned earlier in the chapter, Rabanco suggested closing the County’s Renton Transfer Station and replacing its function entirely with their own Black River CDL Transfer and Recycling Station. Waste Management suggested that the County implement a competitive

process that would allow both public and private service providers to vie for new facilities and system improvements in the future. Both alternatives would expand the private sector's role in the operation of the regional system. The Solid Waste Division examined the proposals to weigh benefits to the region's customers and facilities. Neither of the proposals demonstrated benefits to County ratepayers that would outweigh the costs involved in implementing them. Specifically, there appeared to be no benefits in terms of cost, efficiency, or service for any of the participants in the regional system except for the commercial haulers themselves.

Both alternatives lack specifics on several key issues needed to evaluate their feasibility completely. The discussion below presents an analysis of both proposals based on the information received by the Solid Waste Division to date.

### **Evaluation of Rabanco's Black River Alternative**

Rabanco's Black River alternative outlined in the draft Plan proposed the following:

- That King County close the Renton Transfer Station and direct MMSW to Rabanco's Black River CDL Transfer and Recycling Station in Renton (assuming the facility is permitted to receive MMSW by the Health Department). Rabanco suggested this closure could save the County money currently earmarked for capital improvements to the Renton Transfer Station. According to Rabanco, the Black River station has the capacity to handle the volumes of MMSW and associated vehicle traffic and would operate on the same schedule as the Renton Transfer Station. Rabanco also stated that it would offer employees displaced at the Renton Transfer Station the first opportunity to fill any new positions at the Black River station.
- That Rabanco's SeaTac Disposal and Kent-Meridian Disposal trucks be rerouted from the County's Bow Lake Transfer Station to Rabanco's Black River station.
- That MMSW be loaded from the Black River station in railcars (along with CDL) for waste export and disposal at Rabanco's Roosevelt Regional Landfill in eastern Washington, or delivered to the Cedar Hills Regional Landfill for disposal (see Chapter 7 for disposal recommendations).

Rabanco's original proposal lacked sufficient detail to conduct an informed analysis for the draft Plan. Between issuance of the draft and final Plans, Rabanco submitted additional information to the Solid Waste Division; however, as indicated by the discussion that follows, there are still constraining issues and uncertainties that make the benefits to the region's customers unclear and their proposed alternative incongruous with County policies and goals.

***Station Location and Traffic:*** King County Comprehensive Plan Policy F-250 states that "Solid waste handling facilities should be dispersed throughout the County in an equitable manner." The Renton Transfer Station is on the eastern plateau in the City of Renton. It is adjacent to a maintenance facility for the County Road Services Department and other mixed-use sites. The station is conveniently located for Renton's self haulers; for residents of Covington, Maple Valley, and the unincorporated areas of south-

east King County; and for the commercial hauler that serves residents of Renton and areas to the east. The Division's most recent waste monitoring survey showed that 61 percent of the self-haul traffic at the station is from the City of Renton and 15 percent is from the unincorporated area.

Rabanco's Black River CDL Transfer and Recycling Station is located on the west side of Renton, just within the city limits in an industrial area. It is approximately 5 miles from the County's Bow Lake Transfer Station in Tukwila. Redirecting customer traffic from the Renton station to the Black River station would not support the equitable distribution of transfer facilities throughout the County. In fact, with the proximity to the Bow Lake station, there would be excess capacity in the Tukwila/Renton area, while the areas east and south of Renton would be underserved. Because of the population growth in this latter area, the County could eventually be required to site a new station to serve these area residents. The City of Maple Valley, the Four Creeks Unincorporated Area Council, and Solid Waste Advisory Committee have expressed concern over possible closure of the Renton facility for this reason.

Additional traffic impacts in Renton could also result from the switch in stations. The Renton Transfer Station is located above downtown Renton, while the Black River facility is west of downtown near the City of Tukwila. Under Rabanco's alternative, commercial haulers and self haulers on the plateau or in areas to the east that currently use the Renton Transfer Station would have to travel through Renton on I-405 or across surface streets to get to the Black River facility. Based on disposal data and customer surveys for the Renton Transfer Station, the potential for traffic impacts could be significant in and around downtown Renton from customers driving off the plateau to the Black River site. Current estimates indicate that it could add more than 435 round trips per week by self haulers and commercial haulers commuting from east of Renton.

**Service Levels:** The Black River facility is currently designed, operating, and permitted to accept only CDL waste and recyclable CDL materials from commercial haulers and self haulers. Implementation of Rabanco's Black River alternative would be contingent upon its ability to obtain a permit from the Health Department to handle MMSW at the station. Rabanco has indicated it would provide the same level of services at Black River that the County is proposing to offer at the Renton station, including areas for collecting recyclable materials. Rabanco is not proposing any enhancements to the level of service beyond those recommended for the Renton Transfer Station.

**Capital Costs and Impacts on Rates:** One potential advantage of the Black River alternative cited by proponents is that the County would avoid the capital costs for future upgrades to the Renton Transfer Station, which total \$4 million by 2012. This cost covers the installation of a compactor at the station to prepare for waste export. To compare the projected long-term effects on rates, Solid Waste Division staff asked Rabanco to provide data on its capital costs to ready the Black River facility to receive MMSW and recyclables, but Rabanco did not provide the information. They did state in a letter that their capital costs would be "internalized by Rabanco and included in the service level fee charge."

With the data available, the Division conducted a preliminary analysis of the possible impacts to ratepayers from replacing the Renton Transfer Station with the Black River facility. In the absence of actual figures from Rabanco, the analysis assumed their costs, including the installation of a waste compactor, and revenues would be the same as those for the County. The estimated implementation date was projected to be 2004.

The analysis estimated that the shift to the Black River facility would divert 117,000 tons of MMSW annually from the County's Renton and Bow Lake Transfer Stations. While there would be some savings in operational costs from closing the Renton station, the overall net loss to the County would be about \$9.30 per ton. Although the Bow Lake station would remain open, the loss in tonnage would result in higher operational costs at that station, which contributes to the overall rise in the system-wide per ton disposal rate. In the long term, the projected revenue loss for the County over the 20-year planning period would be \$14.5 million (in 2004 dollars). The annual revenue loss of \$970,000 would result in a rate increase to customers of \$1.00 per ton to maintain services at the remaining County-owned stations.

Under this scenario, Rabanco would profit by the same amount – \$9.30 per ton. Under state law (RCW 81.77.160), the private companies can, and do, charge the prevailing regional per ton disposal rate to their customers – i.e., the County's disposal rate, without justification based on their operating costs or profit. Past practice would lead to the conclusion that if the County raised its fees by \$1.00 per ton to make up for the revenue loss from closing the Renton station, Rabanco's transfer station fees would also be raised by \$1.00. That would further increase their profits at the expense of the ratepayers.

***Environmental Concerns:*** Concern has been expressed that the Renton Transfer Station is located over a recharge area for the Renton aquifer. To ensure that the site poses no risk of contamination to the aquifer, the Solid Waste Division conducts routine surface water quality testing monthly and quarterly. Testing is conducted according to U.S. Environmental Protection Agency guidelines, and the test results are reviewed by the Health Department and City of Renton experts. Both the Health Department and City experts concur that surface water runoff from the site poses no health risk.

The Black River facility is located near the City of Renton's Black River riparian forest, a managed natural area. The riparian forest is home to a great blue heron rookery. Use of the Black River facility as an MMSW transfer station would increase the amount of truck traffic and associated noise along Monster Road SW, immediately adjacent to the riparian forest. Recent evidence compiled by the County's Wildlife Program indicates that the number of herons in the riparian forest is declining, possibly due to increased development in the area. Use of the Black River facility as an MMSW transfer station may cause additional stress to the heron population in the area.

**Procurement Issues and Contracting Out of Work:** According to County procurement policies and state law, King County cannot issue a contract for services without first going through a competitive procurement process. Rabanco’s proposal to close Renton and replace it with their Black River facility would trigger the need for this process. Both the public and private sector would have the opportunity to bid on the service.

Under contract with King County, the Rabanco facility currently provides only construction, demolition and landscaping debris (CDL) transfer and disposal services at Black River. To provide a level of service comparable to that at the Renton station, Rabanco would need to add MMSW and recyclables transfer services at the station. Rabanco suggested they could make this change in service levels through an amendment to their existing CDL handling contract with the County (see Chapter 8). However, since Rabanco’s current proposal is outside the scope of the original Request for Proposals and would be for a different service than that provided by the original contract, a contract amendment would not be adequate. Instead, this change would require a new contract and a competitive procurement process.

Another issue involves restrictions placed on the County regarding the contracting out of work. With the suggested closure of the Renton Transfer Station, Rabanco has proposed to either hire affected County employees at similar wages and benefits, or contract with the County for labor. Either method of staffing the Black River facility would change the contracted condition of County workers and therefore would require collective bargaining with the affected bargaining units before any change in working conditions could occur (RCW 41.56). Currently, the union contracts in place for workers at County facilities include clauses that prohibit the contracting out of their work to another party. Therefore, it is highly unlikely that an agree-

ment could be reached with County workers to either be hired by Rabanco or become contracted employees at a Rabanco facility.

**Evaluation of Waste Management’s Competitive Process Alternative**

Waste Management suggested an alternative whereby the construction and operation of new transfer facilities, or facility upgrades, would be open to a competitive bidding process. Under their proposal, both private- and public-sector entities would bid for transfer station upgrades and improvements. Proposals would be reviewed and evaluated in the context of the current solid waste plan against criteria developed by a panel of private industry representatives, the cities, and the County.

During the development of this Plan, some members of the public and cities indicated that they wanted the operation of the solid waste system to remain in the hands of the public sector. Over the years, King County has developed a transfer and disposal



▲  
A transfer station operator prepares to run a compactor at the Enumclaw Transfer/Recycling Station

system that is accessible and affordable to residents throughout the region. It was not built with an eye on profitability, but to be accountable to public needs, including 1) accessibility to residents in both incorporated and unincorporated areas of the County, 2) uniformly affordable disposal rates, and 3) environmental stewardship through aggressive waste reduction and recycling programs and education. Some of the County's eight transfer stations cost more to operate than others due to factors such as location, waste volumes, and customer mix. To ensure affordable rates for all residents, the County's operational costs are averaged to offer a reasonable, uniform disposal rate at all stations. Also factored into the disposal rate are waste reduction and recycling programs and services, including educational programs. County policies and programs are driven by input from the cities, members of the public, advisory groups, and the private solid waste management companies. It is a system that is accountable to those it serves from the planning stages through the assessment of fees.

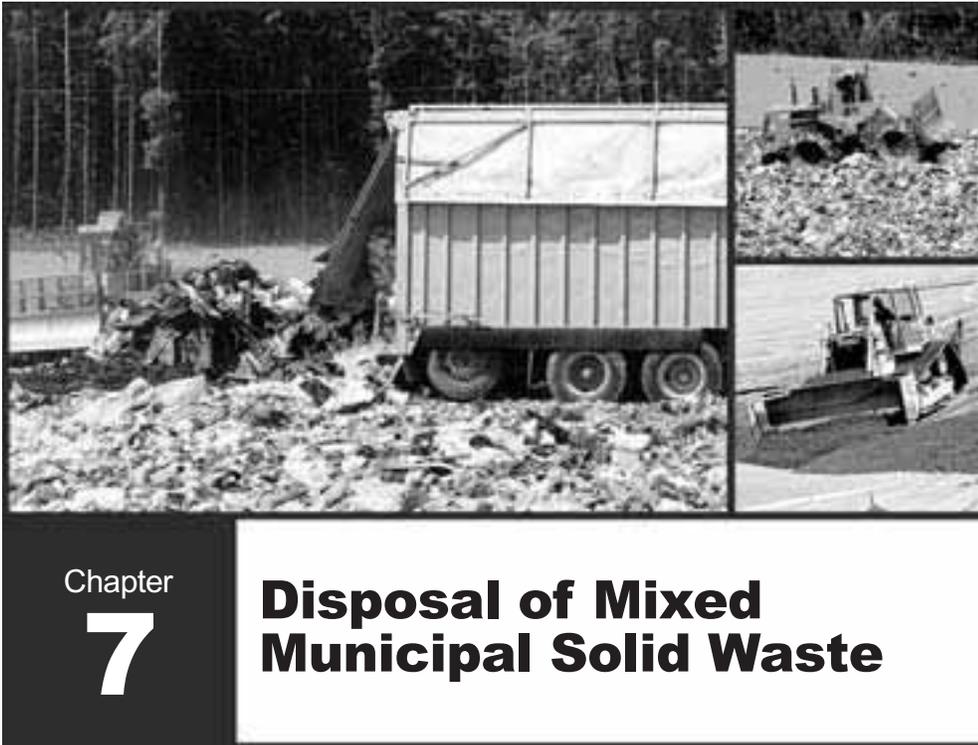
As shown in the example of Rabanco's proposal, there is no evidence to suggest that shifting operation of the transfer system to the private sector would increase system efficiency, result in savings to the ratepayer, or improve or expand services.

There are several legal, policy, and contractual constraints that would effectively eliminate the County's ability to institute a competitive bidding process while there are public employees working under labor contracts. These constraints are as follows:

- The King County Adopted Labor Policy (October 1996) states that "It shall be the policy of the King County Council that the contracting out of work presently performed by represented County employees shall not be proposed to the Council until a work program has been completed that involved the affected bargaining unit in exploring other alternatives to meet management goals."
- Current labor contracts with the two major bargaining units at County transfer facilities include a clause forbidding the contracting out of work except under special conditions. The County is required to notify the bargaining unit of its intention to contract out and, when requested, bargain the decision and/or the effects of that decision.
- Washington's Public Employees' Collective Bargaining Act, RCW Chapter 41.56.030(4) requires that public employers engage in collective bargaining over hours, wages, and working conditions. Failure to bargain over these "mandatory subjects of bargaining" constitutes an unfair labor practice (RCW 41.56.140(4)). The Public Employees' Relations Commission administers the Act and has consistently ruled that the decision to assign work historically performed by employees in a bargaining unit to others outside that unit must be bargained. There is no reason to assume that labor unions representing workers at County transfer stations would be amenable to having their jobs contracted out to the private sector.
- Applicable civil service laws generally prohibit employers from contracting with private entities to perform work which regularly could be, and historically has been, performed by public employees, and which could continue to be performed by public employees.

As outlined above, the competitive process alternative would require significant changes in law or policy, or lengthy negotiations with the affected bargaining units. The time that would be required to effect these kinds of changes would conflict with the schedule required for preparing the regional transfer system for waste export by 2012.

A few cities expressed interest in including a design, build, and operate approach to siting or constructing new facilities and making major improvements to existing stations. Under the design, build, and operate procurement process, one company is contracted to perform all three functions. Typical County practice is to issue separate contracts for the three functions. RCW 39.10.050 allows public agencies to use a design/build (but not operate) procurement process. The County is considering using this alternative procurement process for the design and construction of the replacement Factoria Transfer Station.



Chapter  
**7**

## Disposal of Mixed Municipal Solid Waste

King County’s disposal system for mixed municipal solid waste (MMSW) comprises one active landfill – the Cedar Hills Regional Landfill – and ten closed landfills. All County landfills, both active and inactive, are designed, operated, and monitored to meet or exceed applicable federal, state, and local standards for protection of public health and the environment.

The currently active Cedar Hills Regional Landfill will reach its permitted capacity and close during this 20-year planning period. The major issue addressed in this chapter is how to provide for the disposal of MMSW in the region once this occurs. Current County policy is to initiate waste export when conditions warrant (upon approval by the King County Council), rather than siting a replacement landfill in King County. County policy also directs that the current Plan review this policy direction and recommend whether modifications are needed before implementation (KCC 10.22.025).

During development of the Plan, the public asked the County to look at a range of options and alternatives for disposal of the region’s MMSW once Cedar Hills closes, as well as the timing of its closure. Three disposal alternatives were suggested for consideration – waste export, construction of a new publicly owned landfill in another county, and construction of an incinerator. Each of these alternatives was evaluated in terms of cost, feasibility, and compatibility with the region’s goals and programs. Detailed results of these evaluations are provided in Appendix D. This chapter sets out the County’s policies on waste disposal and looks in depth at waste export – the recommended alternative, and provides a brief description of results from the evaluation of the other two alternatives considered.

Following discussion about the future of the Cedar Hills Regional Landfill, the chapter looks at the County's long-term plan for continued management and environmental monitoring of the closed landfills throughout the region, as well as plans for the eventual beneficial reuse of these sites.

### **County Disposal Policies**

The County policies for solid waste disposal and planning for waste export are as follows:

**DSW-1.** All county landfills, both active and inactive, shall be designed, operated, and monitored to meet or exceed applicable federal, state, and local standards for protection of public health and the environment.

**DSW-2.** The county should not seek to site a replacement landfill for the Cedar Hills regional landfill in King County. Upon council approval by ordinance, the county shall initiate solid waste export.

**DSW-3.** The county shall contract for long-term disposal capacity at an out-of-county landfill or landfills. It is anticipated that export of the region's mixed municipal solid waste will begin when the Cedar Hills regional landfill has reached its permitted capacity. However, the county will remain open to considering and implementing private sector proposals for early waste export. An orderly transition to waste export should occur before Cedar Hills is closed.

**DSW-4.** The county shall continue to monitor waste export prices and the availability of landfill space and report back to the region on its findings at least annually to determine if future landfill space should be reserved and purchased in advance of use. The policy of King County shall be to monitor and analyze conditions impacting the appropriateness, feasibility and timing of waste export on a continuous basis. The executive shall report to the council at least once every three years and more if circumstances warrant on such conditions. When such conditions warrant, and upon council approval by ordinance, the division shall initiate solid waste export.

**DSW-5.** It is expected that rail hauling will be the preferred method of exporting the county's solid waste in the future. The county shall continue to monitor the long-term availability of future rail capacity to ensure that adequate transport capability exists.

**DSW-6.** The county shall plan for implementing waste export and include in the county's plan details on the sequence of phasing in waste export, the financial and staffing impacts, and the status and future capacity of rail transportation.

**DSW-7.** At least one year prior to the initiation of waste export, the county should develop comprehensive emergency response procedures for the region's waste export system.

**DSW-8.** If the need arises for the county to develop one or more such facilities, the process for siting intermodal facilities where containers are transferred from trucks to rail cars or barges shall include:

1. Involving all affected jurisdictions and interested parties in the siting process in decision making, and providing access to relevant information to affected jurisdictions and interested parties;
2. Listening and responding to input from all affected jurisdictions and interested parties; and
3. Developing jointly with all affected jurisdictions and interested parties criteria for identifying prospective sites that comprehensively evaluate environmental, technical, financial, and community needs.

**DSW-9.** The county shall continue to monitor and maintain closed landfills that fall under its jurisdiction.

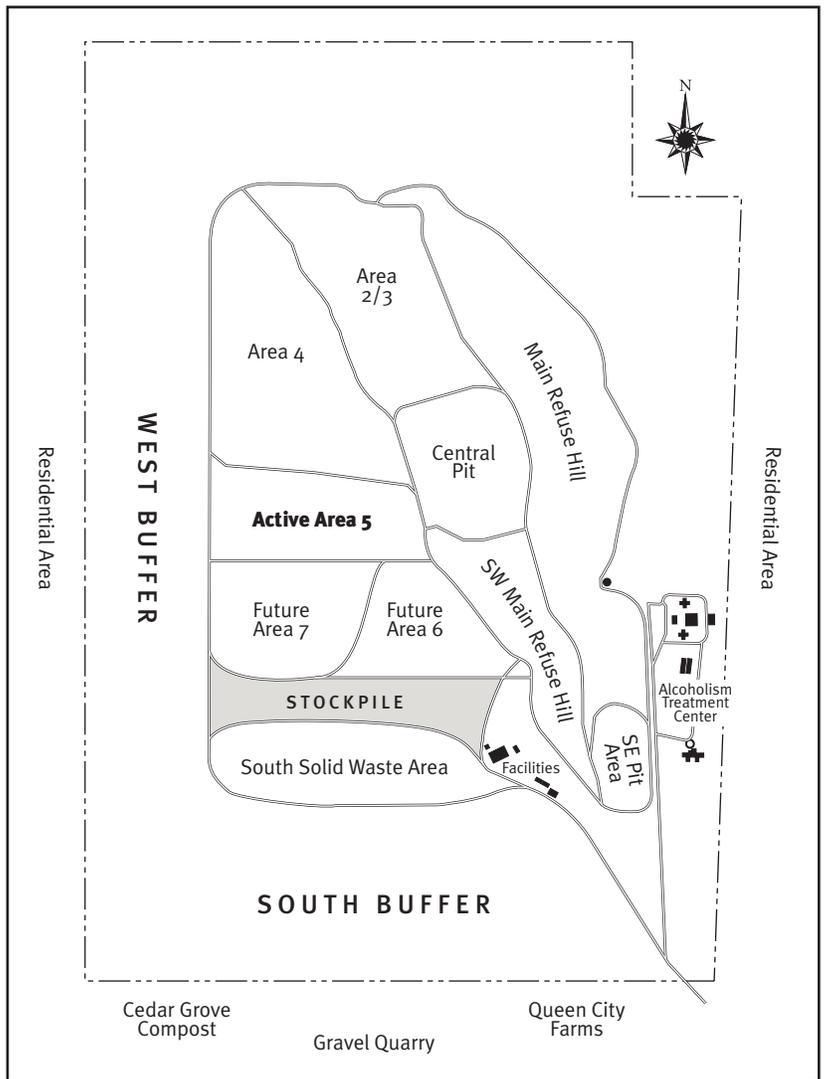
**DSW-10.** The county shall continue to work with cities, the state, and federal agencies to explore beneficial reuse options for all closed landfills. Any future monitoring or environmental system installation shall be designed to facilitate reuse of the sites.

## The Future of the Cedar Hills Regional Landfill and Waste Disposal in the Region

All of King County’s mixed municipal solid waste (MMSW) is disposed at the Cedar Hills Regional Landfill. Based on County disposal data and on the design specifications contained in the *Cedar Hills Site Development Plan* (Site Plan), Cedar Hills had an estimated 12.5 million tons of remaining landfill capacity as of January 2000. The County’s current waste forecast estimates that Cedar Hills will reach capacity in approximately 2012. Before that time, the County will need to select and be ready to implement an alternative system for disposing of the region’s MMSW.

Operation of the Cedar Hills Regional Landfill is carried out according to an approved Site Plan. MMSW is disposed in designed cells or “Areas.” Currently, MMSW is being disposed in Area 5 of the landfill. This area will receive MMSW for approximately 5 years. After that time, the Site Plan states that Areas 6 and 7 will be developed and filled sequentially until the landfill reaches permitted capacity. Figure 7-1 shows the general layout of the landfill, including the boundaries of the active and future refuse areas.

**Figure 7-1.** Layout of the Cedar Hills Regional Landfill



In developing this plan, three alternatives were evaluated for MMSW disposal, including:

- Contracting with a landfill for disposal capacity and service – waste export (KCC 10.22.025)
- Constructing a new County-owned landfill outside of King County
- Constructing an incinerator

Replacement of Cedar Hills with another landfill in King County, or expansion beyond current planned capacity, is not considered in this Plan, because of siting obstacles and directives from the King County Council and the Executive to pursue other options.

Waste export is the alternative recommended in this Plan. Before presenting details about the selection, timing, preparation for, and implementation of waste export, the chapter discusses the two other alternatives and the reasons they are not recommended. Detailed analytical results for each alternative are provided in Appendix D.

### Construction of a New County-Owned Landfill Outside of King County

One alternative considered was the construction of a new landfill in another county that could be shared with the host county. It was assumed that King County would cover the costs for development and most of the operations of the landfill. Four counties in eastern Washington were looked to as possible partners – Chelan, Douglas, Kittitas, and Yakima. These counties were considered for the following reasons:

- The cost of land in these counties is well below that in King County
- The population density is lower and large tracts of land are available
- The annual rainfall is substantially lower, reducing the cost of landfill management
- Development costs, including siting and permitting, are lower in these regions than in King County
- Proximity to these counties would minimize transportation costs



▲  
*Area 5 of the Cedar Hills  
Regional Landfill*

Representatives from each of the four counties were contacted regarding their long-term disposal capacity needs and plans. It was found that all four counties had long-term disposal plans in place and were not considering other alternatives at this time. Chelan and Douglas Counties are already sharing landfill space at a privately operated site in Douglas County that has more than 10 years of remaining capacity. Kittitas County is moving to waste export, and Yakima County has sufficient landfill space to serve their needs for approximately 10 to 20 more years. Since there was no mutual benefit for siting a landfill in any of these counties, this alternative was not considered further.

### Construction of an Incinerator

Incineration of solid waste was studied thoroughly in the 1970s and 1980s to reduce the volume of waste disposed. The proposition met with considerable opposition from the public because of concerns about the potential environmental impacts of ash and air emissions. As a result, the King County Council and the Executive decided to pursue behavioral changes rather than capital programs to reduce waste volumes. They then redirected the focus of County policy to waste reduction and recycling as the priority methods of handling solid waste (KCC 10.22.035).

In the development of this Plan, the County was asked to look at incineration again to see if there have been changes in the technology over the last decade that would address environmental concerns or compatibility with the region's focus on waste reduction and recycling.

The County looked at cost and performance data for incinerators operating in Spokane and Marion County, Oregon. A separate review was also conducted of the incineration industry nationwide to provide additional information about cost and performance, as well as the compatibility of incineration with waste reduction and recycling programs. Results from these reviews support the conclusion that incineration is not a feasible alternative for the region at this time. Findings of the reviews can be summarized as follows (see Appendices D-1 and D-3 for more detail):

- A review of capital costs for the Spokane and Marion County incinerators, as well as others, and an estimate of capacity needed for the region, indicate that the cost of constructing an incinerator would be at least \$150 million. This cost would have to be paid entirely by ratepayers because state grants that were available in the 1980s to help fund alternative disposal technologies are no longer available.
- Historically, the operational costs of incinerators are not fully offset by the sale of generated electricity. Though current wholesale prices are very high, there is no evidence to suggest that incinerators can operate cost effectively in this region over the long term.
- A national review of incinerator performance data and information shows that approximately 10 to 30 percent of the incinerated waste remains as residual ash that must be disposed; in addition, approximately 15 percent of the solid waste stream is non-combustible. For King County, this would mean 250,000 to 450,000 tons per year of residual ash and solid waste would still require disposal in a landfill.
- A review of literature on incineration and recycling shows that most of the combustible portion of the waste stream consists of newspaper, mixed paper, and yard waste (including wood waste), materials that are currently recycled. Pulling these materials back into the waste stream to fuel combustion is incompatible with adopted waste reduction and recycling goals. Without combustible waste for fuel, incineration requires substantial amounts of other types of fuel.



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A waste to energy  
facility operating in  
Spokane County

- The reviews conducted for this Plan did not identify any advancement in technology that would affect ash generation, air emissions, or other aspects of environmental performance for incinerators. Therefore, public opposition to incinerators would likely be as strong as it was in the 1980s.



### Waste Export

Adopted County policy states, in part, that the County should initiate waste export when conditions warrant, and after Council approval (KCC 10.22.025). County policy also directs that this Plan review the waste export market before a recommendation is submitted to implement it.

In developing this Plan, the Solid Waste Division conducted a comprehensive review of waste export to determine whether it is cost effective, operationally feasible, and consistent with adopted goals for waste reduction and recycling. The City of Seattle and Snohomish County, where waste export has been the primary means of MMSW disposal since the early 1990s, were used as a basis for the evaluation. Representatives from the City of Seattle and Snohomish County provided detailed information about their waste export systems and their existing waste export contracts. Based on this review, waste export was deemed the most feasible alternative for future MMSW disposal in the King County regional system. A summary of the review follows; additional details are provided in Appendix D.

Both the City of Seattle and Snohomish County reported that their waste export contracts require or provide incentives for compacting wastes prior to export. The compaction of wastes reduces the volume and consequently the cost of transport and disposal. Among the capital improvements recommended in this Plan (Chapter 6) is to install compactors at the County's transfer stations prior to the closure of Cedar Hills. For a waste export contract similar to Seattle's, the estimated per ton fee for compacted waste in 2012 would be approximately \$37.50 (in year 2000 dollars). The actual cost per ton will vary depending primarily on market forces; however, recent trends have shown a decrease in the per ton cost of landfill disposal, reflecting increases in landfill space in the Northwest region and other factors. Based on this review, the cost of waste export is significantly less than the cost for other disposal alternatives evaluated in this chapter.

In addition to being the lowest cost alternative among the three considered, waste export offers other advantages. Information provided by Regional Disposal Company (that operates the Roosevelt Landfill in Washington), Waste Management Inc. (that operates the Columbia Ridge Landfill in Oregon), and Waste Connections Inc. (that



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*Containers full of MMSW from the City of Seattle are hoisted onto a train for export to a landfill in Oregon*

operates the Finley Buttes Landfill in Oregon) indicates that between 50 and 100 years of landfill capacity exists at each one of these landfills. Their capacity estimates also assume growth in tonnage at each landfill over time.

Competition in the export market extends beyond these three existing landfills in southeastern Washington and northeastern Oregon. Information obtained from the Solid Waste Association of North America shows that publicly and privately owned landfills capable of receiving waste by rail are operating, planned, or under construction in Utah, Idaho, California, and elsewhere in eastern Washington.

Although exporting waste beyond the Northwest may sound costly, distance traveled is actually a very small component of transport costs. A review of the City of Seattle and Snohomish County waste export contracts found that the incremental cost of miles traveled is a negligible component of the contracted transport price. Disposal figures for 1999 from the Washington Department of Ecology provide further evidence of the limited impact of distance on transport costs. The figures show that the Roosevelt Landfill received approximately 174,000 tons of waste from Napa Valley, California. While numerous landfills in California are closer to Napa Valley, the Roosevelt Landfill was able to offer a competitive price that made export cost effective. The presence of abundant landfill space in the western states demonstrates that waste export will remain feasible for at least the next 20 years.

Waste export is also compatible with the adopted waste reduction and recycling goals and programs. Disposal via waste export is expected to cost at least \$10 per ton more than disposal at the Cedar Hills Regional Landfill. The additional cost per ton of exporting waste will provide additional incentives for residents and businesses to reduce the MMSW stream through reuse and recycling.

The closure of Cedar Hills and implementation of waste export will eliminate jobs related to landfill operations. A task force has already been formed to develop a transition plan to deal with changes in staffing and operations.

Several issues remain about when and how to implement waste export. Questions addressed in the Plan and to be reevaluated in the next planning cycle regarding the timing of waste export include:

- Should the County implement waste export before Cedar Hills reaches its permitted capacity?
- Should the County implement a system of partial waste export, delaying the closure of Cedar Hills?
- Should the County purchase future landfill space now?
- Should the County implement waste export on its own, or in coordination with the City of Seattle or adjacent counties?

Questions regarding how to implement waste export include:

- How will an intermodal yard or yards be sited (sites where transfer containers are shifted from trucks to rail cars or barges)?
- Will there be adequate regional rail capacity in 2012 when Cedar Hills is projected to close?
- Should the County export to a single landfill or multiple landfills?
- Would a combined contract for waste export and disposal leave the County vulnerable to price gouging?

Each of these questions is addressed below.



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*Liners installed during the construction of new disposal areas preserve the quality of our environment*

### **Should the County implement waste export before Cedar Hills reaches its permitted capacity?**

Determining whether to close the Cedar Hills Regional Landfill early (before it reaches its permitted capacity) requires a review of two major issues:

- The service level and rate impacts to the region
- The ability of the region to provide disposal services during and after emergencies

The Cedar Hills Regional Landfill was developed and is managed to provide the system customers with long-term disposal capacity in a manner that protects public health. As such, there are long-term liabilities that would still require funding if the landfill were to close before it reached

capacity. At the earliest, a waste export system could be put in place around 2004, when Area 5 is expected to reach capacity, by developing a temporary compaction and re-loading facility in the region until the County's transfer stations can be modified for waste export (discussed in Chapter 6). To determine the cost implications of moving to early waste export in 2004, the County conducted an analysis of the costs of waste export measured against the cost savings of no longer operating Cedar Hills. This analysis showed that closing Cedar Hills early would require rates to increase to cover the cost of waste export. Disposal rates would also have to increase to pay for the closure and post-closure maintenance of Cedar Hills, which would have to be paid eight years earlier than planned. Combined with the cost of implementing waste export, the cost to ratepayers would be approximately \$99 million or \$16 per ton (in 2000 dollars) between 2004 and 2012 (the projected date when Cedar Hills would otherwise reach capacity). The earlier Cedar Hills closes the greater the rate impact would be at the time of closure. If ratepayers were unwilling to pay these higher disposal fees, other services would have to be drastically cut back to fund the unavoidable costs of closure and post-closure maintenance and waste export. In closing, the analysis demonstrates that early closure could compromise service levels within the solid waste system and would be costly to the ratepayers. Detailed assumptions and methods used in this analysis are

presented in Appendix D-2. While this Plan recommends that Cedar Hills be used as the primary disposal facility for King County until it reaches its permitted capacity, the County will remain open to considering and implementing private-sector proposals for early waste export.

The County also conducted a separate review to determine whether it would be beneficial to close Cedar Hills early and preserve a portion of the landfill to ensure disposal capacity in the event of an emergency. Snohomish County's experiences with waste export and emergency preparedness were used as a basis for the review.

Nearly 10 years ago, Snohomish County permitted a new landfill and constructed a cell specifically for back-up capacity in the event of an emergency. To date, the County has not used the cell and does not foresee needing it in the future for its intended purpose. This latter conclusion is supported by a recently completed emergency response study for Snohomish County's solid waste operations. The study, conducted by SCS Engineers, considered the impacts of a full range of potential emergency situations ranging from seasonal storms, mud slides, train derailments, and labor strikes, to major subduction zone earthquakes. The study found that most potential emergencies would last only a few days to a week. The study also determined that emergency response procedures that are already in place for the County's waste export system are more than adequate for handling temporary disruptions in normal transfer and disposal services.

The only emergency expected to affect waste export services for longer than a week is a subduction zone earthquake. The debris from this type of an event would come primarily from collapsing buildings and other structures. Based on a review of experiences in southern California, the volume of MMSW generated in such a situation is expected to decrease, primarily because businesses close down and households consume less. Following a major earthquake, the Burlington Northern Santa Fe Railway projects it would need 2 to 3 weeks to restore rail service in the Northwest. Again, existing emergency response procedures within the Snohomish County waste export system are projected to be able to handle the volumes of MMSW that would need to be disposed in the interim. The standard method for managing debris from damaged and collapsed structures after an emergency is to stockpile and recycle it rather than dispose of it. Recent experience with the Northridge earthquake in the Los Angeles area and with hurricanes in south Florida has demonstrated the effectiveness of relying on recycling rather than disposal to manage this type of debris.

Snohomish County's emergency response plan also notes that activating a back-up in-county landfill requires mobilization time, staff, and start-up costs to acquire equipment and staff capable of operating a landfill.

The emergency plan and procedures used by Snohomish County can be applied to King County's regional solid waste handling system. King County would be subject to the same types of emergencies and mobilization and start-up costs during an emer-



▲  
*One of the more than  
 100 trailer loads of  
 garbage delivered to  
 Cedar Hills daily*

gency. Based on Snohomish County's experience, King County's recommendation is to develop comprehensive emergency response procedures for the region's waste export system and have them in place by the time waste export is implemented.



▲  
*South Park Landfill, one of the closed landfills managed by King County*

### **Should the County implement a system of partial waste export, delaying the closure of Cedar Hills?**

Rather than implement waste export after Cedar Hills reaches capacity, the County could choose to extend the life of the landfill by beginning to export a portion of its MMSW at an earlier date.

In 1995, the County developed a detailed, dynamic model to determine whether it would be cost effective to County ratepayers to export waste rather than continue to use Cedar Hills for its remaining life (described in Appendix D-4). This model also investigated whether it would be cost effective for the County to export waste from certain transfer stations and, in so doing, extend the life of Cedar Hills.

The model estimated the net costs or savings associated with various early export scenarios, compared to relying solely on Cedar Hills for disposal until it reaches capacity. In any partial waste export scenario some costs would be saved, such as the cost of hauling waste to an intermodal facility rather than Cedar Hills, while some additional costs would be incurred, such as the additional per ton cost of waste export. Key factors in the model included the fixed costs of operating Cedar Hills, the variable (per ton) costs of disposing waste at Cedar Hills, the short-haul transport costs of hauling waste from transfer stations to Cedar Hills, the cost of developing and closing new areas of the landfill, the remaining capacity of Cedar Hills, and the per ton costs of waste export. Notably, some of the assumptions used in the model favored waste export, such as a relatively high estimate of tons per load exported and a relatively low estimate of truck turnaround times at an intermodal facility.

The 1995 modeling effort demonstrated that early or partial waste export would not be cost-effective for County ratepayers. Cedar Hills operates most efficiently at higher rates of disposal. Thus, any cost savings associated with not using Cedar Hills for a share of the system's waste is more than offset by the additional costs associated with exporting waste out of the County.

All partial waste export scenarios modeled were more costly than using Cedar Hills until it reached capacity. Simply stated – the study found that the more waste exported before Cedar Hills was filled, the more ratepayers would have to pay or the more services would have to be cut back to cover the higher disposal costs. The recommendation was made not to pursue any partial or early waste export to make the most efficient and cost-effective use of Cedar Hills (Appendix D-4). Because of the importance of the recommendation, two independent consultants reviewed the model – one hired by the County and the other by potential waste export firms. Both reviews found the model sound.

Given the model results and the fact that waste export and in-county disposal costs are relatively unchanged, there is no rate benefit to initiating partial waste export. However, as the date approaches when Cedar Hills reaches capacity, the County will need to determine how the transition to waste export can be achieved most efficiently. This will require a thorough analysis that begins well in advance of closure. In addition, consistent with County policy, the timing of waste export will be reexamined annually, with reports to the King County Council on the findings. The County will remain open to considering and implementing export early should circumstances warrant.



### **Should the County purchase future landfill space now?**

Posed another way, would it be advantageous to purchase landfill space sooner, in case landfill prices rise over time? To determine if this trend is likely, the County reviewed landfill prices for the Roosevelt and Columbia Ridge Landfills for the last 5 to 10 years. The County also conducted a brief survey of landfill capacity in the western United States and a cost analysis of waste transport to determine if there are market forces at work that could drive landfill prices up.

When waste export began locally in the early 1990s, contracted disposal prices at landfills in the Northwest were between \$23 and \$26 per ton (excluding transport costs). As waste export activity has increased during the decade, disposal prices have declined. Today, contracted disposal costs at Roosevelt and Columbia Ridge are less than \$20 per ton.

It appears there is sufficient landfill space available in the Northwest (Roosevelt Landfill in Washington and Columbia Ridge and Finley Buttes Landfills in Oregon), as well as in Idaho, Utah, and California, to keep the industry competitive. Exporting MMSW to landfills in these other states is a viable option. A review of the City of Seattle and Snohomish County waste export contracts revealed that the incremental cost of miles traveled back and forth between the community served and the landfill site is negligible (Appendix D-1).

The early purchase of future landfill space appears to be cost effective only if the price for landfill space increases over time. Since the opposite trend is occurring, this option need not be pursued at this time; however, the County will continue to monitor waste export prices and the availability of landfill space and report back to the region on its findings at least annually.

### **Should the County implement waste export on its own, or in coordination with the City of Seattle or adjacent counties?**

The City of Seattle is already exporting its waste to the Columbia Ridge Landfill. Snohomish County also exports its waste, but to the Roosevelt Landfill. The volume of waste exported by these two jurisdictions is approximately equal to the volume of waste that the County will need to export. Opportunities may exist for King County to coor-

▲  
*Cedar Hills will reach its  
permitted capacity in  
about 2012*

dinate with Seattle, Snohomish County, or other jurisdictions in implementing waste export. A coordinated waste export system with another or multiple jurisdictions could lead to greater economies of scale in contract costs, lower costs for intermodal facilities if they could be shared, and lower costs for ratepayers. As an initial step, the County will develop a detailed waste export implementation and coordination plan. The plan will address specific issues covering the timing of waste export, capacity and facility needs, and intermodal yard needs, as well as answers to questions about the feasibility, costs, and benefits of possible joint operations with adjacent counties and other jurisdictions.

**How will an intermodal yard or yards be sited (sites where transfer containers are shifted from trucks to rail cars or barges)?**

During Plan development, the cities asked that they have input in the process of siting an intermodal yard – or yards. Primarily, they want to help ensure that no one jurisdiction has to absorb a disproportionate amount of waste and truck traffic.

The methods available for exporting the region’s waste include rail hauling, barging, or trucking waste to an out-of-region landfill. Rail hauling or barging will require an intermodal facility (or facilities) where loaded transfer containers are shifted from trucks to either rail cars or barges.

Given that there are 37 cities in the regional solid waste system, decisions about the method of waste export, and decisions about the siting of intermodal facilities (whether by rail or barge), should be made jointly. The region has several years to discuss and decide how and where these facilities will be sited.

If the need arises for the County to develop one or more intermodal facilities, the process for siting these facilities shall include:

- Involving all affected jurisdictions and interested parties in the siting process decisions and providing access to relevant information to affected jurisdictions and interested parties
- Listening and responding to input from all affected jurisdictions and interested parties
- Developing jointly with all affected jurisdictions and interested parties all criteria for identifying prospective sites that comprehensively evaluate environmental, technical, financial, and community needs



▲  
The City of Seattle and Snohomish County currently rail haul their solid wastes

**Will there be adequate regional rail capacity in 2012 when Cedar Hills is projected to close?**

Because of cost and other considerations, it is likely that rail hauling will be the preferred method of exporting waste in the future. Since rail transport is limited to a small number of rail lines, the Solid Waste Division estimated and briefly analyzed future rail capacity needs.

Both the City of Seattle and Snohomish County, who currently contract for waste export (disposal and transport), use rail hauling as their transport method. Their experi-

ence with waste export provides a model for calculating the region's needs for rail capacity should rail hauling be the selected method of export in 2012. Assuming the County would have a comparable train container payload and require a similar train size as the City of Seattle, it is estimated that approximately 8 to 10 trains per week, consisting of about 100 containers per train, would be needed to haul the County's waste from 2012 to 2020.

Solid Waste Division staff discussed these future rail needs with a representative from the Port of Seattle, who was knowledgeable about the regional intermodal transportation infrastructure and general trends in railway capacity, and representatives from the Burlington Northern Santa Fe Railway, which owns a significant portion of the rail lines in the region. The following information was gathered from those discussions:

- The year 2012 – when Cedar Hills is currently anticipated to reach capacity and the County proposes to begin waste export – is beyond the typical planning time frame of the railway industry.
- The additional trains needed for rail hauling in the County would not significantly increase current rail traffic. The additional trains would represent only about a 4 percent increase in the current volume of daily rail traffic through the Burlington Northern Santa Fe Railway main rail yard in south Seattle.
- Both the Port and railroad representatives indicate that adequate main line capacity will be available to export the region's waste in 2012. Three major east-west main lines for rail haul routes currently exist: 1) north through Stevens Pass, 2) through Stampede Pass, and 3) south along the Columbia River Gorge. These routes have the capacity to handle additional freight trains throughout the foreseeable future.

The County will continue to monitor the long-term availability of future rail capacity to ensure that adequate rail capacity actually exists when it is needed. Additionally, the County will need to address many other specific issues, including adequate availability of rail containers. A discussion of how existing transfer station facilities will be upgraded to be compatible with waste export, including a strategy for installation of waste compactors to support efficient long hauling of waste, and consideration of the most effective means of transporting waste from transfer stations to rail lines, such as the development of rail spurs to support such a transfer, will occur after the adoption of this Plan.

### **Should the County export to a single landfill or multiple landfills?**

Another question with respect to waste export is whether to export to a single landfill or to multiple landfills. Having one landfill may be more cost effective, if there are economies of scale that favor using one transport system and taking MMSW to only one landfill. On the other hand, having multiple landfills may provide some assurance that the County's MMSW disposal needs will be met, even if one of the landfills is unexpectedly closed. The answer to this question will depend on future market conditions and the interest among prospective landfill contractors in providing MMSW disposal services. This issue is best addressed during the contract procurement process, as Cedar Hills nears capacity and waste export becomes more imminent.

### **Would a combined contract for waste export and disposal leave the County vulnerable to price gouging?**

Concern has been expressed that combining both waste export and disposal into one contract would make the County vulnerable to price gouging from railroads because there are only two rail providers in the region. Waste export is the combined activity of transporting and then disposing of collected solid waste. The method of export is most often via rail, but can also involve barging or long-haul trucking. All three methods of export are in use now in Oregon and Washington.

For all methods of export, the landfill contractor must be able to work efficiently with the transport contractor on a daily basis. Therefore, the common practice is for local governments to issue a single request for bids or proposals for waste export services that include both transport and disposal. There are several reasons that this approach is practical and efficient:

- The landfill contractor can select a cost-competitive transport contractor to include in a single bid or proposal. It is in the best interests of both contractors to work out a competitive price for waste export services in order to have a chance at a winning bid or proposal.
- Once a waste export contract is signed and implemented, day-to-day logistical matters and other details become the responsibility of the landfill contractor – not the County.
- The County will have a single point of contact (usually the landfill contractor) for all issues related to contract management and compliance.

The County will continue to monitor current market forces and contract management issues until such time as a waste export contract is negotiated.

### **Summary**

The Plan directs implementation of waste export as follows:

- The region's MMSW will be disposed at the Cedar Hills Regional Landfill until it reaches its permitted capacity in approximately 2012
- The County will contract for long-term disposal capacity at an out-of-county landfill(s) and begin exporting its MMSW after Cedar Hills closes
- The County will develop an emergency response and back-up plan as part of preparing for waste export
- The County will continue to monitor waste export prices and the availability of landfill space and report back at least annually
- The County will work with the cities during the siting process for intermodal yards, if they are required
- The County will continue to monitor the long-term availability of future rail capacity

- The County will prepare a detailed waste export implementation and coordination plan that will address the possibility of joint operations with adjacent counties or other jurisdictions
- Decisions about the number of landfills to contract with will be made during the contract procurement process
- The County will study pricing and contract issues before determining whether to negotiate a single contract for export and disposal
- The County will consider initiating waste export earlier than 2012 if circumstances warrant

## Management of the County's Closed Landfills

King County maintains ten closed landfills throughout the region (Figure 7-2). The landfills closed at various times over the last 30 years. In the late 1960s and 1970s, the Corliss, Bow Lake, Houghton, Puyallup/Kit Corner, and South Park Landfills were closed. The Duvall Landfill was closed in 1981. The Cedar Falls, Enumclaw, and Hobart Landfills were closed within the last 10 to 15 years. Most recently closed was the Vashon Landfill, which stopped accepting waste in 1999.

The Solid Waste Division monitors groundwater, surface water, wastewater, and landfill gas at all ten of the County's closed landfills. Since 1972, federal and state requirements for the management of closed landfill sites have become more stringent. In response, environmental monitoring programs have been stepped up with more monitoring stations and a broader scope of chemical analyses. These changes have also led to increases in reporting requirements.

Under the Solid Waste Division's current monitoring program, samples are collected from more than 180 groundwater, surface water, and wastewater monitoring stations and approximately 100 landfill gas monitoring stations. Monitoring samples are collected on a monthly or quarterly schedule, depending on the medium. These data are summarized in quarterly and annual reports submitted to the Washington Department of Ecology and Public Health – Seattle & King County. The Health Department also routinely inspects all of the closed landfills.

A brief summary of the past, current, and future activities at the sites is provided in Table 7-1.

Figure 7-2. Locations of the County's Closed Landfills



**Table 7-1.** Status of the County's Closed Landfills

Landfill	Year Closed	Environmental Systems in Place	Current and Future Programs
Bow Lake	mid-1960s	Preliminary studies conducted in 1985 and 1986 indicated the site did not require monitoring systems	Continuing routine inspections to monitor for changes in conditions
Corliss	mid-1960s	Preliminary studies conducted in 1985 and 1986 indicated the site did not require monitoring systems	Continuing routine inspections to monitor for changes in conditions
Houghton	mid-1960s	Landfill gas extraction; ground-water and landfill gas monitoring	Lease signed in March 1999 to develop athletic fields at the site; continuing monitoring and maintenance of environmental systems
Puyallup/ Kit Corner	mid-1960s	Landfill gas extraction; ground-water and landfill gas monitoring; vegetative landfill cover	Continuing monitoring and maintenance of environmental systems
South Park	1978	Groundwater, surface water, and landfill gas monitoring	Site being marketed for sale and development under King County Council Motion 9885 for industrial uses; continuing monitoring and maintenance of environmental systems
Duvall	1981	Leachate collection; groundwater, surface water, and landfill gas monitoring; soil cover	Groundwater wells installed to expand existing network; gas probes installed to monitor sub-surface landfill gas; vegetative landfill cover to be constructed to improve existing cover's ability to reduce surface water infiltration through the refuse, and monitoring; continuing monitoring and maintenance of environmental systems; evaluating the existing leachate collection system

The County continues to examine possibilities for the beneficial reuse of closed landfills in the region. The presence of monitoring equipment at these landfills can limit the types of beneficial reuse projects that can be implemented. As programs and monitoring are expanded at these sites, the County is designing systems with beneficial reuse in mind.

Recent examples of reuse projects include:

- **Duvall Landfill** – The County has installed an 800 MHz radio tower outside of the refuse boundary of the site as part of the Emergency Communications Project.

**Table 7-1.** *continued*

Landfill	Year Closed	Environmental Systems in Place	Current and Future Programs
Cedar Falls	1989	Passive gas collection; groundwater, surface water, and landfill gas monitoring; composite cover system	Additional groundwater wells recently installed; routine evaluations of the passive gas collection system being conducted; continuing monitoring and maintenance of environmental systems
Enumclaw	1993	Landfill gas extraction; leachate collection; stormwater drainage; groundwater, surface water, and landfill gas monitoring; composite cover system	Continuing monitoring and maintenance of environmental systems
Hobart	1994	Landfill gas extraction; leachate extraction and collection; groundwater and landfill gas monitoring; groundwater cutoff well; composite cover system	Continuing monitoring and maintenance of environmental systems
Vashon	1999	Landfill gas extraction; leachate collection; stormwater drainage; groundwater, surface water, and landfill gas monitoring; composite cover system	Temporary cover is being replaced with final cover; controls planned include an expansion of active landfill gas extraction, leachate collection, and stormwater detention systems, and groundwater, surface water, and landfill gas monitoring networks; continuing monitoring and maintenance of environmental systems

- **Houghton Landfill** – A lease was signed in March 1999 to develop athletic fields at the former Houghton landfill site. Environmental investigations at the site conducted by the County and independently verified by the Health Department, University of Washington Environmental Health Department, and the Agency for Toxic Substance and Disease Registry (within the U.S. Environmental Protection Agency) found that recreational use would not pose a threat to public health or safety.
- **South Park Landfill** – The County is marketing this site and investigating possibilities for developing the area for industrial uses. A site developer is being selected in 2001/2002.

- **Open Space Preservation** – All closed landfill sites represent open space that can be used for habitat. Sites are open grassy areas and some are adjacent to woods. Sites that are already providing habitat for birds and other migratory animals are the Duvall and Cedar Falls landfill sites. Both are in the headwaters of significant streams and provide cover and a source of food for birds. Management of these and the other sites as open space helps to support the County’s goals and policies for open space and habitat preservation.

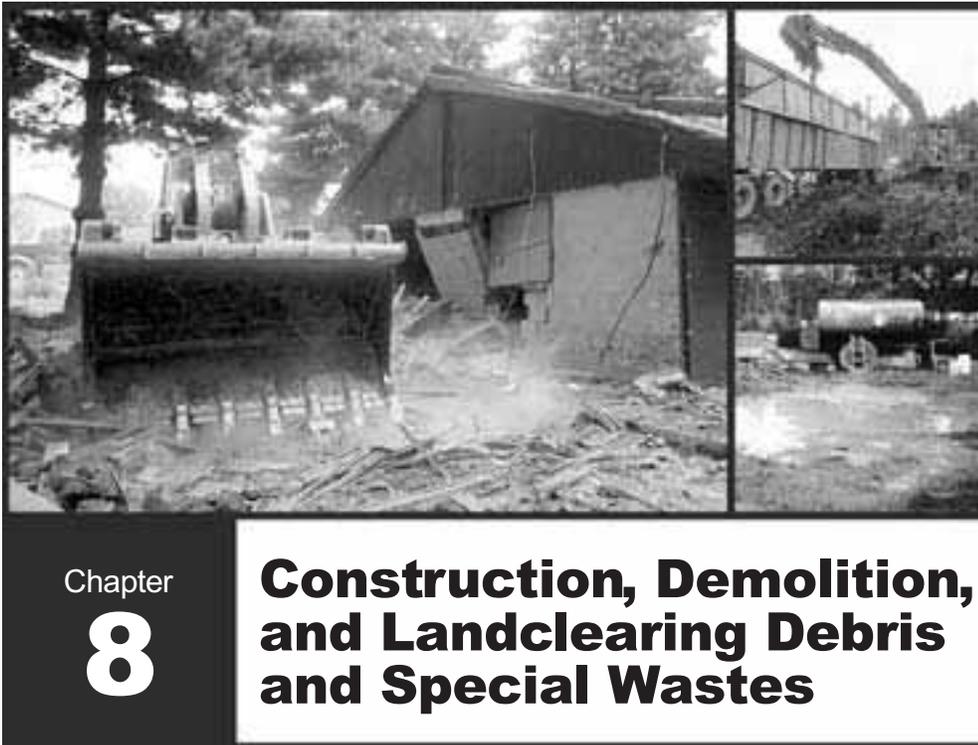


### **Recommendations**

Extensive environmental monitoring and mitigation systems are in place at the County’s closed landfills. Current practices are intended to assist the County in complying with regulatory requirements for these sites. The County will continue to monitor and maintain the landfills as needed.

The County will continue to explore beneficial reuse options for all closed landfill sites whenever it might benefit the community without posing a threat to public health and safety. The Solid Waste Division is working in close coordination with city, County, state and federal agencies, and the public to identify possible reuse options. Any future monitoring or environmental system installation will be designed to facilitate reuse of the sites.

The County also will work to convert landfill gas, the gas produced by the microbial decomposition of municipal solid waste, into a marketable energy product as soon as possible.



The solid waste stream in King County includes two categories of wastes that may require special handling or may be unsuitable for disposal directly into a transfer station or landfill because of their physical characteristics or composition. This chapter deals with these two broad categories of wastes.

The first category discussed is construction, demolition, and landclearing debris, referred to as CDL. CDL is the waste generated primarily by construction and land development companies who build, remodel, and demolish structures and clear land for development. The second category of waste is referred to as special wastes and includes contaminated soils, asbestos-containing materials, treated biomedical wastes, treatment plant grit and vector wastes, agricultural wastes, and tires. If special clearances for disposal are required, they are issued in accordance with various federal, state, and local regulations and policies. Chapter 9, *Enforcement*, describes in more detail the waste clearance program for special wastes disposed at King County facilities.

CDL and special wastes have specific and unique handling and disposal requirements. In this chapter, CDL is discussed first, with recommendations provided at the end of the discussion. Special wastes are described in the section that follows. Specific recommendations for special waste handling before and after the Cedar Hills Regional Landfill closes are summarized in a table at the end of the section, along with any further studies needed to make a final determination.

## Construction, Demolition, and Landclearing Debris (CDL)

As stated earlier, CDL is generated by construction and landclearing activities. Historically, CDL waste has been collected, transported, and disposed largely by private-sector solid waste management companies. With the adoption of the *1989 Comprehensive Solid Waste Management Plan*, the County and the cities reaffirmed the basic policy of leaving the responsibility of CDL waste handling to the private sector. However, government's role was expanded to ensure that CDL waste handling services were available region-wide through a County-controlled procurement process. Until 1991, there were two private landfills in the County – Newcastle Demolition Waste Landfill and Mt. Olivet Landfill – where CDL wastes could be disposed. Both landfills reached maximum capacity and were closed by the spring of 1991. When these landfills closed, King County began taking CDL waste at its transfer stations and the Cedar Hills Regional Landfill on a temporary basis. Because of the heavy and bulky nature of CDL waste, it requires special handling and safety measures. The County's facilities were not designed to handle this type of bulky waste.



▲  
CDL waste requires special handling because of its heavy and bulky nature

Knowing that the two private landfills would not provide long-term CDL waste disposal capacity for the region, the County began to examine alternatives for its handling. In December 1989, the County issued a Request for Proposals from private-sector waste handling operators for the collection, handling, and disposal of CDL wastes. The County's objectives were to ensure a satisfactory level of CDL collection and disposal service, promote private enterprise in CDL handling, and maintain competition for the benefit of the public. In addition, the County was committed to recycling and, therefore, sought to increase the amount of CDL materials being recycled.

In the early 1990s, two private-sector solid waste management companies – Waste Management, Inc. and Regional Disposal Company (a subsidiary of Rabanco) – signed contracts with King County to handle the County's CDL waste and recyclables. These identical contracts, which extend through 2004, require each company to provide a minimum handling capacity of 25,000 tons of CDL wastes per month. To accommodate this requirement, each company operates two receiving facilities in King County (shown in Figure 8-1).

Figure 8-1. Locations of CDL Handling Facilities in King County



©CDL Handling Facility

King County banned CDL waste at its facilities in 1993, except for small amounts delivered to County transfer stations by residential customers. These small amounts are accepted only when delivered in vehicles of pick-up size or smaller. The loads typically contain gypsum wallboard, dimension lumber, treated or painted wood, roofing and siding, and stumps. Loads of waste where the total weight of the load does not contain more than 10 percent CDL are also accepted along with mixed municipal solid waste (MMSW) at the transfer stations.

The private solid waste management companies prepare monthly reports on the volume of CDL disposed at their facilities. These data are summarized by year in Table 8-1.

**Table 8-1.** Estimated Volumes (in tons) of CDL Waste Disposed at the Private Facilities

Facility	1994	1995	1996	1997	1998	1999
Waste Management, Inc.						
Eastmont	4,500	11,400	23,200	34,700	36,900	31,200
Argo Yard	1,700	2,200	5,200	10,000	8,000	13,700
Regional Disposal Co.						
Third & Lander	49,900	49,500	43,500	53,400	65,300	75,200
Black River	84,300	68,400	69,100	77,700	77,600	89,300
<b>TOTALS</b>	<b>140,400</b>	<b>131,500</b>	<b>141,000</b>	<b>175,800</b>	<b>187,800</b>	<b>209,400</b>

Note: Volumes do not include clean wood and other recycled material

Data on the amount of CDL waste delivered to the County’s transfer stations along with MMSW are collected during the Solid Waste Division’s waste characterization surveys. The most recent survey results (Cascadia 2000; also provided in Appendix A-2) indicate that approximately 11 percent of the MMSW stream entering County facilities contain materials found in CDL waste.

In keeping with state and County goals and policies for waste reduction and recycling, the preferred method for managing CDL is to separate out the recyclable or reusable portions of the CDL waste stream and reduce the overall amount of CDL waste disposed. Separation can occur at a construction or demolition site, at one of the CDL receiving facilities, or at a landfill. Based on information received from Regional Disposal Company and Waste Management, they each accept mixed CDL at their respective receiving facilities, separate out some recyclables for processing, and transport the remainder to their respective landfills in Klickitat County, Washington (Roosevelt Landfill) and Gilliam County, Oregon (Columbia Ridge Landfill) for disposal. Waste Management’s Argo Yard facility accepts only containerized loads of mixed CDL, which come from large construction/demolition sites or from their Eastmont transfer station. These CDL loads are transported directly to the Columbia Ridge Landfill for disposal.

While the 1992 *Comprehensive Solid Waste Management Plan* identified waste reduction and recycling as the primary method of managing CDL, it is difficult to measure how much is actually being done. For example, there are no data on the tons of CDL recycled at construction or demolition job sites and taken directly to a processor. The CDL handling companies are required by Public Health – Seattle & King County to report data to the Health Department on the tons of CDL materials recycled at their facilities; however, those data include tonnage from the City of Seattle and other sources. Isolating the amount that comes only from the area governed by this Plan is a rough estimate. For 1998 and 1999, the percentage of our CDL waste stream estimated to have been recycled was 3.3 and 5.1, respectively. Again, these figures reflect only a fraction of the recycling activity that may be occurring.

This following sections set out the County policies for CDL handling followed by the issues and recommendations for its handling in the future.



Concrete and dirt from a demolition project

### County CDL Policies

The County policies for handling CDL are as follows:

**CON-1.** The county shall ensure a satisfactory level of CDL transfer and disposal in the county, and encourage and expand recycling of CDL.

**CON-2.** The county shall continue to limit CDL disposal as provided in the King County Code, the existing CDL contracts and the Solid Waste Acceptance Policy at least until May 31, 2004 when existing contracts expire.

**CON-3.** The county should support private efforts to reduce the overall amount of CDL being disposed of in the county solid waste system by encouraging separation of recyclable or reusable portions of CDL from the waste stream. Separation can occur at a construction or demolition site or at one of the CDL receiving facilities, or at a landfill.

**CON-4.** The county should encourage a CDL management system that maximizes reuse and recycling and provides for the safe and efficient disposal of the remaining CDL.

**CON-5.** In keeping with state and regional system goals and recommendations for waste reduction and recycling, the preferred method for managing CDL is to separate out the recyclable or reusable portions of the CDL waste stream and reduce the overall amount of CDL waste disposed of in the county's solid waste system. Separation can occur at a construction or demolition site, at one of the CDL receiving facilities, or at a landfill.

**CON-6.** The executive in consultation with the Solid Waste Advisory Committee and appropriate staff from cities in the region shall propose to the council alternatives for future handling of CDL that will best suit the region as a whole. A goal of the preferred alternative should be to increase the amount of CDL recycled from work and disposal sites. The council shall approve the CDL handling program by ordinance.

**Issues**

Currently, few studies have been conducted on the CDL waste stream, so there is little information on the specific composition of the CDL wastes (for example, wood vs. gypsum), who generates what quantities, and how much is being recycled. There is also limited information about the extent to which the mixed CDL waste stream can be recycled, the facilities that process CDL for recycling, and the existing and potential markets for recyclable CDL. These data are key in developing a CDL management system that maximizes reuse and recycling and provides for the safe and efficient disposal of the remaining CDL.

**Table 8-2.** Projections of Mixed CDL Disposal through 2020

Year	CDL (tons)
2000	202,000
2005	215,000
2010	234,000
2015	242,000
2020	256,000

The County’s CDL waste contracts are scheduled to expire in 2004. The County is in the process of gathering CDL waste disposal information to help plan for the region’s future CDL handling needs. Table 8-2 shows the estimated annual volume of CDL expected to be disposed at the private facilities in 5-year increments through 2020. These projections are based on data for past years and assume CDL contracts remain in place through the planning period. Appendix A-1 provides more detailed information on the methodology used to develop these projections.

One option for ensuring adequate CDL handling capacity in the future would be for the County to take CDL back into its waste handling system after the present contracts expire. One issue to be considered under this scenario is the effect on the County’s structural facilities. Information from 1991 to 1993, when the County accepted a substantial portion of the regional CDL waste stream, indicates that there is more wear and tear on facilities that accept CDL, due to the bulky and heavy nature of the wastes. CDL does not compact as well as MMSW, so disposing of it at the Cedar Hills Regional Landfill could quicken the pace at which the landfill reaches capacity.



**Recommendations for Further Study**

Because of the paucity of existing data about the regional CDL waste stream and its generators, the Plan directs that targeted studies be conducted before the existing CDL contracts expire. Results of these studies will be used to evaluate alternatives for its future handling. The goal is to complete the studies by 2002 so that a decision can be made on an alternative or blend of alternatives prior to expiration of the existing contracts in 2004. The evaluation and selection of a management alternative will take place with regional participation. Once data on the alternatives are available, the Solid Waste Division will meet with the Solid Waste Advisory Committee and city solid waste coordinators to determine which alternative would best suit the region as a whole. Criteria that will be used to choose the final alternative include the potential to increase the amount of CDL that is recycled, accessibility of the disposal and recycling facilities, and ability to maintain affordable disposal rates.

The most important element of any alternative chosen will be to increase the amount of CDL recycled from both work sites and disposal sites. The four alternatives to be evaluated are as follows:

**Alternative 1: Renew and Renegotiate Current Contracts**

Current contracts allow for their renewal after the 2004 expiration date. Renew contracts, but renegotiate those contract conditions that deal with recycling and ways to make service improvements.

**Alternative 2: Current Contracts Expire; No New Contracts Negotiated**

- Scenario A – Allow the existing contracts to expire in 2004, accept CDL at County facilities, and include CDL in the waste export contracts when Cedar Hills reaches its permitted capacity. Consider establishing a dedicated CDL receiving facility to actively promote more recycling.
- Scenario B – Allow the existing contracts to expire in 2004 but continue to prohibit most CDL disposal at the County's facilities. CDL would flow to private-sector facilities without any contractual ties with the County governing capacity and other requirements.

**Alternative 3: Limited Disposal at Transfer Facilities**

Negotiate new long-term contracts that provide for expanded recycling of mixed CDL and the transfer/disposal of the residual, non-recyclable CDL. Loosen restrictions on CDL disposal at the County transfer facilities to allow small commercial vehicles to dispose of CDL.

**Alternative 4: Contract CDL Disposal**

Negotiate new contracts through 2012 that provide for expanded recycling of mixed CDL and the transfer/disposal of the residual, non-recyclable CDL. Thereafter, include CDL in the County's waste export contracts with provisions for a continuing emphasis on mixed CDL recycling.

Information that the Solid Waste Division is compiling over the next two years to allow for an informed regional decision includes:

- Characteristics of the CDL waste stream, including composition, origin, and amount of the CDL generated, disposed, and recycled
- Characteristics of CDL waste present in the County's MMSW stream
- The geographic flow of CDL generated in the County – the locations where it is generated, transferred for disposal, or recycled
- The processing methods and end uses for CDL that is recycled
- The types and amount of CDL currently disposed that could be recycled
- How generated CDL is collected and transferred to CDL handling facilities
- Types of vehicles that haul CDL at public and private transfer stations and their average tonnage
- Opportunities for and barriers to increased CDL recycling
- Potential impact on County facilities of accepting CDL materials, including safety concerns
- Economic and operational feasibility of a separate publicly owned and operated CDL recycling and transfer facility
- Cost, rate impacts, and other factors that might affect the alternatives

## Special Wastes

Special wastes include contaminated soil, asbestos-containing materials, treated biomedical wastes, treatment plant grit and vector wastes, agricultural wastes, tires, and other wastes. All of these types of special wastes are currently accepted at County facilities, though in some cases only at the Cedar Hills Regional Landfill. With few exceptions, all of the special wastes require clearance under various waste acceptance policies or regulations.

This section first sets out the County’s policies on special wastes followed by brief discussions of each type of special waste, describing how it is generated and how it is currently handled within the regional system. Special wastes constitute a very small portion of the overall waste stream at County facilities, and the procedures for their disposal are, in many cases, defined by regulation.

Recommendations for their handling until and after the Cedar Hills Regional Landfill closes are summarized in Table 8-3 at the end of this section, including any further studies needed to make a final decision on long-term handling.



▲  
Wastes may require special handling procedures to protect public health and the environment

### County Special Waste Policies

The County policies for handling special wastes are as follows:

**SPW-1.** The county shall accept contaminated soil only at the Cedar Hills regional landfill. After the Cedar Hills regional landfill closes contaminated soil should be handled by the private sector.

**SPW-2.** The county shall accept asbestos-containing materials for disposal only at the Cedar Hills regional landfill if accompanied by required federal, state or local asbestos disposal documentation. After the Cedar Hills regional landfill closes, asbestos-containing materials should be handled by the private sector.

**SPW-3.** The county shall evaluate providing one solid waste transfer facility that would accept small volumes of asbestos-containing materials from residential customers.

**SPW-4.** The county shall make safety and public health the top priorities in managing the disposal of biomedical wastes. The county shall accept treated biomedical wastes at the Cedar Hills regional landfill and county transfer facilities only if it has been treated according to standards contained in the county Solid Waste Regulations. After the Cedar Hills regional landfill closes treated biomedical wastes should be handled by the private sector. The county shall also evaluate the possibility of accepting small volumes of treated biomedical wastes at county transfer stations after the Cedar Hills regional landfill closes.

**SPW-5.** The county shall evaluate providing a separate receptacle for disposal of small quantities of sharps generated by residents or small businesses at some or all transfer facilities.

**SPW-6.** The county should develop and implement educational programs for residents on the proper disposal practices for sharps and other biomedical wastes.

**SPW-7.** The county should work with pharmacies and health care providers to educate individuals on proper disposal of medical waste, and to establish voluntary take-back programs for home-generated sharps and other used medical supplies.

**SPW-8.** The county shall accept disposal of de-watered vector wastes only at the Cedar Hills regional landfill. The county should reevaluate and revise recommendations from the 1994 Vector Waste Disposal Plan to provide wet vector waste management alternatives after the Cedar Hills regional landfill closes.

**SPW-9.** The county should develop and implement long-term management solutions for the special handling required for de-watered vector wastes. The county should dispose of de-watered vector wastes through future waste export contracts after the Cedar Hills regional landfill closes unless other management options are identified in the county's evaluation of long-term management solutions.

**SPW-10.** The county should accept limited numbers of waste tires at transfer stations and should dispose of limited numbers of waste tires at the Cedar Hills regional landfill. Once the Cedar Hills regional landfill is closed, the county should dispose of waste tires through future waste export contracts.

**SPW-11.** The county shall authorize disposal of controlled solid waste that cannot be handled by the county facilities at locations outside the county on a case-by-case basis.

## Contaminated Soil

Contaminated soil is soil containing fuel oil, gasoline, lubricating oil, other hydrocarbons, or other contaminants at concentrations that are lower than hazardous or dangerous waste levels but generally higher than cleanup levels established by the Washington Department of Ecology (PUT 7-1-4 [PR], 6.38). The Solid Waste Division and the Health Department regulate its disposal through the waste clearance process (discussed in more detail in Chapter 9, *Enforcement*).

Contaminated soil generally results from leaking underground storage tanks, site remediation activities, or releases of hazardous substances into soil. Beginning in the late 1980s, the disposal of contaminated soils increased dramatically due to the federal underground storage tank program that required upgrading or replacing commercial and industrial tanks (Federal Hazardous and Solid Waste Amendments of 1984, 40 CFR Parts 280-281). Under this program, underground storage tanks installed before December 1988 were to be upgraded or removed. During the early years of the program, the Cedar Hills Regional Landfill saw a surge in the disposal of contaminated soil. In 1991, soil received at the landfill reached a high of 16,700 tons, but by 1992 the volume had dropped to less than 1,000 tons per year. By 1999, that volume dropped even further to only 88 tons.

Disposal of contaminated soil at private transfer stations within the region, however, has increased in the last few years. In 1999, more than 16,000 tons of contaminated soil was received at Rabanco's Third & Lander facility and more than 600 tons was received at Waste Management's Argo Yard. The reason for the shift toward private-sector management of contaminated soil is that these two private companies use the material as daily cover at their out-of-county landfills, which reduces the cost of disposal to the customer.



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 The success and cost-effectiveness of on-site treatment technologies for contaminated soil has reduced the amount of soil that is disposed

In addition to disposal, there are a variety of treatment processes that remove or destroy hazardous substances in contaminated soil. On-site treatment technologies include aeration, *in situ* bio-remediation, and use of mobile thermal desorbition or incineration units. Off-site treatment technologies include thermal stripping and incineration. These technologies can be cost-competitive options for managing contaminated soils, depending on the volume of soil and characteristics of the contaminants. Treatment is most cost-competitive for large remediation projects and for petroleum-contaminated soil. The rates charged for treatment are often less than the rates for disposal as special wastes.

Further declines in the volume of contaminated soil requiring treatment or disposal are expected in the future due, in part, to the success of the storage tank removal program.

The Cedar Hills Regional Landfill is the only in-County disposal facility that accepts contaminated soil. Once the landfill reaches its permitted capacity, the only disposal option available will be the out-of-county landfills. Out-of-county landfills already accept and manage significantly more contaminated soil than is disposed at Cedar Hills. Capacity exists at these landfills to provide disposal for at least 50 years after Cedar Hills closes (see Chapter 7).

### Asbestos-Containing Materials

Asbestos-containing materials are wastes that contain more than 1 percent asbestos by weight. Asbestos waste is generated largely through structural demolition, renovation, and remodeling. Airborne asbestos presents a considerable risk to human health and is therefore considered a hazardous air pollutant.

Asbestos handling, from removal at the site through final landfill disposal, is regulated by the following federal, state, and local laws:

- The National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR Part 61 Subpart M)
- The Puget Sound Clean Air Agency’s (PSCAA) Asbestos Control Standard (Regulation III, Article 4)
- King County Solid Waste Regulations (KCBOHC 10.28.060)
- King County Waste Clearance and Waste Acceptance Policies (PUT 7-2-1 [PR], and PUT 7-1-4 [PR])

Landfilling is the most common method for managing these materials because once asbestos is buried it no longer poses a health hazard. The Cedar Hills Regional Landfill is the only facility within the County’s system that accepts asbestos. All friable asbestos-containing waste received must be accompanied by an U.S. Environmental Protection Agency Waste Shipment Record for Regulated Asbestos Waste Material and either a PSCAA Notice of Intent or a Solid Waste Division Waste Clearance Decision.

Each friable asbestos load is placed in a pit prepared specifically for asbestos-contain-

ing waste, special waste, and containerized sharps (needles, syringes). A waste screening technician observes the waste as it is unloaded to ensure that the material is properly bagged and labeled and that the bags are not broken during placement. The asbestos pit is covered at the end of the working day. The Solid Waste Division maintains records of the location, depth, and volume of asbestos-containing waste disposed at the landfill.

The volume of asbestos waste generated within the County seems to be declining. In 1991, approximately 3,800 tons of asbestos was disposed at the Cedar Hills Regional Landfill; however, tonnage has declined substantially since then. By 1995, the amount of asbestos disposed at Cedar Hills declined to about 100 tons annually and has remained at that level through 1999.

The long-term decline in asbestos disposal is due, in part, to a dwindling number of buildings and other structures that still contain the material. The decline can also be attributed to the increased role of the private sector in providing asbestos disposal services. It is believed that the private sector has the capacity to handle the asbestos wastes generated in King County after the Cedar Hills Regional Landfill closes.

### Treated Biomedical Wastes

Biomedical wastes include cultures; laboratory waste; needles and other sharps; and liquid human blood, tissues, and body parts generated primarily by hospitals, laboratories, research facilities, and medical, dental, and veterinary clinics. Residential users of syringes, lancets, and other home health care materials also generate a small amount of biomedical waste. These wastes can contain pathogens in sufficient concentrations to pose risk of disease in humans exposed to them.

Within King County, the Health Department regulates the handling and disposal of commercial biomedical waste. Disposal of commercial biomedical waste at the Cedar Hills Regional Landfill is also regulated by the County's Waste Acceptance Policy (PUT 7-1-4 [PR]). Cedar Hills accepts biomedical waste from medical facilities only when it has been treated according to standards contained in King County Solid Waste Regulations (KCBOHC 10.28.070). Most biomedical waste must be treated by steam sterilization, incineration, or other approved method. Sharps waste, including needles, syringes with needles attached, and lancets, must be contained in rigid, puncture-proof containers. Most of the commercial biomedical waste generated in the region is treated and disposed via private incinerators and treatment facilities outside King County.

Home-generated biomedical wastes, such as needles and syringes, are disposed of as MMSW. Although quantities are less, they can pose the same risks as those from the medical and research communities. Improper disposal of home-generated sharps can expose solid waste workers to blood-borne pathogens. The Washington Department of Ecology and the Health Department inform the public about proper handling and disposal of home-generated medical wastes.

*The disposal of laboratory and medical wastes is regulated by King County's Waste Acceptance Policy*



In 1999, the approximate quantity of treated biomedical wastes received as special waste at the Cedar Hills Regional Landfill amounted to about 55 tons. The wastes were received primarily from small-scale medical services providing their own transport. Most of the biomedical wastes generated by hospitals and clinics are taken to out-of-county facilities for treatment, either by incineration or microwave, and disposal. No data are available on the volume of biomedical waste handled by the private sector. According to the Solid Waste Division's most recent waste characterization study (Appendix A-2), the volume of treated biomedical wastes delivered to the County's transfer facilities along with MMSW is small (about 300 tons per year) and consists primarily of syringes, intravenous tubing, bandages, medications, and other wastes.

Safety is the most important concern with the transfer and disposal of biomedical wastes. In 1999, a statewide group was convened to identify medical waste management issues that could, or should, be addressed by legislation. The group concluded that medical waste management in the state was not posing a health risk to the general public, but did constitute a risk for solid waste haulers and site operators and workers at medical waste processing facilities. Reasons given for the risk included:

- Generators are not always packaging material correctly
- There is a growing amount of biomedical waste in the residential waste stream because of more outpatient care
- Transport laws do not apply to small-quantity transporters carrying less than 100 lbs. of biomedical wastes
- Laboratory-generated cultures and stocks can be particularly dangerous to handle, and there are no standards for deactivating these materials before they are disposed

In addition, even though needles and other sharps are required to be disposed in plastic containers, sometimes in the disposal process the containers are broken, creating a safety hazard for wastes handlers. Some method of segregating these wastes at the transfer facilities would increase worker safety. For example, City of Seattle transfer stations provide separate barrels for the disposal of sharps and small amounts of medical wastes.

The statewide group identified several actions that could be taken at the state and local levels to improve safety, which included:

- Initiating educational programs for residents on proper disposal practices for sharps and other biomedical wastes
- Working with pharmacies and health care providers to educate individuals on how to properly dispose of medical waste, and establishing voluntary take-back programs for home-generated sharps and other used medical supplies

### **Treatment Plant Grit and Vector Wastes**

Treatment plant grit and vector wastes are the by-products of sewage treatment plants, industrial activities, and various commercial and residential activities. Because of the potential for these wastes to contain industrial pollutants, they are regulated by the County's Waste Acceptance Policy (PUT 7-1-4 [PR]).

Treatment plant grit consists of both floating and sunken solids that are screened out at the entrances to sewage treatment plants. Specific materials include rags, plastics, rocks, and sand. Treatment plant grit is delivered directly to Cedar Hills by the County's Wastewater Treatment Division and by smaller treatment plant operators.

There are both wet and dry vactor wastes. Wet vactor wastes are mostly catch basin sludges from streets and parking lots, consisting primarily of sand and silt, some litter, and a certain percentage of oil and grease. Wet vactor wastes are dewatered prior to delivery at Cedar Hills for disposal; however, the material must retain a relatively high water content in order for it to be pumped from the vactor trucks that deliver it.

Dry vactor wastes are street sweepings, soot from chimney sweeps, and vacuumed debris from duct systems. The material is difficult to handle because it often consists of fine dust that can be blown around easily.

The primary method of managing treatment plant grit and vactor wastes is landfill disposal. The Cedar Hills Regional Landfill is the only in-county landfill that accepts these types of waste. The quantity of wastes received in 1999 was approximately 4,500 tons. Rabanco's transfer station at Third & Lander also accepts both wet and dry vactor wastes, but not treatment plant grit. Based on monthly tonnage reports from Rabanco, they take in larger volumes of vactor wastes than Cedar Hills.

Vactor wastes present special handling problems for waste export and disposal. Wet vactor wastes contain high volumes of water that must be removed before transport in order to reduce the weight of the material as well as the risk of leakage. However, some water content must remain so that it can be pumped from the delivery trucks. There are two public facilities in the County that remove the water from wet vactor wastes. Dry vactor waste is light material, but very difficult to handle at transfer stations because of its dust-like nature. Given the characteristics of these materials, it is likely that special methods of managing these wastes will have to be developed in order to implement an efficient waste export system.

In 1994, the King County Surface Water Management Division, now the Water and Land Resources Division, published a Vactor Waste Disposal Plan. The purpose of the Vactor Plan was to develop waste disposal practices for wet vactor waste that would protect regional water quality. Major recommendations contained in the Vactor Plan include:

- Providing a network of receiving stations for public and private vactor trucks
- Encouraging the construction of vactor waste receiving facilities through the development of uniform land use standards that facilitate siting and construction
- Developing environmentally sound, cost-effective, and creative technologies for handling wet vactor waste



▲  
*Landfilling is the primary method of managing treatment plant grit and vactor wastes*

To date, not all recommendations contained in the Vactor Plan have been implemented; however, a review of the Vactor Plan recommendations and supporting documentation appears warranted given the need to provide wet vactor waste management alternatives after Cedar Hills reaches its permitted capacity. Both Snohomish County and the City of Seattle operate waste export systems and handle wet vactor waste. A review of their handling practices also warrants further study.



▲  
*Nearly 300,000 tons of agricultural wastes are generated yearly in King County*

### **Agricultural Wastes**

Agricultural wastes are by-products of farming and ranching that include crop processing waste, carcasses of dead farm animals, and manure. The King County Cooperative Extension Service reports that crop-processing waste is not a major concern in King County. No estimates are available on quantity because most of it is returned to the soil at the end of the growing season. Current practices do not generate wastes that require disposal or result in pollution problems.

The management of animal carcasses is a well-developed industry, which relies on rendering plants that derive useful products from animal remains. Some types of animals, whose carcasses cannot be rendered, may be disposed in landfills. In 1999, 41 tons of animal remains were disposed at the Cedar Hills Regional Landfill. In comparison, the Baker Commodities rendering facility processes approximately 5,000 tons of dead animals per month.

Farm animals in King County produce from about 1,400 to 1,700 tons of manure per day, which is generally stockpiled and may eventually be applied to farmlands. The major concern for manure storage, processing, and application is contamination of surface water.

Since agricultural wastes are organic wastes, policies for their future handling are provided in Chapter 4.

### **Waste Tires**

Waste tires are accepted at County disposal facilities but on a limited basis. Commercial haulers are not allowed to dispose waste tires at County facilities; individuals can dispose up to four tires at a time. The tires received are disposed at the Cedar Hills Regional Landfill along with other MMSW. Because waste tires are disposed with other MMSW, there is no specific information about actual volumes received; however, survey data gathered by the Solid Waste Division for the Waste Monitoring Program indicate that waste tires make up about one half of one percent of the County's MMSW stream (Appendix A-2).

Most waste tires continue to be managed by private recyclers and processors. Once Cedar Hills reaches its permitted capacity, those few waste tires that are disposed will likely also be handled by processors, or will be managed as a part of a waste export contract for MMSW.

**Other Wastes**

Certain wastes require disposal by means not available in King County, such as incineration. These wastes include, but are not limited to, some government-classified materials including computer disks, reports, and other materials that contain classified or sensitive information. King County Code Title 10.08.020(c) provides that “Unless specifically permitted by state law or specifically authorized by King County ordinance, it is unlawful for any commercial hauler or other person or entity to deliver or deposit any controlled solid waste outside the borders of King County unless it is authorized by the adopted King County comprehensive solid waste management plan.”

Although the amount of waste requiring disposal by incineration or other method not available in King County is negligible, requests for such out-of-county disposal may require action in a relatively short time frame. It is recommended that the Solid Waste Division Manager have the authority to approve out-of-county disposal of this waste on a case-by-case basis.



**Table 8-3.** Recommendations for Special Wastes

Type of Waste	Recommendation Until Cedar Hills Closes	Recommendation After Closure
Contaminated soil	Continue to accept small volumes at Cedar Hills	Shift handling to the private sector
Asbestos-containing materials	Continue to accept small volumes at Cedar Hills Evaluate the possibility of providing one transfer facility that would accept small volumes from residents	Shift handling to the private sector
Treated biomedical wastes	Continue to accept at Cedar Hills and transfer facilities Support the statewide group on medical waste handling Evaluate the possibility of providing a separate receptacle for disposal of small quantities of sharps generated by residents or small businesses at some or all transfer facilities	Shift handling to the private sector Continue to accept small volumes at transfer stations
Treatment plant grit	Continue to accept at Cedar Hills	Incorporate into future waste export contracts



**Table 8-3.** *continued*

Type of Waste	Recommendation Until Cedar Hills Closes	Recommendation After Closure
Vactor wastes	Continue to accept at Cedar Hills	Pending results of further research, incorporate into the future waste export contracts or pursue other options
	Further evaluate 1994 Vactor Waste Disposal Plan to look at other long-term management solutions	
	Further evaluate dry vactor waste handling at transfer stations and in waste export containers	
Agricultural wastes	See Chapter 4	See Chapter 4
Waste tires	Continue to accept limited numbers at transfer stations and dispose at Cedar Hills	Incorporate into future waste export contracts
Other wastes	Allow the Solid Waste Division Manager to authorize the disposal of controlled solid waste that cannot be handled by King County facilities at locations outside King County	Continue with previous recommendation

**References**

Cascadia. 2000. *Waste Monitoring Program: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys. Final Report.* Prepared by Cascadia Consulting Group, Inc., for King County Department of Natural Resources, Solid Waste Division, Seattle, WA.



Chapter  
**9**

## Enforcement

King County and the cities within its jurisdiction are responsible for providing enforcement of federal, state, and local laws and regulations that guide the planning, operation, and maintenance of the region's solid waste management system. This local enforcement authority ensures that our system meets all applicable standards for the protection of human health and environmental quality in the region.

This chapter discusses four areas of enforcement delegated to Public Health – Seattle & King County (the Health Department), King County's Department of Development and Environmental Services and Solid Waste Division, and the cities:

- Permitting and compliance for solid waste handling facilities
- Management of waste flows within the region
- Acceptance of special wastes
- Illegal dumping and litter control

This chapter first sets out County policies on enforcement. Each enforcement category is then discussed, along with issues and recommendations as appropriate.

### **County Enforcement Policies**

The County policies for enforcement are as follows:

**ENF-1.** The county shall exercise its enforcement authority to ensure that the county solid waste management system meets all applicable standards for the protection of human health and environmental quality in the region.

**ENF-2.** Enforcement shall be achieved through permitting and compliance for solid waste handling facilities; management of waste flows within the region; regulation of acceptance of special wastes; and control of illegal dumping and litter.

**ENF-3.** The county, cities and towns should work cooperatively to manage waste flows within the region. The responsibilities for waste handling and process for managing waste flow are established by interlocal agreement.

**ENF-4.** The county shall not accept hazardous and dangerous wastes, as defined under federal, state and local law, for disposal at county facilities.

**ENF-5.** The county should maintain a waste-screening program at county disposal facilities to ensure that material in the solid waste stream is handled in conformance with county and state regulations. The purpose of the waste-screening program is to safely process solid wastes and to prohibit hazardous and dangerous wastes from the county waste facilities.

**ENF-6.** The county should implement a comprehensive public outreach and education program to assure that proper waste handling practices are observed.

**ENF 7.** The county should develop programs and strategies designed to reduce illegal dumping and littering.

**ENF-8.** The county should continue the community litter cleanup program administered by the solid waste division of department of natural resources and parks as long as financial assistance from the state is available.

**ENF-9.** The county should continue to seek state funding to support efforts by the county and the cities to clean up illegal dumping and litter on public lands and waterways.

**ENF-10.** The county should reconvene the illegal dumping task force to improve coordination among county agencies, cities, and other relevant public agencies responsible for illegal dumping cleanup, education and prevention programs.

**ENF-11.** The county should implement a coordinated effort to develop an illegal dumping clean-up, education and prevention program targeted at county-owned or controlled properties.

**ENF-12.** The county should establish an illegal dumping hotline to provide a single point of contact for the public to report illegal dumping. To the extent possible, this hotline should be coordinated with other similar hotlines.

**ENF-13.** The county should consider legislation to strengthen enforcement against illegal dumping and litter in the unincorporated areas of the county.

## Permitting and Compliance for Solid Waste Handling Facilities

The Health Department is the primary regulatory and enforcement agency responsible for issuing operating permits for both public and private solid waste handling facilities and associated transport vehicles in King County. Solid waste handling regulations are codified in Title 10 of the King County Board of Health Code, and apply to all public and private solid waste facilities in the region that handle mixed municipal solid waste (MMSW) or separate or process recyclable material. Health Department enforcement activities are funded by a portion of the Solid Waste Division's disposal fees (based on overall tonnage) and grants from the Washington Department of Ecology (Ecology).

The permitting process is the vehicle by which the Health Department enforces the state's Minimum Functional Standards (MFS; WAC 173-304 and WAC 173-351) and the King County Board of Health Code. The MFS set standards for the proper handling of all solid waste materials and the protection of public health and the environment. The King County Board of Health Code is the local adoption of the state regulations, which must be at least as stringent as the state regulations.

Through the permitting process, the Health Department also helps to implement the provisions of the adopted solid waste management plan. All facility permit applications must detail their relationship to, and be consistent with, the adopted plan as a condition of receiving permit approval.

The Health Department issues the initial permits for solid waste handling sites and then regularly inspects the transfer stations and drop boxes, transport vehicles, recycling drop boxes, compost facilities, moderate risk waste sites, and landfill operations. If a facility is determined to be out of compliance, the Health Department is authorized to take a number of steps, including:

- Grant a variance, with the approval of Ecology, if the public health and environment are not endangered or if compliance would produce hardship for the owner without equal or greater benefit to the public
- Issue an annual permit for the site, as long as Health Department conditions are met and there is a schedule for reaching compliance or closure
- Initiate actions involving civil penalties, criminal proceedings, or an order to close a site, if determined that the operation would endanger public health

Ecology has the right to appeal issuance of any permit to the State Pollution Control Hearings Board.



*The Health Department regulates both public and private MMSW facilities*



### Issues and Recommendations

Recent bills have been passed that would require changes to WAC 173-304, which is in the process of being revised. The legislation reduces permitting requirements for beneficial uses of recycled materials, as well as permitting for certain types of facilities, where public health and environmental protection are not at risk.

The present enforcement system appears to be effective in ensuring compliance. The revised regulations described above may require that the Health Department reassess permitting requirements for some facilities, but most solid waste handling facilities will continue to be held to the strict standards that are currently in place.

## Management of Waste Flow

It is the responsibility of the County to ensure that the County's solid waste system meets all applicable standards for the protection of human health and environmental quality in the region. To meet this responsibility, the County works cooperatively with cities and towns in the region to manage the flow of waste into authorized facilities for sorting, processing, and disposal. The County works with the cities and towns through Interlocal Agreements. These agreements are contracts currently set to run through 2028. Through these agreements, the County is required to ensure that transfer and disposal services are provided, and participating cities and towns are committed to direct waste collected within their respective jurisdictions into the King County solid waste system. This contractual relationship between the County and the cities and towns with Interlocal Agreement helps to ensure that public health and the environment are protected and that the region's solid waste system operates efficiently.



### Issues and Recommendations

Privately owned solid waste management companies continue to use the regional disposal system to dispose of MMSW, as specified in their agreements with the cities. Regionally, waste flows are managed, and the Solid Waste Division is able to forecast system capacity and facility needs based on a defined service area.

During the development of this Plan, the cities raised an issue regarding the management of waste flows within the region. Some of the cities expressed interest in directing collected solid waste to the closest facility within the regional system in order to reduce collection costs to ratepayers and transportation impacts. As discussed in detail in Chapter 5, the city contracting authority already allows the cities to address this issue. Chapter 5 provides an example of contract language for the cities to use at their discretion.

Policies direct that the existing system of waste flow management will be maintained, and that the County and cities will continue to work together to manage waste flows within the region. It is also assumed that the Interlocal Agreements that exist between the County and cities be maintained through 2028, their existing term of expiration. Any changes to these assumptions would necessitate an update to the Plan, and reallocation of responsibilities as appropriate.

## Acceptance of Special Wastes

Most of the waste delivered to our regional system is MMSW from residential and non-residential sources. A portion of the waste stream, however, requires special handling and waste clearance/acceptance before disposal because of legal, environmental, public health, or operational concerns. These special wastes include contaminated soils, asbestos-containing materials, treated biomedical wastes, treatment plant grit and vector wastes, agricultural wastes, and other wastes (see Chapter 8). Certain wastes, including hazardous and dangerous wastes, as defined by the Resource Conservation and Recovery Act (RCRA) and Washington State Waste Regulations, are prohibited from disposal at County facilities. Table 9-1 summarizes the regulations governing waste acceptance in King County.



▲  
A waste clearance was required to accept this drum containing solid resins

**Table 9-1.** Waste Acceptance Regulations

Regulation	Content
Federal RCRA of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984	Establishes minimum design and operational standards for MMSW landfills, including requirements to exclude hazardous waste. Defines hazardous waste and establishes standards for disposing of it.
Washington State MFS for MMSW Landfills (WAC 173-351) and for Solid Waste Handling Facilities (WAC 173-304)	WAC 173-351—establishes RCRA standards for landfills at the state level. WAC 173-304—establishes regulations for all other solid waste handling facilities, including non-MMSW landfills.
King County Board of Health Code, Title 10	Expands on state WAC, establishing standards and identifying other unacceptable wastes excluded from disposal at King County facilities.
King County Solid Waste Code (Title 10)	Authorizes the Solid Waste Division to develop operating regulations that address controls on incoming wastes.
King County Public Rules—Waste Acceptance Policy PUT 7-1-4(PR) and Waste Clearance Policy PUT 7-2-1(PR)	Waste Acceptance Policy—describes the categories of waste accepted at facilities and the conditions for acceptance. Waste Clearance Policy—specifies when a waste clearance is necessary and procedures to obtain the clearance.

In February 1993, the Solid Waste Division implemented a waste-screening program that was recommended in the 1992 Plan, and required by state and federal law (RCRA Subtitle D and WAC 173-351). Under this program, technicians in the Special Waste Unit, in cooperation with other staff, are responsible for ensuring that material in the solid waste stream entering County facilities is handled in accordance with the King County Public Rules and state regulations. The technicians' primary task is to perform manual and visual screening of incoming loads of waste at each of the transfer facilities and at the Cedar Hills Regional Landfill to identify and properly manage any potentially unacceptable wastes.

The Special Waste Unit also administers the waste acceptance and clearance policies, with assistance as needed from the Health Department. The County's Waste Clearance Policy (PUT 7-2-1[PR]) describes procedures for obtaining a clearance to dispose special wastes. The Solid Waste Division provides a free service to customers to evaluate wastes and determine if they can be accepted and under what conditions. The Health Department assists the Division by reviewing data on industrial and contaminated wastes and providing a determination on these materials. If wastes are deemed acceptable, the Division can issue a clearance for disposal. Waste that does not meet acceptance criteria cannot be issued a clearance or be disposed in County facilities.



### Recommendations

The waste-screening program and clearance procedures within the Solid Waste Division are working well. The Division continues to emphasize public outreach and education to assure that proper waste handling practices are observed.

## Illegal Dumping and Litter Control

Illegal dumping and littering are generally defined as the accumulation or disposal of waste materials anywhere other than in a designated receptacle or permitted waste handling facility. Many local jurisdictions and County departments respond to complaints of illegal dumping and littering in the region, making it difficult to properly assess the scale of the problem and to design adequate prevention and enforcement programs.

King County ordinances against littering and illegal dumping are codified in the King County Board of Health Code, Title 10, and the Solid Waste Code, Title 10 (Appendices E-2 and E-3). The purpose of illegal dumping and anti-litter legislation is to promote health, safety, and environmental quality and to reduce the cost of cleanup. Enforcement authority and options are codified in King County Code, Title 23. Responsibility for investigation, enforcement, and cleanup throughout the County lies with the Health Department, as well as other County departments including the Department of Development and Environmental Services, the Department of Transportation, the Roads Services Division, and the Department of Natural Resources

*In 1999, more than 95 tons of wastes were cleaned up under the Community Litter Cleanup Program*



and Parks Water and Land Resources Division. Ecology also plays a cleanup and enforcement role. Most of the cities have passed ordinances covering illegal dumping in their communities, which they enforce themselves.

Specific regional responsibilities for the cleanup of illegal dumping and litter are summarized in Table 9-2.

**Table 9-2.** Regional Responsibilities for Cleanup

<b>Entity</b>	<b>Responsibility</b>
Washington Department of Ecology	Implements state-wide litter cleanup and illegal dumping control policies, usually by providing funds for programs
Puget Sound Clean Air Agency	Responds to illegal dumping of demolition materials where asbestos-containing material is a potential constituent or where illegal dumping includes incineration of solid waste
Health Department	Receives the majority of illegal dumping and litter complaints in the County
Department of Development and Environmental Services	Enforces nuisance provisions of the Uniform Housing Code and zoning violations, usually accumulation of junk and debris on private property
Roads Services Division	Responds to complaints and removes illegally dumped materials from public roads and right-of-ways
DNRP – Local Hazardous Waste Management Program	Responds to abandonment, illegal dumping, and mishandling complaints for potentially hazardous waste materials
DNRP – Solid Waste Division	Responds to complaints about illegal CDL dumping, litter, and illegal dumping near County solid waste facilities; provides cleanup of litter and illegal dumping on public lands and waterways; and implements state litter and illegal dumping programs that include assistance to the cities
DNRP – Water and Land Resources Division	Investigates illegal dumping and litter complaints and refers cleanup to the appropriate agency
Cities	Enforce municipal littering and illegal dumping ordinances, and provide cleanup of litter and illegally dumped material from city streets and properties

**NOTE:** DNRP—Department of Natural Resources and Parks

The Health Department is authorized to pursue civil actions against an offender or property. Civil penalties for a first violation can be as high as \$250 per day.

In 1998, Ecology created the Community Litter Cleanup Program that provides financial assistance to help local governments pay for illegal dumping and litter programs. It pays for picking up litter, cleaning up illegal dumps, and educational programs aimed at illegal dumping and litter prevention. State funds were made available to any geographic area covered by a local solid waste management plan. King County, after consultation with the cities, applied for and received funds from Ecology, which enabled the County to respond to requests from the cities and County departments to clean up illegal dumping and litter on public lands and waterways. In 1998, more than 74 tons of wastes were cleaned up at 28 sites. In 1999, more than 95 tons were cleaned up at 43 sites. The efficient use of staff time and volunteers has leveraged the funding contributed by the state into a highly valuable program.

RCW 7.80.120 establishes penalties for litter and illegal dumping in incorporated areas of a county. The 2000 state legislature strengthened litter and illegal dumping enforcement in unincorporated areas by passing SSB 6194, codified in RCW 70.93.060. The amended law classifies litter and illegal dumping in unincorporated areas as a misdemeanor, punishable by specific penalties and actions as prescribed in the law.



### Issues and Recommendations

There are multiple agencies involved in region-wide cleanup and prevention programs for illegal dumping and littering. The 1992 Plan recommended that an Illegal Dumping Task Force made up of affected agencies be convened to develop a comprehensive strategy to address illegal dumping. The Task Force was convened and a working relationship was developed among the agencies. As a result, efforts to address illegal dumping are more coordinated, overlap has been reduced, and some gaps in coverage have been eliminated. Based on input received from the public and the cities during Plan development, illegal dumping and littering continue to be a concern in the region. Coordinated efforts to manage illegal dumping and littering will continue.

In addition, there is a clear need for more accurate and complete statistical information on the number of illegal dumping and litter incidents and volumes of material. The County will initiate a coordinated effort to gather this information and make it available to all agencies responsible for investigation and enforcement.

There are five primary recommendations to help control illegal dumping and litter:

- Continue the Community Litter Cleanup Program as long as state financial assistance is available. This is a cost-effective program that, through the creative work of County staff and the cooperation of volunteer organizations and property owners, has resulted in four times as much cleanup accomplished as financial assistance provided.

- Reconvene the Illegal Dumping Task Force to improve coordination among the County agencies, cities, and other relevant public agencies responsible for illegal dumping cleanup, education, and prevention programs. The Task Force will consider both public and private property in the development of the program. Initial Task Force membership will include all affected departments in the County. After County agencies have developed a coordinated approach, representatives from the cities and other relevant public agencies will be asked to participate.
- Lead a coordinated effort to develop an illegal dumping cleanup, education, and prevention program targeted at County-owned or controlled properties to serve as an example of good neighborly conduct. All affected County departments will be involved in the development and implementation of the program and will share in the costs.
- Establish an Illegal Dumping Hotline. The hotline will provide a single point of contact for the public to report illegal dumping. Reports to the hotline will be referred to the appropriate agency for action, with tracking and follow-up.
- Pass a County ordinance similar to state statute RCW 7.80.120 to strengthen enforcement in the unincorporated areas of King County.



Chapter  
**10**

## **Solid Waste System Financing and Rates**

Funding mechanisms for solid waste systems vary dramatically in different areas of the country. In some areas, solid waste services and programs are paid for through general property tax revenues. Because funding is achieved through the tax structure in these areas, citizens do not necessarily make a direct connection between the cost of handling solid waste and the amount of garbage they throw away.

In King County, virtually all of the solid waste services and programs are paid for directly by the users of the system in the form of fees for garbage collection and disposal. These fees pay for services and facilities, educational and informational programs, and the development of regional policy. When citizens can make a direct connection between solid waste disposal and its associated costs, they are more likely to see the effects of positive behaviors such as waste reduction and recycling.

With this Plan, the County has sought active participation from the users of the regional solid waste system in planning for the future. During development of the Plan, Solid Waste Division staff met with the public, cities, and private solid waste management companies to hear their ideas about the future of solid waste services and programs. Where rates are concerned, the public expressed a general desire to keep them as low as possible.

In meetings with the cities, the focus was on how solid waste fees are collected and allocated among our services and programs. Three key concerns were brought to light during these meetings:

- The equity of the reduced fee that private haulers pay when they transport wastes through their own transfer facilities instead of County facilities
- The use of a system-wide average rate
- Funding for the cities in the system service area that may be impacted by County-owned transfer stations to help pay for some of the potential impacts from station activities, such as additional traffic, road wear, and litter



▲  
*Many cities contract for solid waste disposal services from private companies*

Before delving into these specific concerns, this chapter sets the stage for how we as a region can work to resolve them. The first recommendation is for the County to provide more technical assistance to the cities in developing collection contracts and grants, including how to locate funding sources. The second is to share responsibility with the cities for the development of regional solid waste policies through a Solid Waste Policy Work Group. In the past the cities' role has been one of policy review. With this Plan, the County has made a commitment to work with the cities on the development of regional solid waste policy and rates. Recommendations from the group would be submitted to the King County Executive for consideration.

Along with this latter recommendation is more detailed discussion about some alternative rate structures that could be considered. The County plans to maintain a rate structure based on tonnage unless it can be demonstrated that an alternate rate structure would benefit the system as a whole.

The chapter begins with the County's financing and rate policies followed by a brief description of how city and County programs and services are currently funded.

### **County Financing and Rates Policies**

The County sets out financial and rate policies as follows:

**FIN-1.** The county shall maintain, conduct, operate and account for the disposal of solid waste as a utility of the county. The solid waste system shall be a self-supporting utility financed primarily through fees for disposal.

**FIN-2.** The county shall charge garbage disposal fees directly to users of the solid waste disposal system to pay for solid waste services.

**FIN-3.** The county shall maintain a rate structure based on tonnage, recognizing that the structure does not provide a self-hauler subsidy, unless the executive demonstrates that a different rate structure would benefit the system as a whole.

**FIN-4.** The county should keep garbage disposal fees as low as possible and should manage the solid waste system to keep rate increases as low as possible while meeting the costs of managing the system and providing service to solid waste customers.

**FIN-5.** The county should provide technical assistance to the cities in developing collection contracts and grants.

**FIN-6.** The county should develop and implement a grant program for the cities that will consolidate grant programs and contracts wherever possible. The county should provide technical assistance to aid the cities in identifying, applying for and administering grants.

**FIN-7.** The county should provide opportunities to expand the role of cities in developing and reviewing regional solid waste policies and rates by establishing a Solid Waste Policy Work Group to work in conjunction with the Solid Waste Advisory Committee to make recommendations regarding system operations to the King County executive. As part of these recommendations, the executive shall evaluate the costs and benefits of alternative rate structures on individual customer classes.

**FIN-8.** The county is committed to working with the cities that are impacted by transfer stations to explore funding to mitigate potential impacts from these facilities. Any statutorily authorized host fees should be in amounts directly attributable to the solid waste facility provided that the cities can establish that the fee is reasonably necessary to mitigate for impacts of the solid waste facility as required in state law.

## Funding of Solid Waste Services and Programs

This section describes how the cities and the County collect fees and how these fees are used to pay for collection and disposal services and other solid waste programs.

### Funding for the Cities

The cities in King County fund their solid waste and recycling programs in various ways. One funding source is through revenues the cities either generate or receive from solid waste collection services. Many cities contract with private solid waste management companies and negotiate a collection price and level of service. Other cities bill customers directly and then pay the private companies for the contracted collection, disposal, and recycling services provided. Most cities, however, allow the private companies to bill the customers directly for the contracted services. Depending on their contracts, some private companies also collect a small fee that is returned to the cities to fund their solid waste and recycling programs. The cities of Enumclaw and

### Waste Reduction and Recycling Grants

King County issues grants to the cities to help fund waste reduction and recycling programs. In the 1980s, when it was projected that the Cedar Hills Regional Landfill would reach its permitted capacity as early as 2004, a surcharge on County disposal fees was collected to pay for the construction of incinerators in the County. In 1989 the County decided not to build incinerators and to focus instead on waste reduction and recycling. \$3 million of the surcharge paid by the ratepayers was directed to a grant program to fund waste reduction/recycling programs and projects in the cities and in unincorporated King County. While the cities' \$1.5-million share in grant funds has been expended, the County plans to continue funding this popular program.

The remaining portion of the surcharge money collected for construction of incinerators was used for the environmental remediation and maintenance of the County's landfills.

The commitment of the cities and the County to waste reduction and recycling has proven to be extremely beneficial to the ratepayers. Since changing course in 1989, the development plan for the Cedar Hills Regional Landfill has been scaled back, and 5 years have been added to its estimated life. Through the collaborative efforts of local government and the citizens, the inevitable day has been delayed when our most cost-effective disposal resource will be closed.



Some cities are the exception in that they collect garbage and recyclables within their own city boundaries and bill their customers themselves. Some cities also tax solid waste collection revenues under the utility tax authorized by state law to generate money for other city purposes.

A second funding source is state- or County-funded grants. Some cities do not generate or receive any revenue from solid waste collection and rely solely on these grant funds.

The 37 cities participating in the King County regional solid waste system vary greatly in size and available resources. Some cities have the resources to fund innovative environmental programs, while others do not have the staff or the money to do much more than comply with regulations. State- and County-funded grants are one way to equalize the level of services among the cities. These grants may require the cities to provide matching funds or to employ staff to locate and administer the grants. King County recently designated staff to work with the cities to identify additional private and public grant opportunities to fund their environmental programs. Division staff will be providing technical assistance to the cities on grant writing and management. Combining the resources of the County and the cities will help leverage the resources needed by the cities to obtain important funding.

Along with the County, all cities are eligible to receive Coordinated Prevention Grant (CPG) funds from the state. These funds help pay for activities that prevent contamination of air, land, and water by the generation and disposal of hazardous and solid wastes. CPG funds include a base amount and then a variable amount based on population. In 1998 and 1999, the cities received nearly one million dollars in CPG funds. Use of these funds currently requires 40 percent matching funds from the participating jurisdiction, although the matching requirement may be changing.

### **Funding for the County**

Nearly all of the money used to support the County's solid waste programs and services comes from the disposal fees collected at transfer stations and the Cedar Hills Regional Landfill. Also called the tipping fee, this fee is based on the weight of the material being disposed. Some specific solid waste services are funded by means of surcharges and other mechanisms. Figure 10-1 on the following page shows the mix of funding sources for all solid waste operations.

### **Revenues Generated Through Disposal Fees**

There are two types of tipping fees charged at King County facilities for MMSW disposal – the basic fee and the regional direct fee.

Long ago, the King County Council decided that all citizens of King County are entitled to a certain level of solid waste handling service at a reasonable and affordable system-wide rate. Currently, the basic fee charged to all customers who use the County-owned transfer stations is \$82.50 per ton, with a minimum charge of \$13.72. This fee is based on an average system cost – which means that customers at the Factoria Transfer

Station in Bellevue pay the same amount as those at the Cedar Falls Drop Box near North Bend, even though the cost of providing the service at each facility is not the same. Average system cost includes the total cost of all solid waste programs and services. The basic fee covers all of these costs except for funding from the regional direct fee and a limited contribution from the other funding sources shown in Figure 10-1.

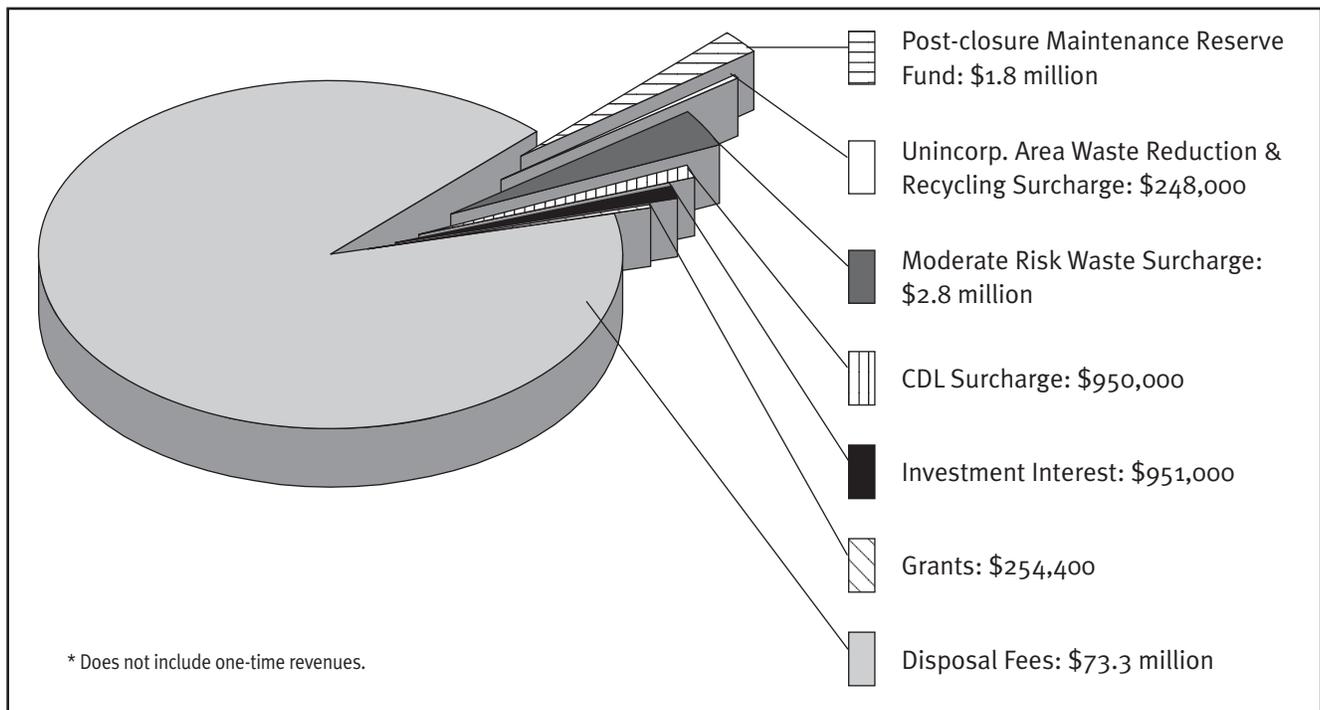
The other tipping fee is called the regional direct fee, which is currently \$59.50 per ton. The regional direct fee is charged to the private collection companies authorized to transport waste directly to the Cedar Hills Regional Landfill from their own private transfer stations or processing facilities. The regional direct fee is a rate negotiated between the private companies and the County that covers the full cost of disposal at Cedar Hills but only some of the costs of services and programs that are provided by the Solid Waste Division.

Based on the tonnage forecast presented in Chapter 3 of this Plan, an increase in the tipping fee is not anticipated until at least 2005. This projection assumes that there are no substantial changes in the rate of inflation, projected tonnage, areas of expenditure, or other forecast assumptions.

**Revenues from Other Sources**

As stated earlier, the County receives some revenue from sources other than the tipping fees to fund specific programs or operations. These revenue sources are described below.

**Figure 10-1.** Funding Sources for Solid Waste Division Operations in 2000\*



### **Unincorporated Area Waste Reduction and Recycling Surcharge**

In the unincorporated areas of the County, the certificated private collection company directly bills customers who subscribe to curbside garbage collection. The customers are charged a 22-cent-per-month fee, which is remitted to the County to support waste reduction and recycling programs and services in the unincorporated areas.

### **Moderate Risk Waste Surcharge**

Services to handle moderate risk waste and small quantities of hazardous waste are funded through fees set by the King County Board of Health as part of the Local Hazardous Waste Management Program. Residents and businesses pay a monthly surcharge on their garbage collection accounts to fund the programs. Self-haul customers disposing of waste at County-owned transfer stations also pay a \$1.00 surcharge per trip. Collectively, these funds are used to pay for the Wastemobile and a variety of educational and technical assistance programs administered by the County's Solid Waste Division, County Water and Land Resources Division, Public Health – Seattle & King County, and the City of Seattle. These programs are aimed at the reduction and proper handling of hazardous wastes and targeted waste reduction and recycling services.

### **Construction, Demolition, and Landclearing Debris Surcharge**

The County program for the disposal and recycling of construction, demolition, and landclearing (CDL) debris is funded by a \$4.25-per-ton surcharge established by contract and County ordinance. The surcharge is paid by the private solid waste management companies that operate the four CDL receiving facilities in King County. The costs of the CDL program are paid by those using the service. This surcharge is set to expire in 2004, when the current CDL contracts expire. See Chapter 8 for a description of CDL management alternatives beyond 2004.

### **Post-closure Maintenance Reserve Fund**

Funds for the environmental monitoring and maintenance of closed landfills are collected while the landfills are still active. Upon closure of a landfill, the accumulated money is transferred to a post-closure maintenance reserve fund. Enough money is set aside to fund at least 30 years of maintenance at each landfill. In 2000 about \$1.8 million was expended for environmental monitoring and site maintenance at the County's ten closed landfills.

### **Grants**

The County, like the cities, is also eligible for Coordinated Prevention Grants (administered by the Washington Department of Ecology) funds. Grant funds are used to pay for some waste reduction and recycling programs and planning expenditures. The County also receives grant funds from the Washington Department of Ecology to pay for cleaning up illegal dump sites and litter on public property in the region.



## Recommendations

The recommendations that follow were developed in conjunction with the cities.

### Technical Assistance with Collection Contracts and Grants

During development of the Plan, the cities expressed an interest in additional technical assistance from the Solid Waste Division with collection contracts and grants.

The Division will provide contracting assistance to cities through a variety of methods as requested, including:

- Developing a contracting resource book, which will include copies of sample Requests for Proposal, Requests for Bids, contracts, copies of applicable state laws, and information about other jurisdictions' contracting experiences
- Assisting with rate analyses
- Assisting with technical analyses of other contracting issues, such as service levels

The cities also asked for assistance in locating and administering grant funds. The success of waste reduction and recycling programs in the region relies on the ability of cities to identify critical funding. Many smaller cities do not have staff dedicated to solid waste programming and need help identifying grant opportunities, preparing grant applications, and administering the grants.

The Division will provide this assistance as requested through a variety of methods, including:

- Developing a grant resource book, which would include information about King County grants, web sites for state and federal grants, and private grant organizations
- Sponsoring training on grant research, writing, and administration
- Providing individual assistance to smaller cities, such as assisting with preparation of grant applications
- Providing a regular e-mail newsletter service with information on available private and public grant opportunities and program ideas from other jurisdictions

The Solid Waste Division has already begun working on its own grant programs to reduce the administrative burden to the cities. The Division is also planning to consolidate grant programs and contracts whenever possible. For example, the Division is working with a number of cities to enable them to contract jointly for grants.

### Formation of the Solid Waste Policy Work Group

The Interlocal Agreements between the cities and the County define their respective roles and responsibilities for developing and operating the region's solid waste system. During development of this Plan, cities requested that the County expand these roles and share responsibility for analyzing and developing regional solid waste policies and rate structures. The King County Executive enthusiastically supported this request and approved the designation of Solid Waste Division personnel to staff a Solid Waste Policy Work Group. The Division is prepared to work collaboratively with such a group to

study regional solid waste policies and rates. Recommendations from the work group would be submitted to the County Executive, who would then submit proposals to the King County Council.

The County will determine the size and organizational structure of the Solid Waste Policy Work Group. It will be important to ensure that the geographic and demographic diversity of the cities and representation from unincorporated King County areas are reflected in the group’s membership.

In addition to rate structures, the cities also expressed interest in having the system provide mitigation payments to those cities that are impacted by a transfer station. It will be up to the work group to determine whether this issue is addressed through the work group or by the individual, affected cities and system users.

The group will work in conjunction with two existing bodies that currently review and comment on solid waste policy – the Solid Waste Advisory Committee (SWAC) and the Regional Policy Committee (RPC). The SWAC represents the interests of citizens, public interest groups, the business community, the solid waste industry, and local elected officials. The RPC consists of representatives of King County Council and the cities, including the City of Seattle.

The Solid Waste Policy Work Group will not supplant or duplicate the work of the SWAC or the RPC. The SWAC represents a broader membership, with currently only one representative from the cities. They fo-

cus on broader programmatic issues rather than the intricacies of rate structures and financial policies. The RPC acts in a review capacity, evaluating regional issues and policies developed by the Solid Waste Division. The intent of the new work group is to collaborate with the Division at the earliest stages of policy formulation and review. To ensure effective communication between the work group and the SWAC and RPC, the Division recommends that a member from each of these committees be in the work group.

Division personnel will assist the Solid Waste Policy Work Group as it strives to reach regional consensus on solid waste policies and rate issues. The Division will participate as follows:

- Coordinate the place and time for all meetings
- Prepare meeting agendas, minutes, and any special reports and distribute to all of the cities
- Provide supporting data analyses as needed
- Participate as a non-voting member in the group

Policy proposals developed by the work group will be presented to the County Executive for review and approval.

Several issues that have been identified as a starting point for regional dialogue are presented below.



▲  
A self hauler waiting to be weighed in at the First Northeast Transfer Station

## Policy Issues for Regional Discussion

This section discusses some of the issues related to rates that were raised by the cities during the formulation of this Plan. Background on the issues is provided along with some potential ways that rates could be restructured to address each one. The effects of implementing alternative rate structures are compared against current fees under the existing rate plan (see Appendix F-2). They assume that future expenditure levels are consistent with other proposed recommendations for the regional system presented in Chapters 4 through 9. As discussed earlier, the alternative rate structures are posed as a starting point for regional dialogue and study by the Solid Waste Policy Work Group. These alternatives will be considered with the goal of being able to reduce the basic fee or minimize increases to it to maintain system competitiveness.

When discussing any changes to solid waste rates or rate structures, one caveat should be noted. Any rate change could have unintended consequences – the one mentioned most often is an increase in illegal littering and dumping. King County has not seen a noticeable pattern of increased littering and dumping following past rate increases. These and other potential impacts, however, will be considered in detail before a change in rates or the rate structure is ultimately proposed.

### Issue – Regional Direct Fee

The regional direct fee is the disposal rate the private collection companies pay when they transport waste directly to the Cedar Hills Regional Landfill from their own private transfer stations and processing facilities. The regional direct fee is \$23 less than the basic fee charged at County transfer stations. The \$23 margin between the basic fee and the regional direct fee has been held constant since 1992 and has not been changed to reflect changes in the cost of providing service.

The issue raised regarding this lower fee is that the private collection companies bypass County-owned transfer stations that are closer to their collection areas to take advantage of the lower disposal fee (see Chapter 5, Figures 5-3 and 5-4, for waste flow patterns). About 75 percent of the waste collected by the private companies is taken to County-owned transfer stations, where the rate is \$82.50 per ton. About 2 percent is taken directly to Cedar Hills from collection routes and is also charged the \$82.50 per ton rate. The remaining 23 percent is taken to the private companies' own transfer stations before transport to Cedar Hills. By using their own private transfer stations, the private companies pay the County only \$59.50 per ton to dispose of waste in the Cedar Hills Regional Landfill. The private companies still charge ratepayers the basic fee of \$82.50 per ton for disposal, regardless of which transfer station is used.

The fact that the private collection companies use their own transfer stations for about a quarter of the wastes they collect indicates that the \$23.00 per ton margin between the regional direct fee and the basic fee provides a monetary incentive for



▲  
The regional direct fee is charged for waste transported from private facilities to the Cedar Hills Regional Landfill



▲  
Reducing the regional direct fee margin may affect private collection companies' choice of transfer stations

them to bypass County facilities. The savings to the County for loads that bypass County-owned transfer stations averages about \$13.50 per ton, but the loss in gross revenue is \$23.00.

The result is that for each ton of waste that goes to the private transfer stations, and is subject to the regional direct fee at the landfill, there is a net revenue loss to the County of \$9.50 per ton. All ratepayers pay about \$2 more per ton for disposal than they would if the private companies hauled waste to the closest transfer station.

One method for addressing this issue is in the hands of the cities. As discussed in detail in Chapter 5, through their collection contracts with the private companies, the cities

could incorporate language that would require that solid waste be taken to the designated, closest transfer station. A significant shift in tonnage from regional direct activity to the closer, County-owned transfer stations would reduce or delay the need for a rate increase. The effect on the current tipping fee (based on year 2000 costs) that would result from a reduction in regional direct tonnage with no change in the fee margin would be as follows:

	<b>Existing Regional Direct Activity</b>	<b>With Use of the Closest Transfer Station</b>
<b>Regional Direct Tons</b>	<b>228,000</b>	<b>19,000</b>
Regional Direct Fee	\$59.50	\$57.40
Fee Margin	\$23.00	\$23.00
Basic Fee	\$82.50	\$80.40

Note: Figures based on existing rates and the Solid Waste Division budget for 2000.

In considering alternatives to the current regional direct fee, such as the reduced fee margin discussed below, it is important to recognize that the privately owned transfer stations are integral to the efficient operation of the solid waste system and, as private enterprises, are entitled to a reasonable profit.

***Alternative – Reduce Regional Direct Fee Margin:***

One alternative to address this issue through the rate structure is to reduce the difference between the regional direct fee and the basic fee so that the difference equals the marginal cost of transfer. Under this alternative, ratepayers would not be financially impacted by the private collection companies' choice of transfer station, and the basic fee could be reduced.

The increased cost to County ratepayers that results when the private collection companies use their own transfer stations would be eliminated if the fee margin was reduced to the \$13.50-per-ton marginal (or variable) cost of operating the County-owned transfer stations. Based on the 2000 budget, this rate change would reduce the basic fee and increase the regional direct fee as follows:

	Existing Rates	With Reduced Margin
Regional Direct Fee, per ton	\$59.50	\$66.50
Fee Margin	\$23.00	\$13.50
Basic Fee, per ton	\$82.50	\$80.00

The \$13.50 margin includes only those costs that vary with tonnage. For the 2000 budget, these costs include:

Transportation Cost per Ton	
Labor	4.10
Equipment repair, maintenance, replacement	3.20
Transfer Stations	
Labor	2.00
Operating costs	0.90
Avoided capital costs	3.00
Other Costs	<b>0.30</b>
TOTAL	<b>\$13.50</b>

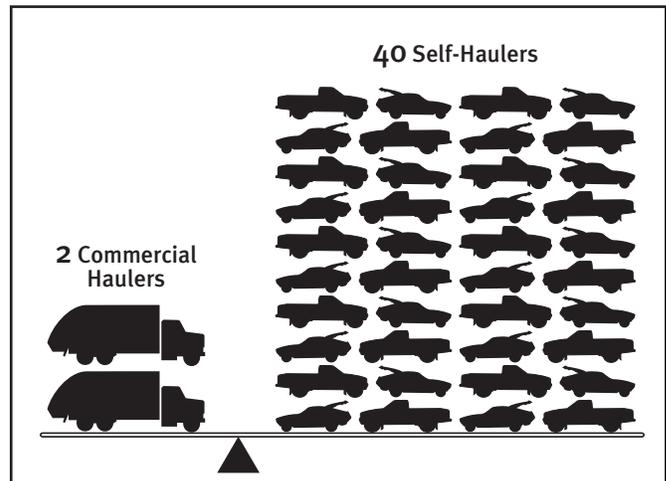
The Solid Waste Division initially proposed a shift toward marginal cost pricing in its October 1996 rate proposal for the years 1997 to 2000. At the time, the County’s marginal cost was estimated to be \$14 per ton. The Executive proposed reducing the basic fee margin to \$21 in 1997 and \$19 in 1999. This phased-in implementation would have balanced the benefits of a lower basic fee margin against the impact on private collection companies who may have made additional investments in their transfer stations based on the existing \$23 margin. The King County Council did not approve this proposal.

*Self haulers make more trips than commercial haulers to deliver the same amount of waste to transfer stations*

**Issue – Transfer Station Transaction Costs**

Residential and non-residential customers who choose to bring their wastes to the transfer stations themselves are referred to as self haulers. County tonnage and transaction records for 2000 indicate that 88 percent of the vehicle transactions at County-owned transfer stations were with self haulers, collectively carrying 26 percent of the overall tons of waste received.

Most self-haul tonnage comes from customers within the regional service area; however, the First Northeast Transfer Station, which is near the north border of Seattle, and Algona Transfer Station, which is adjacent to Pierce County, receive some tonnage from outside the service area. Currently, customers are not asked to verify that the wastes they are bringing to the station are from the County’s service area. To do so could slow waiting lines and add to traffic congestion at the stations. In addition, it would not significantly reduce traffic or reduce operating costs at the stations.



While our current rate structure is based on tonnage alone, there is a minimum charge. The intent of the minimum charge is to recover the cost of the transaction, even when there is only a small amount of waste disposed. Customers with less than 330 lbs of solid waste pay the minimum charge of \$13.72. For loads over 330 lbs, self-haul customers pay the same \$82.50 per ton fee as the private collection company vehicles. In 2000, 37 percent of King County’s solid waste transactions were for loads of less than half a ton but more than 330 lbs. The breakdown of customers and the various sizes of loads brought to the County-owned transfer stations in 2000 was as follows:

Weight of Load	Self Hauler Transactions	Private Collection Company Transactions	Percent of Total
Less than 330 lbs	322,700	—	43
330 lbs to 1,000 lbs	277,000	1,200	37
More than 1,000 lbs	61,000	94,000	20
<b>TOTAL</b>	<b>660,700</b>	<b>95,200</b>	<b>100</b>

Currently, all ratepayers in the King County system pay for the services that are provided at county transfer stations. The policy underlying this rate structure seeks to ensure rate uniformity and enable all classes of customers to access service at a predictable system-wide rate. The plan directs that the county maintain a rate structure based on tonnage, recognizing that the structure does not provide a self-hauler subsidy. Alternative rate structures could be considered if they provide benefits to the system.



▲  
A transaction fee on all loads, regardless of size, would cover the cost of handling each load

**Alternative—Implement Transaction Fee:**

An alternative would be to institute a flat fee per transaction to cover the cost of handling each load – in addition to the cost of handling the actual wastes. The average cost for a transaction at a transfer station, regardless of the size of the load, is estimated to be about \$6. The \$6-per-ton transaction fee would cover the cost of scale operator staff, accounts receivable staff, and a portion of transfer station operation staff.

By charging a \$6 transaction fee to all customers, the transaction-related costs are removed from the per ton disposal rate. The result would be a reduction in the per ton disposal rate for larger loads. For a 1-ton load, the fee would be \$78 plus the \$6 transaction fee. At about 1.3 tons, the overall cost for disposal would begin to drop below the basic rate of \$82.50 per ton currently in effect. There would be an equivalent reduction in the regional direct fee. The threshold for the minimum charge would drop from 330 lbs to 200 lbs. Charges for customers with less than 200 lbs would remain at \$13.72. This alternative would continue the current policy of charging sedans the \$13.72 minimum fee.

Table 10-1 illustrates how various size loads would be affected by this restructuring. In effect, the disposal fee would increase for loads under one ton; however, the cost per ton for a 5-ton load would decline 5 percent, from \$82.50 to \$79.20.

While this alternative would reduce the overall fees per ton, it would constitute a cost shift from curbside collection subscribers to self-haul customers, most of whom live in rural areas.

**Table 10-1.** Comparison of Costs Per Ton and Per Transaction

<b>Cost per Transaction, 200 to 1000 lbs</b>						
Weight of Load	Total Cost, Current Tipping Fee	Tonnage/Transaction Fee			Change in Current Rates	
		Transaction Fee	Tonnage Fee	Total Cost	Total Cost	Percent
200 lbs	\$13.72	Min. Fee	Min. Fee	\$13.72	\$0.00	0
250 lbs	\$13.72	\$6.00	\$9.75	\$15.75	\$2.03	15
350 lbs	\$14.44	\$6.00	\$13.65	\$19.65	\$5.21	36
500 lbs	\$20.63	\$6.00	\$19.50	\$25.50	\$4.88	24
700 lbs	\$28.88	\$6.00	\$27.30	\$33.30	\$4.03	14
1000 lbs	\$41.25	\$6.00	\$39.00	\$45.00	\$3.75	9

<b>Cost per Ton, Transactions 1 ton and greater</b>						
Weight of Load	Per Ton Current Tipping Fee	Tonnage/Transaction Fee			Change in Current Rates	
		Transaction Fee	Tonnage Fee	Total Cost	Total Cost	Percent
1 ton	\$82.50	\$6.00	\$78.00	\$84.00	\$1.50	2
2 tons	\$82.50	\$6.00	\$156.00	\$81.00	(\$2.40)	-3
5 tons	\$82.50	\$6.00	\$390.00	\$79.20	(\$4.20)	-5

Note: Fees and costs in this table do not include the Moderate Risk Waste Surcharge or taxes.

By lowering the overall disposal costs to the private collection companies, which haul loads averaging about 5.5 tons each, savings could be passed on to the subscribers of collection services. A transaction fee might provide incentive for those people who now self haul on a frequent basis to subscribe to curbside collection instead. About 9 percent of the households in King County now come to the transfer stations at least once a month. Those 9 percent of households account for 43 percent of the self-haul trips. Most of the frequent self haulers do not subscribe to curbside collection – in most cases because of personal preference, and in a few cases because the service is not accessible.

Under this rate restructure, the customers most affected by rate increases would be those bringing in 250 to 700 lbs of waste to the transfer stations. Some of these customers are small businesses, but most of them are infrequent residential users of the trans-

fer system. In general, these are the customers who come once every year or two, usually bringing larger loads from household or landscaping projects or items that were too big for curbside collection. Even though the cost to this infrequent hauler would be higher, these customers would benefit from lower overall rates charged for their curbside garbage collection service.

**Alternative – The Combined Alternative:**

In the previous sections, two alternatives are presented for restructuring the County’s disposal rates. One alternative would reduce the margin between the regional direct fee and basic fee to remove the financial incentive to the private companies to haul wastes to their own transfer stations. A second alternative would implement a transaction fee that would shift costs to customers hauling smaller loads. Either change would result in savings to the average ratepayer. A third option is to implement both alternatives simultaneously. The effect of implementing these alternatives simultaneously would be as follows:

	<b>With Existing Rates</b>	<b>Transaction Fee</b>	<b>With Reduced Fee Margin</b>	<b>Combined Alternative</b>
Regional Direct Fee, per ton	\$59.50	\$55.50	\$66.50	\$62.00
Basic Fee Margin	\$23.00	\$22.50	\$13.50	\$13.50
Tipping Fee, per ton	\$82.50	\$78.00	\$80.00	\$75.50
Transaction Fee, per load		\$ 6.00		\$ 6.00

Implementing these alternatives simultaneously would result in an 8.5 percent savings in the disposal costs to the average ratepayer, using current fees as an example.

**Issue – Assistance to the Cities Impacted by Regional Transfer Facilities**

Seven cities in the regional service area have County-owned transfer stations within their boundaries – Algona, Bellevue, Enumclaw, Kirkland, Renton, SeaTac, Shoreline, and Tukwila. Other cities may be affected because they are close to the stations. While these stations provide a necessary and beneficial public service, their presence can potentially increase traffic and road wear in the commu-



▲  
This County-owned transfer station is in the City of Tukwila

nity. As regional facilities, transfer stations serve the host city but also draw customers from the surrounding area, thereby increasing local traffic. Most of the stations serve on average more than 300 vehicles per day.

During Plan development, the cities identified a number of potential impacts from the operation of transfer stations in their communities, including road and street wear from collection and transfer trucks, traffic impacts such as congestion, and litter from unsecured loads.

To help mitigate these impacts, the County began researching the feasibility of providing financial mitigation to the affected cities. The County had originally proposed to allocate funds to a host fee program and work with the Solid Waste Policy Work Group on developing an allocation formula for distributing the funds. It became clear, however, that RCW 36.58.080, which allows the County to pay mitigation fees to the affected communities, also places restrictions on how the fee is calculated and used. While communities have expressed interest in having the fee based on tonnage or traffic, RCW 36.58.080 states that fees “must be directly attributable to the solid waste facility; provided that the city can establish that the fee is reasonably necessary to mitigate for impacts.” The County is committed to working with the affected cities to explore funding to mitigate potential impacts from its facilities. It is up to the cities whether this issue will be considered by the Solid Waste Policy Work Group.

### **Summary**

The issues discussed above provide a starting point for the Solid Waste Policy Work Group agenda. Other issues can be added as they arise.

The work group will have the opportunity to study the rate-related issues and develop a recommendation for the King County Executive’s approval before a rate increase is proposed to the Council.



## Glossary of Terms and Abbreviations

### TERMS

**Adjunct transfer station.** Privately owned and operated collection and transportation facility authorized by King County to receive, consolidate and deposit mixed municipal solid waste into larger transfer vehicles for transport to and disposal at County-authorized disposal sites.

**Agricultural wastes.** Non-dangerous wastes on farms resulting from the production of agricultural products including, but not limited to, manures and carcasses of dead animals weighing each or collectively in excess of 15 pounds. (*Source: KCC 10.04.020*).

**Asbestos-containing waste material.** Any waste that contains asbestos. The term includes asbestos waste from control devices, materials used to enclose the work area during an asbestos project, asbestos-containing material(s) collected for disposal, or asbestos-contaminated waste, debris, containers, bags, protective clothing, or HEPA filters. Asbestos-containing flooring or roofing materials meeting the conditions specified in 10.08.038 shall not be considered asbestos-containing waste material. See also Friable, asbestos-containing material. (*Source: KCBOHC 10.08.040*).

**Basic Fee.** The fee charged to all customers who use the King County-owned transfer stations, currently set at \$82.50 per ton with a minimum charge of \$13.72. The fee is based on an average system cost, which includes the total cost of all solid waste programs and services. The basic fee covers all of these costs except for funding from the regional direct fee and a limited contribution from other funding sources (*see Chapter 10, Figure 10-1*).

- Biomedical waste.** Carcasses of animals exposed to pathogens, Biosafety level 4 disease waste, cultures and stocks of etiologic agents, human blood and blood products, pathological waste, sharps waste, and other waste determined to be infectious by the generator's infection control staff/committee. (*Source: PUT 7-1-4*).
- Bulky waste.** Large items of refuse, such as appliances, furniture, and other oversized wastes, which would typically not fit into reusable solid waste containers. (*Source: KCC 10.04.020*).
- Burn ban areas.** Areas of King County that the Puget Sound Clean Air Agency has designated as carbon monoxide non-attainment areas where the burning of woody debris and other materials has been prohibited, except in limited circumstances, to protect public health and the environment.
- Cardboard.** See Corrugated paper.
- Certificate.** The certificate of public convenience and necessity authorized to be issued for the operation of solid waste collection companies under the provisions of Chapter 81.77 RCW, as amended. (*Source: WAC 480.70.050 (3)*).
- Certificated or certified hauler.** Any person engaged in the business of solid waste handling having a certificate granted by the Washington Utilities and Transportation Commission (WUTC) for that purpose. (*Source: KCC 10.04.020*).
- Cities.** Incorporated cities or towns in King County that have signed Interlocal Agreements for solid waste management services with King County.
- City optional programs.** Programs that are provided by King County on a regional level but which cities may implement themselves with County funding assistance.
- Clean wood.** Stumps and branches over four inches in diameter and construction lumber free of paint, preservatives, metals, concrete, and other non-wood additives or attachments. (*Source: KCC 10.04.020*).
- Closure.** Those actions taken by the owner or operator of a solid waste site or facility to cease disposal operations and to ensure that all such facilities are closed in conformance with applicable regulations at the time of such closures and to prepare the site for the post-closure period. (*Source: KCBOHC 10.08.070*).
- Commercial hauler.** Any person, firm or corporation including but not limited to "certified hauler" as defined in KCC Title 10, collecting or transporting solid waste for hire or consideration. (*Source: KCC 10.04.020*). Also referred to in this Plan as a "collection company."
- Compacted waste.** Any solid waste whose volume is less than in the loose condition as a result of compression. (*Source: KCC 10.04.020*).
- Compost.** The product resulting from the controlled biological decomposition of organic waste, that is beneficial to plant growth when used as a soil amendment. (*Source: Compost Facility Operating Guide, 1998*).
- Composting.** The controlled degradation of organic waste yielding a product for use as a soil conditioner. (*Source: KCBOHC 10.08.090*).
- Constrained Transfer Stations.** Facilities that are generally located on smaller sites where it is not possible to enlarge existing buildings or expand existing services.

- Construction, demolition, and landclearing (CDL) waste.** Any recyclable or non-recyclable waste that results from construction, remodeling, repair, or demolition of buildings, roads, or other structures, or from land clearing for development, and requires removal from the site of construction, demolition, or land clearing. Except where otherwise expressly provided, “CDL waste” or “County CDL waste” means CDL waste generated in the County jurisdiction. CDL waste does not include clean mud and dirt, contaminated soil, asbestos-containing waste material containing more than one percent asbestos by weight, unacceptable waste, or any other solid waste which does not meet the definition of CDL waste. (Source: KCC 10.04.020).
- Corrugated containers (OCC/Kraft bags).** Kraft linerboard, containerboard cartons, and shipping boxes with corrugated paper medium (unwaxed). This category also includes Kraft (brown) paper bags and excludes waxed and plastic-coated cardboard, solid boxboard, and bags that are not pure unbleached Kraft. (Source: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys).
- Corrugated paper.** Paper or cardboard manufactured in a series of wrinkles or folds, or into alternating ridges and grooves. (Source: 1991 Washington State Comprehensive Solid Waste Management Plan).
- Cost/benefit analysis.** A conceptual framework to evaluate a project that considers and compares all gains (benefits) and losses (costs) regardless of to whom they accrue. (Source: MIT Dictionary of Modern Economics, 1992).
- Council.** The Metropolitan King County Council. (Source: King County Charter Article 2).
- County jurisdiction.** The geographic area for which King County government has comprehensive planning authority for solid waste management by law and/or by interlocal agreement. (Source: KCC 10.04.020).
- Countywide programs.** Programs that are implemented by King County throughout both unincorporated and incorporated areas.
- Curbside collection.** The pick-up of recyclables and garbage from a household. This pick-up may be at a curb, end of driveway, or alleyway from either a single-family or multi-family dwelling.
- Daily cover.** Soil layer placed above active waste disposal areas throughout the operating day to isolate the landfilled wastes from the environment. (Source: Draft Cedar Hills Regional Landfill Site Development Plan, 1987).
- Disposal.** The discharge, deposit, injection, dumping, leaking, or placing of any solid waste into or on any land or water. (Source: KCBOHC 10.08.130).
- Disposal site.** A site or sites approved by the council of King County where any final treatment, utilization, processing or disposition of solid waste occurs. (Source: KCC 10.04.020).
- Diversion rate.** A measure of the amount of waste material being diverted for recycling compared with the total amount that was previously thrown away. (Source: 1991 Washington State Comprehensive Solid Waste Management Plan).
- Division.** The Solid Waste Division of the King County Department of Natural Resources and Parks. (Source: KCC 10.04.020).

- Drop box facility.** A King County-owned and operated facility as defined in KCC 10.04.020. Drop box facilities normally serve the general public with loose loads and receive waste from off-site. Drop box facilities may also include containers for separated recyclables. *(Source: KCC 10.04.020).*
- Early Start Project.** A project initiated by Solid Waste Division employees for the purpose of adjusting the hours at the Factoria Transfer Station primarily to benefit commercial haulers.
- Expandable Transfer Station.** Facilities that are located on larger sites that have room for physical expansion of transfer buildings and services.
- Executive.** The King County Executive. *(Source: King County Charter).*
- Ferrous metals.** Ferrous and alloyed ferrous scrap materials derived from iron, including household, industrial, and commercial products including other cans and containers. This category includes scrap iron and steel to which a magnet will adhere. *(Source: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys).*
- Final cover.** System of soil layers with extremely low permeability and a synthetic liner designed pursuant to state and/or federal regulations, and placed over waste areas to close them permanently to landfilling activity. *(Source: Draft Cedar Hills Regional Landfill Site Development Plan, 1987).*
- Food waste.** Leftovers and wastes from food preparation. Includes food in the original or another container when the container weight is less than 10 percent of the total weight. *(Source: Comprehensive Waste Stream Characterization Final Report, 1997).*
- Franchise area.** A solid waste hauler's territorial collection area, which is delineated in the certificate of convenience and necessity issued by the WUTC. *(Source: RCW 81.77.040).*
- Friable, asbestos-containing material.** Asbestos-containing material that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure or the forces expected to act upon the material in the course of demolition, renovation, or disposal. Such materials include, but are not limited to, thermal system insulation, surfacing material, and cement asbestos products. See also Asbestos-containing waste material. *(Source: Regulation III, Article 4, Puget Sound Clean Air Agency).*
- Garbage.** Colloquial term for mixed municipal solid waste. Legal definition: Unwanted animal and vegetable wastes and animal and vegetable wastes resulting from the handling, preparation, cooking, and consumption of food, swill, and carcasses of dead animals, and of such a character and proportion as to be capable of attracting or providing food for vectors, except sewage and biosolids. *(Source: KCBOHC 10.08.185).*
- Hazardous waste.** Solid waste designated by 40 CFR Part 261 and regulated as hazardous waste by the U.S. Environmental Protection Agency. *(Source: PUT 7-1-4).*
- HDPE bottles.** All bottles made of high-density polyethylene ("HDPE"), such as milk, juice, detergent, and other bottles (SPI code 2). *(Source: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys).*

- Health Department.** Public Health – Seattle & King County. (Source: KCC 10.04.020).
- Host city.** A city that has a King County transfer facility within its incorporated boundaries.
- Household batteries.** Includes batteries of various sizes and types as commonly used in toys and other household applications. (Source: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys).
- Household Hazardous Waste (HHW).** Hazardous waste generated by individuals rather than businesses and institutions. (Source: Local Hazardous Waste Management Plan for King County, May 1997).
- ILA.** See Solid Waste Interlocal Agreements.
- Illegal dumping.** Disposing of solid waste in any manner other than in a receptacle specifically provided for that purpose, in any public place, public road, public park or any private property or in the waters of King County, except as authorized by King County or at the official solid waste disposal facilities provided by the County.
- Incentive rates.** Solid waste rates structured to provide incentives to reduce waste generation or to increase recycling.
- Incineration.** A process of reducing the volume of solid waste by use of an enclosed device using controlled flame combustion. (Source: KCBOHC 10.08.205).
- Incinerator.** Facility in which the combustion of solid waste takes place. Also referred to as an energy resource recovery facility.
- King County Solid Waste Advisory Committee.** The committee formed pursuant to King County Ordinance 6862 and RCW Chapter 70.95 to advise the County on solid waste management planning, assist in the development of programs and policies concerning solid waste management, and review and comment on the plan and other proposed solid waste management rules, policies or ordinance prior to adoption. (Source: KCC 10.04.020).
- King County Solid Waste Regulations.** KCBOHC Title 10, governs solid waste handling, storage, collection, transportation, treatment, utilization, processing and final disposal of all solid waste generated within King County, including issuance of permits and enforcement. (Source: KCBOHC Title 10).
- Landfill.** A disposal facility or part of a facility at which solid waste is permanently placed in or on land and which is not a land spreading disposal facility. (Source: KCBOHC 10.08.235).
- Landfill gas.** Gas produced by the microbial decomposition of municipal solid waste in a landfill. It is comprised of fifty to sixty percent methane, forty to fifty percent carbon monoxide and less than one percent hydrogen, oxygen, nitrogen and other trace gases.
- Leachate.** Water or other liquid that has been contaminated by dissolved or suspended materials due to contact with solid waste or gases therefrom. (Source: KCBOHC 10.08.245).
- Level of service.** The level and degree of service provided at facilities, including hours of operation, classes of customers served, and recyclables collection available.

- Local government.** A city, town, or county. (*Source: RCW 70.95.030 (13)*).
- Manager.** The manager of the Solid Waste Division of the King County Department of Natural Resources and Parks. (*Source: KCC 10.04.020*).
- Mandatory collection fee.** An obligatory fee for solid waste collection which is required of all residents of a defined area.
- Mandatory recycling.** Programs that, by law, require consumers to separate trash so that some or all recyclable materials are not burned or dumped in landfills. (*Source: 1991 Washington State Comprehensive Solid Waste Management Plan*).
- Marginal cost.** The additional cost of producing one more unit of output. Unlike average cost, it does not include fixed costs - it consists only of costs that vary with output. (*Source: MIT Dictionary of Modern Economics, 1992*).
- Minimum Functional Standards.** The state regulations for solid waste handling as contained in WAC 173-304; see also KCBOHC Title 10.
- Mixed municipal solid waste (MMSW).** Solid waste generated by residences, stores, offices, and other generators of wastes that are not industrial, agricultural, or CDL wastes. (*Source: KCC 10.04.020*).
- Operational Master Plan (OMP).** A comprehensive plan for an agency setting forth how the organization will operate now and in the future. It includes the analysis of alternatives and their life cycle costs to accomplish defined goals and objectives, performance measures, projected workload, needed resources, implementation schedules and general cost estimates. The OMP will also address how the organization would respond in the future to changed conditions.
- Operating hours.** Those times during which disposal facilities are normally open and available for the delivery of solid waste. (*Source: KCC 10.04.020*).
- Organic materials.** Any carbonaceous materials, consisting of hydrocarbons and their derivatives. Examples include food waste, yard debris, soiled paper, wood waste, biosolids, and manures.
- Permit.** An authorization issued by the health officer which allows a person to perform solid waste activities at a specific location and which includes specific conditions for such facility operations. (*Source: KCBOHC 10.08.305*).
- PET.** All bottles made from polyethylene terephthalate (“PET”), such as pop, oil, liquor, and other types of bottles. (SPE code 1) (*Source: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys*).
- Plan.** The coordinated comprehensive solid waste management plan for the County as required by RCW Chapter 70.95. (*Source: KCC 10.04.020*).
- Planning area or jurisdiction.** The geographical location designated by a local solid waste management plan as the plan’s legal boundaries. (*Source: 1991 Washington State Comprehensive Solid Waste Management Plan*).
- Polycoated paper.** Multi-component packaging that contains paper as one or more of the layers, including milk cartons, juice boxes, and similar packaging. (*Source: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys*).

- Post-closure.** The requirements placed upon disposal facilities after closure to ensure their environmental safety for a number of years after closure. (*Source: KCBOHC 10.08.335*).
- Primary recyclables.** Recyclable materials that are commonly collected and are included under the minimum service levels for recycling collection programs. These include paper, cardboard, glass, tin and aluminum beverage containers, HDPE and PET bottles, and yard waste under 3 in. in diameter.
- Private solid waste management company.** A private-sector company which offers a variety of solid waste handling services, which may include curbside collection of solid waste and recyclable materials, solid waste transfer, and solid waste disposal.
- Procurement policy.** Development and implementation of a policy which achieves the purchase of products made from recycled and/or recyclable goods. (*Source: KCC 10.04.020*).
- Product stewardship.** Taking measures to minimize the impacts of a product on the environment during its life cycle. The principle applies to designers, suppliers, manufacturers, distributors, retailers, consumers, recyclers and disposers.
- Putrescible waste.** Solid waste which contains material capable of being decomposed by micro-organisms. (*Source: KCBOHC 10.08.355*).
- Rate incentives.** See Incentive rates.
- Ratepayer.** Any resident, business, institution, or industrial entity that pays to dispose solid waste, or have solid waste disposed, within the King County solid waste system.
- Recyclable materials.** Those solid wastes that are separated for recycling or reuse, such as papers, metals, and glass, that are identified as recyclable material pursuant to a local comprehensive solid waste plan. (*Source: 1991 Washington State Comprehensive Solid Waste Management Plan*).
- Recyclables collection.** Services such as curbside collection or collection facilities for recyclable materials.
- Recycling.** Transforming or remanufacturing waste materials into usable or marketable materials for use other than landfill or incineration. (*Source: RCW 70.95.020*).
- Region.** The area encompassing those cities with signed Interlocal Agreements and unincorporated areas of King County that are included in the Comprehensive Solid Waste Management Plan. Includes all of King County plus the part of the city of Bothell that is in Snohomish County, except for the cities of Seattle and Milton.
- Regional approach.** The development and implementation of a solid waste management program in cooperation with municipalities of King County and with other counties within the Puget Sound area. (*Source: KCC 10.04.020*).
- Regional direct.** Any solid waste generated and collected in King County and transported to Cedar Hills disposal site by conventional long haul transfer vehicles from solid waste transfer stations or intermediate processing facilities permitted by Public Health – Seattle & King County as provided for in KCC 10.08.090 and the Board of Health’s regulations. (*Source: KCC 10.04.020*).

**Regional direct fee.** Rate paid by a private hauler when it transports regional direct tonnage directly to the Cedar Hills Regional Landfill from its own private transfer stations. (*Source: KCC 10.12.021*).

**Regional programs.** See Countywide programs.

**Reuse.** Use of a product more than once in its same form for the same purpose; e.g., a soft-drink bottle is reused when it is returned to the bottling company for refilling. (*Source: 1991 Washington State Comprehensive Solid Waste Management Plan*).

**Secondary recyclables.** Those recyclables that have not been designated for collection for recycling pursuant to RCW 70.95.090. These recyclables are those with generally limited markets, a lack of collection systems or a limited number of generators of the material. They include polycoated paperboard, all plastics except PET and HDPE bottles, bulky yard waste greater than three inches in diameter, wood, food waste, compostable paper, appliances (white goods), other ferrous and nonferrous metals, textiles, stable wastes, motor oil, oil filters, latex paint, antifreeze, brake fluid, carpet, electronics, reusable household and office goods, reusable building materials, concrete, toilets, tires and batteries.

**Self haulers.** Residential and non-residential customers who choose to bring their garbage and recyclables to the transfer facilities themselves.

**Shall (and will).** In a policy, “shall” or “will” mean that it is mandatory to carry out the policy. “Should” in a policy provides noncompulsory guidance and establishes some discretion in making decisions. “May” in a policy means that it is in the interest of King County or other named entity to carry out the policy but there is total discretion in making decisions.

**Solid waste.** All putrescible and nonputrescible solid and semisolid wastes, including, but not limited to garbage, rubbish, ashes, industrial wastes, biomedical waste, swill, demolition and construction wastes, landclearing wastes, abandoned vehicles or parts thereof, discarded commodities, or contaminated excavated soil/fill material. This includes all liquid, solid and semisolid materials which are not the primary products of public, private, industrial, commercial, mining, and agricultural operations. Solid waste includes, but is not limited to: biosolids from wastewater treatment plants and septage from septic tanks, woodwaste, dangerous waste, and problem wastes. (*Source: KCBOHC 10.08.420*).

**Solid waste handling.** The management, storage, collection, transportation, treatment, utilization, or final disposal of solid wastes, inducing the recovery and recycling of materials from solid wastes, the recovery of energy resources from solid wastes or the conversion of the energy in such wastes to more useful forms or combinations thereof. (*Source: KCBOHC 10.08.425*).

**Solid waste handling company.** See Private solid waste management company.

**Solid Waste Interlocal Agreements.** An agreement between a city and the County for use of the King County disposal system for solid waste generated or collected within the city. (*Source: KCC 10.04.020*).

**Solid waste management.** The systematic administration of activities which provide for the reduction in generated volume, source separation, collection, storage, transportation, transfer, recycling, processing, treatment and disposal of solid waste. This includes public education and marketing activities. (*Source: KCC 10.04.020*).

**Solid waste system.** King County's system of solid waste transfer stations, rural and regional landfills, and processing facilities as authorized by RCW 36.58.040 and as established pursuant to the approved King County Comprehensive Solid Waste Management Plan.

**Source reduction.** The design, manufacture, acquisition, and reuse of materials so as to minimize the quantity and/or toxicity of waste produced at the place of origin. (*Source: 1991 Washington State Comprehensive Solid Waste Management Plan*).

**Source separation.** The separation of different kinds of solid waste at the place where the waste originates. (*Source: RCW 70.95.030 (20)*).

**Special collection event.** Event held by the cities and the County to collect recyclable materials, such as bulky items, tires, appliances, etc. that are not usually collected at curbside.

**Special wastes.** All non-hazardous wastes that have special handling needs or have specific waste properties that require waste clearance by the Solid Waste Division of the Department of Natural Resources and Parks and/or Public Health – Seattle & King County. Such wastes are specified in the Waste Acceptance Policy (PUT 7-1-4 or future amendments of that rule), and include contaminated soil, asbestos-containing materials, treated biomedical wastes, treatment plant grit and vector wastes, industrial wastes, tires and other wastes.

**Sustainable building principles.** The use of energy- and resource-efficient site and building design, construction, operations and management.

**Sustainable development.** Development that broadly addresses issues affecting the community, such as transportation and land use, and has minimal impact on the environment. (*Source: Northwest Regional Sustainable Building Action Plan, 1997*).

**Textiles, clothes & other recyclables.** Fabric materials including natural and man-made textile materials such as cottons, wool, silks, woven nylon, rayon, polyesters and other materials. This category includes clothing, rags, curtains, and other fabrics. (*Source: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys*).

**Tipping fee.** The price paid per ton, cubic yard, or other measurement to dispose of waste at a transfer station, incinerator, or landfill. (*Source: KCC Chapter 10.12*).

**Transaction fee.** Flat fee charged per transaction at a transfer facility to cover the cost of handling each load of garbage. It is separate from the cost of disposal of the actual waste.

**Transfer station.** A permanent fixed, supplemental collection and transportation facility, used by persons and route collection vehicles to deposit collected solid waste from off-site into a larger transfer vehicle for transport to a solid waste handling facility. Transfer stations may also include recycling facilities, and compaction/baling systems. (*Source: KCBOHC 10.08.460*).

- Unauthorized waste.** Waste which is not acceptable for disposal at any or a specific disposal facility according to applicable rules and regulations or a determination of the manager. *(Source: KCC 10.04.020).*
- Unincorporated area councils.** Officially recognized unincorporated area councils under the Citizen’s Participation Initiative. *(Source: County Council Motion 9643).* Currently, six councils are now officially recognized - North Highline, Greater Maple Valley, Vashon-Maury Island, West Hill, Four Creeks, and Bear Creek.
- Unincorporated service area.** A geographical area of unincorporated King County designated to receive solid waste, recyclables, and yard waste collection services. *(Source: KCC 10.04.020).*
- Urban collection service levels.** The availability of regularly scheduled collection services for residential garbage and primary recyclables at residents’ homes.
- Variable can rate.** A charge for solid waste services based on the volume of waste generated measured by the number of cans set out for collection. *(Source: 1991 Washington State Comprehensive Solid Waste Management Plan).*
- Waste acceptance policy.** Procedure to determine whether and under what conditions special wastes identified in PUT 7-1-4 may be disposed at the Cedar Hills Regional Landfill. *(Source: PUT 7-2-1,5.12).*
- Waste clearance.** Procedures in PUT 7-2-1 (PR) that allow the acceptance of materials identified as special wastes to be disposed at the Cedar Hill Regional Landfill.
- Waste export.** The act of sending waste to a landfill out of the region.
- Waste reduction.** Reducing the amount or toxicity of waste generated or reusing materials. *(Source: RCW 70.95.030 (22); see also KCBOHC 10.08.505).*
- Waste screening.** A process by which King County monitors and inspects solid waste entering the solid waste system to detect and remove hazardous or other unauthorized wastes.
- Waste stream.** The total flow of solid waste from homes, businesses, institutions, and manufacturing plants that must be recycled, or disposed in landfills; or any segment thereof, such as the “residential waste stream” or the “recyclable waste stream.” *(Source: 1991 Washington State Comprehensive Solid Waste Management Plan).*
- “We”, “Us”, “Our”.** Refers to all the local governments (cities, towns, and County) in King County that have signed the Solid Waste Interlocal Agreements and are participating in the Comprehensive Solid Waste Management Plan. *(See Region and Regional approach.)*
- Wood.** Includes stumps, branches over four inches in diameter, and other wood, and products made predominantly of wood, except furniture. *(Source: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys).*
- Woodwaste.** Solid waste consisting of wood pieces or particles generated as a by-product or waste from the manufacturing of wood products, handling and storage of raw materials and trees and stumps. This includes but is not limited to sawdust, chips, shavings, discarded pallets, clean dimensional lumber, bark, pulp, hog fuel, and log sort yard waste, but does not include wood pieces or particles containing chemical preservatives such as paint creosote, pentachlorophenol, or copper chrome arsenate. *(Source: KCBOHC 10.08.520).*

**Woody debris.** Natural vegetation greater than four inches in diameter, such as stumps or fallen tree branches or limbs, resulting from landclearing activity, storms, or natural disasters.

**Yard waste.** A compostable organic material generated in yards or gardens, including but not limited to, leaves, grass, branches, prunings, and clippings of woody and fleshy plants and unflocked Christmas trees, but shall not include rocks, dirt or sod, concrete, asphalt, bricks, land clearing wastes, demolition wastes, woodwaste or food waste. (Source: KCC 10.04.020).

## ABBREVIATIONS

<b>CDL</b>	Construction, demolition, and landclearing waste
<b>CFR</b>	Code of Federal Regulations
<b>Division</b>	King County Solid Waste Division
<b>Ecology</b>	Washington Department of Ecology
<b>EPA</b>	U.S. Environmental Protection Agency
<b>HDPE</b>	High-density polyethylene
<b>Health</b>	Department, Public Health – Seattle & King County
<b>ILAs</b>	Interlocal Agreements
<b>KCBOHC</b>	King County Board of Health Code
<b>KCC</b>	King County Code
<b>LHWMP</b>	Local Hazardous Waste Management Plan
<b>MFS</b>	Minimum Functional Standards
<b>MMSW</b>	Mixed municipal solid waste
<b>PET</b>	Polyethylene terephthalate
<b>Draft Plan</b>	Draft King County Comprehensive Solid Waste Management Plan
<b>Final Plan</b>	Final King County Comprehensive Solid Waste Management Plan
<b>OMP</b>	Operational Master Plan
<b>PSCAA</b>	Puget Sound Clean Air Agency
<b>PSRC</b>	Puget Sound Regional Council
<b>PUT</b>	King County Public Rules and Regulations
<b>RCRA</b>	Resource Conservation and Recovery Act
<b>RCW</b>	Revised Code of Washington
<b>SWAC</b>	Solid Waste Advisory Committee
<b>WAC</b>	Washington Administrative Code
<b>WUTC</b>	Washington Utilities and Transportation Commission

