Attachment A

Transfer Plan Review Final Report

Prepared in accordance with
Adopted Budget Ordinance 17696, Section 25, P1

Submitted March 2014

Revised & Amended May 2014

Pursuant to Motion 2014-0097 Acknowledging Receipt

King County

Department of Natural Resources and Parks
Solid Waste Division

Contents

Summary

Ordinance 17619, adopted by the King County Council on July 8, 2013, directed the Solid Waste Division (division) of the Department of Natural Resources and Parks to conduct a review of the 2006 *Solid Waste Transfer and Waste Management Plan* (Transfer Plan).

The purpose of this review was to:

1. Determine if changes are needed to ensure that the transfer system is sized/configured appropriately to meet current and anticipated needs and;
2. Determine whether changes could be made that could reduce future expenditures while still meeting desired service objectives and levels.

The Transfer Plan review took place over a three month period of intense collaboration with cities and other stakeholders. Following the release of a draft report in October 2013, the division continued analysis based on feedback received during four months of public comment.

The division worked closely with cities and other interested parties to evaluate numerous potential alternatives to the current Transfer Plan.

Ultimately, consensus – or near consensus – was reached on many important issues, including the following:

- **Factoria should proceed as designed**. The analysis evaluated a number of potential alternatives for Factoria and determined that construction of the new Factoria Recycling and Transfer Station should proceed this year, essentially as designed, but with minor modifications that will maximize future flexibility. These include installing a second compactor to allow the station to handle more tonnage. As discussed in greater detail below, the analysis showed that proceeding with Factoria is critical to maintaining the region's flexibility to eliminate a new Northeast Recycling and Transfer Station, if that determination is made. The current Factoria design is consistent with the County's Zero Waste of Resources goal and with recommendations of the *Optimized Transfer Station Recycling Feasibility Study.*

- **No benefit to "supersizing" Factoria.** The analysis also demonstrated that expanding the design of the proposed Factoria Recycling and Transfer Station is not an optimal approach. To enlarge Factoria on the existing site would require eliminating both recycling and household hazardous waste collection from the Factoria facility; the space previously dedicated to those services would be used to handle garbage. A redesign would also require new permits and would cause approximately a two-year delay in replacing the currently obsolete facility. This option provided limited additional capacity and higher costs than operational approaches for addressing capacity.

- **Alternatives without Factoria are likely infeasible.** The review analyzed an option (known as Alternative B) that would eliminate the Factoria Recycling and Transfer Station and instead construct a very large new Northeast facility to handle all tonnage currently handled by Factoria ***and*** Houghton. The analysis concluded that such as new facility would have to be almost 25 percent larger than the largest existing transfer station (Bow Lake) and would have to operate extended hours. Finding a new site to accommodate such a large facility with lengthy operating hours would be extremely challenging and poses significant risk. In addition, hauling distances would increase and Factoria would be a stranded asset. As a result, this option appears infeasible.

- **"Eastgate" Alternatives are impractical and infeasible**. The division evaluated handling northeast county tonnage by constructing a new a transfer facility on property adjacent to the current Factoria site which is known as the Eastgate property. Constructing a transfer facility on the Eastgate

property would be inconsistent with the City of Bellevue's land use code and recently adopted I-90 corridor plan. Bellevue, which is the permitting entity, strongly opposes the use of the Eastgate property for a transfer station, and other cities expressed similar opposition. In addition, this approach would essentially concentrate two separate transfer facilities in close proximity in a single jurisdiction, creating inefficiencies.

- **Operational approaches exist to handle northeast capacity**. The division also identified and evaluated operational changes that would maximize the use of existing assets to preclude the need for a new Northeast Recycling and Transfer Station. Two feasible options exist, and a combination of these approaches could be pursued to help maximize efficiency and minimize impacts. The options would redirect tonnage to underutilized transfer stations, extend facility hours, and limit hours for certain self-haul transactions. These approaches involve minor modifications to the Factoria Recycling and Transfer Station to maintain flexibility, but will not affect Factoria's schedule or current permits.
- **A new South County facility is needed**. A new South County Recycling and Transfer Station to replace the nearly 50-year-old Algona Transfer Station is critical to providing adequate services to the south county. Without a the new facility, south county residents and commercial haulers would primarily use the Bow Lake Recycling and Transfer Station, resulting in longer driving distances and higher costs. Additionally, Bow Lake was not built to handle the added tonnage and customers that would be the outcome of this unplanned redirection – on average, Bow Lake would exceed operating capacity during 10 to 20 percent of its operating hours and on weekends would exceed capacity during most hours, creating long waits for customers and offsite traffic impacts.

Based on the extensive analysis developed in the Transfer Plan review, and following cooperative work with Council staff and the County auditor, the division recommends the following:

- Proceed this year with a new Factoria Recycling and Transfer Station using current design and permits
- Continue siting evaluations for a South County Recycling and Transfer Station
- In collaboration with stakeholders, continue to evaluate a mix of capital facilities and operational approaches to address system needs over time, including implementation of operational approaches such as transaction demand management strategies that would provide service for the northeast county without building an additional transfer station; compare trade-offs and benefits with the Transfer Plan.
- Following and consistent with environmental review, revise the 2006 Solid Waste Transfer and Waste Management Plan and the pending Solid Waste Comprehensive Plan to address the transfer station network to include among the new or upgraded urban Recycling and Transfer Stations, the following currently needed facilities: Bow Lake, Factoria, Shoreline, and South King County, consistent with Table 1 of the Recommended Transfer Plan Update; Capital Facilities, below.
- Revise the 2006 Solid Waste Transfer and Waste Management Plan and the pending Solid Waste Comprehensive Plan to acknowledge continuing system attention to potential capital needs over time, that may include capital projects such as recycling facilities, CDL facilities, a new northeast transfer station, or other capital projects as potential future facilities to retain flexibility in the system, consistent with Table 2 of the Recommended Transfer Plan Update; Capital Facilities, below.

- Although numerous alternatives were analyzed, as discussed at length in this report, many are not recommended for the reasons indicated above. Consistent with the recommendation above, a comparison of the currently adopted Transfer Plan (Base Plan or Base Alternative), which includes building and new Northeast Recycling and Transfer Station, and the operational approaches that would preclude the need for a new Northeast (Alternatives E1 and E2) are outlined in the table below.

Base Plan (New Northeast)	E1 – No Northeast Redirect Commercial	E2 – No Northeast Limit Self-Haul
No delay or cost increases for replacing Factoria	No delay or significant cost increases to replace Factoria	No delay but moderate cost increases to site a household hazardous waste (HHW) facility offsite
Some facilities underutilized, at least initially	Facility use maximized	Shoreline underutilized; Factoria at times over utilized
Most capacity for future growth	Limited flexibility for future growth	Some flexibility for future growth
Shortest wait times	Marginally increased wait times	Potentially significantly increased wait times for self-haulers during peak hours
Highest level of service (self-haul, recycling, HHW)	High level of service (self-haul, recycling, HHW)	Lower level of service (self-haul, recycling, HHW)
Shortest hauling distances/ lowest hauling costs and impacts	Longer hauling distances/ higher hauling costs and impacts	Potential for additional hauling costs and impacts
Highest capital cost of all alternatives	Largest reduction in capital cost of the alternatives that do not build a Northeast Recycling and Transfer Station	Lower reduction in capital cost than E1

Introduction

Ordinance 17619, adopted by the King County Council on July 8, 2013, directed the Solid Waste Division (division) of the Department of Natural Resources and Parks to conduct a review of the 2006 *Solid Waste Transfer and Waste Management Plan* (Transfer Plan).

The purpose of this review was to:

1. Determine if changes are needed to ensure that the transfer system is sized/configured appropriately to meet current and anticipated needs and;
2. Determine whether changes could be made that could reduce future expenditures while still meeting desired service objectives and levels.

The Algona, Factoria, Houghton, and Renton transfer stations, all of which were built in the mid-1960s, are now out of date . The Transfer Plan calls for major transfer system upgrades in order to enable the County to continue providing environmentally-sound solid waste disposal services efficiently and effectively and at reasonable rates. These upgrades included rebuilding the Factoria Transfer Station, replacing the Houghton Transfer Station with a new Northeast Recycling and Transfer Station and replacing the Algona Transfer Station with a new South County Recycling and Transfer Station. Under the Transfer Plan, the Renton Transfer Station is also scheduled to close. The limitations of functionally obsolete facilities have not improved with time, despite a significant drop in tonnage since the plan's adoption in 2007, which necessitated review of the Transfer Plan.

The Transfer Plan review took place over a three month period of intense collaborative work with cities and other stakeholders. Following the release of a draft report in October 2013, the division continued analysis based on feedback received during four months of public comment.

Numerous options were identified and analyzed to answer key questions, including the following:

- In light of the reduced tonnage projections, could changes be made in the Transfer Plan that could eliminate the need (and corresponding cost and impacts) for one or more transfer stations?
- If a transfer station could be eliminated, how would key factors including service levels, costs, and the environment be affected?
- Could operational changes eliminate the need for a transfer station?
- Does the currently proposed Factoria Recycling and Transfer Station, which is close to breaking ground, eliminate the need for a new Northeast Recycling and Transfer Station?

Purpose of Review

Ordinance 17619 (amended as 17696) called for a review of the Transfer Plan before continuing with implementation.

The purpose of this review is to:

- Determine if changes are needed to ensure that the transfer system is sized/configured appropriately to meet current and anticipated needs and;
- Determine whether changes could be made that could reduce future expenditures while still meeting desired service objectives and levels.

This report summarizes the analysis and findings of the review in response to Ordinance 17619, Section 56, P1, (amended as 17696 Section 25, P1). As called for in Section A of the proviso, this report addresses:

1. Tonnage projections based on waste volumes from cities that have indicated commitment to the regional solid waste system through 2040 through approval of the Amended and Restated Solid Waste Interlocal Agreement;
2. Revenue projections based on waste volumes from cities that have indicated commitment to the regional solid waste system through 2040 through approval of the Amended and Restated Solid Waste Interlocal Agreement;
3. Overall costs of the region-wide transfer station upgrade;
4. Functionality and service alternatives at the respective transfer stations;
5. Level of service criteria addressed in the 2006 Transfer Plan, with particular attention to options for revision to the travel time criterion which requires that ninety percent of a station's users be within thirty minutes' travel time of a facility;
6. Retention and repair costs of the existing transfer network including itemized cost estimates for retention and repair and updated long-term tonnage projections; and
7. Recommendation "4" of the King County Performance Audit of Solid Waste Transfer Station Capital Projects, which requires systematic analysis of incremental cost impacts of the number, capacities and functionality of the transfer stations and assessment of project financing and delivery methods.

In accordance with the requirements of Section B of the proviso, the division undertook this review and report with the participation of stakeholder groups, including the Metropolitan Solid Waste Management Advisory Committee (MSWMAC), the Sound Cities Association (SCA), the City of Bellevue, and the Solid Waste Advisory Committee (SWAC), among others. Documentation of stakeholder engagement and feedback received from stakeholders are included in Appendix A.

Transfer Plan review process

A draft report resulted from a review process carried out in a collaborative, transparent manner with significant involvement from stakeholders. The deadline for written comments on this draft report was extended from October 23, 2013 to February 3, 2014. All written comments received between October 9 and February 3 are addressed in a responsiveness summary in Appendix I and included in full in Appendix J.

For the review of the Transfer Plan, a series of three workshops were held in July, August, and September 2013. These were open to all interested parties and were attended by:

- Metropolitan Solid Waste Management Advisory Committee members,
- Solid Waste Advisory Committee members,
- Sound Cities Association representatives,
- Staff from 18 cities, including Bellevue,
- Elected officials from 9 cities,
- Representatives of the 4 commercial solid waste haulers operating in King County,
- Interested citizens,
- King County Council staff, and
- King County Auditor's staff.

The presentations, handouts, and supporting analysis provided at each of these workshops are available on the division's website. All questions and feedback received during the workshops are included in the

workshop summaries, which are also available on the division's website. As recommended by the King County Auditor, the division analyzed the incremental cost impacts of the number of transfer stations by considering the effect on capital, operating, and collection costs if one or more of the stations were not constructed, as discussed below. Supporting details of this analysis can be found in Appendix B of this report and in the Workshop 3 materials. The cost and service impacts of functionalities of the transfer stations – compaction, self-haul and recycling (see alternatives description), and storage capacity – were also studied. As part of the review process, the division presented information to stakeholders about project delivery and financing methods and Ordinance 17437, which requires that the division analyze at least the following procurement methods for the South County and Northeast Recycling and Transfer Station projects: competitive negotiated procurement under chapter 36.58 RCW, traditional public works bidding, developer-delivered, with and without private financing, and design-build.

In addition to the workshops, the division provided updates to the advisory committees during their normally scheduled meetings each month for the duration of the process. Feedback and discussion at those meetings is summarized in the meeting minutes, which are available online.

The division provided briefings to:

- Metropolitan Solid Waste Management Advisory Committee,
- Solid Waste Advisory Committee,
- Sound Cities Association,
- City mayors, managers, and staff,
- Regional Policy Committee (RPC),
- King County Council members,
- King County Council staff, and
- King County Auditor's staff.

Materials from most of these presentations are available on the website.

Guiding principles

In collaboration with cities and other stakeholders, the division adopted the following guiding principles for the review process.

- The system shall maximize ratepayer value and ensure that participants in King County's solid waste system have access to efficient and reliable regional solid waste handling and disposal services at rates as low as reasonably possible, consistent with sound financial and environmental stewardship.
- Future system facilities will be designed to provide flexibility to accommodate changes in growth, anticipated future customer needs, and future waste disposal options and technologies.
- The system complies with all applicable state and federal law, including requirements for storage for disasters.
- This review will comply with the requirements of Ordinance 17619 (amended as 17696)
- This review will be conducted in a transparent and collaborative manner between King County and its stakeholders, so that all parties have timely access to relevant data and determining factors for decision making.

Background

In 1992, King County adopted a comprehensive solid waste management plan calling for the renovation of its aging urban transfer system. Without strong regional consensus about the need for improvements, a rate increase to support this plan was not approved. Since 1992, population growth, technological changes, and aging infrastructure have intensified the need for significant improvements. The 2001 *Comprehensive Solid Waste Management Plan* emphasized this need again.

In 2004, the King County Council adopted Ordinance 14971, which prioritized evaluation of the urban transfer station network as an integral part of the analysis for the next comprehensive solid waste management plan, and established a process for collaborative participation by the cities in solid waste planning. This process led to the formation of the MSWMAC.

Codified in KCC 10.25.110, Ordinance 14971 outlined an iterative, collaborative process that would culminate in recommendations for the urban transfer system. Along with division staff, SWAC, MSWMAC, and an Interjurisdictional Technical Staff Group comprised of staff from cities and from the King County Council, analyzed the solid waste system and issued four milestone reports.

Milestone Reports 1 and 2 developed 17 criteria for evaluating the stations. These fall into three general categories of information:

1. level of service to users,
2. station capacity to handle solid waste and recyclable materials, and
3. the local and regional effects of each facility.

These criteria were applied to the existing urban transfer stations – Algona, Bow Lake, Factoria, Houghton, and Renton. Because the Shoreline Recycling and Transfer Station was under construction at the time, it was not evaluated. Each of the five transfer stations failed to meet between seven and twelve of the evaluation criteria; all of them were operating over capacity and failed to meet safety goals (the presence of physical challenges inherent in the older transfer stations does not mean that the stations operate in an unsafe manner, it does mean that it takes extra effort, which reduces system efficiency, to ensure that the facilities operate safely). These detailed evaluations demonstrated the need for major transfer system upgrades in order to continue providing environmentally sound solid waste disposal services efficiently and effectively and at reasonable rates.

Milestone Report 3 discussed options for public and private sector roles in solid waste and recycling in King County. The recommendation was to retain the current mix of public-private operations where the private sector:

- provides curbside collection of garbage, recyclables, organics (yard waste, food scraps, and food-soiled paper), and construction and demolition debris (C&D), and
- processes recyclable materials and C&D.

The division:

- provides solid waste transfer facilities, and
- maintains the Cedar Hills landfill for disposal until it reaches capacity and closes, contracting for disposal once the landfill closes.

Milestone Report 4 identified alternative configurations for the urban transfer station network and potential disposal options for the future. It also considered feasible options for long haul transport; the need for an intermodal facility or facilities; and the timing of waste export or other method of final disposal. A preferred alternative for the transfer system was identified.

These four milestone reports culminated in the Transfer Plan, which provides recommendations for upgrading the urban transfer station system; methods for extending the lifespan of Cedar Hills; and options for preparing the landfill for eventual closure. The Transfer Plan called for the Bow Lake and Factoria stations to be deconstructed, and new recycling and transfer stations to be built on the existing sites and adjacent properties. Both the Houghton and Algona stations would be closed and replaced with newly sited recycling and transfer stations in the northeast and south county areas, respectively. The Renton station was recommended for closure.

The division's stakeholders had a significant role in shaping the recommendations in the Transfer Plan. At the conclusion of the process, both SWAC and MSWMAC recommended the plan to the King County Executive and the County Council.

Before final approval of the Transfer Plan, the County Council requested an independent third-party review of the Transfer Plan, which was conducted by the firm Gershman, Brickner & Bratton, Inc. (GBB). GBB fully supported the primary objectives of the plan: to modernize the transfer station system and maximize the lifespan of the Cedar Hills landfill. The County Council unanimously approved the Transfer Plan in December 2007.

Since the approval of the Transfer Plan, the division has completed construction of the new Bow Lake Recycling and Transfer Station in Tukwila; completed design and permitting of a new Factoria Recycling and Transfer Station in Bellevue; and begun the siting process for a new South County Recycling and Transfer Station to replace the aging Algona facility.

The new Bow Lake Recycling and Transfer Station is capable of handling one third of the system's waste in a fully enclosed building that reduces noise, litter, and odors. It is projected to achieve a Gold level certification through the internationally recognized Leadership in Energy and Environmental Design (LEED) Rating System.

Optimized Transfer Station Recycling Feasibility Study

King County has long been a national leader in recycling and waste prevention. King County's current recycling and waste prevention rate is significantly higher than the national average. Despite this success, the County continually seeks to achieve a goal of zero waste in accordance with adopted county policy (King County Code 10.14.020), through a multi-faceted approach including education, disposal fee incentives, partnerships with cities and private waste haulers and recycling facilities at new transfer stations. The County is also a leader in product stewardship, a process through which manufacturers of goods must take responsibility for reclaiming resources from the products they produce.

Planning for the future Solid Waste System

As provided by RCW 70.95.020 (1), (2) local government – cities and counties – have statutory oversight and authority for the planning and handling of solid waste. Currently, through interlocal agreements (ILAs) between King County and member cities, the division is responsible for operation of the public transfer stations and the regional landfill, as well as the development of the plan that establishes the long-term policies for transfer, disposal, and waste reduction and recycling. The ILA's provide the basis for the development of system and facility plans based on committed streams of tonnage to county facilities from the cities. The division's service area is countywide, with the exception of the cities of Seattle and Milton.

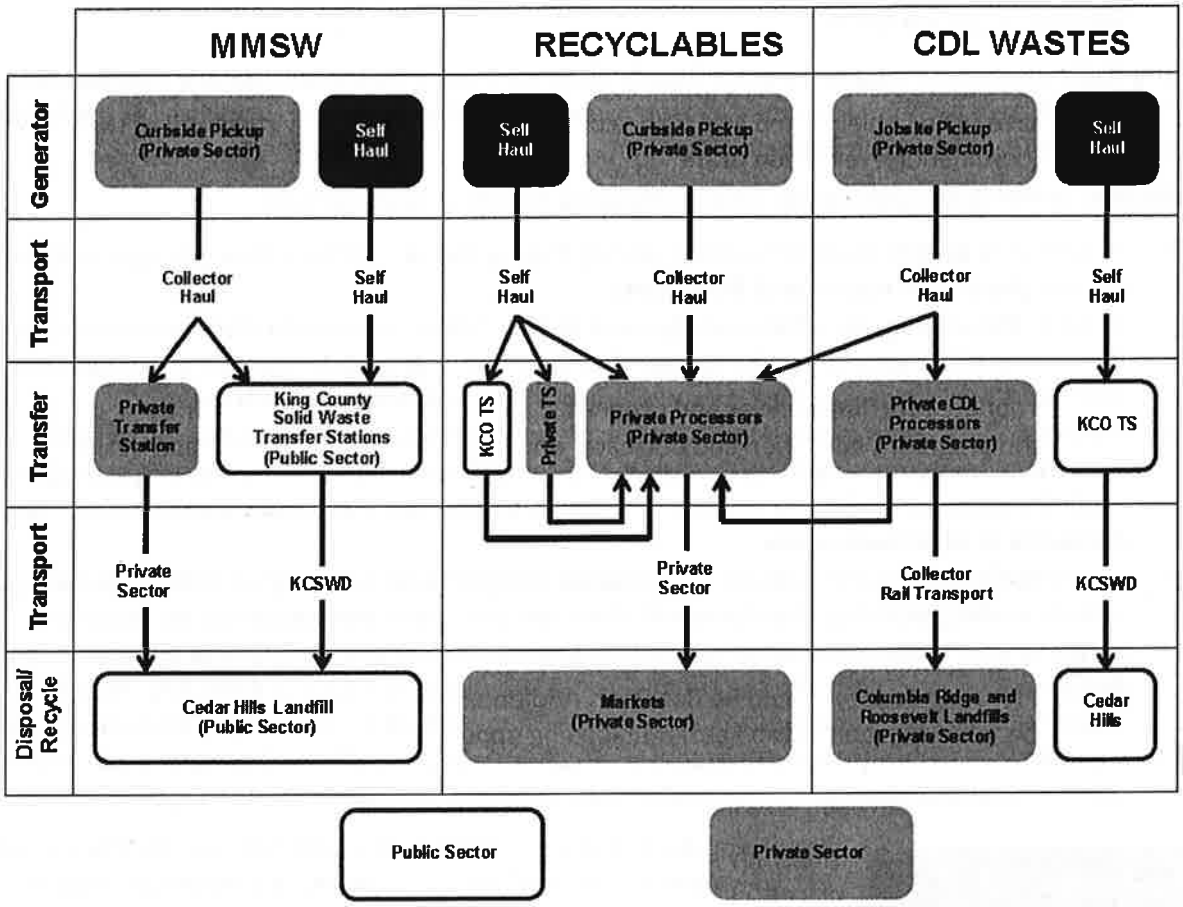
King County does not have the authority to collect waste or contract for collection services. Under state law, this authority is vested with the cities, or in the unincorporated areas with the Washington Utilities

and Transportation Commission (WUTC). The WUTC also sets collection rates for cities that choose not to regulate collection service.

Recognizing the lack of authority to contract for and to regulate waste collection, the County's system relies heavily on strong partnerships with both cities and commercial haulers to provide quality curbside service to area homeowners, including opportunities for recycling. The role of haulers and collectors is of paramount importance in meeting county and state recycling goals. These curbside reuse and recycling programs have been effective; a 2011 report published by the state Department of Ecology showed that state residents recycled more than half (50.7 percent) of their total solid waste. On a per-person basis, state residents recycled an average of 3.64 pounds of material each day, while throwing away 3.54 pounds of waste. The 2011 milestone was the first time that recycling exceeded the 50 percent reduction goal set in a 1989 state law.

By comparison, recycling activities at county transfer facilities impact a substantially smaller segment of the total system population – those choosing to "self-haul" their waste by taking materials directly to transfer stations. New county transfer facilities have been designed to provide convenient and cost-effective opportunities for recycling of materials brought to transfer stations by self-haul customers, who account for about 20 percent of the total annual system tonnage processed at transfer facilities. The county is creating new opportunities for recycling for self-haul customers, but must continue to rely on effective curbside recycling programs offered by commercial haulers to provide recycling service for the overwhelming majority of total system customers. Many cities have structured their solid waste collection rates to support curbside recycling. The division, working with its city partners, will continue to evaluate policies that can further strengthen recycling and waste reduction efforts.

As discussed in more detail in Milestone Report 3 of the Transfer Plan and in the *Optimized Transfer Station Recycling Feasibility Study*, the division is part of a much larger system of collecting and processing recyclables. The figure below illustrates the current waste management system in King County and the respective roles of the public and private sectors in managing the various sections of the waste stream. As illustrated, private recycling infrastructure is an integral part of the County's overall solid waste management system.



Note: *MMSW = mixed municipal solid waste, more commonly known as garbage*
CDL = construction, demolition and land clearing debris, often just construction and demolition debris (C&D)

Current practices that are consistent with adopted comprehensive solid waste management plan and other County policies promote King County's goals for solid waste services. For example:

- Aggressively promote and seek to expand waste reduction and recycling, with grants to member communities and recycling opportunities at all facilities for self-haul customers.
- Provide high-access, urban levels of service to all customer classes at each public transfer facility.
- Allow self-haul customer access during all operating hours at each transfer facility.
- Establish customer service as a high priority, with rates that do not discourage system access.
- Enact environmental protection measures which exceed minimum standards to protect the environment, enhance community acceptance and assure host community compatibility. Newer facilities exceed environmental standards and also incorporate many LEED features.

- Provide mitigation to communities where solid waste facilities are located, known as host communities.
- Adopted rate structures designed to be uniform system-wide to provide mutual benefit for all component communities, without transaction fees that would discourage access.
- Set labor policies to provide livable wages and promote a safe work environment.
- Operate a public transfer system network designed to provide redundant opportunities for safe disposal of solid waste, and provide surge capacity in the event of shut-down or unusual volumes at private facilities.

In early 2012, the division obtained a grant from Ecology for a study that would identify best recycling practices which have been implemented across the country. Ecology provided virtually all of the funding through a state Coordination Prevention Grant.

Key findings of the *Optimized Transfer Station Recycling Feasibility Study* include:

- A number of system constraints affect all King County transfer stations, though **in general they are not physical or operational limitations**.
- Much of the leverage for additional diversion at King County transfer facilities must come from the actions of its customers, with support from transfer station staff. This can be brought about with appropriate **recycling policies and programs, and education and outreach**.
- Policies and programs, education and outreach, and facilities (including layout and design, operations, and processing) together provide a comprehensive and self-reinforcing strategy to maximize diversion at County facilities. In general, **the County does, and should continue to use measures in all of these areas**.
- New King County transfer stations are designed with flat floors creating versatile areas for waste collection and processing. Flat floors will allow operators to recover materials for reuse and recycling from customers. Due to the advantages provided by this design, **new transfer stations designed for King County should be flat floor.** Additional advantages of a flat floor design include the following: quicker and easier unloading opportunities for self-haul customers; more opportunities to safely remove material from commercial and self-haul loads; easy movement of staff and materials between areas, and ease of making future operational changes.

The study also identified publicly owned-and-operated facilities which placed a great deal of emphasis on recycling and materials recovery. For example, the recently completed El Cerrito Recycling and Environmental Resource Center located in Northern California (photo inset on the left) provides recycling collection areas for paper, plastics, cloth, metal, and other materials in a convenient setting. The El Cerrito facility also provides opportunities for recycling of hard-to-recycle materials, such as carpet and plate glass.

The upgrade to the county transfer station network came about, in part, because of the constrained capacity for supporting recycling that characterizes the older transfer stations, including Factoria. The Transfer Plan identified several system challenges and needs, including limited ability to support aggressive waste reduction and recycling. The upgraded transfer network is intended to respond to this and other identified needs.

The current Factoria Transfer station cannot accommodate any recycling. With a new configuration, and with features comparable to the El Cerrito Recycling and Environmental Resource Center, the new

Factoria Recycling and Transfer Station is designed to accept at least thirteen recyclable materials, as follows:

- Organics (yard debris and food)
- Clean wood
- Scrap metal
- Cardboard
- Appliances
- Plastic film and bags
- Carpet
- Textiles
- Asphalt shingles
- Mattresses
- Gypsum Wallboard
- Mixed paper
- Tires

The division is already working to implement numerous recycling strategies

The division is already working to implement other recommended strategies to increase recycling and materials recovery at its stations, based on the recommendations in the *Optimized Transfer Station Recycling Feasibility Study* report:

- Increase material-specific actions to increase diversion:
  - Commingled mixed recycling to make it easier for customers to recycle and increase participation
  - Using compaction to commingle recycling materials and free up space for additional recycling materials
- Develop and operate flexible material receiving/processing capability:
  - Conduct materials recovery pilot at Shoreline and Bow Lake
  - Factoria flat floor design
- Enhance pictorial signage and signage in Spanish:
  - Placed easy to read material-specific signs with "yes" and "no" next to the material collection location
  - Signs include pictograms and Spanish to address language and cultural barriers
  - Signs are portable enabling movement between disposal locations depending on use and demand
  - New signage has been installed at Bow Lake, Renton, Houghton, and Shoreline
- Formalize and foster an internal staff culture that places a high value on reuse and recycling:
  - Quarterly "All Hands Meeting" to generate an enthusiastic culture around recycling and materials recovery strategies
  - Appliance training to increase metals recycling and demonstrate the revenue benefits of recycling
  - Hiring additional staff at Bow Lake to assist customers with recycling

Current Factoria design is consistent with the *Optimized Transfer Station Recycling Feasibility Study* recommendations

Although the study indicated that constraints on recycling and waste diversion in King County are primarily related to customer behavior and are best addressed by policies and education, the Factoria design is in fact consistent with the *Optimized Transfer Station Recycling Feasibility Study*. The design

optimizes recycling capabilities on that site and will contribute significantly to the Zero Waste of Resources goal. The Factoria design incorporates the current state-of-the-art flat-floor design. The *Optimized Transfer Station Recycling Feasibility Study* recommended a flat-floor design for Factoria and confirmed through extensive research that this is the preferable transfer station design. The study noted that the floor design allows for significant flexibility for recycling and materials recovery.

The study produced five recommended principles to optimize resource diversion and recovery. The current Factoria design is consistent with the recommendations and supports the County's Zero Waste of Resources goal. The five principles are shown in the table below.

Recommended principles from the study	Current Factoria design consistency
1. Convert obsolete or underused facilities into recycling-only facilities and modify existing King County transfer facilities to focus on reuse, recycling, waste diversion, and/or processing of self-haul materials	An extensive recycling and reuse area is part of the new Factoria design, with a focus on ease of customer use. It will allow for flexibility to collect a full range of materials from both commercial and self-haul customers including appliances, C&D, cardboard, carpet, mattresses, organics, and tires. (Eliminating garbage collection at Factoria would require siting an additional transfer facility.)
2. Site, design and build new King County solid waste facilities to align collection and processing in an advanced materials management system	A flat floor design allows versatility for waste collection and processing, and will provide the opportunity for Transfer Station Operators to recover materials for reuse and recycling from the waste stream. Pilot materials recovery projects are about to begin at Shoreline, so they could be implemented seamlessly at Factoria. Design features also allow: • Quicker and easier unloading for self-haul customers • Safer unloading of materials from commercial and residential customers as they will be on one level • Easier movement of staff and materials between areas • Easier space reallocation on the floor between recyclable and waste handling as volumes of each change over time, or even during the workday
3. Co-locate, design and build end-use and/or energy recovery facilities at existing or new King County solid waste facilities	Design flexibility from the flat floor could allow for small foot print on-site processing such as anaerobic digestion of some organic materials (food scraps and soiled paper).
4. Proceed in a manner that is internally consistent with the structure under which the County is currently working (i.e., source-separated private collection, private material recovery facilities for collected recyclables, private processing for commercial C&D).	The design maintains a station collection infrastructure that is consistent with the region's private/public roles. Materials collected can be transported and processed at privately managed facilities. On site resource recovery will focus on materials delivered by the private/public customers. As indicated, most recyclables in the region are processed by the private sector.
5. Align policies, fees, and regulations to emphasize, incentivize, and compel reuse and recycling of waste toward Zero Waste of Resources	The County has been a leader in policies and requirements that promote recycling and materials recovery. County ordinances already promote the Zero Waste of Resources goal in numerous ways, and the Factoria design is fully-consistent with implementing these policies and allowing for future flexibility of policies that would further recycling, diversion and recovery.

Factors for Review

The division and its stakeholders considered all of this background information when evaluating the Transfer Plan against today's conditions; tonnage today is roughly 80 percent of 2007 levels and interlocal agreements with cities generating approximately 90 percent of the system's tonnage have been extended to 2040. For the initial review, at the request of SCA and other key stakeholders, the division analyzed eight modifications to the Transfer Plan in addition to the plan itself. The impacts to cost, service, and the environment for each of the nine total alternatives were evaluated. The existing Base Alternative and alternatives that do not build all planned new facilities or that maintain as self-haul only facilities currently planned for closure are described in Tables 1.a and 1.b. During the extended comment period, the division used the data that was presented to stakeholders to evaluate an additional variation of the Base Alternative that would not build a Northeast Recycling and Transfer Station or expand Factoria onto the Eastgate property in Bellevue.

Cost

To answer the central question of whether costs could be reduced while still providing the desired level of service, the division examined total ratepayer impacts of the various alternatives, comprised of the components below. Summary capital cost estimates are provided in the descriptions of the alternatives. Additional cost information can be found in Appendix B.

Capital cost

Capital costs are influenced by the number of facilities and the size and complexity of those facilities. The division pays for capital and other costs through disposal rates. The current rate includes payments on the capital costs of the Shoreline and Bow Lake stations, referred to as "debt service."

The review included costs involved in construction of a new transfer facility with detailed consideration of cost drivers (both those of particular interest to stakeholders and those identified as cost drivers in a 2011 Performance Audit of Solid Waste Transfer Station Capital Projects). Cost drivers included installation of waste compactors, space to provide self-haul and recycling services, and emergency storage capacity. Capital costs also include possible renovation of existing facilities, such as Algona, to operate as self-haul only facilities. These analyses are provided in Appendix B.

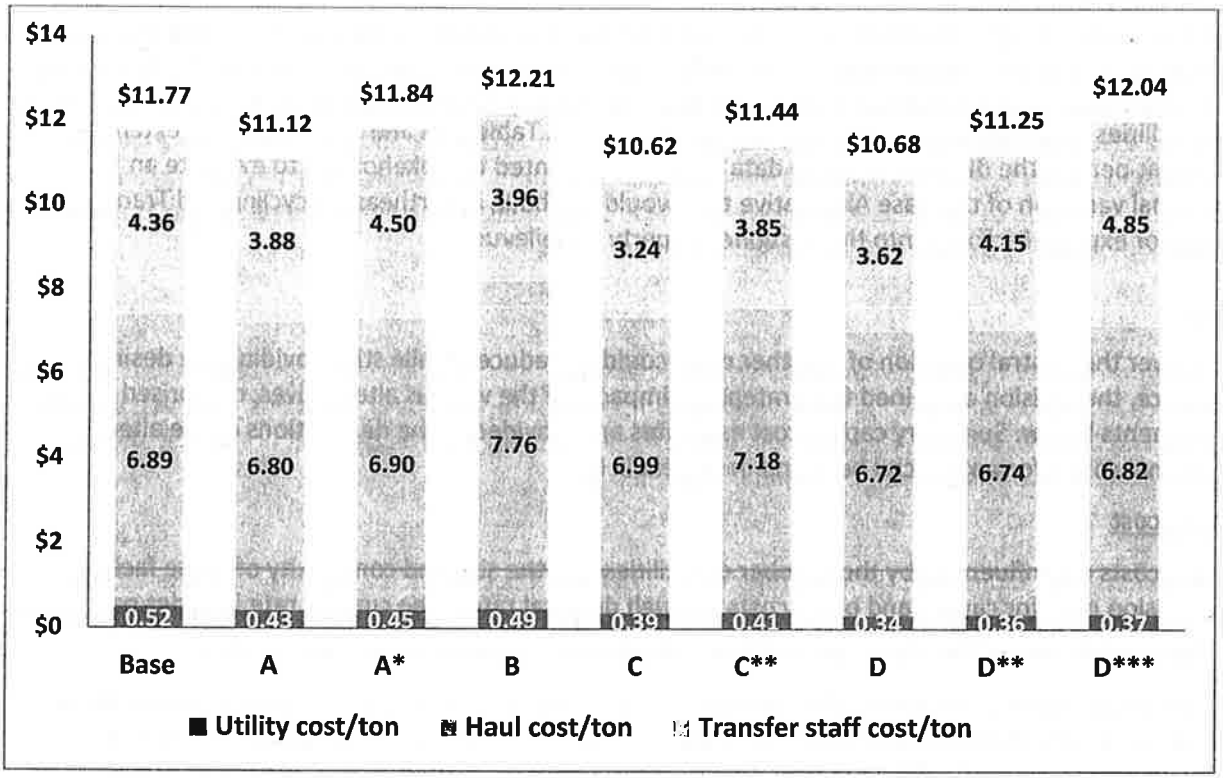
Operating cost

Operating costs include many component costs, some of which are fixed or overhead costs, such as payroll. To distinguish between alternatives, this review focused on the primary variable cost components. Three factors were used for this cost comparison:

1. Operating hours – the more hours a facility is open the higher the cost of staffing.
2. Distance to disposal – the farther a transfer station is from the disposal location the higher the hauling cost. This is the most significant factor because it involves staff time, fuel, and equipment. Because locations for two of the transfer stations and for disposal after Cedar Hills closes are unknown, the analysis used proxy locations. The use of proxy locations makes this data less certain than other factors.
3. Tipping area square footage – the larger the facility the higher the cost of utilities.

These estimates are provided for the purpose of comparing alternatives only; to obtain a cost per ton, the tonnage estimate for 2027[1] was used; costs are shown in 2013 dollars.

Figure 1 – Estimated Solid Waste Division Operating Cost per Ton per Alternative[2] (2013$, 2027 tonnage)



Collection cost

Overall collection costs increase when there are fewer facilities to serve the commercial haulers who provide collection service for homes and businesses. Some transfer system alternatives that would reduce capital costs for County facilities would likely increase costs to the commercial solid waste collection companies – and ultimately ratepayers. Unlike capital costs, which are uniformly distributed throughout the system, increased collection costs are not equally distributed among ratepayers. Increased collection costs resulting from longer hauling distances will likely result in upward pressure on rates for residents in areas that do not have transfer facilities, though this could be offset by reduced capital costs as the result of foregoing construction of facilities or other approaches . Thus it is important to consider collection costs in order to understand the true impact on residents and businesses of any transfer system alternative.

All commercial hauling companies serving the areas evaluated in the Transfer Plan responded to the division's request for information. They provided preliminary estimates of collection-cost impacts that

[1] There is no particular significance to 2027. Dollar amounts would vary, but the comparison would be the same regardless of the year (after full implementation of the alternative).

[2] See Tables 1.a and 1.b for a summary of the alternatives. Three options for Alternative E were added later. Although these are not included here, Option 1 is most like Alternative A*; Options 2 and 3 are most like Alternative A.

would result from changes to the Base Plan. Those increased costs would be passed on to residents and businesses. The division believes that the estimates provide a reasonable approximation of potential increased costs. As one hauler noted, "A more thorough assessment would necessitate studies on estimated traffic patterns and facility wait times, as well as the identification of specific locations for the proposed South County and Northeast County transfer stations. Consideration of these variables may significantly affect the cost estimates."

Forecasts of collection costs are dependent on many variables that could change over time. Since the release of the draft Transfer Plan Review Report, one hauler has already submitted updated data. The division will continue to work with haulers to ensure that decisions are based on the most current data available. Because collection costs vary throughout the region, cities are encouraged to communicate directly with their hauler about the potential impacts to their residents of transfer system changes. A summary of the information supplied by the haulers can be found in Table 5. The complete information provided by haulers is in Appendix B.

The data provided by haulers show that collection costs would be lowest under the Base Alternative. Collection costs rise as the number of facilities serving commercial haulers decreases, requiring collection trucks to be on the road for longer distances, burning more fuel and spending more time in traffic. The haulers' capital costs increase with more trucks traveling longer routes. In some cases capital costs increase up to $15 million (Alternatives C and D) for one hauler alone. Labor costs would increase correspondingly, up to $4.5 million for that same hauler in additional staff hours per year.

Based on census projections, the northeast and south county service areas are forecast to have the highest growth, and become the most densely populated areas in King County by 2035. Alternatives that do not build facilities in either of those areas (Alternatives D**and D***) will impact collection rates for the greatest number of people. Alternatives that do not build Factoria or South County (Alternatives B, C, and C**) will result in the highest rates for customers in those service areas; one hauler estimates a rate increase of five percent over the Base Alternative.

Service and capacity

Seventeen criteria for level of service (LOS) were developed for the original Transfer Plan. They were developed by consensus as measurable performance standards that every transfer facility should meet. They fall into three general categories:

1. Level of Service to Users – Criteria 1 through 4 define standards for acceptable user experience, such as drive time and speed of service
2. Station Capacity for Solid waste and Recycling – Criteria 5 through 12 define operational standards for a cost-effective and efficient system
3. Local and Regional Effects of Facility – Criteria 13 through 17 set standards for impacts to local roadways and nearby land uses; although these criteria are separate from the requirements of King County's Equity and Social Justice (ESJ) Ordinance, they relate to issues of ESJ.

This review process reconsidered whether the original criteria were still appropriate standards for measuring level of service. As required by the ordinance, the division thoroughly evaluated Criterion 1, travel time to reach a transfer facility. The division found that seven of the nine alternatives met the drive time criterion. Alternatives C and D failed this criterion because of limited self-haul service in the south county area. The analysis used drive times provided by Google Maps. Analysis of drive time for each alternative is presented in Appendix C.

Criteria in the second group, those relating to station capacity, are critical from an operational perspective, and can have cascading effects on other criteria. For both the original planning process and

the current review, a level of service score no lower than "C" for the duration of the planning period was used as the acceptable standard. This means that the system must be able to accommodate vehicles and tonnage at all times of day except occasional peak hours; the optimal operating capacity should be exceeded for only five to 10 percent of operating hours.

For this review, only one criterion needed to be somewhat redefined – Criterion 8, "room to expand on-site." This criterion originally considered whether it was possible to build a larger station on the site, which would not be an important consideration for newly constructed facilities. In this analysis the criterion was redefined to determine whether space was available to expand services or to support waste conversion technology in the future.

During the development of the original Transfer Plan, these criteria were applied to each existing urban transfer station. This review applied the LOS criteria to each alternative.

The policies in the current *2001 Comprehensive Solid Waste Management Plan* and the draft 2013 *Comprehensive Solid Waste Management Plan* call for the division to provide transfer service to self-haulers. Both plans also include policies to provide substantially more recycling opportunities at the transfer stations than is possible in the current facilities. However, in the interest of a comprehensive review, feedback at the initial workshop indicated that stakeholders were nonetheless interested in examining alternatives that would limit self-haul and recycling services. The division did develop and analyze alternatives with these limitations. Feedback from subsequent workshops, as well as past experience (such as the public response to elimination of recycling services at some stations in 2011) indicates that stakeholders value these services highly.

Environment

Environmental impacts of the system alternatives may include construction and siting impacts, greenhouse gas (GHG) emissions, and recycling opportunities. The combination of facilities in each alternative would result in unique traffic conditions and patterns, with resulting GHG emissions. Constructing new facilities would also produce GHG emissions, although the division would construct facilities in accordance with the County's green building ordinance. This analysis reviews environmental impacts based on existing information. More detailed analysis would likely be required for any alternative other than the Base Alternative, which has already undergone environmental review under the State Environmental Policy Act (SEPA).

Greenhouse Gas Emissions

As a general rule, traffic impacts and resulting GHG emissions are minimized by increasing the number of facilities, by distributing facilities evenly throughout the service area, and by compacting waste before hauling to disposal (compactors reduce transfer trailer trips by about one third). With fewer facilities customers would drive further to reach facilities, increasing traffic and GHG emissions. The more customers directed to a single facility, the more concentrated traffic impacts would be on the streets neighboring that facility, although mitigation may be possible.

Recycling

Both the current adopted (2001) and draft 2013 *Comprehensive Solid Waste Management Plans* call for maximizing recycling. In 2012, approximately 115,000 tons of recyclable materials were disposed by self-haulers and buried at Cedar Hills. The current self-haul recycling rate is only five percent, but must increase to 35 percent to meet the 70 percent overall goal developed jointly by the division and its advisory committees. To further this goal, the *Optimized Transfer Station Recycling Feasibility Study* examined limitations and opportunities for improving recycling rates at transfer stations. Currently, only

Shoreline and Bow Lake are capable of supporting such growth in self-haul recycling. Shoreline currently receives more self-haul recycling than all the other stations combined, although Bow Lake is expected to surpass it in 2014.

The tonnage forecast used for analysis of transfer system alternatives assumes that a 70 percent recycling rate, which is consistent with the County's Zero Waste of Resources goal, will gradually be achieved. New transfer facilities with expanded recycling and other recommendations from the *Optimized Transfer Station Recycling Feasibility Study* will support the 70 percent recycling goal, as will product stewardship, and other expanded waste prevention and recycling programs. Policy actions by both the county and the cities, such as implementing mandatory recycling and disposal bans, may also be necessary to achieve a 70 percent recycling rate. Without regional support, the county will not achieve the 70 percent recycling goal. Policies and programs, education and outreach, and facilities (including layout and design, operations, and processing) together provide a comprehensive and self-reinforcing strategy to maximize diversion at County solid waste facilities.

The recycling options available under each alternative are shown in Table 2. Recycling rate analysis for each alternative was beyond the scope of this review. The recommendations in this review to move forward with construction of a new Factoria as designed and to site a new South County Recycling and Transfer Station are consistent with the recommendations of the *Optimized Transfer Station Recycling Feasibility Study*. The Factoria design incorporates the current state-of-the-art flat-floor design as does the concept for a new South County station. The study recommends a flat-floor design and confirmed through extensive research that this is the preferable transfer station design, allowing significant flexibility for recycling and materials recovery.

More information about recycling at transfer stations is available online. In general, recycling has far reaching environmental benefits; however, environmental analysis related to the recycling options for each alternative was beyond the scope of this review.

Community Impacts

All alternatives assume that new transfer facilities would be fully enclosed to minimize impacts to the community, including noise, odor, and litter. These buildings are much more compatible with a variety of surrounding land uses that may develop over the 40-year to 50-year lifespan of the building than the old open structures were. Some alternatives retain the current Houghton and Algona facilities, which would not be fully enclosed and would not include waste compaction. Community impacts such as noise, odor, and traffic on neighboring streets would be included in environmental review under SEPA.

Risks

Each alternative presents a unique combination of risks that must be considered together with other factors. Initial identification of risks is included in the description of each alternative.

Assumptions

In order to model the alternatives developed for this process, it was necessary to make assumptions in forecasting and in calculations where data is not yet available, for example, the locations of facilities that have not yet been sited. To predict solid waste generation over the long term, the long-term tonnage forecast model relies on well-established statistical relationships between waste generation and various economic and demographic variables, such as:

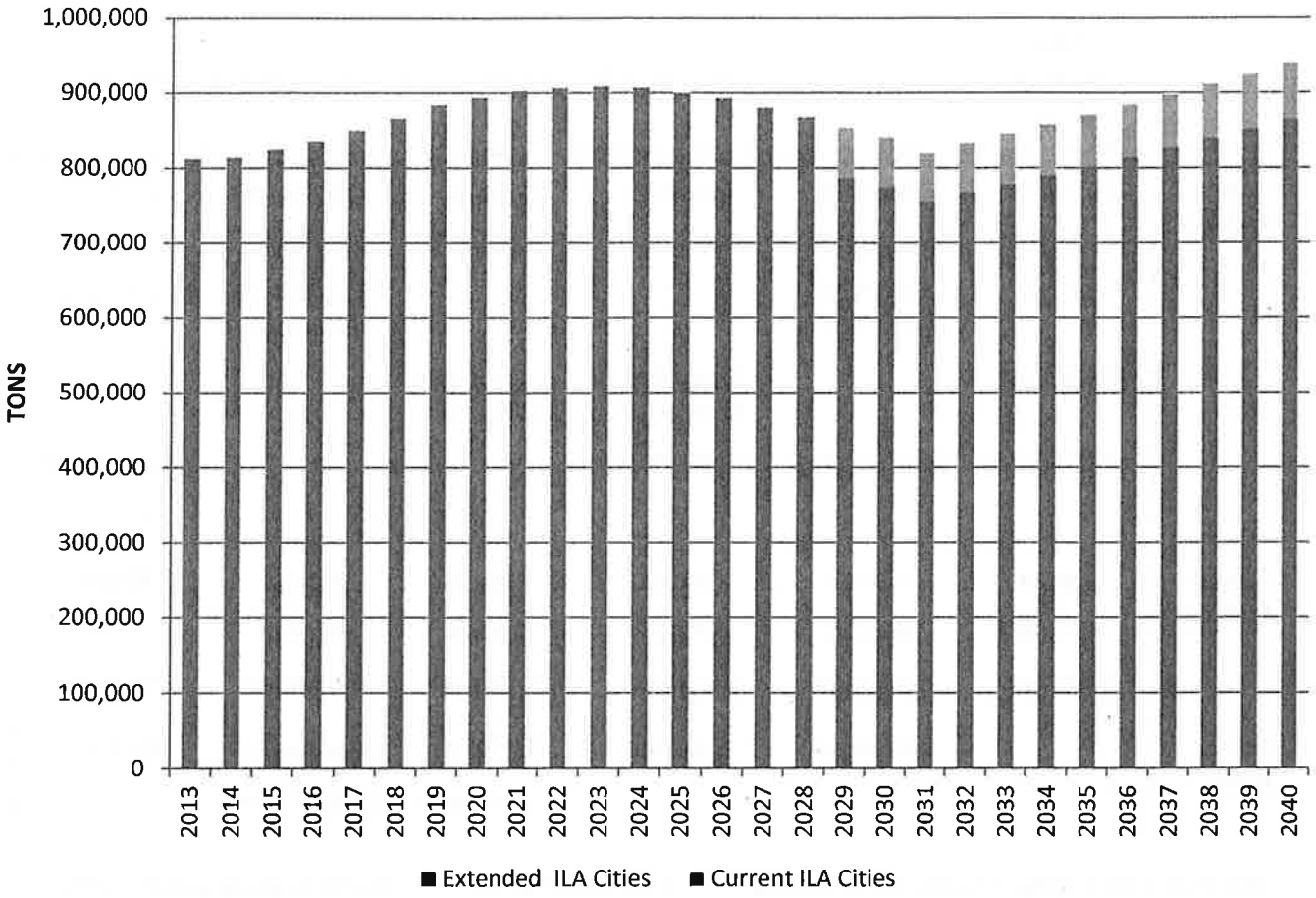
- population of the service area,
- employment rates,
- household size, and
- per capita income adjusted for inflation.

Increases in population, employment, and per capita income, and decreases in household size, typically lead to more consumption and hence higher waste generation.

Analysis performed as part of this review used the following assumptions:

- The tonnage forecast starts with today's actual tonnage and assumes that Bellevue, Clyde Hill, Hunts Point, Medina, and Yarrow Point will leave the system July 2028 (see Figure 2 for tonnage projections).
- Where possible, facilities would be designed to meet capacity needs and accommodate vehicles and tonnage at all times of day except occasional peak hours (optimal operating capacity exceeded 5 to 10 percent of hours).
- All new stations would share a similar design to that of the currently designed new Factoria Recycling and Transfer Station, although the size would depend on tonnage and vehicle capacity needs.
- All new stations would be subjected to value engineering and sized according to the most current tonnage forecasts for the area the facility would serve.
- Alternative project financing and delivery methods would be evaluated for each new station to identify potential cost savings.
- Any limitations to self-haul would not apply to customers with a division charge account. (Charge account self-haul customers, such as Boeing and school districts bring larger amounts of waste, often daily, and function more like commercial haulers than single-family residents cleaning out a garage.)
- For planning purposes, generic locations for South County and Northeast Recycling and Transfer Stations were assigned within the service area; Cedar Hills served as a proxy disposal location.
- Cost estimates are planning-level; where escalated costs are given, costs were inflated using projections from the Office of Economic and Financial Analysis.
- Recycling Scenario Three (Figure 3) provided the standard for full recycling services; several scenarios do not achieve standard recycling service levels.
- Revenue will be based on tonnage projections, such that:
  revenue = projected tonnage x solid waste tip fee, where tip fees are set to cover expenses.
- A future rate study will incorporate decisions resulting from this review.

Figure 2 – Long-term Tonnage Forecast of Waste Disposed
July 2013



Based on trends, the tonnage forecast assumes a one percent increase in recycling per year with a maximum recycling rate of 70 percent. The table above shows the tonnage from the cities that have not signed extended interlocal agreements as Current ILA Cities after June 2028. Tonnage from those cities was excluded when evaluating the alternatives.

Alternatives

Table 1.a – Transfer System Alternatives

	Base (Current Plan)	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Open facilities	Shoreline	Shoreline	Shoreline	Shoreline	Shoreline	Shoreline
	Bow Lake	Bow Lake	Bow Lake	Bow Lake	Bow Lake	Bow Lake
	Factoria	Expanded Factoria[3]			Expanded Factoria	Factoria
	Northeast		Expanded Northeast[4]	Expanded Northeast		
	South County	South County	South County			South County
						Renton
Closed facilities	Algona	Algona	Algona	Algona	Algona	Algona
	Renton	Renton	Renton	Renton	Renton	
	Houghton	Houghton	Houghton	Houghton	Houghton	Houghton
Do not build		Northeast	Factoria	Factoria	Northeast	Northeast
				South County	South County	

The draft report contained five alternatives (Table 1.a), including the current plan as developed in 2006 (the Base Alternative), that do not build one or more of the planned new recycling and transfer stations. These five alternatives were supplemented by four variations (Table 1.b) that would close Houghton and/or Algona to commercial hauler traffic (i.e., they would be self-haul-only facilities). In response to feedback, this final report has added an alternative that neither builds a new facility in the northeast county nor expands Factoria onto the Eastgate property. This gives a total of ten alternatives for consideration.

[3] An expanded Factoria includes two buildings – one for commercial customers and one for self-haul customers, which would be located on the Eastgate property.

[4] An expanded Northeast is a larger facility designed to serve the northeast and Factoria service areas.

Table 1.b – Transfer System Alternatives with Self-haul Only Facilities

	Alternative A*	Alternative C**	Alternative D**	Alternative D***
Open facilities	Shoreline Bow Lake Factoria South County Houghton (self-haul only)	Shoreline Bow Lake Expanded Northeast Algona (self-haul only)	Shoreline Bow Lake Expanded Factoria Algona (self-haul only)	Shoreline Bow Lake Factoria Algona (self-haul only) Houghton (self-haul only)
Closed facilities	Algona Renton	Renton Houghton	Renton Houghton	Renton
Do not build	Northeast	Factoria South County	Northeast South County	Northeast South County

The analysis revealed that any system configuration which does not build a new South County Recycling and Transfer Station to replace Algona (Alternatives C, C**, D, D**, and D***, described below) will not provide sufficient service and would likely result in significantly increased collection costs for residents and businesses in the south county, raising collection costs in the county's lowest income area. Without a new facility, south county residents and commercial haulers would primarily use the Bow Lake Recycling and Transfer Station, resulting in longer driving distances and higher costs. Additionally, Bow Lake was not built to handle such a high proportion of the system's customers – on average, Bow Lake would exceed operating capacity during 10 to 20 percent of its operating hours and on weekends would exceed capacity during most hours, creating long waits for customers and offsite traffic impacts.

The remaining alternatives (A, A*, B, and E, described below) each have benefits and limitations. Alternative A involves expanding the Factoria Recycling and Transfer Station onto the Eastgate property, which would require a new conditional use permit. The City of Bellevue is the permitting authority, and a conditional use permit would be inconsistent with Bellevue's land use code and recently adopted I-90 corridor plan. Bellevue has been an active participant in this review process and has clearly indicated that it is unlikely to permit development of the Eastgate property for use as a transfer station. Alternative A would also redirect the majority of the customers currently using the Houghton transfer station to the Factoria Recycling and Transfer Station, resulting in increased traffic at Factoria and higher collection costs for the current Houghton service area. For these reasons, this alternative is not recommended and was opposed by many cities.

Alternative A* uses the current Factoria design and permits, thus resolving the Eastgate risk, but retains the Houghton transfer station for self-haul. Kirkland has expressed objections to the continued operation of Houghton in its residential neighborhood. To accommodate the commercial haulers who currently use Houghton, self-haul traffic would need to be restricted at Factoria on weekdays, so more self-haulers would use Houghton – this could result in the Houghton Transfer Station being over capacity. For these reasons, this alternative is not recommended.

Alternative B would not construct Factoria, which would create a stranded asset, and instead build an extremely large new transfer station in the northeast county. This would require a transfer building about 25 percent bigger than the division's largest existing facility – the Bow Lake Recycling and Transfer Station. The new Northeast Recycling and Transfer Station would also require extended operating hours. Finding an appropriate site for such a large facility, with extended operating hours and significant traffic, poses such a significant risk that the alternative may be impossible. As a result, this option is not recommended.

Alternative E was developed based on feedback from stakeholders and ongoing work after the initial draft report. Alternative E primarily evaluated operational approaches that could absorb the tonnage currently handled at Houghton without building a new Northeast station. Alternative E actually involved three separate approaches, including 1) redirecting commercial garbage to underutilized stations, 2) limiting the hours for certain self-haul transactions, and 3) redesigning and expanding Factoria on the existing site. The first two approaches are feasible and provide significant capital cost savings (but would likely increase certain hauling costs.) The third approach is not recommended for the reasons below.

Redirecting tonnage to underutilized stations would not delay construction of the new Factoria Recycling and Transfer Station or result in significant cost increases to replace that facility. It maximizes facility usage throughout the system, which does limit flexibility for future growth in programs and services. It provides less capacity than the Base Plan, which is likely to mean longer wait times for some customers at some times. It also requires longer hauling distances for division vehicles and commercial haulers. Despite these limitations, this option provides a high level of service and provides significant capital cost savings compared to the Base Plan.

Limiting self-haul access hours at Factoria for customers without accounts is the second operational approach. The second option also allows construction of the new Factoria Recycling and Transfer Station to proceed on schedule, but does require moderate cost increases to site a household hazardous waste facility elsewhere. While it leaves the Shoreline Recycling and Transfer Station underutilized, Factoria would be over capacity at times. There would be some flexibility for future growth in programs and services, but self-haul customer wait times would be significantly increased during peak hours. Compared to the Base Alternative and the first operational solution for Alternative E, this option provides a lower level of service to self-haulers, recyclers, and customers using household hazardous waste service.

The third option for Alternative E requires design changes that would result in the need for new permits, causing at least a two-year delay and significant cost increases for the replacement of the Factoria Transfer Station with a new Recycling and Transfer Station. As in the second option, this leaves Shoreline underutilized while Factoria would be over capacity at times. There would be some flexibility for future growth in programs and services, but self-haul customer wait times would be significantly increased during peak hours. Compared to the Base Alternative and the other operational solutions for Alternative E, this option provides the lowest level of service to self-haulers, recyclers, and customers using household hazardous waste service.

Of the options that do not build a new Northeast Recycling and Transfer Station, Option 1, redirecting commercial traffic, appears to have the least customer impact along with the highest potential for capital cost savings. It is appropriate for the region to evaluate a potential combination of Options 1 and 2 and other potential operational approaches and compare the optimal "no build" approach with the Base Plan.

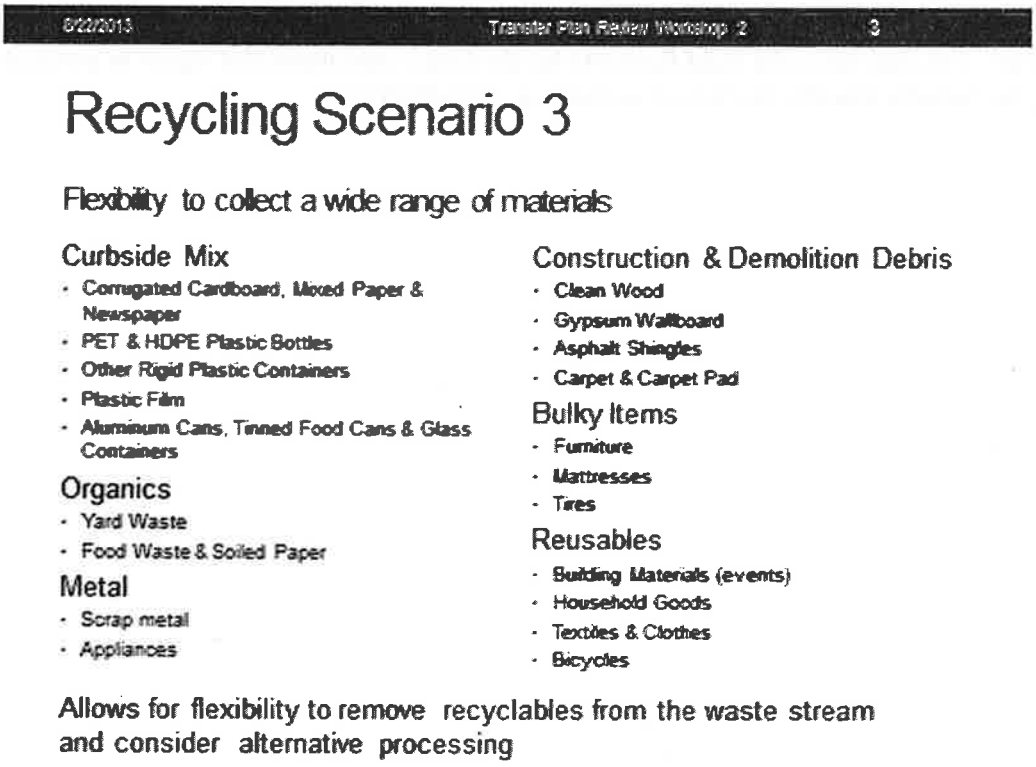
The Base Plan is the currently approved Transfer Plan and received the support of the most cities (10 out of 14) and Solid Waste Advisory Committee members (3 out of 4) that chose to comment on the draft Transfer Plan Review report. Because a primary objective of the Transfer Plan review was to determine whether changes could be made to reduce capital costs, not surprisingly the Base Plan has the highest capital cost. The Base Plan also provides the highest level of service, including recycling services, and the lowest commercial hauler distances and costs. As indicated above, it is appropriate to evaluate implementation of the optimal "no build" options and compare the optimal "no build" approach with the Base Plan. This maintains the most flexibility for the future and allows the region to proceed with replacing the Factoria Transfer Station on an existing, permitted site.

Recycling Services

For this Transfer Plan review, the standard for recycling services was set to meet recycling goals established in collaboration with SWAC and MSWMAC for the draft 2013 *Comprehensive Solid Waste Management Plan* and to be consistent with recommendations from the *Optimized Transfer Station Recycling Feasibility Study*.

The recycling services standard described below in Figure 3 was presented as "Scenario Three" at the Transfer Plan review workshops.

Figure 3 – Standard Recycling Service



Additional information about recycling at transfer stations was presented at the first workshop. That presentation is available online. The recycling services available under each alternative are described in Table 2.

Table 2 – Recycling Services by Alternative

	Base	A	A*	B	C	C**	D	D**	D***	E1	E2 /E3
Shoreline	Full service	Full service	Full service	Full service	Full service	Full service	Full service	Full service	Full service	Full service	Full service
Bow Lake	Full service	Full service	Full service	Full service	Weekends and limited weekday hours	Weekends and limited weekday hours	Weekends and limited weekday hours	Weekends and limited weekday hours	Weekends and limited weekday hours	Full service	Full service
Factoria	Full service	Full service	Weekends and limited weekday hours				Full service	Full service	Weekends and limited weekday hours	Full service	Yard waste only on weekends and limited weekday hours
Northeast	Full service			Full service	Full service	Full service					
South County	Full service	Full service	Full service	Full service						Full service	Full service
Houghton			Yard waste and limited other materials						Yard waste and limited other materials		
Renton										Limited materials no yard waste	Limited materials no yard waste
Algona						Yard waste only		Yard waste only	Yard waste only		

The updated level of service criteria were applied to each of the alternatives. Whereas the initial planning process used these standards to evaluate each of the existing urban transfer stations, for this review process, the standards were used to evaluate each alternative as a whole.

Table 3 –
Estimated Capital Cost

Alternative	Estimated capital cost in millions (2013$) Total	Savings from Base	Average cost per ton 2014 - 2040	Added cost per month for the average household (estimated median cost of capital debt 2014-2040)
Base	$ 222		$ 16.39	$ 1.08
A	$ 186	$ 36	$ 13.92	$ 0.92
A*	$ 136	$ 85	$ 9.89	$ 0.66
B	$ 187	$ 34	$ 13.91	$ 0.93
C	$ 113	$ 108	$ 8.52	$ 0.56
C**	$ 122	$ 99	$ 9.18	$ 0.61
D	$ 112	$ 110	$ 8.53	$ 0.55
D**	$ 121	$ 101	$ 9.19	$ 0.60
D***	$ 71	$ 151	$ 5.16	$ 0.34
E1	$ 136	$ 85	$ 9.90	$ 0.66
E2	$ 145	$ 76	$ 10.55	$ 0.70
E3	$ 165	$ 57	$ 10.88	$ 0.72

Base Alternative (Current Transfer Plan)
(A recommended Alternative)

The Base Alternative implements the current Transfer Plan, which was adopted by the County Council in December 2007. This plan calls for the County to:

- Build a new Factoria recycling and transfer station as currently designed and permitted, with phase 1 (garbage) opening in 2016, and phase 2 (recycle and HHW) opening in 2017 with demolition of the existing Factoria transfer station
- Close Renton in 2018
- Build a new South County Recycling and Transfer Station (pending environmental review) to open in 2019
- Close the Algona transfer station in 2020, making that property available for other use
- Site a new Northeast Recycling and Transfer Station somewhere in the service area currently being served by Houghton to open in 2020
- Close the Houghton transfer station in 2021
- All stations would provide pre-load compaction, three days storage capacity, self-haul service during all operating hours, and full recycling services as described in Figure 3.

The Base Alternative is the most expensive in terms of capital costs. However, with five transfer stations dispersed across the county, particularly in the forecast high growth areas of northeast and south county, collection costs are expected to be lowest in this alternative. This plan supports the targeted self-haul,

recycling, and compaction objectives, providing the highest level of service of all options under consideration. The primary risks are associated with the typical siting challenges for a transfer station. This Alternative received the support of more cities than any other.

Cost
With a total of five newly constructed modern transfer and recycling facilities, three of which have yet to be built, this alternative has the highest capital costs. Preliminary planning-level estimates (in 2013 dollars) place future capital costs for this alternative at $222 million; this would translate to an added cost of about $1. 08 per month for the average household (estimated median cost of capital debt 2014-2040). All new facilities would be subjected to value engineering and sized according to the most current tonnage forecasts for the area the facility would serve. Alternative project financing and delivery methods would be evaluated for each new station built to identify potential cost savings.

The Renton Transfer Station would close under this alternative, so collection cost for residents and businesses in the Renton area would increase as commercial haulers reroute to the Bow Lake and Factoria facilities. One area hauler estimates a less than one percent increase in operational or customer costs; a second hauler estimates an increase of $1 to 2 million per year in added driver hours and trips and an additional $3 to 6 million in capital costs such as additional trucks.

Service
This alternative would meet all of the level of service standards developed by consensus with regional stakeholders to evaluate satisfactory system performance. A full range of recycling services would be available to self-haulers and self-haul service would be available at all facilities during all hours of operation to support the region's recycling goal.

This alternative provides the greatest number of transfer facilities, evenly distributed throughout the regional system. Therefore all areas of the system would receive a uniform high level of service.

Environment
The Base Alternative minimizes impacts by incorporating compactors at every facility, which significantly reduces the number of transfer trailer trips generating traffic and GHGs. With the greatest number of full-service facilities evenly distributed throughout the system, this alternative also minimizes the environmental impacts of customer trips, as well as the intensity of impacts on streets neighboring each facility.

Risks/Challenges
This alternative requires siting two new facilities. Siting any new facility is challenging and comes with the risk that an appropriate site cannot be identified.

Alternative A
(Not recommended)

In this alternative, plans for the south county are not changed, but Factoria serves the east/northeast county without the addition of a new Northeast Recycling and Transfer Station.

- Do not build Northeast Recycling and Transfer Station
- Increase the size of Factoria Recycling and Transfer Station to accommodate an expanded service area, requiring use of the Eastgate property for a second building, opening in 2020/2021
- Close Houghton in 2021
- Close Renton in 2018
- Build a new South County Recycling and Transfer Station (pending environmental review) to open in 2019
- Close the Algona transfer station in 2020, making that property available for other use.

The Factoria recycling and transfer station would:

- Have two buildings – one for commercial customers on the currently permitted property and one for self-haul customers on the "Eastgate" property
- The commercial building would be equipped with waste compactors; the self-haul building would not; space would be available to add compaction later if needed
- The commercial building would be open 5 days a week with extended evening hours
- The self-haul building would be open 7 days a week with standard operating hours
- A full range of recycling would be available for self-haulers
- Household hazardous waste (HHW) service would be available 6 days a week for residents and businesses that generate small quantities.

This option provides self-haul, recycling, and compaction as desired at all facilities. It would build a new and expanded Factoria Recycling and Transfer Station requiring the use of the upper property known as Eastgate to meet the service needs for the entire east/northeast service area. The increased capacity in the south county would address the forecasted population growth in that region. The northeast part of the county is not as well served. This alternative has one of the most expensive capital costs at $186 million. Although tonnage and vehicle capacity would not be a concern with this option, the reduction in total stations and in particular the lack of a Northeast Recycling and Transfer Station would likely increase collection costs over the Base Alternative for some customers. Additionally, Bellevue has expressed concern about probable land use conflicts with the Eastgate property.

Cost

Alternative A is among the higher-cost alternatives for capital costs, estimated at $186 million in 2013 dollars. This would add about $0.92 per month for the average household (estimated median cost of capital debt 2014-2040). Estimated costs for the Factoria Recycling and Transfer Station would increase with the expanded function of that facility, but this increase is more than offset by the elimination of all capital costs for the Northeast Recycling and Transfer Station, which would not be built. As with each of the alternatives, all new facilities would be subjected to value engineering and sized according to the most current tonnage forecasts for the area the facility would serve. Alternative project financing and delivery methods would be evaluated for each new station built to identify potential cost savings.

The Renton Transfer Station would close under this alternative, so collection costs for residents and businesses in the Renton area would increase as commercial haulers reroute to the Bow Lake and Factoria facilities. The Houghton Transfer Station would close and a replacement facility in the service area would not be built, so collection costs for residents and businesses in the Bothell, Woodinville, Kirkland, Redmond, Duvall, and Carnation areas would likely increase as commercial haulers reroute to the Factoria and Shoreline facilities. Costs may also increase for customers in Lake Forest Park and Kenmore, because although the Shoreline station is nearby, the hauler serving this area is currently using the Houghton transfer station for end-of-day trips based on proximity to their base location. One area hauler estimates a less than a one percent increase in operational or customer costs; a second hauler estimates an increase of $1.5 to 2.5 million per year in added driver hours and trips and an additional $6 to 9 million in capital costs such as additional trucks.

Service

This alternative calls for developing the Eastgate property, which is inconsistent with current City of Bellevue zoning and land use plans. A full range of recycling services would be available to self-haulers and self-haul service would be available at all facilities during all hours of operation to support the region's recycling goal.

Environment

Like the Base Alternative, Alternative A includes compactors at every facility (although waste brought in by self-haulers would not be compacted at Factoria), significantly reducing the number of transfer trailer trips generating traffic and GHGs. Lacking a Northeast Recycling and Transfer Station, some customers would have to travel outside their current service area, increasing the environmental impacts of customer trips

compared to the Base Alternative. Impacts on streets neighboring Factoria Recycling and Transfer Station would increase.

Risks/Challenges
Because this alternative redirects all east/northeast tonnage and customers to Factoria Recycling and Transfer Station, it would increase any impacts in the area around that facility. Bellevue's land use code would require a conditional use permit to construct on the Eastgate property. The City of Bellevue is the permitting authority, and a conditional use permit would be inconsistent with Bellevue's recently adopted I-90 corridor plan. Without a new permit from Bellevue, this alternative could not be built.

Alternative A*
(Not recommended)

This alternative renovates and retains the current Houghton transfer station as a self-haul only facility and builds a new Factoria Recycling and Transfer Station as currently designed.

- Do not build Northeast Recycling and Transfer Station
- Build a new Factoria Recycling and Transfer Station as currently designed and permitted, with phase 1 (garbage) opening in 2016, and phase 2 (recycle and HHW) opening in 2017 with demolition of the existing Factoria transfer station
- Renovate Houghton and transition to self-haul only in 2017
- Close Renton in 2018
- Build a new South County Recycling and Transfer Station (pending environmental review) to open in 2019
- Close the Algona transfer station in 2020, making that property available for other use.

The Houghton transfer station would:

- Accept garbage and yard waste from self-haul customers 7 days a week
- Accommodate limited recycling, e.g., curbside mix OR scrap metal and appliances
- Not have a compactor
- Not provide emergency storage.

The Factoria Recycling and Transfer Station would:

- Accept garbage from commercial haulers seven days a week with extended hours on weekdays
- Accept garbage and recyclables from self-haulers on weekends and limited weekday hours, for example, 4 p.m. to 10 p.m.
- HHW service would be available 6 days a week.

This option results in $85 million savings of capital costs over the Base Alternative. Storage capacity and compaction would be supported everywhere except Houghton. The Eastgate risk is resolved but Kirkland has expressed objections to the continued operation of Houghton in its residential neighborhood. Like Alternative A, the lack of a Northeast Recycling and Transfer Station would likely also increase collection costs over the Base Alternative.

Cost
At about $136 million ($2013), Alternative A* falls in the middle of the capital cost range. This would translate to an added cost of about $0.66 per month for the average household (estimated median cost of capital debt 2014-2040). The most significant change from the Base Alternative is elimination of the cost of constructing a Northeast Recycling and Transfer Station. The capital cost of retaining Houghton as a self-haul facility does not significantly affect the total. As with each of the alternatives, all new facilities would be subjected to value engineering and sized according to the most current tonnage forecasts for the area the facility would serve. Alternative project financing and delivery methods would be evaluated for each new station built to identify potential cost savings

Compared to Alternative A, this alternative adds self-haul service at Houghton; but it does not add service for commercial haulers. Since collection costs are determined by the haulers, who would be served by the same facilities as in Alternative A, collection cost impacts in this alternative would be the same as Alternative A.

Service
This alternative retains the existing Houghton transfer station. Houghton is not large enough to be renovated to meet level of service standards for recycling services, emergency storage, compaction, vehicle capacity, and others, and is not compatible with surrounding residential land use. Transfer station recycling services under this alternative do not meet the LOS standard and will not fully support meeting our regional recycling goal.

The Houghton transfer station does not meet vehicle capacity needs. This would be expected to impact other service goals, including time on site and vehicles on local streets.

Environment
This alternative includes compactors at every facility except Houghton, requiring slightly more transfer trailer trips generating traffic and GHGs compared to the Base Alternative. Lacking a Northeast Recycling and Transfer Station, some customers would have to travel outside their current service area, increasing the environmental impacts of customer trips compared to the Base Alternative. Impacts on streets neighboring Factoria and Houghton would increase compared to the Base Alternative.

Risks/Challenges
This alternative cannot serve self-haul customers during peak commercial hours. Self-haul customers from the Factoria service area would have to travel to Houghton during certain weekday hours. Because Houghton is located in a residential area, hours cannot be increased to accommodate additional traffic. The City of Kirkland has expressed objections to maintaining Houghton in any capacity past the currently scheduled closure date.

Alternative B
(Not recommended)

In Alternative B, plans for the south county are the same as the Base Alternative. Instead of building a new Factoria Recycling and Transfer Station, a larger Northeast Recycling and Transfer Station would be constructed to serve the current Houghton and Factoria service areas.

- Do not build new Factoria Recycling and Transfer Station
- Increase the size and operating hours of Northeast Recycling and Transfer Station to accommodate east/northeast tonnage and customers, opening in 2020
- Close Factoria and Houghton in 2021
- Close Renton in 2018
- Build a new South County Recycling and Transfer Station (pending environmental review) to open in 2019
- Close the Algona Transfer Station in 2020, making that property available for other use
- All stations would provide pre-load compaction, three days storage capacity, self-haul service during all operating hours, and full recycling services as described in Figure 3.

This alternative calls for a halt to the current Factoria project. It would instead build a facility in the northeast with an expanded size (25 percent larger than the Bow Lake Recycling and Transfer Station) and longer operating hours (approximately 6:30 a.m. to 11 p.m.); this would be necessary to handle double the tonnage and traffic. It would also build a new South County Recycling and Transfer Station. These four transfer stations would offer full service recycling, self-haul service during all operating hours, emergency storage, and compaction. There are no significant concerns about tonnage or vehicle capacity with this option except that the Northeast Recycling and Transfer Station would be very busy. Siting a facility of the

necessary size to accommodate the large number of customers and tons along with the late operating hours would be likely to be complicated, challenging, and potentially impossible. Capital costs would be the second highest of the alternatives at $187 million. Collection costs would be expected to increase in the area currently served by Factoria.

Cost
With capital costs equivalent to Alternative A, Alternative B saves the costs of building Factoria, except for sunk costs of about $22 million already spent on design and permitting, while adding to the cost of Northeast Recycling and Transfer Station. In total, capital costs for Alternative B are estimated at about $187 million ($2013). This would translate to an added cost of about $0.93 per month for the average household (estimated median cost of capital debt 2014-2040). As with each of the alternatives, all new facilities would be subjected to value engineering and sized according to the most current tonnage forecasts for the area the facility would serve. Alternative project financing and delivery methods would be evaluated for each new station built to identify potential cost savings.

The Renton Transfer Station would close under this alternative, so collection cost for residents and businesses in the Renton area would likely increase as commercial haulers reroute to the Bow Lake and Factoria (until its closure in 2021) facilities. The Factoria Transfer Station would close. A replacement facility in the service area would not be built, so collection costs for residents and businesses in the Mercer Island, Bellevue, Sammamish, Issaquah, Snoqualmie, and North Bend areas would increase as commercial haulers reroute to the Northeast Recycling and Transfer Station and possibly Bow Lake Recycling and Transfer Station. One area hauler estimates a four to five percent increase in operational or customer costs; a second hauler estimates an increase of $2.5 to 3.5 million per year in added driver hours and trips and an additional $6 to 9 million in capital costs such as additional trucks.

Service
A full range of recycling services would be available to self-haulers and self-haul service would be available at all facilities during all hours of operation to support the region's recycling goal.

Although some customers (including haulers) would have to travel farther to a transfer station, once there, all customers in the system would receive a uniformly high level of service.

Environment
This alternative includes compactors at every facility, significantly reducing the number of transfer trailer trips generating traffic and GHGs. However, after Factoria closes in 2021, some customers would have to travel outside their current service area, and some transfer trailers would travel farther to disposal, increasing the environmental impacts of those trips compared to the Base Alternative. Impacts on streets neighboring the new Northeast Recycling and Transfer Station would increase relative to the Base Alternative.

Risks/Challenges
This alternative redirects all east/northeast customers to a Northeast Recycling and Transfer Station which has yet to be sited and would need to be significantly larger than planned in the Base Alternative. Siting challenges would be intensified due to the size increase, longer operating hours, and significant traffic increase that would be associated with redirecting all east/northeast to one facility.

Alternative C
(Not recommended)

As in Alternative B, this alternative resizes the future Northeast Recycling and Transfer Station to handle all of the customers and tonnage that currently go to Factoria and Houghton. It does not create new capacity in the south county.

- Do not build new Factoria

- Increase the size and operating hours of Northeast Recycling and Transfer Station to accommodate east/northeast tonnage and customers, opening in 2020
- Close Factoria and Houghton in 2021
- Close Renton in 2018
- Do not build South County Recycling and Transfer Station
- Close Algona in 2018, making that property available for other use
- Limit self-haul garbage and recycling at Bow Lake Recycling and Transfer Station to weekends and weekday-evening hours.

This option reduces urban transfer station locations from the five planned in the Base Alternative to three – Shoreline, Bow Lake and a large Northeast Recycling and Transfer Station with expanded operating hours. Those stations would have compaction and support the need for emergency storage capacity. Customers from closed Algona and Renton stations would shift primarily to the Bow Lake Recycling and Transfer Station; to absorb the added traffic, self-haul garbage and recycling services would need to be limited, despite the new expanded area. Because this alternative does not build new South County or Factoria facilities, the capital cost for this alternative is among the lowest. However, with this substantial reduction in the number of stations, collection costs would increase significantly in areas without a nearby facility – the areas currently served by Algona, Factoria, Houghton, and Renton.

Cost

Alternative C is among the lower capital cost alternatives, with an estimated capital cost of $113 million ($2013). This would translate to an added cost of about $0.56 per month for the average household (estimated median cost of capital debt 2014-2040). Savings come from not building the Factoria or South County facilities. Alternative project financing and delivery methods would be evaluated for the new Northeast Recycling and Transfer Station to identify potential cost savings.

The Renton Transfer Station would close under this alternative, so collection costs for residents and businesses in the Renton area would likely increase as commercial haulers reroute to the Bow Lake and Factoria (until its closure in 2021) facilities. Absorbing its sunk costs of about $22 million which have already been spent on design and permitting of a Factoria Recycling and Transfer Station, the Factoria Transfer Station would close and a replacement facility in the service area would not be built, so collection costs for residents and businesses in the Mercer Island, Bellevue, Sammamish, Issaquah, Snoqualmie, and North Bend areas would increase as commercial haulers reroute to the Northeast Recycling and Transfer Station and possibly the Bow Lake Recycling and Transfer Station. Under this alternative, the Algona Transfer Station would close and a replacement facility in the service area would not be built, so collection costs for residents and businesses in the Federal Way, Algona, Pacific, and Auburn areas would increase as commercial haulers reroute to the Bow Lake and Enumclaw facilities. One area hauler estimates a four to five percent increase in operational or customer costs; a second hauler estimates an increase of $3 to 4.5 million per year in added driver hours and trips and an additional $9 to 15 million in capital costs such as additional trucks. The hauler serving the south county area has expressed concern about disparate impacts in level of service related to this alternative.

Service

As with each of the alternatives, all new facilities would be subjected to value engineering and sized according to the most current tonnage forecasts for the area the facility would serve. However, due to the small number of facilities, and given the rerouting of customers to the Bow Lake Recycling and Transfer Station, which was not designed for such a high proportion of the system's waste, this alternative is not recommended. Customer service such as drive-time and critical operational standards for vehicle capacity would be adversely impacted. Without any south county station, the Bow Lake Recycling and Transfer Station is projected to exceed vehicle capacity more than 50 percent of weekend operating hours; this would be expected to have cascading effects on other criteria, including time on site and impacts on local streets. Transfer station recycling services under this alternative will not fully support meeting the regional recycling goal.

Environment
In the east/northeast area this alternative has the same traffic and greenhouse gas impacts as Alternative B. After 2018, this alternative would not provide any transfer service in the south county service area, resulting in increased traffic and greenhouse gas emissions from customers traveling to Bow Lake Recycling and Transfer Station or further due to limited self-haul hours at Bow Lake Recycling and Transfer Station. Impacts on streets neighboring the new Northeast Recycling and Transfer Station and Bow Lake Recycling and Transfer Station would increase compared to the Base Alternative.

Risks/Challenges
Challenges in the east/northeast area are the same as in Alternative B; all east/northeast customers are directed to a Northeast Recycling and Transfer Station which has yet to be sited. Siting challenges may be intensified due to the size increase of the Northeast Recycling and Transfer Station, longer operating hours, and significant traffic increase that would be associated with redirecting all east/northeast to one facility.

Additionally, this alternative would provide very limited service in the south area of the county; all south area commercial haulers would shift to Bow Lake Recycling and Transfer Station or Enumclaw, causing the Bow Lake Recycling and Transfer Station to limit self-haul service and exceed capacity more than 50 percent of the time on weekends, likely leading to traffic impacts on Orillia Road.

Alternative C**
(Not recommended)

This alternative differs from Alternative C only in that it renovates and retains Algona as a self-haul only facility.

- Algona to accept garbage and yard waste from self-haul customers 7 days a week
- No space for recycling any materials except yard waste at Algona
- No compactor at Algona
- No emergency storage at Algona
- Complete Algona renovation and transition to self-haul only in 2018.

This option is essentially the same as C with the addition of retaining Algona as a self-haul only facility that also accepts yard waste but no other recyclables. Vehicle capacity at Algona would be exceeded up to 50 percent of the time with traffic queuing onto West Valley Highway. The capital costs for this option increase to $122 million in order to make necessary repairs at Algona. Since only self-haul is added in this approach compared to Alternative C, collection costs are still expected to rise in areas without a nearby facility as a result of the substantial reduction in the number of transfer stations.

Cost
At $122 million ($2013), this alternative is in the middle of the capital cost range. This would translate to an added cost of about $0.60 per month for the average household (estimated median cost of capital debt 2014-2040). It adds to the cost of Alternative C because it requires renovation of the current Algona transfer station, which has significant deficiencies. Alternative project financing and delivery methods would be evaluated for the new Northeast Recycling and Transfer Station to identify potential cost savings. Compared to Alternative C, this alternative adds self-haul service, but does not add service for commercial haulers, so collection cost impacts would be the same as Alternative C.

Service
This alternative does meet the drive time goals (in contrast to Alternative C). As with each of the alternatives, all new facilities would be subjected to value engineering and sized according to the most current tonnage forecasts for the area the facility would serve. However, due to the small number of facilities, the redirection of commercial customers to a facility that was not designed for such a high proportion of the system's waste, and the continued use of a facility that is already over fifty years old, it

fails to meet service goals. Transfer station recycling services under this alternative will not fully support meeting our regional recycling goal. It also fails to meet critical operational standards for vehicle capacity. Criteria relating to station capacity are critical from an operational perspective, and can have cascading effects on other criteria. Failing vehicle capacity standards means that the system will be unable to accommodate vehicles traffic for at least 10 percent of operating hours.

Environment
Greenhouse gas emissions and traffic would be somewhat lessened in the south area with availability of self-haul service at Algona; however, with additional self-haul traffic directed to Algona during the hours when Bow Lake Recycling and Transfer Station would be closed to self-haul, Algona will experience traffic impacts. All commercial haulers would still be directed to other facilities, which would primarily affect the area surrounding Bow Lake Recycling and Transfer Station.

Risks/Challenges
Challenges in the east/northeast area are the same as in Alternatives B and C; all east/northeast customers are served by a Northeast Recycling and Transfer Station which has yet to be sited. Siting challenges may be intensified due to this significant traffic increase and the fact that this would be the largest facility in the system, with extended operating hours. This alternative would shift a significant portion of self-haul customers from the Bow Lake service area to Algona, causing customer queues to spill onto West Valley Highway at times. This alternative would shift all south area commercial haulers to Bow Lake or Enumclaw.

Alternative D
(Not recommended)

This alternative avoids siting any new facilities. Instead, all east and northeast traffic and tonnage would be served by Factoria Recycling and Transfer Station, which would be expanded with a second building on the Eastgate property, while all south county tonnage and traffic would be served by Bow Lake Recycling and Transfer Station.

- Do not build Northeast Recycling and Transfer Station
- Resize Factoria Recycling and Transfer Station to accommodate an expanded service area, using the Eastgate property, opening in 2020/2021
- Close Houghton in 2021
- Close Renton in 2018
- Do not build the South County Recycling and Transfer Station
- Close Algona in 2018, making that property available for other use
- Limit self-haul garbage and recycling at Bow Lake to weekends and reduced weekday hours.

This option reduces urban transfer station locations from the current level of six to three. Those stations would have compaction and support the need for emergency storage capacity. Recycling programs would also be in place at two of the three locations on a full-time basis with part-time services at the third. As a result of eliminating transfer stations in the south and the northeast county, capital costs would be reduced by $108 million. This alternative assumes construction of a new Factoria Recycling and Transfer Station but it requires expansion onto the upper property known as Eastgate. Bellevue has expressed strong opposition to this alternative. As tonnage from Algona and Renton is diverted to Bow Lake Recycling and Transfer Station, vehicle capacity would be exceeded more than 50 percent of the time. Self-haul services would be significantly limited at Bow Lake Recycling and Transfer Station to accommodate the additional commercial traffic. Additionally, elimination of facilities in the south and northeast county needs to be reconciled with the fact that these locations are forecasted to experience the largest population growth in King County over the next 20 years. Finally, with this substantial reduction in stations, collection costs would very likely increase across the county, but particularly in northeast and south county areas.

Cost

Alternative D has roughly the same capital cost as Alternative C, estimated at $112 million ($2013); this would translate to an added cost of about $0.55 per month for the average household (estimated median cost of capital debt 2014-2040). The cost of Factoria Recycling and Transfer Station compared to the Base Alternative is higher than Alternative C, but this alternative does not build any other new facilities.

The Renton Transfer Station would close under this alternative, so collection costs for residents and businesses in the Renton area would increase as commercial haulers reroute to the Bow Lake and Factoria facilities. The Houghton Transfer Station would close and a replacement facility in the service area would not be built, so collection costs for residents and businesses in the Bothell, Woodinville, Kirkland, Redmond, Duvall, and Carnation areas would likely increase as commercial haulers reroute to the Factoria and Shoreline facilities. Cost may also increase for customers in Lake Forest Park and Kenmore, because although the Shoreline station is nearby, the hauler serving this area is currently using the Houghton transfer station for end-of-day trips based on proximity to its base location. Under this alternative, the Algona Transfer Station would close and a replacement facility in the service area would not be built, so collection costs for residents and businesses in the Federal Way, Algona, Pacific, and Auburn areas would increase as commercial haulers reroute to the Bow Lake and Enumclaw facilities. One area hauler estimates a 2 to 3 percent increase in operational or customer costs; a second hauler estimates an increase of $2 to 3.5 million per year in added driver hours and trips and an additional $9 to 15 million in capital costs such as additional trucks. The hauler serving the south county area has expressed concern about disparate impacts in level of service related to this alternative.

Service

This alternative fails to meet drive time, recycling services, vehicle capacity goals; and, because it requires use of the Eastgate property, is not compatible with surrounding land use. Transfer station recycling services under this alternative do not meet the LOS standard and will not fully support meeting our regional recycling goal. Under this option, the system will be unable to accommodate vehicle traffic for at least 10 percent of operating hours.

Environment

Lacking Northeast and South County Recycling and Transfer Station facilities, some customers would have to travel outside their current service area, increasing the environmental impacts of customer trips compared to the Base Alternative. Impacts on streets neighboring the Factoria Recycling and Transfer Station and Bow Lake Recycling and Transfer Station would increase compared to the Base Alternative.

Risks/Challenges

Challenges for the east/northeast are the same as in Alternative A; Bellevue's land use code would require a conditional use permit to construct on the Eastgate property. This decision, which is inconsistent with Bellevue's recently adopted I-90 corridor plan, would be made by the City of Bellevue. Because this alternative redirects all east/northeast tonnage and customers to Factoria Recycling and Transfer Station, it would amplify any impacts in the area around that facility. Without a new permit from Bellevue, this alternative could not be built.

Challenges for the south area are the same as Alternative C; this alternative would provide very limited service in the south area of the county. This alternative would limit self-haul service and redirect all south area commercial haulers to Bow Lake or Enumclaw.

Alternative D**

(Not recommended)

This alternative differs from Alternative D only in that it renovates and retains Algona as a self-haul only facility.

- Algona to accept garbage and yard waste from self-haul customers 7 days a week

- No space for additional recycling at Algona
- No compactor at Algona
- No storage at Algona
- Algona renovation complete and transition to self-haul only in 2018.

This option is essentially the same as D with the addition of retaining Algona as a self-haul only facility that accepts yard waste but no other recyclables. However, given the limited footprint, vehicle capacity would be exceeded up to 50 percent of the time at Algona with traffic queuing onto West Valley Highway. The capital costs for this option increase to $120 million in order to make necessary repairs at Algona. Collection costs are still likely to increase across the county as a result of the limited locations for commercial drops, particularly in northeast and south county areas.

Cost
Capital costs for this alternative fall in the middle of the range, at about $121 million ($2013). This is roughly the same cost as Alternative C**. Most of the cost of Alternative D** is the construction of Factoria. This would translate to an added cost of about $0.60 per month for the average household (estimated median cost of capital debt 2014-2040).

This alternative adds self-haul service, but does not add service for commercial haulers, so collection cost impacts would be the same as Alternative D.

Service
Although this alternative does meet the drive time goals in contrast to Alternatives C and D, it fails to provide adequate recycling services and vehicle capacity. Transfer station recycling services under this alternative will not fully support meeting our regional recycling goal. Failing vehicle capacity standards means that the system will be unable to accommodate vehicle traffic for at least 10 percent of operating hours.

Environment
Greenhouse gas emissions and traffic would be somewhat lessened in the south area with availability of self-haul service at Algona; however, that would direct additional self-haul traffic to Algona during the week when Bow Lake's self-haul hours would be limited, impacting traffic around Algona and causing queues to spill onto West Valley Highway. Commercial haulers would reroute to other facilities, which would primarily affect the area surrounding Bow Lake Recycling and Transfer Station.

Risks/Challenges
Challenges in the east/northeast area are the same as in Alternatives A and D; Bellevue's land use code would require a conditional use permit to construct on the Eastgate property. This decision, which is inconsistent with Bellevue's recently adopted I-90 corridor plan, would be made by the City of Bellevue. Because this alternative redirects all east/northeast tonnage and customers to Factoria Recycling and Transfer Station, it would amplify any impacts in the area around that facility. Without a new permit from Bellevue, this alternative could not be built.

Challenges for the south area are the same as Alternatives C and D; this alternative would provide very limited service in the south area of the county; a significant portion of self-haul customers from the Bow Lake service area would be redirected to Algona, and south area commercial haulers would reroute to Bow Lake or Enumclaw.

Alternative D***
(Not recommended)

Combines D** (which does not site any new facilities and retains Algona as a self-haul facility) with A* (which retains Houghton as a self-haul facility).

- Retain Algona and Houghton as self-haul only stations

- Do not build Northeast Recycling and Transfer Station or South County Recycling and Transfer Station
- Build and operate Factoria as designed, with self-haul service limited to weekends
- Close Renton in 2018
- Limit self-haul garbage and recycling at Bow Lake to weekends and reduced weekday hours.

This option still does not build either a Northeast or South County Recycling and Transfer Station but instead of building an expanded Factoria Recycling and Transfer Station using the Eastgate property, would build Factoria Recycling and Transfer Station as designed. Additionally, both Algona and Houghton would be retained as self-haul only facilities. Consequently, this option has the lowest of all capital costs at $71 million. However, Factoria, Houghton, and Algona (3 of the five stations) would exceed vehicle capacity up to 50 percent of the time, and at Houghton even more. This approach does address the probable risks associated with developing the Eastgate property in Bellevue but requires the Houghton station to remain open, which presents another risk. Collection costs are still likely to increase across the county as a result of the limited locations for commercial drops, particularly in the northeast and south county areas.

Cost
Constructing only one new facility (Factoria), Alternative D*** has the lowest capital cost of all the alternatives, estimated at $71 million ($2013); this would translate to an added cost of about $0.35 per month for the average household (estimated median cost of capital debt 2014-2040).

This alternative adds self-haul service, but does not add service for commercial haulers, so collection cost impacts would be the same as Alternative D.

Service
This option fails to meet the same criteria as D**, including recycling services, vehicle capacity, and impacts to local streets. Transfer station recycling services under this alternative will not fully support achievement of the regional recycling goal. Failing vehicle capacity standards means that the system will be unable to accommodate vehicle traffic for at least 10 percent of operating hours.

Environment
This alternative somewhat mitigates the impacts of longer distances by maintaining self-haul service at Algona and Houghton; however, impacts to streets surrounding those facilities would increase.

Risks/Challenges
This alternative redirects self-haul traffic to very constrained facilities.

Alternative E

Alternative E was added in response to feedback received during the draft report comment period. This alternative explores the feasibility of serving the northeast county without a Northeast Recycling and Transfer Station and building Factoria without expanding onto the Eastgate property. This alternative retains the Renton Transfer Station for analytical purposes and builds a South County Recycling and Transfer Station, allowing Algona to close; it would close Houghton in about 2021. Details of the analysis of Alternative E are included in Appendix H.

In order for the system to absorb 165,000 tons and 125,000 transactions annually that would have gone through a Northeast Recycling and Transfer Station, the division identified three options.

1. Redirect some commercial traffic from Factoria Recycling and Transfer Station to Shoreline and Renton, which would remain open.
2. Limit self-haul services at Factoria Recycling and Transfer Station to evenings and weekends, eliminate recycling and HHW service at Factoria, and keep Renton open with extended hours.

3. Redesign and build a larger Factoria Recycling and Transfer Station, limit self-haul services at Factoria Recycling and Transfer Station to evenings and weekends, eliminate recycling and HHW service at Factoria, and keep Renton open with extended hours.

Alternative E Option 1
(A recommended Alternative)

This option for implementing this Alternative would require Council approval of a motion directing commercial haulers to specific transfer stations from 2021 until at least July 2028, when tonnage going to the Factoria Recycling and Transfer Station would drop as a result of some cities' ILAs expiring.

- Commercial haulers directed to specific transfer stations from 2021 until at least July 2028
- Retains full recycling and HHW service at Factoria Recycling and Transfer Station
- No restrictions on self-haul services
- Factoria Recycling and Transfer Station built with second compactor, additional scales, and a queuing lane
- Operating hours at Factoria Recycling and Transfer Station extended
- Renton refurbished and remains open
- Factoria replacement project proceeds on schedule without major cost increases
- Houghton closes

Cost
Constructing only two new facilities, Factoria and South County, Option 1 for Alternative E provides about $85 million ($2013) in capital cost savings from the Base Plan, placing it in the middle of the capital cost range. This would translate to an added cost of about $0.66 per month for the average household (estimated median cost of capital debt 2014-2040). The division would likely experience higher hauling costs and there would be environmental impacts from the additional hauling (because more garbage would likely be going to Shoreline, which is the furthest transfer station from Cedar Hills). There would also be higher collection cost for areas where the hauler is redirected. The division is still working with haulers to obtain collection cost data, but can anticipate that collection costs would likely increase for customers whose commercial hauler was redirected though these could be offset by reduced capital costs as the result of foregoing construction of a facilities or other approaches.

Service
During limited "peak" periods, it is anticipated that there could be significant traffic volumes and wait times, although a variety of approaches might be able to reduce these potential impacts. Retention of the Renton Transfer Station means that the compaction, recycling services, and FEMA immediate occupancy standards would not be met.

Environment
This alternative would direct additional tonnage to the Shoreline Recycling and Transfer Station, the farthest transfer station from Cedar Hills, which would likely result in more miles driven and therefore more GHGs compared to the Base Alternative. Lacking a Northeast Recycling and Transfer Station, some customers would have to travel outside their current service area, increasing the environmental impacts of customer trips compared to the Base Alternative. Impacts on streets neighboring Factoria, Renton, and Shoreline would increase relative to the Base Alternative.

Risks/Challenges
This alternative requires a policy change and council approval to allow redirecting commercial hauler traffic. Permitting would be required to add a second inbound scale and a queuing lane; the addition of these elements in the future does not affect Factoria's schedule or current permits.

Alternative E Option 2
(A recommended Alternative)

A second option for meeting tonnage capacity requirements would be to limit self-haul service at the newly constructed Factoria Recycling and Transfer Station and locate household hazardous waste service at a separate location.

- Factoria Recycling and Transfer Station open only to commercial haulers and account customers before 4 p.m. on weekdays
- No recycling, except yard waste, at Factoria
- No HHW service at Factoria
- New HHW facility sited and built elsewhere in service area
- Hours of operation at Factoria extended
- Factoria Recycling and Transfer Station built with second compactor, additional scales and queuing lane
- Renton refurbished and remains open with extended hours
- Factoria replacement project proceeds on schedule without major cost increases
- Houghton closes

Cost
Constructing only two new facilities, Factoria and South County, Option 2 for Alternative E provides about $76 million ($2013) in capital cost savings from the Base Plan. This would translate to an added cost of about $0.70 per month for the average household (estimated median cost of capital debt 2014-2040).

Service
This option imposes limits to self-haul customers that do not have a contract with the County and as a result may affect some small businesses currently relying on self-haul service.

This option would also lead to increased traffic around the Factoria and Renton facilities – potentially significant increases at peak times -- although various strategies may be able to reduce impacts. This option also eliminates most recycling at Factoria and requires removing household hazardous waste service from Factoria and siting and constructing a new HHW facility at another location. Retention of the Renton Transfer Station means that the compaction, recycling services, and FEMA immediate occupancy standards would not be met.

Environment
Without a Northeast Recycling and Transfer Station, some customers would have to travel further, increasing the environmental impacts of customer trips compared to the Base Alternative. Impacts on streets neighboring Factoria and Renton would increase compared to the Base Alternative.

Risks/Challenges
This option can only be implemented with Council action to allow the division to set limits on self-haul service. This option requires siting and constructing an HHW facility at a new location and would require permitting to add a second inbound scale and a queuing lane; adding scales and a queuing lane in the future does not affect Factoria's schedule or current permits.

Alternative E Option 3
(Not recommended)

The third option for meeting tonnage capacity requirements under Alternative E would require a major redesign of the new Factoria Transfer Station and would impose limits on self-haul service.

- Redesign Factoria to increase building size by ~ 17,000 sq. ft.

- Factoria open only to commercial haulers and charge account customers before 4 p.m. on weekdays
- No recycling, except yard waste, or HHW service at Factoria
- New HHW facility sited and built elsewhere in service area
- Hours of operation at Factoria extended
- Factoria built with second compactor, additional scales and queuing lane
- Renton refurbished and remains open with extended hours

Cost
Constructing only two new facilities, Factoria Transfer Station and South County Recycling and Transfer Station, Option 3 for Alternative E provides about $57 million ($2013) in capital cost savings from the Base Plan. This would translate to an added cost of about $0. 72 per month for the average household (estimated median cost of capital debt 2014-2040). This option has the least cost savings of the three Alternative E options.

Service
This option imposes limits to self-haul service that may affect small businesses currently relying on self-haul service. This option will result in increased traffic around Factoria and Renton. Customers at Factoria and Renton will experience lengthy wait times. This option eliminates most recycling service at Factoria, and requires siting and constructing an HHW facility at another location. Retention of the Renton Transfer Station means that the compaction, recycling services, and FEMA immediate occupancy standards would not be met.

Environment
Lacking a Northeast Recycling and Transfer Station, some customers would have to travel outside their current service area, increasing the environmental impacts of customer trips compared to the Base Alternative. Impacts on streets neighboring Factoria and Renton would increase relative to the Base Alternative.

Risks/Challenges
This option would cancel the current procurement process for construction of the new Factoria facility. New permits would be required from the City of Bellevue, which includes the potential requirement to produce a full Environmental Impact Statement for the project. This would delay the replacement of the Factoria Transfer Station by at least two years. This option can only be implemented with Council action to allow the division to set limits on self-haul service. This option also requires siting and constructing an HHW facility at a new location.

Haulers' Collection Cost

All commercial hauling companies serving the areas affected by the Transfer Plan provided preliminary estimates of impacts to their costs, which would be passed on to collection customers. Although each of the haulers presented their cost estimates in a different format, all noted that these estimates are rough. According to one hauler, "A more thorough assessment would necessitate studies on estimated traffic patterns and facility wait times, as well as the identification of specific locations for the proposed South County and Northeast county transfer stations. Consideration of these variables may significantly affect the cost estimates."

Since the release of the draft Transfer Plan Review Report, one hauler has already submitted updated data. However, forecasts of collection costs are dependent on many variables that could change over time. The division will continue to work with haulers throughout the planning period and during implementation of

the final plan to ensure that decisions are based on the most current data available. Because collection costs vary throughout the region, cities are encouraged to communicate directly with their hauler about the potential impacts to their residents of transfer system changes. A summary of the haulers' cost estimates is presented in Table 5. The complete information submitted by the haulers is available in Appendix B.

Table 5 – Collection Cost Estimates Summary

	CleanScapes	Republic	Waste Management
Base		Minimal impact in drive time or costs. Less than a 1% increase in operational or customer costs.	Expenses (Driver Hours & Trips) $1 - 2 million/yr Capital Cost $3 - 6 million
A	Minimal or no impact	Minimal impact in drive time or costs. Less than a 1% increase in operational or customer costs.	Expenses (Driver Hours & Trips) $1.5 – 2.5 million/yr Capital Cost $6 - 9 million
A*	Minimal or no impact	Minimal impact in drive time or costs. Less than a 1% increase in operational or customer costs.	Expenses (Driver Hours & Trips) $1.5 – 2.5 million/yr Capital Cost $6 - 9 million
B	Expenses (driver hours & trips) $190,000/yr Capitol $460,000	Drive time increased by 300 hours per month. Increase in customers rates 4-5%.	Expenses (Driver Hours & Trips) $2.5 – 3.5 million/yr Capital Cost $6 - 9 million
C	Expenses (driver hours & trips) $190,000/yr Capitol $460,000	Drive time increased by 350 hours per month. Increase in customers rates 4-5%.	Expenses (Driver Hours & Trips) $3 – 4.5 million/yr Capital Cost $9 - 15 million
C**	Expenses (driver hours & trips) $190,000/yr Capitol $460,000	Drive time increased by 350 hours per month. Increase in customers rates 4-5%.	Expenses (Driver Hours & Trips) $3 – 4.5 million/yr Capital Cost $9 - 15 million
D	Minimal or no impact	Drive time increased by 100 hours per month. Increase in customer rates possible 2-3%.	Expenses (Driver Hours & Trips) $2 – 3.5 million/yr Capital Cost $9 - 15 million
D**	Minimal or no impact	Drive time increased by 100 hours per month. Increase in customer rates possible 2-3%.	Expenses (Driver Hours & Trips) $2 – 3.5 million/yr Capital Cost $9 - 15 million
D***	Minimal or no impact	Drive time increased by 100 hours per month. Increase in customer rates possible 2-3%.	Expenses (Driver Hours & Trips) $2 – 3.5 million/yr Capital Cost $9 - 15 million
E1	Expenses (driver hours & trips) $90,000/yr Capitol $200,000	TBD	TBD

Regional Direct Rate

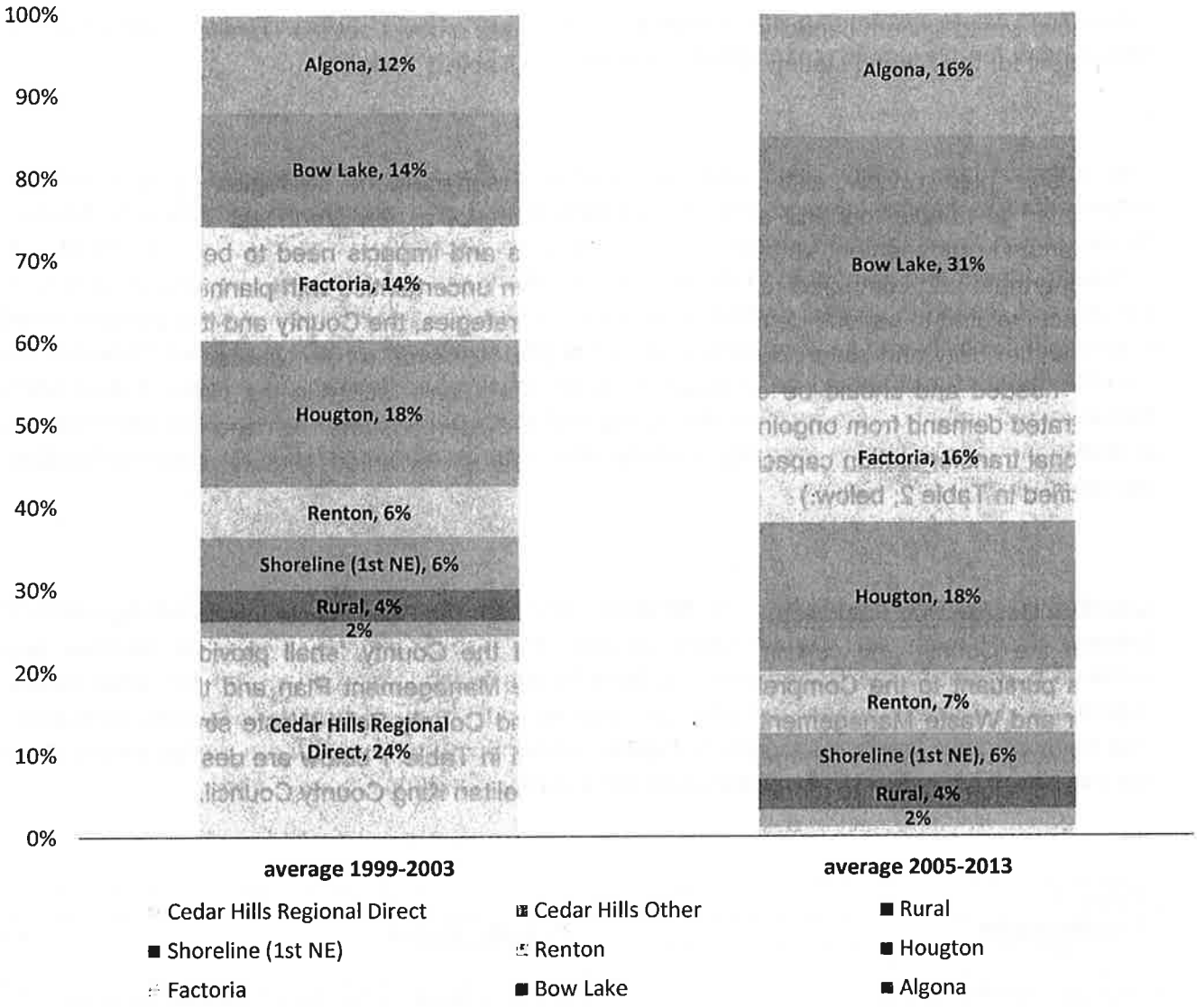
Under the King County Code, the County charges a lower rate if solid waste companies process waste at their own private transfer stations and haul it in transfer trailers directly to Cedar Hills. The rate reflects the County's avoided costs since the regional direct waste does not pass through the County's transfer system. In the past, for many years, the regional direct rate was significantly lower than the County's actual avoided costs, which created a financial incentive for private collections companies to bypass County transfer stations. In 2003, the County eliminated public subsidies to private industry by adjusting the regional direct rate paid by haulers for waste brought directly to Cedar Hills when the Council passed Ordinance 14811 to increase the Regional Direct rate to cover the County's costs.

One question that arose during the review of the Plan was whether a subsidy could be reinstated to create sufficient financial incentive to the private sector to use private transfer stations and eliminate the need for King County to build a facility to replace the Houghton Transfer Station. However, based on an analysis of tonnage distribution over the past 15 years, a change in the regional direct rate would primarily increase capacity at Bow Lake, which has received most of the tonnage that previously went directly to Cedar Hills as Regional Direct. As shown in Figure 4, below, Houghton tonnage before and after Regional Direct, was virtually unchanged. The increase in the regional direct rate virtually eliminated regional direct tonnage, which decreased from about 24 percent of total tonnage to about 1 percent since the fee was increased in 2004. During the past decade, the private transfer stations that previously handled regional direct waste have all been repurposed to serve other functions.

Despite the significant change in total regional direct tonnage, the Houghton tonnage did not change after the regional direct fee was increased. From 1999 to 2013 the Houghton transfer station received between 17 and 19 percent of the annual total system tonnage. Data show that the tonnage haulers used to deliver directly to Cedar Hills now goes primarily to Bow Lake, with smaller amounts also going to Algona, Factoria and Renton.

Figure 4: Waste Disposed by Facility

Percentage of total system tons before and after regional direct fee change (May 2004)



Recommended Transfer Plan Update; Capital Facilities

Background. The transfer plan review identified facilities that are needed in the near term to handle solid waste system capacity. Those facilities include a new Factoria Transfer Station and a replacement for the Algona station (and are specified in Table 1, below).

The transfer plan review also identified demand management strategies that could be implemented to handle tonnage and transactions in lieu of a new Northeast Transfer Station. These demand management strategies and their costs and impacts need to be discussed with regional partners and compared to the base plan. Given uncertainties with planning assumptions and impacts related to various demand management strategies, the County and its partners need to maintain flexibility and keep options open in the plan. However, a new Northeast Station is not currently needed and should be changed to a potential future facility in the plan. If and when demonstrated demand from ongoing monitoring and study demonstrate the need for development of additional transfer station capacity, such facilities may be warranted. (Future potential facilities are specified in Table 2, below.)

Currently Designated Facilities. The Amended and Restated Solid Waste Interlocal Agreement[5] between the County and certain cities provides that the County "shall provide facilities and services pursuant to the Comprehensive Solid Waste Management Plan and the Solid Waste Transfer and Waste Management plan as adopted and County Solid Waste stream forecasts." The following solid waste management facilities shown in Table 1 below are designated to carry out this provision, subject to modification by the Metropolitan King County Council.

Table 1:	
Facility Name	**Facility Status**
Algona Transfer Station	Existing station (closure anticipated with new South County station)
South County Transfer Station	Pending siting and construction
Bow Lake Transfer Station	Existing station
Renton Transfer Station	Existing station (closure anticipated after new Factoria and South County stations are operational)
Enumclaw Transfer Station	Existing station
Vashon Transfer Station	Existing station

[5] *"6.1.g Facilities and Services. The County shall provide facilities and services pursuant to the Comprehensive Solid Waste Management Plan and the Solid Waste Transfer and Waste Management plan as adopted and County Solid Waste stream forecasts."*

Houghton Transfer Station	Existing station (closure anticipated based on original 2006 plan)
Factoria Transfer Station	Undergoing renewal and construction
Shoreline Transfer Station	Existing station
Rural drop boxes	Existing drop boxes
Cedar Hills Landfill	Landfill operational, expansion plans approved & construction pending

Potential Future Facilities. After public outreach and consultation with stakeholder and advisory groups, and only after approval and budget appropriation by the Metropolitan King County Council, King County may determine additional future transfer and waste management system capital improvements are needed to provide appropriate, environmentally-sound and cost-effective solid waste services, including, but not limited to projects shown in Table 2, below:

Table 2:

Potential Future Transfer System Capital Improvements

Potential Capital Facility	Considerations for Review - Including but not limited to:
Additional recycling facilities	• Ongoing monitoring of markets for recyclables • Periodic review of transfer facility recycling operations capacity
Facilities needed to supplement private industry efforts to manage construction and demolition (CDL) materials or organic recycling materials	• Periodic assessment of tonnage for CDL • Periodic assessment of tonnage for organics • Ongoing review of legal developments and operational status of private facilities
Additional landfill capacity at Cedar Hills	• Monitoring of available airspace capacity of regional landfill • Regular evaluations of waste tonnage projections • Review of identified alternatives for additional Cedar Hills capacity
New transfer station or drop box capacity based on demonstrated need o Northeast or other Transfer Stations o Drop Boxes in unincorporated areas	• Assessment of progress on waste redirection/balancing strategies o Redirect Commercial o Regional Direct • Monitoring of tonnage projections regionally and by transfer station • Monitoring of waste facility traffic volumes • Demand management and monitoring performance at all facilities
Materials Recovery/Conversion facilities	• Monitor technology and costs
Intermodal or related facilities	• Refinement of early-export disposal strategies

Recommendation

This review was undertaken to answer two primary questions:

1. Are changes to the Transfer Plan needed to ensure that the transfer system is sized and configured appropriately to meet the region's solid waste needs now and for the long term?
2. Could changes be made that could reduce future expenditures while still meeting desired service levels and objectives?

To address these questions, the division, in collaboration with stakeholders, examined the Base Alternative; four alternatives (A, B, C, and D) that did not build one or more of the planned new facilities; and four variations (A*, C**, D**, and D***) on those alternatives that retained self-haul service at one or more of the existing facilities currently planned for closure. After the initial analysis, another alternative (E) that neither expands Factoria beyond the current property nor builds a Northeast Recycling and Transfer Station was added. Three options (E1, E2, and E3) were developed to enable this additional alternative to meet capacity needs.

The analysis revealed that any system configuration which does not build a new South County Recycling and Transfer Station to replace Algona would not adequately serve the area and would result in significantly increased collection costs for residents and businesses in the south county, raising collection costs in the county's lowest income area. These alternatives would also overload the Bow Lake Recycling and Transfer Station, which was not designed to handle such a high proportion of the system's customers. For these reasons, Alternatives C, C**, D, D**, and D*** are not recommended.

For the reasons described in this report, Alternatives A, A*, B, and E3 are also not recommended.

Based on analysis of the alternatives and stakeholder feedback, , and following cooperative work with Council staff and the County auditor, the division, recommends the following:

- Proceed this year with a new Factoria Recycling and Transfer Station using current design and permits
- Continue siting evaluations for a South County Recycling and Transfer Station
- In collaboration with stakeholders, continue to evaluate a mix of capital facilities and operational approaches to address system needs over time, including implementation of operational approaches such as transaction demand management strategies that would provide service for the northeast county without building an additional transfer station and compare trade-offs and benefits with the Transfer Plan. Following and consistent with environmental review, revise the 2006 Solid Waste Transfer and Waste Management Plan and the pending Solid Waste Comprehensive Plan to address the transfer station network to include among the new or upgraded urban Recycling and Transfer Stations, the following currently needed facilities: Bow Lake, Factoria, Shoreline, and South King County, consistent with Table 1 of the Recommended Transfer Plan Update; Capital Facilities, below.
- Revise the 2006 Solid Waste Transfer and Waste Management Plan and the pending Solid Waste Comprehensive Plan to acknowledge continuing system attention to potential capital needs over time, that may include capital projects such as recycling facilities, CDL facilities, a new northeast transfer station, or other capital projects as potential future facilities to retain flexibility in the system, consistent with Table 2 of the Recommended Transfer Plan Update; Capital Facilities, below.

- Although numerous alternatives were analyzed, as discussed at length in this report, many are not recommended for the reasons indicated above. Consistent with the recommendation above, a comparison of the currently adopted Transfer Plan (Base Plan or Base Alternative), which includes building and new Northeast Recycling and Transfer Station, and the operational approaches that would preclude the need for a new Northeast (Alternatives E1 and E2) are outlined in the table below.

Schedule for Transfer Station Completion: Comparison of 2006 Plan with Proposed Plan

Facility	2006 Transfer Plan	Proposed
New Shoreline	Nov. 2007	Complete – opened Feb. 2008
New Bow Lake	2010	Complete – opened July 2012
New Factoria	2011	2017
New Northeast	2015	Not currently needed; potential future facility
New South County	2015	2019

Appendices

Appendix A: Stakeholder Involvement

Workshop 1

Meeting Agenda
http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Workshop-1-Agenda.pdf

Workshop 1 Summary
http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Workshop-1-Meeting-Summary.pdf

Workshop 1 Supplemental Information
http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Workshop-1-Supplemental-Information.pdf

Workshop 2

Meeting Agenda
http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Workshop-2-Agenda.pdf

Workshop 2 Summary
http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Workshop-2-Meeting-Summary.pdf

Workshop 3

Meeting Agenda
http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Workshop-3-Agenda.pdf

Workshop 3 Summary
http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Workshop-3-Meeting-Summary.pdf

Additional Presentations

- RPC (August 2013)
- RPC (September 2013)
- RPC (January 2014)
- SCA PIC (August 2013)
- SCA PIC (September 2013)
- MSWMAC (August 2013)
- MSWMAC (September 2013)
- MSWMAC (January 2014)
- City Managers (September 2013)
- City Managers (October 2013)
- Bellevue City Council (January 2014)
- SWAC (January 2014)

Appendix B: Cost Data

B.1 Forecasting Garbage Tonnage

http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Forecasting-Garbage-Disposal.pdf

B.2 Retention and Repair Costs for Existing Station

http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Retention-Repair-Costs_Existing-Transfer-Stations.pdf

B.3 Transfer Station Cost Drivers

http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Transfer-Station-Cost-Drivers.pdf

B.4 Collection Cost Information Provided by the Haulers

CleanScapes

From: Signe Gilson [mailto:Signe.Gilson@cleanscapes.com]
Sent: Tuesday, August 13, 2013 5:38 PM
To: Gaisford, Jeff
Cc: Husband, Chris; Reed, Bill
Subject: RE: Request for input in King County Transfer Plan Review

Thanks, Jeff

The main impact to CleanScapes would be on our trips between Issaquah and the Factoria Transfer Station (Alts B and C). Depending on where exactly the NE station would be located, our trips between Carnation and the transfer station could also be affected.

For purposes of analysis, we assumed a NE Transfer Station location at Avondale Rd and NE 133rd St and compared current travel times and distance (Issaquah/Factoria and Carnation/Factoria) with estimated travel times between the NE Transfer Station and Issaquah and Carnation.

Our rough estimate of implementing Alts B or C on our operations is an additional 30 hours/week (truck and labor) or $3,000/week.

I'll be out of the office until August 28 but feel free to call with questions/clarification after that.

Thanks. –Signe.

Signe Gilson
Waste Zero Manager
CleanScapes, a Recology® Company | 117 S Main Street, Suite 300 | Seattle, WA 98104
M: (206) 859-6700 | T: (206) 859-6706 | C: (206) 919-7889 | F: (206) 859-6701
signe.gilson@cleanscapes.com
WASTE ZERO

From: Signe Gilson [mailto:Signe.Gilson@cleanscapes.com]
Sent: Tuesday, November 05, 2013 5:06 PM
To: Severn, Thea
Cc: Erika Melroy; Kevin Kelly
Subject: Comments on DRAFT Transfer Station plan

Thea,

Thanks for accepting comments on the Draft King County Transfer Station Plan. CleanScapes has the following comments and additions:

1. Recommend that Bow Lake Transfer Station remain open 24-hours per day

2. Recommend that Factoria Transfer Station remain open until 6pm
3. Revise Table 5 "Collection Cost Estimate Summary" (page 31 of the Draft Plan):
   Replace the 3 statements (B, C, C**) under "CleanScapes" with:
   "Expenses (Driver Hours & Trips)
   $325,000/yr
   Capital cost $900,000"
4. Revise Table 5 "Collection Cost Estimate Summary" (page 31 of the Draft Plan):
   Replace the 6 blank spaces (Base, A, A*, D, D**, D***) with:
   "Minimal or no impact"

Please let me know if you have questions. Thank you.

Sincerely,

-Signe.

Signe Gilson
Waste Zero Manager
CleanScapes, a Recology Company | 117 S Main Street, Suite 300 | Seattle, WA 98104
M: (206) 859-6700 | T: (206) 859-6706 | C: (206) 919-7889 | F: (206) 859-6701
signe.gilson@cleanscapes.com
WASTE ZERO

From: Signe Gilson [mailto:Signe.Gilson@cleanscapes.com]
Sent: Thursday, January 30, 2014 5:29 PM
To: Reed, Bill
Cc: Husband, Chris; Severn, Thea
Subject: RE: Collection Cost Input Request for New Transfer Station Plan Alternative

Thanks, Bill

Following is an estimate of the addition cost to provide service under Alternatives B,C,C** and E1.

Alternatives B, C, C**
Expenses (driver hours & trips) $190,000/yr
Capitol $460,000

Alternative E1
Expenses (driver hours & trips) $90,000/yr
Capitol $200,000

Please let us know if you have questions.

Thanks. –Signe.

Signe Gilson
Waste Zero Manager
CleanScapes, a Recology Company | 117 S Main Street, Suite 300 | Seattle, WA 98104
M: (206) 859-6700 | T: (206) 859-6706 | C: (206) 919-7889 | F: (206) 859-6701
signe.gilson@cleanscapes.com
WASTE ZERO

Republic

Republic Services has reviewed the 5 plans proposed for the King County Transfer Stations. Below is our estimated impact for each plan based on our current customer base in order of Republic Services preference.

Our estimates are assuming no excess wait times at the stations in any of the plans. Republic will need to review all city contracts to determine if the contracts allow customer rate increases for additional drive or wait time at King County Transfer Stations.

1. Plan-Base: Minimal impact in drive time or costs. Less than a 1% increase in operational or customer costs.
2. Plan-A: Minimal impact in drive time or costs. Less than a 1% increase in operational or customer costs.
3. Plan-D: Drive time increased by 100 hours per month. Increase in customer rates possible 2-3%.
4. Plan-B: Drive time increased by 300 hours per month. Increase in customers rates 4-5%.
5. Plan-C: Drive time increased by 350 hours per month. Increase in customers rates 4-5%.

Republic strongly urges the County to continue toward the Base Plan.

Waste Management

From: Shanley, Kimberly [mailto:kshanle1@wm.com]
Sent: Monday, September 23, 2013 2:10 PM
To: Reed, Bill
Cc: Severn, Thea
Subject: RE: Estimated Collection Costs - King County's Transfer Plan Review

Hi Bill & Thea,

A correction to below... the amortization period used for our trucks is an eight to ten year period (rather than seven to ten). As to the second question, Mike Weinstein should be able to give a broad sense of the apportionment of costs to be used for residential. He is scheduled to be back in the office tomorrow, and I hope to get an answer to that question for you.

Kim Kaminski (formerly Shanley)
Government Affairs, Pacific NW/British Columbia
kshanle1@wm.com
Waste Management
720 4th Ave, Ste 400
Kirkland, WA 98033
Tel 425 814 7841
Cell 425 293 9352

From: Shanley, Kimberly
Sent: Friday, September 20, 2013 7:54 AM
To: Reed, Bill
Cc: Severn, Thea
Subject: RE: Estimated Collection Costs - King County's Transfer Plan Review

I don't think we will have a problem answering the questions (I hope!). As to the first question, I believe that our amortization period for our trucks is either over a seven or ten year interval. I will check on this. As to the third question, yes, capital costs are strictly new trucks that would be needed to cover additional routes, being that we would have to break up routes given longer drive times to facilities.

Just the closure of Houghton and Renton, which of course is in all scenarios, has an impact on our routes for North Sound and Seattle, respectively, which is the reason you see expenses and capital

costs in all alternatives including the base (even though an indeterminate NE facility will be built and new Factoria will be built).

Kim Kaminski (formerly Shanley)
Government Affairs, Pacific NW/British Columbia
kshanle1@wm.com
Waste Management
720 4th Ave, Ste 400
Kirkland, WA 98033
Tel 425 814 7841
Cell 425 293 9352

From: Reed, Bill [Bill.Reed@kingcounty.gov]
Sent: Thursday, September 19, 2013 12:50 PM
To: Shanley, Kimberly
Cc: Severn, Thea
Subject: FW: Estimated Collection Costs - King County's Transfer Plan Review

Hi, Kim.

Thank you so much for your response. In addition to the cost information, the comments you provided are very helpful.

We have a few questions about the costs that we're hoping you can help us with.

- Do you have any suggestions about the amortization period we should assume for the capital costs? We need to annualize the capital costs as well as the operating costs.
- One of the questions that we have specifically been asked to address is cost per household (i.e., the average household's monthly bill will go up from $x.xx to $y.yy.) Kerry Knight provides us residential customer counts by container size, and by using WUTC garbage rates, we have been able to come up with a reasonable estimate of current average residential household garbage bills. Can you offer any suggestions about how to determine the percentage of the costs you provided to apportion to the residential sector? Would the percentage of garbage tons be a reasonable proxy for the percentage of expenses/capital costs?
- We presume that the capital costs are primarily trucks needed for re-routing, and we suspect that many stakeholders have not considered this potential cost. Could you please provide us with a brief explanation of what these costs are for and why they are anticipated.

Thanks again for your assistance.

Bill Reed
(206) 296-4402

From: Shanley, Kimberly [mailto:kshanle1@wm.com]
Sent: Thursday, September 19, 2013 8:01 AM
To: Reed, Bill; Severn, Thea
Subject: Estimated Collection Costs - King County's Transfer Plan Review

Bill and Thea,

As requested by King County, we are providing estimates of collection cost increases and related hauler-specific capital expenditures for each of the County's proposed transfer station network

alternatives. We must stress that these are only rough projections based on the limited information available currently. A more thorough assessment would necessitate studies on estimated traffic patterns and facility wait times, as well as the identification of specific locations for the proposed South County and Northeast County transfer stations. Consideration of these variables may significantly affect the cost estimates listed below.

The decisions made by the County will have resounding impacts on the regional solid waste system and individual municipalities for decades. Accordingly, a thorough and measured review is very important. As this review process is currently planned, only three months will be devoted to discussion before critical choices are rendered. In past reviews and studies, such as the Transfer Plan Review in 2006 and the Independent, Third Party Review in 2007, a comprehensive assessment of the regional system was conducted. We are concerned about potential unintended consequences associated with a rushed process. Thus, we recommend a cautious approach coupled with careful analysis.

We believe many of these options, particularly Alternatives C and D, will result in disparate impacts for many communities in both level of service and the amount of risk exposure including environmental repercussions. At the last workshop, there was essentially no support for either of these options. Hence, at the very least, Alternative C and D and their sub-alternatives should be taken off the table for discussion resulting in a streamlined focus on more viable alternatives.

Alternative Scenarios	Alternative Description	Expenses (Driver Hours & Trips)	Capital Costs
Base	Northeast & South County Built; Build New Factoria; Houghton Closed	$1 - 2 million/yr	$3 - 6 million
A	Northeast Not Built; South County Built; Factoria Expanded; Houghton Closed	$1.5 - 2.5 million/yr	$6 - 9 million
A*	Northeast Not Built; South County Built; Build New Factoria; Houghton Self Haul only	$1.5 - 2.5 million/yr	$6 - 9 million
B	Northeast and South County Built; Factoria and Houghton Closed	$2.5 - 3.5 million/yr	$6 - 9 million
C	Northeast Built; Factoria & Houghton Closed; South County Not Built	$3 - 4.5 million/yr	$9 - 15 million
C**	Northeast Built; Factoria & Houghton Closed; South Not Built; Algona Self Haul Only	$3 - 4.5 million/yr	$9 - 15 million
D	Northeast & South County Not Built; Factoria Expanded;	$2 - 3.5 million/yr	$9 - 15 million

	Houghton Closed		
D**	Northeast & South County Not Built; Factoria Expanded; Houghton Closed; Algona Self Haul Only	$2 - 3.5 million/yr	$9 - 15 million
D***	Northeast & South County Not Built; Build New Factoria; Algona & Houghton Self Haul Only	$2 - 3.5 million/yr	$9 - 15 million

*Renton to be closed in all of the above scenarios.

I hope you find that these cost estimates are helpful for your presentation. We apologize for the delay in getting these numbers to you. Even though these are presented as an estimated range, the scenarios elicited much discussion even though we have limited information to act upon at this time. If you have any questions about these costs, please let me know.

Sincerely,

Kim Kaminski (formerly Shanley)
Government Affairs, Pacific NW/British Columbia
kshanle1@wm.com
Waste Management
720 4th Ave, Ste 400
Kirkland, WA 98033
Tel 425 814 7841
Cell 425 293 9352

Appendix C: Drive Time Analysis

Alternatives Drive Time Maps
http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Alt-Drive-Time-Maps.pdf

Appendix D: Detailed Transfer System Alternatives

Alternatives Station Detail

Appendix E: References

2001 Comprehensive Solid Waste Management Plan
http://your.kingcounty.gov/solidwaste/about/planning/documents-planning.asp#comp

Draft 2013 Comprehensive Solid Waste Management Plan
http://your.kingcounty.gov/solidwaste/about/Planning/documents/2013-swd-comp-plan.pdf

Optimized Transfer Station Recycling Feasibility Study
http://your.kingcounty.gov/solidwaste/about/Planning/documents/optimized-TS-feasibility-study.pdf

Solid Waste Transfer and Waste Management Plan
http://your.kingcounty.gov/solidwaste/about/planning/documents-planning.asp#plan

Ordinance 17437 (procurement)
http://your.kingcounty.gov/mkcc/clerk/OldOrdsMotions/Ordinance%2017437.pdf

Milestone Report 1
http://your.kingcounty.gov/solidwaste/about/planning/documents/Milestone_report-1.pdf

Milestone Report 2
http://your.kingcounty.gov/solidwaste/about/planning/documents/Milestone_report-2.pdf

Milestone Report 3
http://your.kingcounty.gov/solidwaste/about/planning/documents/Milestone_report-3.pdf

Milestone Report 4
http://your.kingcounty.gov/solidwaste/about/planning/documents/Milestone_report-4.pdf

Independent, Third Party Review of the Solid Waste Transfer and Waste Export System Plan
http://your.kingcounty.gov/solidwaste/about/planning/documents/solid-waste-transfer-export-review.pdf

Final Supplemental Environmental Impact Statement Transfer and Waste Export System Plan for King County, Washington (Draft Supplemental EIS published under the title: Waste Export System Plan for King County, Washington)
http://your.kingcounty.gov/solidwaste/about/planning/documents/TransferWasteExport_FSEIS2006-08-28.pdf

Appendix F: Ordinance Responsiveness Summary

Requirements	Ordinance Line	Response
Tonnage projections, to be based on waste volumes from cities that have indicated commitment to the regional solid waste system through 2040	9	Figure 2 Appendix B.1
Revenue projections, to be based on waste volumes from cities that have indicated commitment to the regional solid waste system through 2040	12	Report section "Assumptions" Page 8
Overall costs of the region-wide transfer station upgrade	15	Appendix B, all sections
Functionality and service alternatives at the respective transfer stations	16	Report section "Alternatives" Page 10 and Alternatives Station Detail
Level of service criteria addressed in the 2006 plan, with particular attention to options for revision to the travel time criterion in the plan, which requires that ninety percent of a 18 station's users be within thirty minutes' travel time	17	Appendix C and G
Retention and repair of the existing transfer station including itemized cost estimates for retention and repair and updated long-term tonnage projections	20	Appendix B.2
The recommendation 4 of the King County Performance Audit of Solid Waste Transfer Station Capital Projects, which requires systematic analysis of • incremental cost impacts of the number, capacities and functionality of the transfer stations and • assessment of project financing and delivery methods.	22	Appendix B, all sections Workshop 3 materials
The division, as part of the report, shall • document all efforts to engage stakeholder groups, • document all feedback received from stakeholder groups and • document any steps taken to incorporate this feedback into the final report.	29	Appendix A

Appendix G: Followup on 2011 Performance Audit of Solid Waste Transfer Capital Projects

King County Auditor's Office
Kymber Waltmunson, King County Auditor
King County

DATE: March, 11, 2014

TO: Metropolitan King County Councilmembers

FROM: Kymber Waltmunson, County Auditor

SUBJECT: Follow-up on 2011 Performance Audit of Solid Waste Transfer Station Capital Projects

The Solid Waste Division (SWD) has made significant progress implementing the recommendations in our 2011 Performance Audit of Solid Waste Transfer Station Capital Projects, completing or making progress in all four of the audit recommendations. A key finding from our 2011 audit, and more recently as shown in SWD's review, is that the information and analyses underlying SWD's 2006 plan, especially the tonnage forecast, are out of date, and that assumptions about future needs are subject to a large degree of uncertainty. Given this uncertainty, the County and its partners can reduce the risks associated with investing in future capacity by maintaining maximum flexibility in system design and utilization.

Of the four audit recommendations:

DONE	2	have been fully implemented
PROGRESS	2	are in progress or partially implemented
OPEN	0	remain unresolved

This report focuses on the progress made in recommendation 4, as recommendations 1 and 2 were previously implemented, and work is still ongoing for recommendation 3.

Recommendation 4 called for an update of the 2006 Solid Waste Transfer and Waste Management Plan (Plan) with an analysis of the functionalities and the cost impacts of the number and capacities of the transfer stations. It also called for an assessment of which project financing and delivery method is most likely to result in lower capital costs. King County Ordinance 17619, adopted July 8, 2013,

directed SWD to address recommendation 4 as part of a Transfer Station Plan Review.

In response to the audit recommendation and Ordinance 17619, SWD conducted a series of workshops and analysis as part of a Transfer Station Plan Review. With the completion of the mandated review, we find that that SWD has implemented part of recommendation 4 and has provided county policy-makers a variety of information to assist in making decisions about system alternatives.

This report also provides information for county policy-makers and transfer system partners on potential strategies to mitigate or avoid customer service impacts from redirecting transactions if a Northeast Regional Transfer Station is not built. We also provide additional information that

underscores the recommendation from our 2011 performance audit that SWD explore other project development alternatives to enhance the cost-effectiveness of future transfer stations.

Recommendation Status as of March 2014

#	Status	Recommendation	Status Detail
1	**DONE**	In its financial plan, the Solid Waste Division should use the economic assumptions adopted by the King County's Forecast Council to the extent the assumptions apply, such as for general inflation and Investment Pool interest earning.	Implemented in 2012.
2	**DONE**	The Solid Waste Division should continue to develop and then formally adopt life-cycle cost analysis as part of its asset management program.	Implemented in 2011.
3	**PROGRESS**	The Solid Waste Division, in cooperation with the Executive Finance Committee, should review the feasibility of a new investment strategy for the Landfill Reserve Fund (LRF).	This policy is still being considered by the Executive Finance Committee.

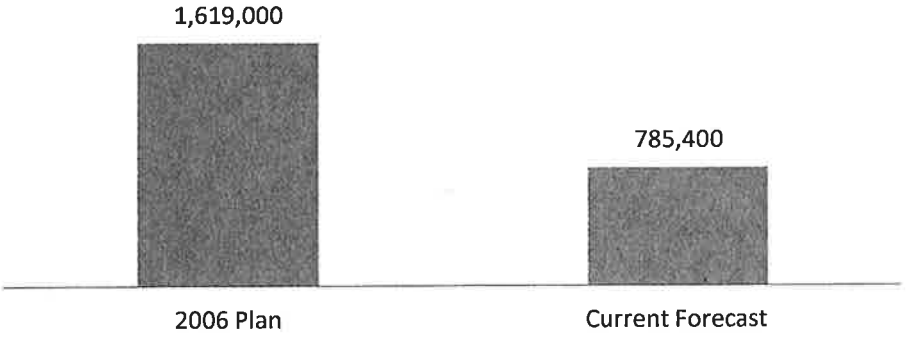
4a	**DONE**	SWD should update transfer system and individual facility plans as they have indicated. During this process, SWD should provide county policy-makers and regional partners a systematic analysis of: the incremental cost impacts of the number and capacities of the transfer stations; the functionalities of the stations;	SWD's work on the plan review in 2013-14 implements this part of the recommendation.
4b	**PROGRESS**	and an assessment of which project financing and delivery method is most likely to result in lower capital costs.	This part of the recommendation should be carried out for future stations.

Status of Recommendation 4

Large decrease in tonnage forecast is not reflected in the current base plan.

Our 2011 performance audit noted that changes in the economy and declines in system tonnage over recent years have resulted in revised tonnage forecasts. This fact, together with concerns about transfer station capital costs, led to recommendation 4. To put the tonnage forecast into perspective, the current forecast is for 785,400 tons of waste in 2029, the year after five eastside cities are now assumed to be leaving the SWD system.[1] In comparison, the forecast from the 2006 Plan for the same year, 2029, was 1,619,000 tons; more than double the current forecast. This new forecast assumes an ambitious plan of increasing the recycling rate by 1% per year until it reaches 70%.

Tonnage Forecast for 2029 is Now Much Lower



Source: SWD Forecast Data

The base plan (status quo) described by SWD in the current Transfer Plan Review is the same, in terms of closed and newly built transfer stations, as the existing Plan that dates from 2006, even though the tonnage forecast is much lower now. Some alternatives in the current Transfer Plan Review would reduce the number of new transfer stations and possibly postpone the closure of some of the older stations.

Information in the Transfer Plan Review provides updated estimates on capacity needs and

customer service impacts from a variety of system alternatives.

Beginning in August 2013 and for the next two months, SWD conducted workshops to report on its progress in conducting the plan review and to solicit stakeholder input. SWD also gave briefings to stakeholder groups, including the Metropolitan Solid Waste Management Advisory Committee, the Sound Cities Association, the City of Bellevue, and the Solid Waste Advisory Committee, among others. The original deadline for submission of the Plan for County Council approval was November 27, 2013, but this deadline was later extended by the County Council to March 3, 2014, to allow for further input from stakeholders and review by SWD.

---

[1]The cities are Bellevue, Clyde Hill, Hunts Point, Medina and Yarrow Point.

Altogether, SWD provided information as part of its review on the base plan and six system alternatives, with six variations of the alternatives, for a total of 13 different system scenarios. For each of these scenarios, SWD gave various levels of detail on possible environmental, customer service, and cost impacts. Given the short time for the review, the alternatives considered were constrained in terms of number and kind. As examples, although the workshops examined how the various alternatives provided different levels of recycling services, they did not focus on how to optimize transfer station recycling[2] or how the system might specifically be redesigned in response to developments in waste conversion technologies and waste-to-energy.

The information in the Transfer Plan Review suggests the need to maintain flexibility in the plan to respond to changing conditions.

As part of our follow-up review to the 2011 performance audit, we reviewed the data and analysis provided by SWD, limiting our review primarily to the models and calculations used to estimate the impacts of the system alternatives presented. In several instances we found data issues that needed to be addressed, and SWD responded promptly and professionally. We found that over a short span of several months that SWD was able to produce a large quantity and variety of quality information that will aid in decision-making.

An important caveat to the work that was done is that it rests on many assumptions, such as the tonnage forecast and estimates of vehicle transactions, which are based on a single year's worth of data, an estimate of future recycling rates, and impacts on commercial haulers from different system configurations. As experience has demonstrated, such estimates are points in ranges and actual results can vary widely. Such assumptions also cannot anticipate major changes in technology (e.g., innovations in recycling or production, waste-to-energy, etc.) or consumption habits, large demographic or economic fluctuations, etc. Given these facts, an important consideration for policy-makers is to view the system alternatives in terms of the flexibility they offer to respond to changing conditions.

There would be adequate tonnage capacity within the system without a new northeast facility, and overbuilding capacity poses a financial risk.

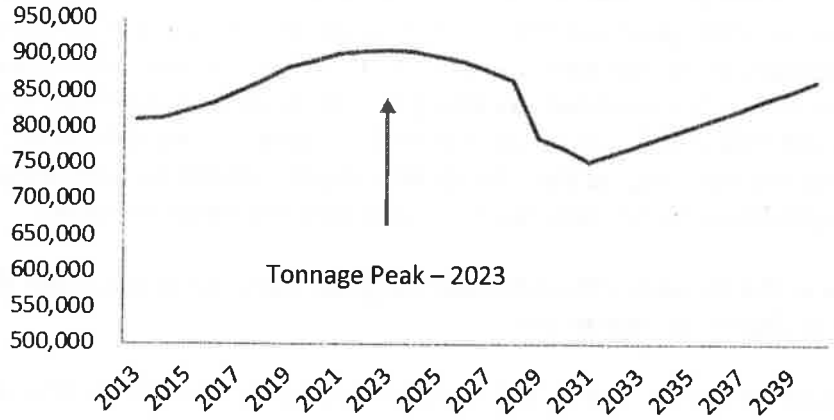
Based on SWD analyses and our review, service demands warrant the completion of a Factoria Transfer Station and provision of a South County Regional Transfer Station. The analyses also indicate, however, that there will be adequate tonnage and transaction capacity within the system as a whole without a new Northeast Regional Transfer Station.

Our analysis, as well as that of SWD, concludes that as a result of the Houghton closure in 2021 and to a much lesser extent the closure of Renton in 2019, service delays and customer queues at Factoria in the future could pose a problem. According to the current forecast, this problem would be short-term because total system tonnage is expected to increase to a high mark of 907,500 tons in 2023, and then begin to decline with a sharp drop in 2029 when the five eastside cities are expected to leave the system. By 2031, tonnage is forecast to reach a low point of 754,000 tons.

---

[2]Enhanced recycling strategies were recently reviewed by SWD in:
http://your.kingcounty.gov/solidwaste/about/Planning/documents/optimized-TS-feasibility-study.pdf

Departure of Eastside Cities Would Hasten Tonnage Reduction



Source: SWD Forecast Data

Given all of the uncertainties with planning assumptions, the County and its partners should consider keeping options open as to whether or when a northeast facility would be needed and whether or when to close or limit the types of transactions at Houghton and Renton.

There are options available to mitigate or avoid impacts on customers.

A financial risk to the County, its partners, and to ratepayers lies in a commitment to build a northeast facility that may add unneeded capacity while there are a number of alternatives and combinations of alternatives that could mitigate or avoid delays and customer queues at Factoria at peak times during peak tonnage years. For example:

- Keep Houghton open beyond 2021, but limited to self-haul transactions. According to our modeling, based on plan update data and assumptions, this alternative could effectively eliminate the self-haul capacity issue at Factoria. Extending the closure date of Renton also would have an impact, but one much lower than extending Houghton.
- Divert some commercial transactions to other transfer stations, particularly to Shoreline, which currently has underused capacity.
- Provide incentives for more regional direct commercial hauling to Cedar Hills, which was accommodating 250,000 tons per year before the change in fees 10 years ago.
- Adopt operational strategies aimed at reducing or redirecting self-haul transactions while improving customer service (see a description of such potential strategies, below).

Any changes to the Plan that would involve diverting transactions or modifying transfer station closure dates are matters that would need to be further discussed and closely planned with the affected city partners.

On issues related to tonnage handling, the 2006 Plan was predicated on having five newer facilities in place to compact waste for transfer by rail once Cedar Hills reached its maximum capacity. With the decline in the forecast, coupled with past initiatives and future options for extending the useful life of Cedar Hills, the expected closure date of the landfill in late 2025 may

no longer be valid. Taking advantage of available landfill capacity to extend the life of Cedar Hills would not only be a cost-effective disposal option, but also would further reduce the urgency to build out the system plan as originally envisioned.

In conclusion, the information and analysis provided by SWD indicate that the assumptions underlying the 2006 Plan are out of date. Maintaining maximum flexibility will reduce the risk that the County and its partners will invest in capacity when it is not needed. It is also important to note that the when the Solid Waste Transfer and Waste Management Plan is ultimately updated and approved, the system information provided in the Plan should reflect the more up-to-date information, such as the tonnage forecast, that has emerged from the plan review. In addition, the County's comprehensive plan should likewise reflect the updated information.

There are strategies to reduce the number of peak hour self-haul transactions at transfer stations.

To address potential impact to level-of-service standards for residential self-haulers caused by changing the number and location of transfer stations, and in order to enhance services under any system configuration, our research found that there are a number of strategies SWD could explore to reduce the number of trips to transfer stations or to manage traffic more effectively at the facilities.

Some methods to reduce trips could include:

- While King County already offers many alternatives for customers to dispose of extra waste or bulky items, King County and its partners could consider instituting an on-call hauling services option through a fee added to a resident's monthly bill, whether used or not. Tacoma's Call-2-Haul service uses this approach to allow residents to schedule hauling appointments one or more times a year.
- King County could explore additional approaches with its partners to increase the number of redemption centers for recyclable materials to help decrease visits to the transfer station, since many self-haulers cite recycling as one of the reasons for coming to a facility.

Other methods to redirect transactions or to better handle them might include:

- Traffic management methods to allow those with the smallest loads (e.g., a couple trash bags) and/or recycling only to bypass the scale house.
- Web cameras at the facilities (e.g., Seattle, WA and Sandwich, MA) to allow self-haulers to adjust the timing of their visit to the transfer station based on station wait time considerations.
- Digital signs to help direct traffic and inform users of wait times.
- Strategic use of staff to assist in ushering self-haulers through the facility and/or to enforce a time limit on time spent inside the facility, particularly during peak use times.
- Price adjustments that lower fees for automated scales and/or provide a disincentive for use of the scale house have been tested in other jurisdictions.

We continue to recommend that SWD explore alternative procurement methods for the design and construction of future transfer stations.

An opportunity exists for SWD to improve the cost-effectiveness of future transfer stations by fully considering the procurement alternatives available to King County, including:

- design-build,
- general contractor-construction manager,
- public-private partnership,
- design-bid-build, and
- competitive negotiation methods.

In response to Ordinance 17435, SWD had a consultant assess these procurement methods in April 2012 for the Factoria transfer station project. Because this assessment was affected by issues specific to Factoria, Ordinance 17437 requires the executive branch to review and report to County Council on all major procurement methods before proceeding with site or facility design for any future transfer station.

SWD has used the competitive negotiation procurement method uniquely available to solid waste organizations under RCW 36.58 for the completed Bow Lake and planned Factoria transfer station projects. Unlike the design-bid-build procurement method most commonly used by King County agencies, this method does not require SWD to award construction contracts to the lowest qualified bidder. Instead, the division is able to establish selection criteria, including factors like contractor experience, approach, and cost, to select the best value for the County.

According to SWD, competitive negotiation fosters scheduling and coordination efficiencies by providing an opportunity for contractor feedback on the constructability of their projects prior to finalizing the design and awarding the construction contract. It is uncertain, however, that SWD is fully achieving the potential benefit of contractor input. For example, while SWD conducted a value engineering study and constructability review for Factoria, these steps were completed without contractor involvement. Also, by the time SWD initiated its contractor procurement process, the project design was 100% complete. This may have reduced the opportunity to cost-effectively implement contractor-identified value engineering or constructability improvements. Our Capital Projects Oversight Program has recommended that SWD develop performance measures to document the benefits achieved by using the competitive negotiation method on the Factoria project.

SWD cited the resources already spent on design, the need to keep the existing transfer station open during construction, and the need to complete the replacement transfer station as soon as possible due to safety considerations as reasons for using competitive negotiation for Factoria instead of one of the other procurement methods. The reasons cited by the division may not apply to future transfer station projects, as discussed for each procurement method below:

Design-Build and General Contractor-Construction Manager
SWD's consultant did not evaluate these procurement methods for Factoria since they already had a design team under contract and the design work was substantially complete. Using either of these methods may afford an opportunity for SWD to improve on the cost-effective delivery of future transfer stations through coordinated design and constructability considerations starting early in project development.

Public-Private Partnerships
The review by SWD's consultant demonstrates a misunderstanding of King County's use of this procurement method. It assumed that the County would finance the project. It also assumed the County would not be able to operate or maintain the new facility. In fact, King County's public-private partnerships have all relied on private financing. The County has also been able to choose which, if any, operations or maintenance activities are conducted by the private partner. The public-private partnership procurement method has been successfully used for a variety of completed projects, including the Chinook Building and Goat Hill Parking Garage, King Street Center, and the Ninth and Jefferson Medical Office Building. It was also planned for the South Regional Roads Maintenance Facility, which was cancelled due to a revenue shortage.

Design-Bid-Build
The consultant's review identified that the design-bid-build procurement method offers limited interaction with contractors prior to awarding the contract. It stated this increases the risk of schedule delays, cost over-runs, or quality issues since the winning contractor may not fully understand the project scope. It also noted that competing contractors may underbid the project to win the contract, intending to recover costs through change orders or claims during construction. County agencies, including SWD, regularly face these risks since design-bid-build remains the most common procurement method used by the County. They can be substantially reduced by preparing high quality construction documents and effective project management during construction.

For the response to Ordinance 17437, we recommend that SWD consult with both county and external resources having hands-on experience with each of the alternative procurement methods under consideration. Consistent with ordinance requirements, SWD's evaluation should be completed early during project development, before investing resources in design or other work which could constrain SWD's approach. The Facilities Management Division recently completed a rigorous evaluation of alternative procurement methods for the County's Children and Family Justice Center project, which may provide a useful example for SWD's future evaluation efforts.

Acknowledgments

We wish to thank the Department of Natural Resources and Parks and SWD for their cooperation with this follow-up audit, and we appreciate the analysis provided by SWD staff and the work that went into quantifying potential impacts of system alternatives.

Bob Thomas, Senior Principal Management Auditor, Chantal Stevens, Principal Performance Management Analyst, and Tom Wood, Capital Projects Oversight Analyst, conducted this management review. Ben Thompson, Deputy County Auditor, was the project supervisor. Please contact Bob Thomas at 477-1042 or Ben Thompson at 477-1035 if you have any questions about the issues discussed in this letter.

cc: Dow Constantine, King County Executive
Fred Jarrett, Deputy County Executive
Rhonda Berry, Assistant Deputy County Executive
Dwight Dively, Director, Office of Performance, Strategy and Budget
Diane Carlson, Director of Regional Initiatives, King County Executive Office
Christie True, Director, Department of Natural Resources and Parks
Pat McLaughlin, Director, Solid Waste Division
Carol Basile, Deputy Director, Department of Executive Services, Finance & Business Operations Division
Michael Huddleston, Municipal Relations Director, King County Council
(KCC) Beth Mountsier, Senior Principal Legislative Analyst, KCC
Mike Reed, Principal Legislative Analyst,
KCC Anne Noris, Clerk of the Council, KCC

Appendix H: Alternative E

LOS Criterion 5 Vehicle Capacity

Alternative E Option 1

	2027				
	Bow Lake	Shoreline	Factoria	SCRTS	Renton
commercial	A	C	A	A	A
	yes	yes	yes	yes	yes
	Bow Lake	Shoreline	Factoria	SCRTS	Renton
self haul weekday	A	A	E	B	C
self haul weekend	A	B	E	C	C
overall	A	A	E	B	C
	yes	yes	no	yes	yes

Alternative E Option 2

	2027				
	Bow Lake	Shoreline	Factoria	SCRTS	Renton
commercial	B	A	C	A	A
	yes	yes	yes	yes	yes
	Bow Lake	Shoreline	Factoria	SCRTS	Renton
self haul weekday	A	A	A	B	E
self haul weekend	A	B	F	C	E
overall	A	B	D	B	E
	yes	yes	no	yes	no

Alternative E Option 3

	2027				
	Bow Lake	Shoreline	Factoria	SCRTS	Renton
commercial	B	A	C	A	A
	yes	yes	yes	yes	yes
	Bow Lake	Shoreline	Factoria	SCRTS	Renton
self haul weekday	A	A	A	B	E
self haul weekend	A	B	D	C	E
overall	A	B	B	B	E
	yes	yes	yes	yes	no

Appendix I: Responsiveness Summary

King County Ordinance 17619, adopted by the King County Council on July 8, 2013, and amended as 17696, directed the King County Solid Waste Division (division) to conduct a review of the 2006 Solid Waste Transfer and Waste Management Plan (Transfer Plan), which requires major transfer system upgrades in order to continue providing environmentally sound solid waste disposal services efficiently and effectively and at reasonable rates. The limitations of functionally obsolete facilities have not improved with time despite a tonnage decline since the Transfer Plan was completed.

This review of the Transfer Plan was extensive. As required by the ordinance, the review included tonnage projections and information about revenue projections; overall costs of the region-wide transfer station upgrades; functionality and service alternatives at the respective transfer stations; and level of service criteria addressed in the Transfer Plan. The review also addressed the retention and repair of the existing transfer stations, including itemized cost estimates for retention and repair and updated long-term tonnage projections, as well as recommendation "4" of the King County Performance Audit of Solid Waste Transfer Station Capital Projects.

The Metropolitan Solid Waste Management Advisory Committee (MSWMAC), the Sound Cities Association (SCA), the City of Bellevue, and the Solid Waste Advisory Committee (SWAC), as well as the commercial haulers and interested citizens provided their perspectives at a series of workshops. Information was presented and feedback received at MSWMAC and SWAC meetings as well as at meetings of the Regional Policy Committee, SCA's Public Issues Committee and city managers' meetings.

The division developed four alternatives to compare to the Base Alternative described in the original Transfer Plan. Stakeholder input led the division to ultimately analyze a total of ten transfer system alternatives (including the Base). The Base and other alternatives were evaluated for impacts to cost, service level, and the environment.

The analysis in this review of the Transfer Plan showed that alternatives that do not build one or more of the planned transfer facilities would result in lower capital costs for King County, but increase overall costs for a significant number of residential and business customers because of higher collection costs. Building fewer transfer stations would also reduce services and increase environmental impacts and collection costs. However, within the constraints of these drawbacks, it would be possible to provide solid waste service with fewer stations.

Phasing, value engineering, and alternative project financing and delivery methods will ensure that development of any new recycling and transfer station is as cost effective as possible. Value engineering is a systematic method to improve the value of finished products by examining the functionality of their design. Value, as defined, is the ratio of function to cost. Value can therefore be increased by either improving the function or reducing the cost. A primary tenet of value engineering is the preservation of basic functions while identifying and removing unnecessary expenditures. The method is proven for significantly reducing capital expenses. In 2011, the division performed value engineering on the preliminary design for a new Factoria Recycling and Transfer Station. The process resulted in significant changes to the design that shaved several million dollars off the construction cost.

Alternative project financing and delivery methods will be evaluated for any new station that will be built in order to identify potential cost savings. Ordinance 17437 requires the division to analyze at least the following procurement methods:

- competitive negotiated procurement under chapter 36.58 RCW
- traditional public works bidding
- developer-delivered, with and without private financing, and
- design-build.

In addition, the division will evaluate projected costs, benefits, schedule, project features, and overall ratepayer value for the design and construction of each project. Selection of a method will depend on the particular benefits and risks for an individual project, and will provide the best possible value for the expense.

The analysis revealed that any system configuration which does not build a new South County Recycling and Transfer Station to replace Algona will not provide sufficient service, would result in significantly increased collection costs for residents and businesses in the South County, and would overload the Bow Lake Recycling and Transfer Station. Alternatives which would build on the Eastgate property are unlikely to receive the necessary permits for construction. However, analysis has shown that it is possible to provide service with fewer facilities, even without building on the Eastgate property; there are tradeoffs to these solutions, as discussed in the final report. Therefore, it is prudent to pursue a course of action that maintains as much flexibility as possible. While there is enough information to move forward with the Factoria and South County projects with confidence, it is best not to lock the County into a commitment to build or not build a new Northeast Recycling and Transfer Station at this time.

The division recommends:

- Proceed this year with a new Factoria Recycling and Transfer Station using current design and permits (with minor modifications to retain flexibility)
- Continue siting evaluations for a South County Recycling and Transfer Station
- In collaboration with stakeholders, continue to evaluate implementation of operational approaches that would provide service for the northeast county without building an additional transfer station

The draft report was transmitted to stakeholders on October 9, 2013. In response to stakeholder concern that the comment period was insufficient, the initial comment period end date was extended from October 23 to February 3 to provide additional time for stakeholders to review the draft report and submit comments.

Written comments were submitted by over 70 different cities, organizations, and individuals. Among these were fourteen cities commenting individually, and four cities that commented collectively. Four advisory committee members submitted comments. Several individuals and two cities submitted comments multiple times, and several citizens submitted identical comments.

Reviewing the comments, a few themes become apparent. First, the many comments either request additional information, or request that supporting information be provided in the body of the report. The contents of the Transfer Plan Review Report were determined by King County Ordinance 17619 (amended as 17696). Recognizing that some readers may want additional information and more detailed supporting data than called for in the Ordinance, the division has prepared numerous appendices, as well as supporting documents that are available on the project website. These materials are linked and referenced throughout the report and in this responsiveness report, wherever relevant.

Many commenters also took this comment period as an opportunity to comment on the South County Recycling and Transfer Station siting process. While these comments are valued, it is important to note that the Transfer Plan review is a separate process from transfer station siting. King County is required to plan for its long term provision of solid waste and recycling services. The Transfer Plan review is a limited process directed by ordinance and confined to the period of July 2013 to March 3, 2014. It deals with the regional system as a whole, and is concerned with the size and number of service areas rather than the exact locations of future facilities within those service areas. Determining the exact location for a facility in South County is a multi-step process that began in 2012. Three sites were identified for thorough environmental review under the State Environmental Policy Act. Environmental review has been put on hold pending completion of the Transfer Plan review. A final siting recommendation for South County, as for any potential facility, will be made only after the completion of environmental review.

Written comments received through February 3, 2014 are included in this responsiveness summary, grouped by subject. Each comment is summarized once, followed by the names of each person who submitted an identical comment or a comment making the same point. Comments have been grouped by subject, with the response provided in the right-hand column. All written comments received are included in their entirety as Appendix J.

Comments were received from the following cities, Solid Waste Advisory Committee members, and other interested parties.

City of Algona
City of Auburn
City of Bellevue
City of Bothell
City of Burien
City of Federal Way
City of Kenmore (with Redmond, Shoreline, Woodinville)
City of Kent
City of Kirkland
City of Lake Forest Park
City of Maple Valley
City of Redmond (with Kenmore, Shoreline, Woodinville)
City of Renton
City of SeaTac
City of Shoreline (with Kenmore, Redmond, Woodinville)
City of Tukwila
City of Woodinville (individually and with Kenmore, Redmond, Shoreline)

Baker	David	(Solid Waste Advisory Committee)
Garber	Jean	(Solid Waste Advisory Committee)
Livingston	Keith	(Solid Waste Advisory Committee)
Schmidt-Pathmann	Philipp	(Solid Waste Advisory Committee)
Aigner	Robert	(Harsch Investment Properties, and with other business owners)
Anonymous Auburn Citizen		
Arroyo	Lillian	
Bachtiar	Farley	
Bonin	Claire	
Bosley	Steve	
Boyd	Bill	

Brekke	Dana	
Brekke	Jan	
Brekke	John	(Brekke Properties, Viking Development, and with other business owners)
Brekke-Parks	Eleanor	(Brekke Properties, and with other business owners)
Caldwell	Jennifer	
Caretti	Marilyn	
Colman	Joanne	
Cotter	Mike	(Omega Riggers & Erectors and with other business owners)
Cowan	Sally	
Crockett	Ron	(Emerald Downs with other business owners)
Cummings	Kathleen	
Delmar	Jeremy	
Dizon	Annabelle	
Flanagan	Cindy	
Hall	Guy	(A&G Machine and with other business owners)
Harkness	Marie-Anne	
Harvie	Amy	
Isaman	Holly	
Ison	Jenel	
Jay	Nathan	(Brekke Properties)
Johnson	Dottie	
Knapp	Jim	
Lahiri	Subir	
Landry	Tom	(with Tom Souply as Span Alaska Transportation, Inc., and with other business owners)
Li	Peilin	
Lindenauer	Jon	
McKim	Dave	(Timberland Homes with other business owners)
McKnight	Chet	
Meldrum	Elizabeth	

Mesina	Maribel	
Noble	Wendy	
Norton	Marilyn	
not provided	Nathan	
Pietromonaco	John	(HRP Properties and with other business owners)
Rojas	Justine	
Rosendahl	Wade	
Ruppel	Lisa	
Ruppel	Mason	
Sanders	Drew	
Scott	Jeff	(R.W. Scott Construction and with other business owners)
Shoemaker	William	
Snowdon	Charles	
Snowdon	Gaile	
Souply	Tom	(individually and with Tom Landry as Span Alaska Transportation Inc. and with other business owners)
Spina	Ronald	
Stilwell	Jay	
Storrs	Amy	
Streiffert	Dan	(Rainier Audubon Society)
Struck	Marla	
Studley	Ken	
Teutsch	John	(Teutsch Partners with other business owners)
Tiangsing	Bonnie	
Vander Pol	Ed	(Oak Harbor Freight Lines with other business owners)
Walsh	John	
Woomer	Ken	(CSI - Competition Specialties, Inc.)
Wright	Steve	

Topic	Commenter	King County Solid Waste Division Response
Transfer Plan Review – General Comments		
Find ways to save money – not defend 2006 plan	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville • Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Nathan (surname not provided)	The 2006 Transfer Plan was developed in collaboration with a wide-range of stakeholders, some of whom participated in the review. While it was important to take a fresh look at that plan, the division received feedback during the review process that many of its elements were still valuable, including expanding transfer station recycling and installing compactors. At the same time, the division looked seriously at the suggested system configurations and highlighted areas where there could be cost savings; however, the same services at the same, or the desired improved, level cannot be provided with any alternative that significantly reduces the number or functionality of transfer stations . The division will continue to engage the cities and its advisory committees in consideration of an appropriate, acceptable solution for the area currently being served by the Houghton TS. To ensure that new facilities are being built as effectively and efficiently as possible the division will continue to engage in value engineering for all of its major capital projects.
King County is pushing an agenda	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Nathan (surname not provided)	Yes, by contract – interlocal agreements with 37 King County cities – the County is responsible to provide transfer and disposal services and by state law is responsible to ensure provision of service in the unincorporated area.
Review process too short/moving too fast/need to take more time	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	The transfer system planning process has been ongoing for many years, with this review process as just the latest in a series of review and planning processes that have taken place over the last 20 years. In 1992, King County adopted a comprehensive solid waste management plan calling for the renovation of its aging urban transfer system. Without strong regional consensus

	• John Brekke with other business owners • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Cindy Flanagan • Guy Hall (A&G Machine) • Nathan Jay • Maribel Mesina • Nathan (surname not provided) • John Pietromonaco, HRP Properties • Jeff Scott (R.W. Scott Construction) • Span Alaska Transportation, Inc	about the need for improvements, a rate increase to support this plan was not approved. Since 1992, population growth, technological changes, and aging infrastructure have intensified the need for significant improvements. The 2001 *Comprehensive Solid Waste Management Plan* emphasized this need again. In 2004, the Metropolitan King County Council adopted Ordinance 14971, which prioritized evaluation of the urban transfer station network as an integral part of the analysis for the next comprehensive solid waste management plan, and established a process for collaborative participation by the cities in solid waste planning. This process led to the formation of the MSWMAC, which was integral to the development of four milestone reports culminating in the 2006 Solid Waste Transfer and Waste Management Plan. This plan recommends upgrading the urban transfer station system. The County Council requested an independent third-party review of the Transfer Plan, which was conducted by the firm Gershman, Brickner & Bratton, Inc. (GBB). GBB fully supported the primary objectives of the plan: to modernize the transfer station system and maximize the lifespan of the Cedar Hills landfill. The County Council unanimously approved the Transfer Plan in December 2007. The limitations of functionally obsolete transfer facilities constructed in the 1960s have not improved with time, despite a tonnage decline since the Transfer Plan was completed. This Transfer Plan review process was extended to allow stakeholders additional time for comment. The division has continued its analyses during the three month extension, and will continue to evaluate new data and work with its advisory committees after the final report is submitted.
Delay removes risk from incorrect forecasts	• John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina • Jeff Scott (R.W. Scott	Forecasts are always subject to unforeseen market and other influences.

	Construction)	
Feedback was ignored/process not collaborative	• Dana Brekke • Eleanor Brekke-Parks (Brekke Properties) • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Nathan (surname not provided) • Nathan Jay • Maribel Mesina	The division attempted to include perspectives from multiple stakeholders in both planning the review process and during workshops. Stakeholder feedback was used to develop the alternatives considered and the workshop agendas. Alternative E was added in response to feedback received during the comment period.
Provide individual meetings to all King County cities	• John Brekke (Brekke Properties, Viking Development)	Meetings were offered to all cities and provided as requested.
Complete the comprehensive solid waste management plan, a new rate study, and/or other plans before finalizing the Transfer Plan	• Rob Aigner, Harsch Investment Properties • Dana Brekke • John Brekke (Brekke Properties, Viking Development) • John Brekke with other business owners • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Annabelle Dizon • Nathan Jay • Maribel Mesina • Nathan (surname not provided)	The Transfer Plan is needed to inform the comprehensive solid waste management plan (a six-year capital program projection is a requirement) and is an important input to a rate study and other plans. The division will continue to analyze options for disposal after Cedar Hills reaches capacity and closes and will work with its advisory committees to update plans as needed.

	• Phillip Schmidt-Pathmann • Jeff Scott (R.W. Scott Construction) • Charles Snowdon • Gaile Snowdon • Ken Woomer, CSI	
Comment period too short	• City of Federal Way • City of Lake Forest Park • City of SeaTac • City of Tukwila • Rob Aigner, Harsch Investment Properties • Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Cindy Flanagan • Nathan Jay • Maribel Mesina • Nathan (surname not provided) • Jeff Scott (R.W. Scott Construction)	In response to feedback, the division extended the due date for comments on the draft report by nine days from October 23, 2013 to November 1, 2013. Council subsequently extended the comment period until February 3, 2014 and changed the final report due date from November 27, 2013 to March 3, 2014.
Final report should include a public comment period	• Eleanor Brekke-Parks (Brekke Properties)	The review process, as set by ordinance, does not include a public comment period on the final report.

Have a third-party review of the Transfer Plan/ Transfer Plan Review Report/conflict of interest for division to make system decisions	• City of Auburn • Jon Lindenauer	The review process, as set by ordinance, does not include a third-party review. Council may choose to add such a review, as was done with the original 2006 Transfer Plan, which was subjected to third-party review and subsequently unanimously approved by Council in 2007.
The 2006 Transfer Plan must be amended with the review recommendation	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville	The Transfer Plan could be amended to reflect any changes or potentially the comprehensive solid waste management plan, as the guiding document for the solid waste system, could include changes and supersede the Transfer Plan. The original Transfer Plan underwent environmental review under SEPA; changes to that plan would be subject to environmental review as well.
Report Format		
Include data from appendices and handouts in body of report	• Dana Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	The data is readily available; it will not be included in the body of the report.
Attach Optimized Transfer Station Recycling Study to the report	• Dana Brekke • John Brekke (Brekke Properties, Viking Development) • Nathan (surname not provided)	The Optimized Transfer Station Recycling Feasibility Study is available on the division's website; it will not be attached to the report.
Data		

Inappropriate to make assumptions about data	• Eleanor Brekke-Parks (Brekke Properties) • John Brekke (Brekke Properties, Viking Development) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	All forecasting relies on identifying reasonable assumptions; the assumptions were reviewed with stakeholders at the workshops.
Tonnage forecast inconsistent	• John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Maribel Mesina • Nathan Jay	The division constantly monitors data that is predictive of future tonnage, and updates the forecast accordingly. The division uses the most current information available when performing analyses.
Need traffic studies	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Nathan (surname not provided)	Traffic would be considered in the environmental review of the Transfer Plan were it to change. Traffic studies would be performed as part of the environmental review when new stations were sited and constructed.
Include more detailed drive-time data	• John Brekke • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay	The division acknowledges that traffic does affect travel time and that drive times may be greater than shown during peak traffic. Analysis indicates that drive times are not a significant factor in the need for transfer system upgrades.

	• Maribel Mesina	
Include detailed data on recycling limits (especially at Bow Lake) resulting from transactional capacity issues	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	This detailed information is not available.
Include detailed data on self-haul limits resulting from transactional capacity issues	• Dana Brekke	This detailed information is not available.
Systematic and incremental analysis of impacts, capacities and functionality was lacking in the report and falls short of the intentions of the King County Ordinance 2013-0258	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	The ordinance requiring the Transfer Plan review called for the review to address recommendation "4" of the King County Performance Audit of Solid Waste Transfer Station Capital Projects, which recommended systematic analysis of incremental cost impacts of the number, capacities and functionality of the transfer stations and assessment of project financing and delivery methods. For information that is responsive to this requirement, see Appendix B, all sections and the Workshop 3 materials.
Describe the source of anticipated housing, density and population growth Why was 2035 cited?	• John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	Projections for population and household size are based on data developed by the Puget Sound Regional Council (PSRC). Data provided by PSRC are based on U.S. Census and other data sources. More information can be found at http://www.psrc.org/. The division also used information provided by the U.S. Census Bureau for information about projected population growth which provided information for 2025 and 2035.
Include long-haul costs	• Dana Brekke	Long haul cost is outside the scope of the Transfer Plan review.

Costs were not presented incrementally	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina • Nathan (surname not provided)	See Appendix B, all sections.
Include cost to add compaction to existing facilities	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	Cost to add compactors to existing facilities was not included because it is not feasible. Due to property size and other physical factors, it is not possible to add compaction to the Algona, Factoria, or Renton facilities. A compactor could be added to the Houghton TS, but doing so would reduce capacity by 50 percent because operational space would be compromised.
Include ESJ	• City of Auburn • John Brekke (Brekke Properties, Viking Development)	Equity and social justice were considered in materials presented at Workshop 3: http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Equity-Social-Justice.pdf and http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Equity-Social-Justice-Maps.pdf.
Too much data	• Jeff Scott (R.W. Scott Construction)	The division acknowledges that the report and its appendices include a great deal of information.
Alternatives		
Number of alternatives insufficient/wrong alternatives	• Dana Brekke • Jan Brekke	The division considered alternatives that would not build one or more planned transfer facilities and considered retention of two existing facilities as suggested by its City

considered/consider more alternatives	• John Brekke (Brekke Properties, Viking Development) • Nathan (surname not provided) • Jeff Scott (R.W. Scott Construction)	partners. In response to comments received, the division has added Alternative E with three options.
Include a no-build alternative	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Nathan Jay • Maribel Mesina • Jeff Scott (R.W. Scott Construction)	An alternative that does not build any new transfer facilities would not meet the service needs of the region. All alternatives to the Base would build fewer transfer stations than planned and five alternatives involve retention and repair of facilities currently planned for closure.
Consider alternative with no closures and remodeling all existing facilities to serve commercial and self-haul	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Nathan (surname not provided)	That idea was explored during development of the Transfer System Plan – see Milestone Report Two, which concludes that existing stations cannot be remodeled to continue providing full service.
Base Alternative is not economical	• Cindy Flanagan	The Base Alternative is most expensive from a capital construction perspective, but would have the least impact on curbside collection costs and would provide the highest level of service, including increasing recycling which diverts materials from disposal. Saving landfill space has an economic value as it defers the additional cost that will be incurred for disposal after Cedar Hills reaches capacity and closes.
Alternative E3 is not necessary	• City of Kenmore	The division does not recommend pursuing Alternative E3.

	• City of Redmond • City of Shoreline • City of Woodinville	
Supports continued analysis	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville	The current recommendation is to continue analysis while moving forward with construction of Factoria RTS.
Draft Recommendation		
Prefers Base Alternative	• City of Bothell • City of Burien • City of Federal Way • City of Kent • City of Kirkland • City of Lake Forest Park • City of Maple Valley • City of Renton • City of SeaTac • City of Tukwila • David Baker • Jean Garber • Keith Livingston	The division is committed to providing effective and efficient service to all of its customers. To that end, it believes that the system could benefit from a closer look at how to best serve the needs of the area currently served by the Houghton Transfer Station, which could include policy changes that would eliminate the need for a Northeast facility. The division's advisory committees will be fully engaged in the evaluation.
Supports recommendation to phase implementation of Northeast and continue monitoring critical data after Factoria construction	• City of Bothell • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay	The division believes that there are advantages to further evaluation of the northeast area's needs and policy changes that could meet those needs without construction of a new Northeast facility.

	• Maribel Mesina • Jeff Scott (R.W. Scott Construction)	
Alternative A is second choice	• Keith Livingston	The division is not recommending Alternative A.
Opposes Alternatives C through D***	• City of Burien	Alternatives C through D*** do not meet the needs of the service area.
Opposes Alternatives C** and D** because Algona stays open to self-haul; supports Alternatives C and D because the Algona TS would close in 2018	• City of Algona	Neither Alternatives C** and D** nor C and D meet the needs of the service area.
Conclusions are not supported	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	Given the level of service standards and recycling goals developed by regional consensus, the division believes that the data supports the need for a geographically dispersed solid waste transfer system that will: • serve garbage and recycling customers as effectively and efficiently as possible for at least the life of the new interlocal agreement, • incorporate current technology and be flexible to respond to changing needs, • provide service to self-haul customers, and • support regional recycling goals. The division believes that the following course of action will allow critical projects to proceed while preserving flexibility to respond to system needs and stakeholder concerns over time. • Proceed this year with a new Factoria Recycling and Transfer Station using current design and permits (with minor modifications to retain flexibility) • Continue siting evaluations for a South County Recycling and Transfer Station • In collaboration with stakeholders, continue to evaluate implementation of operational approaches that would provide service for the northeast county without building an additional transfer station

Transfer Stations/System – General		
Provide equitable distribution of transfer facilities	• City of Bellevue • City of Federal Way • City of Lake Forest Park • City of Renton • Jean Garber	Per King County Code 10.08.030, "To the extent practicable, solid waste facilities shall be located in a manner that equalizes their distribution around the county, so that no single area of the county will be required to absorb an undue share of the impact from these facilities."
The transfer plan should be flexible to respond to changes	• City of Bellevue	The recommendation to proceed with South County and build Factoria as designed while delaying a decision on the northeast county will provide flexibility to respond to impacts of changes in the system.
Transfer system must support recycling goals	• City of Kent • Jean Garber • Keith Livingston • Dana Brekke	New recycling and transfer stations provide significantly expanded recycling and the ability to add new materials in the future as markets and technology improve.
The Comprehensive Solid Waste Management Plan must include thresholds that trigger a decision on a Northeast RTS	• City of Bellevue	The Comprehensive Solid Waste Management Plan will be updated to include decisions made in the Transfer Plan review.
Transfer stations are necessary for public health	• Keith Livingston	The comprehensive solid waste management plan and King County Title 10 recognize the role of the regional transfer system in protecting public health and the environment.
Avoid NIMBY-ism by designing attractive facilities and being a good neighbor	• Keith Livingston	Transfer stations provide an essential and beneficial public service. While the stations have the potential to cause undesirable impacts on host cities and neighboring communities, such as increased litter, odor, noise, road/curb damage, and traffic, as well as aesthetic impacts, one of the division's highest priorities is to minimize the effects of its facilities on host cities and surrounding communities. The division works to mitigate impacts in a number of ways, such as collecting litter, landscaping on and around the site, limiting waste kept on-site overnight to reduce the potential for odor, making road modifications, and siting facilities on or near major roadways to keep

		traffic off local streets. As new transfer stations are constructed, the division will work with host and neighboring cities to build stations that are compatible with the surrounding community. For example, during the design of the Shoreline Recycling and Transfer Station, the division worked closely with the community to identify impacts and mitigation measures. One result is that transfer trailers drive directly from the station onto Interstate 5 using King County Metro Transit's dedicated freeway ramps rather than city streets for access. Sidewalks on nearby streets were improved; a new walking path was constructed at nearby Ronald Bog Park; trees were planted; and the portion of Thornton Creek that flows through the site underwent significant restoration. The transfer station building was also moved farther from residences and is fully enclosed to mitigate impacts from noise, odor, and dust. While specific mitigation measures will vary depending on the site, all new transfer station buildings will be fully enclosed. As a part of the transfer system planning process, the division and its advisory committees developed five criteria for transfer stations to evaluate effects on communities: • *Meets applicable local noise ordinance levels* – The purpose of this criterion is to ensure that a facility does not violate state or local (city) standards for acceptable noise levels. State and city standards are based on maximum decibel (dBA) levels that consider zoning, land use, time of day, and other factors. • *Meets Puget Sound Clean Air Agency standards for odors* – The primary measure of odor is complaints by the public or employees. Complaints are typically reported to the Puget Sound Clean Air Agency (PSCAA) or directly to the division. Complaints to PSCAA are verified by an inspector. If an odor is verified and considered to be detrimental, PSCAA issues a citation to the generator of the odor. The division also tracks and investigates odor complaints. • *Meets goals for traffic on local streets* – This criterion measures the impacts on local streets and neighborhoods from vehicle traffic and queuing near the transfer stations. The area that could be affected by traffic from self-haulers and commercial collection trucks extends from the station entrance to the surrounding streets. • *Existence of a 100-foot buffer between the active area and nearest residence* – This criterion calls for a 100-foot buffer between the active area of the station and the nearest residence.

		• *Compatibility with surrounding land uses* – This criterion looks at consistency with land use plans and zoning regulations, aesthetics, and compliance with state and local regulations.
Consider adopted local policies and regulations in the siting criteria and decision making process.	• City of Auburn	Compatibility with local land use is one of the 17 criteria used in the Transfer Plan and the review.. Local policies and regulations are part of the division's siting criteria, and are included in decision-making when the division is engaged in a siting process. Functional siting criteria from the South County RTS siting process are posted online.
County is biased toward building transfer stations/transfer stations are an antiquated approach to solid waste management/ transfer system is designed to cater to landfilling	• City of Auburn • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Cindy Flanagan • Nathan Jay • Maribel Mesina • Phillip Schmidt-Pathmann • Jeff Scott (R.W. Scott Construction)	Transfer stations are used in solid waste systems throughout the world to consolidate smaller loads of waste into larger loads for transport to disposal or for further treatment or processing. Transfer stations can also be part of a system that encourages separation of recyclables from waste and can include waste processing. The division is designing new facilities for flexibility to accept a wide-range of recyclables as needs evolve, and for the potential to add further processing that would divert waste from the landfill.
Enlarging or modernizing an existing transfer station has fewer impacts than building a new facility in a new location	• City of Woodinville	This is true, and the division has constructed new facilities at existing locations at Shoreline and Bow Lake. However, in some cases, existing locations are not the best locations for serving an area, whether due to specific property considerations, such as size, or because the location is no longer suitable. Regardless of whether the division is building a new a facility at the same location, or seeking to site a completely new facility, the involvement of the community is critical to ensure that impacts are minimized and the facility is a good neighbor.
Not all transfer stations need to be	• Eleanor Brekke-Parks	Transfer stations must to meet the needs of the service area, which means that they

the same	(Brekke Properties)	may have different operating hours, capacity, and services; however, all must meet certain standards, such as regulatory requirements for protection of public health.
Do not overbuild	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville • Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Nathan (surname not provided) • Span Alaska Transportation, Inc.	The division is committed to designing facilities that meet the capacity needs of the service area and which are flexible as conditions change.
Maximize available capacity at existing stations through operational and service changes	• City of Bellevue	The division constantly seeks to improve the efficiency of its operations. The Transfer Plan Review Report recommends making the most of the new Factoria RTS while further considering whether Northeast RTS is necessary to meet the region's service needs.
Transfer stations now recycle 35 percent	• Cindy Flanagan	The current overall recycling rate for the transfer system is about 5 percent. Unfortunately, largely due to a lack space to provide the service, transfer station recycling is not as advanced as curbside recycling programs. To reach the overall 70 percent recycling goal, the transfer station recycling rate would need to reach 35 percent.
Facility Design and Operation		
New transfer facilities must be flexible to accommodate technology and disposal method changes	• Jean Garber • Keith Livingston	Flexibility is a key goal of facility designs that considers what materials will be received and how much, but also the ability to change processes and add new technology. The division has reserved space at the Bow Lake RTS that could be used for future services or processing of materials.

New transfer facility design process should emphasize value engineering	• Jean Garber	Value engineering is an important part of the design process. The Factoria construction cost was reduced by about $10 million due to value engineering and internal review.
Include the potential for and contemplated use of biomass processing at transfer stations	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina • Nathan (surname not provided)	In 2014, division will begin studying the possibility of incorporating anaerobic digestion or other alternative disposal technologies at new transfer stations.
Waiting to design new stations will make them better	• Dana Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties)	Whenever a design is completed there will always be something new coming. Over the life of a transfer facility (up to 50 years), changes in conditions are expected. A key goal of the transfer facility designs is flexibility to meet future needs related to the types and amounts of materials received, as well as the ability to incorporate new or improved technology; new transfer facilities are designed and constructed with that flexibility in mind.
Tipping floor sorting is not done/tipping floor sorting should be implemented at Shoreline and Bow Lake to inform design of future facilities	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors)	Tipping floor sorting is not possible at facilities with a chute design. New facilities are being built with a flat floor design to allow tipping floor sorting in order to divert more materials from disposal. Floor sorting is planned for both Shoreline and Bow Lake; a project to standardize floor sorting is beginning in 2014.

	• Maribel Mesina • Nathan Jay • Nathan (surname not provided) • Jeff Scott (R.W. Scott Construction)	
Prior to building and operating additional facilities, conduct an operational review of each of the transfer stations, including the new stations, to ensure the division is maximizing the ability of stations to accommodate not only the tonnage but the transactional needs of customers	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville	The division will continue to consider optimal operations for all transfer facilities as a part of its ongoing work. For example, in 2014 the division will begin a materials recovery pilot at Shoreline and Bow Lake that will target recovery of wood, metal and cardboard, standardize recovery methods, and evaluate the feasibility of targeting additional materials for diversion.
Northeast RTS		
If Northeast is warranted locate in the community where most of the waste is generated/locate in jurisdictions that offer to host it/do not site in Woodinville	• City of Woodinville	Should a Northeast RTS need to be sited, criteria would include a variety of considerations including placement within the service area and equitable distribution of services and impacts, as well as community criteria identified by a siting advisory committee (SAC). SAC members identify community concerns and impacts, develop criteria used to evaluate potential sites, help create public awareness of the project, and have the opportunity to express opinions and preferences throughout the siting process. Representatives from cities, local agencies and businesses, chambers of commerce, commercial garbage and recycling collection companies, transfer station users, environmental and neighborhood groups, interested citizens, tribes, and school districts would be invited to participate.
An expanded Factoria could serve the entire northeast county	• City of Woodinville	Alternative E which considers that possibility was added in response to feedback.
Delay Northeast RTS/County Council approval should be	• City of Kenmore	The current recommendation is to pursue further analysis before proceeding with

required before proceeding	• City of Redmond • City of Shoreline • City of Woodinville	Northeast RTS. All new transfer station capital projects require Council approval.
Don't delay the Northeast Recycling and Transfer Station	• City of Kirkland • Jean Garber	The division believes that the project should be deferred until the effects of Bellevue leaving the King County solid waste system in July 2028 and possible options for providing service in the northeast area can be more fully evaluated.
A Northeast RTS is necessary to provide equitable service and to distribute impacts equitably	• City of Bellevue	Analysis indicated that there are approaches to provide service without constructing a Northeast RTS; however there are tradeoffs to these solutions, as discussed in the report. The division will continue to collaborate with stakeholders to evaluate whether to build in the northeast county.
Eliminate Northeast RTS from consideration since it is not necessary	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville	The division is recommending that a decision on whether or not to build Northeast be deferred, pending new data, additional analysis, and ongoing discussions with stakeholders. Northeast RTS is not necessary if current forecasts are accurate, and if the region accepts the policy changes described in Alternatives E1 and E2, both of which would require the involvement of the service cities and Council action for implementation. A Northeast RTS may prove to be necessary if these assumption and conditions change.
A Northeast RTS would cost $120 million	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville	A Northeast RTS, as proposed in the Base Alternative, would cost about $100 million (inflated). The cost would be expected to be higher than the South County RTS because of the higher property costs in the northeast service area.
Factoria Transfer Station		
The Eastgate property should not be used	• City of Bellevue • City of Kenmore • City of Kirkland • City of Redmond • City of Woodinville	The division's recommendation does not include building on the Eastgate property. The Eastgate property may be needed during construction of the new Factoria, i.e., for construction staging.

Why no compaction for self-haul at Factoria-Eastgate in Alternative A?	• John Brekke (Brekke Properties, Viking Development)	Due to the amount of waste that would be received, the payback time was lengthy; however, the design would be flexible to add a compactor if desired.
Consider handling Household Hazardous Waste at another location and re-programming this space as part of the transfer station	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville	Alternative E Options 2 and 3 consider the possibility of siting a stand-alone HHW facility rather than providing the service at the Factoria station. There are advantages to having HHW services located at a transfer station that provides garbage and recycling service. Customers have the convenience of bringing garbage, recyclables, and HHW in one trip to one facility. Co-location also provides operational efficiencies, allowing staff to serve different areas of the transfer station in response to customer demand, rather than fully staffing separate facilities. Both in number of customers and amount of materials collected, Factoria is the busiest HHW facility in King County, including the two facilities in Seattle. A separate HHW facility would require siting, planning, property purchase, design, and construction costs. It is likely that siting a separate HHW facility would present risks and challenges similar to siting a transfer facility.
Consider increasing transactional capacity without using the Eastgate property	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville	Additional scales and a second compactor have been added to the Factoria project and a separate queuing lane is being pursued. None of these will use the Eastgate property.
Consider adjacent properties other than the Eastgate property, if the data shows that additional capacity is needed	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville	The division recommends moving forward with constructing the new Factoria on current property which would not negatively affect the current design, permits, or timeline.
Okay to eliminate recycling from Factoria 2021-2028	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville	Eliminating recycling was considered in Alternative E Options 2 and 3.
Factoria should remain open until	• CleanScapes	Past evaluations of operating hours have not supported the later closing at Factoria;

6 p.m.		however, the division is open to discussing the possibility.
Support recommendation to proceed with Factoria without delay	• City of Bellevue	The division is recommending proceeding on the current schedule.
Support recommendation to proceed with Factoria as designed	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville	The division is recommending proceeding with Factoria as designed, with minor modifications that do not affect the design or permits, including adding a second waste compactor and additional scales.
South County RTS		
Oppose siting a South County RTS at 28721 West Valley Hwy. S., Auburn	• City of Auburn • Rob Aigner, Harsch Investment Properties • Anonymous • Lilian Arroyo • Farley Bachtiar • Claire Bonin • Steve Bosley • Bill Boyd • Eleanor Brekke-Parks (Brekke Properties) • John Brekke with other business owners • Jennifer Caldwell • Marilyn Caretti • Sally Cowan • Kathleen Cummings • Jennifer Davidson • Jeremy Delmar • Annabelle Dizon • Cindy Flanagan	The Transfer Plan review was not intended to replace the ongoing siting process for a recycling and transfer facility in the south county area currently served by the Algona Transfer Station. An environmental review prepared under the State Environmental Policy Act will evaluate probable significant adverse effects on wetlands, wildlife, traffic, noise, odor, utilities, aesthetics, groundwater, and other elements of the natural and built environment, along with mitigation measures that avoid or minimize adverse environmental impacts, for three potential sites and a "No Action" Alternative, which would retain the current Algona Transfer Station until the end of its useful life. More information about the siting process and project updates can be found on the project website http://your.kingcounty.gov/solidwaste/facilities/algona/index.asp. The estimated capital cost to build a new South County RTS (at any location) to replace Algona is about $74 million dollars (in 2013$). The current Algona Transfer Station is 60 years old, and is built on wood pilings that will fail unless replaced within the decade. Retention and repair of Algona Transfer Station (estimated at $8.9 million in 2013 dollars) would simply allow the current building to continue operation. The repaired facility would not have sufficient capacity to efficiently provide service to both commercial and self-haul customers past about 2018, and would not be able to compact waste or accept materials for recycling. The transfer station capital program is not funded by taxes. Transfer station projects are funded by fees charged to users at the transfer facilities.

	• Marie-Anne Harkness • Holly Isaman • Jenel Ison • Dottie Johnson • Jim Knapp • Subir Lahiri • Peilin Li • Jon Lindenauer • Chet McKnight • Elizabeth Meldrum • Wendy Noble • Marilyn Norton • John Pietromonaco, HRP Properties • Justine Rojas • Wade Rosendahl • Lisa Ruppel • Mason Ruppel • Drew Sanders • Jeff Scott (R.W. Scott Construction) • William Shoemaker • Charles Snowdon • Gaile Snowdon • Tom Souply • Span Alaska Transportion, Inc. • Ronald Spina • Jay Stilwell • Amy Storrs • Dan Streiffert • Marla Struck • Ken Studley	

	• Bonnie Tiangsing • John Walsh • Ken Woomer, CSI • Steve Wright	
Neither site in Auburn is appropriate for siting a transfer station/the existing Algona site with adjacent property is ideal for minimizing impacts	• City of Auburn	The Transfer Plan Review was not intended to replace the ongoing siting process for a recycling and transfer facility in the south county area currently served by the Algona Transfer Station. The division purchased property adjacent to the existing Algona Transfer Station to preserve it as an option for development. Environmental review is underway.
Consider siting a facility in unincorporated areas/outside the UGA boundary	• City of Auburn	The division does not consider siting facilities that primarily serve the urban area outside of the Urban Growth Area boundary. Any newly sited facility should be centrally located in the service area in order to provide a reasonable alternative to the convenience of the current station. County-wide planning policy LU-21 states, "Regional public facilities which directly serve the public shall be discouraged from locating in Rural Areas." King County Comprehensive Plan Policy F-222 supports this, stating, "Essential public facilities that directly serve the public beyond their general vicinity shall be discouraged from locating in the Rural Area." Unincorporated areas within the Urban Growth Area boundary were included in the preliminary site search for a new South County RTS site.
Delay South County RTS – south county should be granted the same wait and see recommendation as northeast county	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	The same conditions do not apply in South County where all cities have signed an extended interlocal agreement.

Enumclaw, rural drop boxes, and Renton can serve south county	• Rob Aigner, Harsch Investment Properties • Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Nathan Jay • Maribel Mesina • Jeff Scott (R.W. Scott Construction)	Some of South County is served by the Enumclaw RTS (about 5 percent of its self-haul customers are from Auburn); however, it is not well located to provide service for the entire South County area. Enumclaw was considered in the drive time analysis. The rural drop boxes (Cedar Falls and Skykomish) are not within the service area. The closest drop box, Cedar Falls, has restrictions on the amount of waste that can be accepted. The Renton TS is not suitably located to replace capacity in South County.
Expand and/or alter the current Algona Transfer Station to serve the south county instead of building a new facility	• City of Algona • Rob Aigner, Harsch Investment Properties • Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • John Brekke with other business owners • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Annabelle Dizon • Cindy Flanagan • Guy Hall (A&G Machine) • Marie-Ann Harkness • Nathan Jay	The current Algona site is less than five acres and will not accommodate a modern full-service facility. The division has explored options that would add a compactor and add recycling and found that there is insufficient space on the current property. Use of adjacent property is being considered in the siting process for a new South County RTS.

	• Maribel Mesina • John Pietromonaco (HRP Properties) • Rainier Audubon Society • Jeff Scott (R.W. Scott Construction) • Charles Snowdon • Gaile Snowdon • Span Alaska Transportation, Inc • Ken Woomer, CSI	
Landscape company that leases property adjacent to Algona can accept yard waste	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	Facilities that accept yard waste for recycling must follow the requirements of and be permitted by King County public health.
Bow Lake can serve south county; siting another transfer station in the south county would disproportionately impact the community	• Dana Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	Transfer stations are dispersed around the county so that waste created in the area can be efficiently consolidated for transport to disposal. Bow Lake is not sufficient to manage the need of the entire south county and would leave the south county underserved.
Bow Lake is not sufficient to serve all of South County	• City of Federal Way • City of Kent • City of Renton • City of SeaTac • City of Tukwila	The division is recommending that a new transfer station be built in the south county.

Divert Federal Way waste to Bow Lake, which would support a remodel of Algona	• Jon Lindenauer	Diverting Federal Way's waste to Bow Lake would increase collection costs for commercial and residential customers in the City of Federal Way. The Algona Transfer Station would still not be able to compact waste or accept recyclables.
Similar to the City of Bellevue with the Factoria Transfer Station, the cities of Algona and Auburn have land use, zoning and permitting issues with the siting of a new transfer station, Bellevue received preferential treatment	• City of Algona • Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	The City of Bellevue has identified an issue with a specific property. Cities cannot ban essential public facilities outright.
The Transfer Plan review report should not steer a decision to site a South County RTS in Algona – the environmental review must be completed Siting a facility in Algona would disproportionately impact the City due to its small size; address how the County would mitigate impacts	• City of Algona	The Transfer Plan review was not intended to replace the ongoing siting process for a recycling and transfer facility in the south county area currently served by the Algona Transfer Station. An environmental review prepared under the State Environmental Policy Act will evaluate probable significant adverse effects on wetlands, wildlife, traffic, noise, odor, utilities, aesthetics, groundwater, and other elements of the natural and built environment, along with mitigation measures that avoid or minimize adverse environmental impacts.
Algona's comprehensive plan update must be a factor in the siting process and should be referenced in the Transfer Plan Review report	• City of Algona	Should a decision be made to site a transfer facility in the City of Algona, the comprehensive plan would be considered.

The No Action alternative for the south county is not adequately represented in the report	• City of Algona	Environmental review will consider a no action alternative which would retain the Algona transfer station until the end of its useful life, in addition to three action alternatives.
The level-of-service criteria evaluation did not adequately address impacts to roadways and land use at the Algona location	• City of Algona	The level-of-service evaluation did not assume any particular site for a South County RTS. Individual sites will be evaluated through the environmental review process.
Northeast and South County need to be studied separately	• Rob Aigner, Harsch Investment Properties • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Cindy Flanagan • Nathan Jay • Maribel Mesina	The division believes it is important to consider the system as a whole; however, siting and facility master plan processes are independent.
Other Facilities		
Houghton Transfer Station should close in 2021	• City of Kirkland	The division is recommending that the Houghton Transfer Station close in about 2021.
Establish a range of closure dates for Houghton/don't close Houghton until replacement capacity is available	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville	Decisions about how to address the needs of the Houghton/northeast service area will need to be made within the next two years. The division is recommending that capacity currently being provided by the Houghton be replaced through policy changes that would redirect commercial haulers and/or limit self-haul or, should those options not

		be sufficient or accepted, by construction of a replacement facility in the service area. Sustained operation of the Houghton Transfer Station does not meet the needs of the service area.
Include cost to add compactor at Houghton and other stations	• Dana Brekke • John Brekke (Brekke Properties, Viking Development)	There is not sufficient space to add compaction to the Algona, Factoria, or Renton transfer stations. Adding compaction at Houghton would reduce capacity by 50 percent. A full cost estimate is not available. The cost of a compactor is about $2 million. There would be additional costs for design, permitting, construction (structural, electrical, and drainage improvements), and contractor overhead and profit. The improvements could also prompt a requirement to bring the entire facility up to current code.
Shoreline is in a residential area so why is Houghton a problem?	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	The Shoreline transfer building is fully enclosed to more effectively control impacts and was moved on the site so that the active area would be further from neighbors. The Houghton facility is not fully enclosed and neighbors are closer to the active area.
Bow Lake should remain open 24 hours/day	• CleanScapes	Bow Lake is open 24 hours/day on weekdays. Past evaluations of operating hours have not supported 24 hour operation on weekends; however, the division does periodically review operating hours to ensure they are appropriate to meet demand.
Don't close Renton/examine alternatives that don't close Renton	• Rob Aigner, Harsch Investment Properties • Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	The draft comprehensive solid waste management plan recommends reserving the option to retain the Renton station until the new urban transfer facilities have been sited and the impact of closure has been fully evaluated. Alternative E would keep Renton open.

	• Nathan (surname not provided)	
Consider weekend-only facilities at Renton and/or Algona	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	Keeping Renton and Algona open to serve self-haul customers on weekends could help alleviate capacity issues at other facilities, but would not be an overall effective strategy for serving the region.
Consider using facilities in other systems	• Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	King County Title 10 and the solid waste interlocal agreements require that solid waste generated and/or collected within the King County system shall be directed to the King County transfer and disposal system; the county is legally required to provide sufficient capacity for that waste. The division recognizes that some self-haul customers may use other facilities, but does not authorize such use.
Private recycling facilities can provide service	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina • Nathan (surname not provided) • Rainier Audubon Society • Jeff Scott (R.W. Scott	Many private recyclers in King County provide niche services in particular areas; however, it is not sufficient as evidenced by the amount of recyclable material brought to King County transfer stations, which is currently being disposed. Increasing recycling at transfer stations will divert waste from disposal, providing an environmental and financial benefit, and help King County reach its Zero Waste of Resources goal.