CITY OF KIRKLAND
Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
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MEMORANDUM

To: Kurt Triplett, City Manager

From: Kathy Brown, Public Works Director
John MacGillivray, Solid Waste Programs Supervisor

Date: September 22, 2016

Subject: King County Solid Waste Transfer System Update

RECOMMENDATION

Staff recommends that the City Council receive a briefing on the status of King County's Solid Waste Transfer System review and the closure of the Houghton Transfer Station.

BACKGROUND

For the City Council's review, several attachments to this memorandum have been included as background to demonstrate the City Council's unwavering support for the timely closure of the Houghton Transfer Station (HTS); to show the region's and the Metropolitan King County Council's (MKCC) support for a demand management strategy (DMS) pilot to determine the need for a new Northeast Regional Transfer Station (NERTS) to replace Houghton in the northeast County; and to remind the Council of the recommendations made in the Transfer Plan Review Part 2:

Attachment 1: Kirkland City Council Resolution R-5001 (9-3-2013)
Attachment 2: Kirkland City Council Resolution R-5031 (2-4-2014)
Attachment 3: Solid Waste Advisory Committee Motion (3-21-14)
Attachment 4: Metropolitan Solid Waste Advisory Committee Motion (5-9-14)
Attachment 5: Transfer Plan Review Part 2 (June 2015)
Attachment 6: Metropolitan King County Council Motion 14145 (June 2015)

More in-depth information on the transfer plan review process can be reviewed at http://your.kingcounty.gov/solidwaste/about/plan-review.asp.

In the King County 2006 Solid Waste Transfer and Waste Export Plan, the Houghton Transfer Station was scheduled to be closed once a replacement station was constructed in the northeast County. Houghton, constructed and opened in the 1960's, failed to meet several key level-of-service criteria in the plan which lead the County to recommend closure such as compatability with surrounding land use, lack of a 100 foot buffer between the station and neighboring residences, tonnage and transactional handling capacities, time on site for commercial vehicles and self-haulers, and inadequate recycling services.

Map of the King County Transfer System

The King County Transfer Station System is comprised of nine tranfer facilities with six larger stations located in urban areas and three (Vashon, Cedar Falls and Enumclaw) located in rural areas. In accordance with the recommendations made in the 2006 Transfer Plan, a new Shoreline Transfer Station was brough on-line in 2009; the Bow Lake Transfer Station in Tukwila was rebuilt and opened in 2013; and the new Factoria Transfer Station in Bellevue opened for business in 2016. The County is still discussing alternative sites for the replacement of the Algona Transfer

Station in the south County and the fate of the Renton Transfer Staton has yet to be decided. None of the three rural transfer station are slated for renovation or replacement.

Transfer Plan Review Part 2 Recommendations

As shown on page 44 of the Transfer Plan Review Part 2 (*Attachment 5*), the County does not recommend constructing a new NERTS now but does recommend retaining it as an future option. Depending on the outcome of the DMS pilot designed to determine if certain strategies are effective at redirecting self-haul and commercial traffic to the underutilized Shoreline Transfer Station and the new Factoria Transfer Station, a NERTS may or may not be necessary. In any case, the timing of the eventual closure of HTS is contingent upon the outcome of the pilot. The closure could occur sooner (~2019) if a NERTS is not required or may occur substantially later if the DMS pilot fails and a NERTS is needed. Transfer station siting processes can take up to three years to complete and the design, award, and construction of a new station can take five years or more.The DMS pilot is particularly important to the Eastside cities. KCSWD's initial demand

assessment indicates that current waste reduction and recycling diversion strategies will result in achieving targets for reduction of landfill-bound waste. If these recycling targets are met in conjunction with dispersing transactions to underutilized stations, KCSWD has concluded that a new transfer station will not be needed on the Eastside. Although Kirkland leads the region in its single family recycling efforts, even our highly successful single family, multifamily, and commercial recycling programs, when combined, are trending toward less than the region's 70% recycling goal. Actual results in other parts of King County are trending even further behind the targeted recycling goals. Given these trends, several Eastside cities are concerned that demands will exceed King County projections, and that a new Eastside transfer station facility will be needed.

Metropolitan Solid Waste Advisory Committee Demand Management Subcommittee

In late 2015, several regional partners, including the cities of Kirkland, Bothell, Bellevue, Redmond, and Woodinville participated in a DMS subcommitee of the Metropolitan Solid Waste Advisory Committee (MSWAC) to aid the King County Solid Waste Division (KCSWD) in scoping the DMS pilot. Councilmember and MSWAC Chair Sweet, Councilmember Nixon, and Kirkland Solid Waste staff participated in the meetings. The subcommittee recommended the DMS pilot should be conducted system-wide and not just in the northeast County to address regional equity concerns and that HTS should be closed so the pilot would be conducted under real world conditions. Both of these key recommendations were verbally agreed to by the KCSWD. The subcommittee was supportive of evaluating the following strategies in the DMS pilot:

- Online wait time information
- Extend operating hours
- A higher minimum fee
- Incentive and peak pricing
- The use of staff to provide unloading assistance

Proposed 2017/2018 King County Solid Waste Rate Increase

In June 2016, the King County Executive transmitted his 2017/2018 rate increase proposal to the MKCC. The KCSWD originally proposed a rate of $140/ton, which included approximately $4 million for a 12-month, system-wide DMS pilot in 2018. However, the Executive reduced the DMS pilot funding to $2 million and the proposed disposal fee to $137.75/ton, thus limiting the scope of the pilot to northeast King County only. The Executive's proposal indicated that the larger scope of the pilot "… would present a significant cost increase to the study and may not add significant benefit to the ability to evaluate [strategies]." At a June 2016 MSWAC meeting in June 2016, the KCSWD also stated that it had yet to decide if the Houghton Transfer Station would be closed during the pilot.

At its September 2016 meeting, several MSWAC member cities expressed their dismay at the County's apparent failure to listen to the recommendations made by the DMS subcommittee and reaffirmed their strong support for a system-wide pilot and the temporary closure of HTS during the DMS pilot. The City of Bellevue indicated that it may opt to revoke the County's conditional use permit for the Factoria Transfer Station if the allowed traffic volumes in the permit are exceeded during or after the pilot. Other cities expressed concerns about traffic impacts and regional rate and service equity.

SUMMARY AND POLICY ANALYSIS

The projected closure date of HTS has slipped from 2016, to 2018, and currently, to 2021. The City Council has been consistent in its policy, per Resolutions R-5001 and R-5031, that HTS should be closed no later than 2021. In the original 2006 Transfer Plan, HTS was slated for closure since it did not meet several operational, service, and safety standards. In 2013, Kirkland extended its interlocal agreement with the County through 2040 so the County could issue longer term bonds to complete its transfer system renovation plan plan. The ILA extension was approved by the City Council under the assumption the bonding flexibility would be used to fund a new NERTS as a replacement to the aging HTS and that Houghton would be closed. The City of Bellevue opted not sign the extended ILA and so some cities questioned the need for a new NERTS given the expected drop in tonnage once Bellevue left the system in 2028. This lead to a review of the recommendations in the 2006 transfer plan.

The Transfer Plan Review Part 2 does not recommend the construction of a NERTS to replace HTS, but suggests leaving a new NERTS on the table as a possibility for the future contingent upon the outcome of the DMS pilot. The 2018 pilot is intended to determine if certain strategies can be implemented to disperse transactions from HTS to the underutilized Shoreline Transfer Station and to the new Factoria Transfer Station. The Kirkland City Council has recommended that the County begin a siting process for a NERTS concurrent with the DMS pilot. The siting process would likely take three years to complete. Completing the siting process concurrently with the DMS pilot would allow a new NERTS to open three years sooner than if the siting process were to begin after the DMS pilot. The risk with the concurrent siting approach is that, if the DMS pilot determines that a NERT is not needed, the siting effort would have been an unnecessary. City of Kirkland staff, and many Eastside cities, have concluded that this risk is minimal, as all data is trending toward the need for a new NERTS.

Kirkland has been supportive of conducting the MKCC-mandated DMS pilot as soon as possible. The sooner the pilot is completed and the need for a NERTS is determined, the sooner HTS can be taken offline and closed. Staff believes a system-wide DMS pilot would be ideal but submits that a less costly but well-scoped and adequately-funded pilot conducted only in the northeast County will be sufficient to determine the effectiveness of DMS and, ultimately, the need for a NERTS. Staff also believes that the pilot must be conducted under real-world conditions, which means that HTS must be closed to all residential and commercial traffic during the pilot since HTS will presumably cease operations in the future. In the absence of a DMS pilot, staff is concerned that the County could opt to leave HTS open indefinitely or at least until Bellevue and its tonnage leaves the system when ILA between Bellevue and King County expires in 2028.

STAFF RECOMMENDATIONS

Staff recommends City Council consideration of the following strategies:

- Authorize a letter from the Kirkland City Council to the MKCC reiterating its position on the closure of Houghton during the DMS and full closure by 2021.
- Authorize a delegation of City Council and staff to meet with King County Councilmembers Balducci and Dembowski to explain Kirkland's position on these issues.
- Authorize staff to explore opportunities for collaboration with neighboring cities in the northeast County.
- Engage with King County to explore alternative locations for a new transfer station in the City of Kirkland that meet the criteria of a modern, full service transfer station.

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MEMORANDUM

To: Kurt Triplett, City Manager

From: John MacGillivray, Solid Waste Programs Lead
Pam Bissonnette, Interim Public Works Director

Date: August 22, 2013

Subject: KING COUNTY TRANSFER STATION PLAN REVIEW POSITION STATEMENTS

RECOMMENDATION

Staff recommends that the City Council receives a briefing on the status of the King County Solid Waste Division's (KCSWD) review of the Solid Waste Transfer and Waste Export System Plan ("Transfer Plan") and provide comments on the draft resolution stating the Council's position that the Houghton Transfer Station (HTS) should be completely closed to commercial and self-haul traffic upon the completed construction of the new Factoria Transfer Station or the new Northeast King County Transfer Station.

IMPORTANT NOTES

1) If the City Council wishes to pass a resolution taking a position on the closure on the Houghton Transfer Station, it should take action on or before its September 17 meeting so as to inform and influence the KCSWD's plan review alternatives before the final Transfer Plan Review Workshop on September 27.

2) All documents associated with the Transfer Plan Review can be found at King County's Transfer and Waste Management Plan Review website. Hyperlinks to specific documents are provided throughout the memorandum.

BACKGROUND

The KCSWD-owned and operated HTS in Kirkland has a long history and King County has been contemplating the closure of the facility for the past two decades.

The HTS property was first an open dump site between the 1940's and 1960's. In 1965, King County closed the dump and opened the HTS. In 1992, the Comprehensive Solid Waste Management Plan ("Comp Plan"), proposed replacing the station with a new station at a different location. In 1995, the rate proposal submitted by the KCSWD was rejected and the KCSWD was directed to continue to operate the existing network of transfer stations which included the HTS remaining at its current location.

2005 Memorandum of Understanding

In 2004, the King County Council (KCC) directed the KCSWD via a budget proviso to negotiate a Memorandum of Understanding (MOU) with the City of Kirkland to mitigate the impacts of the station on the surrounding neighborhood. The proviso prohibited the KCSWD from initiating its capital improvement project to replace the roof until an MOU was duly executed between the two parties that required the KCSWD to expend at least $150,000 on neighborhood mitigation projects.

In August 2004, the City formed a Solid Waste Subcommittee Task Force comprised of members of the Kirkland City Council, City staff, and Neighborhood Association leaders to negotiate the MOU with the KCSWD. In November 2004, the Kirkland City Council adopted the Revised Houghton Transfer Station Position Statement which stated Kirkland's goal of closing HTS. The statement also listed several mitigation measures that the City expected the KCSWD to implement while the station remained open.

In October of 2005, an MOU between the City and the KCSWD was approved by the Kirkland City Council with the passage of Resolution R-4527. The non-legally binding MOU provided that the KCSWD would proceed with several mitigation projects and measures at the station to include:

1. Replacement of the transfer building roof
2. Installation of a gravity sewer line
3. Construction of a sound wall
4. Changes to traffic controls
5. Construction of an asphalt pathway on the north side of NE 60th St
6. Landscaping improvements
7. Reducing the solid waste at the station to a maximum annual tonnage of 135,000 tons/year over a ten year period (not met)
8. Prohibiting the overnight parking of full or partially full trailers

The MOU also stated the KCSWD's commitment to close the HTS:

> *MOU Proviso 1*
>
> "King County Solid Waste Division agrees to abide by the [Solid Waste Transfer] Waste Export System Plan adopted by the King County Council approved by the King County Executive and codified in King County Code." **The 2006 Transfer Plan explicitly recommends Alternative 1 which calls for the closure of HTS after the KCSWD's transfer station capital improvement project is completed.**
>
> *MOU Proviso 7*
>
> "King County shall honor the Comprehensive Solid Waste Management Plan policy RTS-3, which states, 'The county should focus capital investment in part to expand, relocate, or replace, or any combination thereof, transfer stations when safety, efficiency, capacity, or customer services needs cannot be met by existing transfer facilities'". **In the level-of-service criteria examination of the HTS, the station failed to meet**

established safety goals, efficiency and capacity needs, and some key customer service standards. Accordingly, the Transfer Plan recommends the closure of the facility upon complete of the KCSWD's transfer station capital improvement project.

2006 Solid Waste Transfer and Waste Export Plan

Concurrent with the MOU negotiations, the Metropolitan Solid Waste Advisory Committee (MSWAC) worked with the KCSWD on the development of the aforementioned Solid Waste Transfer and Waste Export System Plan. MSWAC is an advisory committee composed of representatives from cities with Solid Waste Interlocal Agreements with King County. In February 2006, the KCSWD published its Transfer and Waste Export Facility Plan 4th Milestone Report as a precursor to the final Transfer Plan. In the milestone report, several Transfer System Packages for an updated transfer system were presented for consideration. Some of the alternatives called for keeping the HTS open as a self-haul-only facility. Ultimately, however, MSWAC and King County jointly selected Package 1 which is the final recommendation made in the Transfer Plan transmitted to the KCC in September 2006 and shown below in *Table 1*. The recommendation calls for new stations to be constructed on-site at Bow Lake and Factoria and new facilities to be sited and constructed in South King County (to replace a closed Algona station) and in Northeast King County (to replace a closed HTS). This option also includes the closure of the Renton Transfer Station upon the completion of the Transfer Plan.

Table 1: Status of 2006 Transfer Plan Implementation

Facility	Plan Recommendation	Status
Shoreline Transfer Station	Build New Station On-Site	Opened 2009
Bow Lake Transfer Station	Build New Station On-Site	To Open October 2013
Factoria Transfer Station	Build New Station On-Site	Design – Begin Construction 2014
South King County	Site & Build New/Close Algona	In Siting Process
Northeast King County	Site & Build New/Close Houghton	Begin Siting Process in 2014
Vashon Transfer Station	Retain	Newer Facility – No Change
Enumclaw Transfer Station	Retain	Newer Facility – No Change
Cedar Falls	Retain	Drop Box Facility
Skykomish	Retain	Drop Box Facility
Algona Transfer Station	Close	Open Until South King County Built
Houghton Transfer Station	Close	Open Until Northeast County Built
Renton Transfer Station	Close	Open Until Plan Complete

2007 Third Party Review of the Transfer Plan

MSWAC conditionally approved the Transfer Plan pending the outcome of the Independent, Third Party Review of the Solid Waste Transfer and Waste Export System Plan which was completed by consultant Gershman, Brickner, and Bratton (GBB) in September 2007. In general, the GBB review supported the Transfer Plan and supported the modernization of the transfer station system.

2011 King County Performance Audit

In 2011, the KCSWD underwent a performance audit by the King County Auditor which focused upon the KCSWD's rate model/financial plan and its transfer system capital projects. The King County Performance Audit of Solid Waste Transfer Station Capital Projects audit concluded that the Transfer Plan was developed through a collaborative and iterative regional process and that some collective decisions, such as electing to construct new transfer stations in lieu of renovating existing stations, have resulted in increased systems costs. The audit also recommended that the KCSWD should update its 2006 Transfer Plan by including analyses of cost impacts of the number and capacities of the transfer stations; functionalities of the transfer stations; and an assessment of project financing and delivery methods.

EVOLUTION OF THE TRANSFER PLAN REVIEW

2010-2012 Solid Waste Interlocal Agreement Background

Over the course of 2010-2012, King County and MSWMAC worked together to negotiate an extension of the *Solid Waste Interlocal Agreement of 1988* (original ILA), which every City in King County, excluding Seattle and Milton, had signed. In 2010, the City of Kirkland played a significant role in initiating the ILA renegotiation process as a means to ensure that the County's capital improvement program would be fully funded and implemented and, consequently, the HTS would be replaced with a more appropriately-sized and modern transfer facility somewhere in northeast King County.

After intensive negotiations, a team of City and County representatives reached an agreement on the terms of a new ILA. This agreement extended the original ILA by 12.5 years, from June 2028 through December 2040, which will keep disposal rates lower by allowing for longer-term bonding for capital improvement projects. In March 2013, King County converted $75m in Bond Anticipation Notes (BANs) to long-term General Obligation Bonds backed by the rate revenues from City's with ILA's through 2040 to pay for the Bow Lake Transfer Station construction. **During the ILA City adoption process, the KCSWD assured MSWAC that any city that decided not to sign the extended ILA would pay a rate differential of between $5 to $7/ton in order to pay off its share of the bonded debt by 2028 instead of 2040.**

In February 2013, the Kirkland City Council voted to authorize the City Manager to sign the extended ILA through 2040. The aforementioned potential for a rate differential was presented to the Council and played a significant role in most cities' decisions to sign the extended ILA. To date, 32 of the 37 King County cities have signed the new ILA. The cities of Bellevue, Medina, Clyde Hill, Hunts Point, and Yarrow Point have elected not to sign and their agreements with the KCSWD will expire in 2028.

The Factoria Transfer Station Project

The Factoria Transfer Station in Bellevue currently serves the cities of Bellevue, Issaquah, Mercer Island, and the "point cities". Under the current Transfer Plan, construction of the new station is scheduled to begin in early 2014 on a property adjacent to the existing station. The construction cost of the project is estimated to be about $66 million. The City of Bellevue, along

with the four other cities not extending their ILA's, account for about 10% of the system-wide tonnage but about 50% of the tonnage is sent to Factoria each year. The new Factoria facility was designed with that assumption that Bellevue would extend its ILA and remain in the system through 2040. Given that Bellevue has opted to leave the system in 2028, the new Factoria facility, if constructed as currently designed, will be an under-utilized and over-built station in 2028.

When the City of Bellevue did not extend its ILA with King County, a number of cities and stakeholders began to call on the KCSWD to conduct a full review of the remaining Transfer Plan projects due to the anticipated 50% reduction in tonnage directed to Factoria after 2028 and in light of one of the key findings of the 2011 Performance Audit that concluded "…by the time the [new] stations reach the end of their expected useful lives, collectively they will be utilizing about 42 percent of their total capacity."

The KCSWD took issue with this conclusion and countered that the King County Auditor wrongly calculated system capacity by assuming that two garbage compactors would be running 362 days per year at each new station, besides Shoreline, processing 100 tons per hour. The KCSWD also contended that the report's conclusion did not factor in vehicle capacity, emergency storage, or services such as recycling or household hazardous waste collection. The KCSWD countered that it expected Factoria to be operating at 82% capacity, South King County at 91%, and the Northeast King County at 97% at the end of their useful lives. **However, this KCSWD operating capacity assessment assumes that Bellevue's tonnage would remain in the system after 2028.** Given that 50% of the tonnage processed at Factoria is from Bellevue, Factoria if built as currently designed, would be operating at a fraction (~40%-50%) of its maximum capacity at the end of its useful life, potentially costing ratepayers millions of dollars in unnecessary construction.

In March 2013, the Sound Cities Association (SCA) adopted a policy position requesting that the KCSWD and MSWAC review and recommend appropriate updates to the Transfer Plan. Subsequent to this request, the King County Council (KCC) took preventative action and adopted Ordinance 17619 which compelled the KCSWD to conduct a full review of the Transfer Plan before allocating any more than $750,000 in funding toward the Factoria construction project. Per the ordinance, the draft report must be delivered to stakeholders no later than October 9 with the final report delivered to the KCC by November 27.

At a minimum, the Transfer Plan review must include a review of:

- Garbage tonnage projections
- Revenue projections
- Overall costs of the region-wide transfer system upgrades
- Functionality and service alternatives at each transfer station (self-haul, recycling, compaction, etc.)
- Level of service criteria in the 2006 Transfer Plan
- Retention and repair of existing stations
- Systematic analysis of incremental cost impacts of the number, capacities, and functionality of the transfer stations

TRANSFER PLAN REVIEW WORKSHOPS

In response to the KCC action, the KCSWD scheduled three Transfer Plan Review Workshops. The first workshop was held on July 26 with the remaining two workshops to be held on August 22 and September 27. Kirkland was among seventeen cities in attendance at the first workshop. The KCSWD provided transfer system background similar to what is included in this memorandum and asked for input on station functionality and service alternatives to be considered when modeling the alternatives in the Transfer Plan review.

Transfer Plan Alternatives

The KCSWD is currently modeling four alternatives to the Base Plan as shown in *Attachment 1, Transfer Plan Review Alternatives*. In all of the alternatives, HTS is proposed to be closed to all commercial traffic. Under Alternative A, HTS would remain open only to self-haul garbage and recycling customers. Kirkland staff has reviewed the alternatives and believes that the KCSWD should consider an additional, hybrid alternative which includes:

1) Redesigning the functionality of the Factoria Transfer Station so that it is capable of handling the garbage tonnage from the Northeast King County cities (Kirkland, Bothell, Redmond, and Woodinville) as well as from Bellevue, Issaquah, Mercer Island and the "Point Cities" through 2028 when Bellevue is expected to leave the system.

2) Once the new Factoria Station is built, the HTS would be permanently closed to all traffic.

3) In the event Bellevue elects to extend its ILA before 2028, a new Northeast King County Transfer Station would be designed and built to process the Northeast King County cities' tonnage.

General consensus was achieved among cities and the KCSWD on the following elements that should be built into each alternative model:

1) **Compactors should be used at new stations to increase efficiency.** Compactors are expensive (>$1.5 million each) but they increase the payload of each trailer, reduce the number of trips to the landfill, and the efficiencies gained make a compactor pays for itself within three to five years.

2) **Self-haul should continue to be provided but consideration should be given to limiting the hours, days of service, and transfer stations available to self-haulers.**

   The efficient management of self-haul has historically been challenging for the KCSWD. Self-haulers are residents without curbside garbage service; residents with curbside service who make occasional trips to a transfer station to dispose of their excess waste; and businesses such as landscapers, small contractors, and independent haulers for hire, schools, and government agencies. Self-haulers currently account for about 84% of the system-wide transactions but only 23% of the garbage tonnage processed.

Within the current transfer system, providing self-haul at all stations costs the KCSWD about $1.3 million annually in staff, credit cards fees, and NSF checks. With new stations, the capital investment made to accommodate self-haul is disproportionate to the revenues received and the design concessions needed to accommodate the traffic such as having to construct separate entry points, building a larger tipping floor, and queuing space. For new facilities, the construction cost for self-haul ranges between $6 to $7 million per site. Self-haul customers need additional space, take more time than commercial haulers such as Waste Management to dump their loads and can cause queuing delays at the weigh station for commercial traffic.

Curbside garbage service is mandatory in 13 King County cities, including Kirkland. However, Kirkland abuts two relatively large communities (Bellevue and Redmond) that do not have mandatory service and whose residents and businesses regularly use both Factoria and Houghton to dispose of their garbage. Cities with mandatory service like Kirkland subsidize self-haul service with their rates paid to the KCSWD via their hauler. Similarly, Alternative 1 in which Houghton would remain open to self-haul only exacerbates the subsidy and imbalance as the likely primary users would be self-haulers from Bellevue and Redmond.

3) **Recycling service should continue to be provided.**

The 2001 and Draft 2013 Comprehensive Solid Waste Management Plans require that the KCSWD provide recycling services at transfer stations. The 2013 Comp Plan expands upon recycling by requiring the KCSWD to maximize recycling services at new stations and focus upon the diversion of priority materials such as organics, clean wood, scrap metal, and cardboard. In general self-haulers do not recycle as much as residents with curbside recycling service, so providing recycling opportunities at existing and new stations is an important service to help meet the recycling diversion goal in the 2013 Draft Comp Plan.

After the recycling services were expanded after the opening of Shoreline, 17% of the material brought to the facility was recycled. For existing facilities such as HTS with limited recycling service, the recycling rate is less than 1%. Additionally, when the KCSWD removed all recycling services from its transfer stations in 2011, public demand and outcry caused the KCSWD to reverse its decision and restore recycling service in 2012.

4) **The Transfer Plan's drive time standard of 90% of the residents being within 30 minutes of a transfer station is not important**.

An analysis by KCSWD revealed that the drive time standard would be substantially met even if some stations were removed from the system. In the event that HTS was closed and construction of the Northeast Transfer Station was delayed or stopped, then Kirkland's contracted hauler Waste Management would be directed to haul our waste to Factoria. The solid waste rate increase implication for this change is minimal and contemplated in our contract where "…Contractor is required to haul Garbage to an alternative County disposal location in excess of ten (10) miles from the intersection of

NE 112th St and 108th Avenue NE, the Contractor shall be allowed additional compensation at the WUTC rate per mile per truck trip above the ten (10) mile limit." The distance from the geographical center of the City to the Factoria is 10.76 miles.

STAFF POSITION STATEMENT RECOMMENDATIONS

Based upon the previous discussion, staff recommends that the City Council considers the following position statements and the attached resolution.

1. **Houghton Transfer Station Position Statement:** Upon completed construction and opening of the new Factoria Transfer Station or new Northeast King County Transfer Station, the Houghton Transfer Station should be closed permanently to self-haul and commercial traffic.

2. **Self-Haul Position Statement:** The KCSWD's Transfer Plan review should consider alternatives for limiting self-haul at existing transfer stations and in the design of new transfer stations.

3. **Rate Differential Position Statement**: Different customer classes should be established by King County to ensure system users do not pay a disproportionate share of the cost of improvements to system assets as a result of a decision not to sign an Amended and Restated Interlocal Agreement through 2040. The rate differential should be established to account for the full pay-off costs incurred for development of KCSWD system assets prior to the end of the mid-2028 Solid Waste Interlocal Agreement (SWIA) term. These rate differentials should reflect actual costs necessary for paying off construction bonds issued on behalf of the KCSWD, with costs apportioned to the solid waste tonnage originating in those cities that elected to end their SWIA in mid-2028. The KCSWD should put verification measures in place that ensure any rate differential applies only to solid waste originating in cities that elected to end their ILA's in mid-2028, regardless if solid waste is self-hauled or delivered by a commercial carrier. The costs of any verification measures should be included in the overall rate differential applied to those cities that elect to end their SWIA in mid-2028 [*policy draft as written by the cities of Kirkland and Federal Way and submitted to the MSWAC Financial Policies Subcommittee for further consideration*].

NEXT STEPS

August 22: The KCSWD held its second Transfer Plan Review Workshop. The major elements of the Transfer Plan review discussed at the workshop included:

- The transfer system's relationship to waste-to-energy
- Capacity issues (commercial versus self-haul speed, compactors, need for stalls, trailer storage, etc.)
- Construction cost drivers
- Review of the transfer system alternatives with preliminary cost information

Other upcoming milestones include:

September 27: Final Transfer Plan Review Workshop

October 9: King County to deliver draft Transfer Plan review to stakeholders. Start comment period.

TBD: End of Stakeholder Comment Period

November 27: Final Transfer Plan review to be delivered to King County Council

Council Action Needed

After review and discussion by the Council, staff recommends that the resolution be brought back to the Council for approval at the September 17 Council meeting. Kirkland's resolution would then be provided as input at the September 27 Workshop as well as subsequent King County Council deliberations.

	Base (Current Plan)	Alternative A (no Northeast)	Alternative B (no Factoria)	Alternative C (no South County and no Factoria)	Alternative D (no South County and no Northeast)
Open Facilities	Shoreline Bow Lake Factoria Northeast South County	Shoreline Bow Lake Factoria South County	Shoreline Bow Lake Northeast South County	Shoreline Bow Lake Northeast	Shoreline Bow Lake Factoria
Closed (or never opened) Facilities	Algona Renton Houghton	Algona Renton Houghton* Northeast	Algona Renton Houghton Factoria	Algona Renton Houghton Factoria South County	Algona Renton Houghton Northeast South County

* Under Alternative A, Houghton would be analyzed as being closed completely, as well as being closed except to self-haul recycle and/or solid waste customers. Houghton would be closed to commercial traffic in all cases.

DRAFT

RESOLUTION R-____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF KIRKLAND ADOPTING A POSITION STATEMENT ON THE CLOSURE OF THE HOUGHTON TRANSFER STATION, THE CONSIDERATION OF LIMITING SELF HAULING AT TRANSFER STATIONS AND THE ESTABLISHMENT OF DIFFERENT CUSTOMER CLASSES TO AVOID DISPROPORTIONATE FINANCIAL IMPACTS ON THOSE WHO SIGNED THE AMENDED AND RESTATED INTERLOCAL AGREEMENT THROUGH 2040.

WHEREAS, King County Solid Waste Division (KCSWD) has owned and operated the Houghton Transfer Station in the City of Kirkland for many years; and

WHEREAS, it has been the goal of the City to close this facility for many years; and

WHEREAS, with the assistance of the Metropolitan Solid Waste Advisory Committee (MSWAC), KCWSD has been formulating a Solid Waste Transfer and Waste Export Plan for getting to that point as well as considering alternative plans for handling solid waste in King County; and

WHEREAS, concurrently with this effort, the County was negotiating with a number of cities the Amended and Restated Interlocal Agreement (Amended ILA) that would extend the time during which the Cities using KCSWD facilities would continue to do so; and

WHEREAS, failure of some of the cities to agree to the Amended ILA will have disproportionate financial impacts on the cities that did sign; and

WHEREAS, the Council wishes to present a Position Statement to KCSWD as to its preferences in these matters,

NOW, THEREFORE, be it resolved by the City Council of the City of Kirkland as follows:

Section 1. The City Council adopts the attached Position Statement, which is incorporated by reference, recommending 1) the Houghton Transfer Station be closed; 2) that King County Solid Waste Division's Transfer Plan review should consider alternatives for limiting self-haul at existing and new transfer stations; and 3) different customer classes should be established by King County to ensure system users do not pay a disproportionate share of the cost of improvements to system assets as a result of other Cities decisions not to sign an Amended and Restated Interlocal Agreement through 2040.

Section 2. The City Council authorizes the City Manager or designee to present the attached Position Statement to KCSWD at its

Final Transfer Plan Review Workshop on September 27, 2013, as well as for subsequent King County Council deliberations.

Passed by majority vote of the Kirkland City Council in open meeting this ___ day of _____, 2013.

Signed in authentication thereof this _____ day of _____, 2013.

_____
MAYOR

Attest:

_____
City Clerk

CITY OF KIRKLAND

KING COUNTY SOLID WASTE TRANSFER AND WASTE EXPORT PLAN POSITION STATEMENT

Regarding Houghton Transfer Station, Self-Hauling and Financial Impacts

September 3, 2013

1. Houghton Transfer Station Position Statement: Upon completed construction and opening of the new Factoria Transfer Station or new Northeast King County Transfer Station, the Houghton Transfer Station should be closed permanently to self-haul and commercial traffic.

2. Self-Haul Position Statement: The KCSWD's Transfer Plan review should consider alternatives for limiting self-haul at existing transfer stations and in the design of new transfer stations.

3. Rate Differential Position Statement: Different customer classes should be established by King County to ensure system users do not pay a disproportionate share of the cost of improvements to system assets as a result of a decision not to sign an Amended and Restated Interlocal Agreement through 2040. The rate differential should be established to account for the full pay-off costs incurred for development of KCSWD system assets prior to the end of the mid-2028 Solid Waste Interlocal Agreement (SWIA) term. These rate differentials should reflect actual costs necessary for paying off construction bonds issued on behalf of the KCSWD, with costs apportioned to the solid waste tonnage originating in those cities that elected to end their SWIA in mid-2028. The KCSWD should put verification measures in place that ensure any rate differential applies only to solid waste originating in cities that elected to end their ILA's in mid-2028, regardless if solid waste is self-hauled or delivered by a commercial carrier. The costs of any verification measures should be included in the overall rate differential applied to those cities that elect to end their SWIA in mid-2028 [policy draft as written by the cities of Kirkland and Federal Way and submitted to the MSWAC Financial Policies Subcommittee for further consideration].

CITY OF KIRKLAND
Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
www.kirklandwa.gov

MEMORANDUM

To: Kurt Triplett, City Manager

From: John MacGillivray, Solid Waste Programs Lead
Pam Bissonnette, Interim Public Works Director

Date: January 24, 2014

Subject: Houghton Transfer Station Resolution and Letter

RECOMMENDATION:

Staff recommends that the City Council adopts the attached resolution affirming Kirkland's position in support of the closure of the Houghton Transfer Station by 2021 and authorizing the Mayor to sign and transmit the attached Houghton Transfer Station letter to King County Council Vice-Chair Jane Hague.

BACKGROUND:

On January 21, 2014, King County Council Vice-Chair Jane Hague addressed the City Council and asked the Council to reaffirm its position that the Houghton Transfer Station should be closed by 2021. On September 17, 2013, the City Council unanimously adopted Resolution R-5001 and the King County Solid Waste Transfer and Waste Export Plan Position Statement (attached) which clearly states the Council's position that the Houghton Transfer Station should be closed by 2021. Subsequent to the adoption of the position statement, a letter signed by ex-Mayor Joan McBride containing Kirkland's comments on the draft Transfer Station Plan Review was sent to Executive Constantine (attached).

No new information has been presented by King County that would lead staff to recommend any change in the City Council's position and therefore staff recommends that the Council approves the resolution and authorizes the Mayor to sign the attached letter.

D R A F T

February 5, 2014

Ms. Jane Hague, Vice-Chair
King County Council, District 6
516 Third Ave, Room 1200
Seattle, WA 98104

RE: CITY OF KIRKLAND POSITION ON CLOSURE OF THE HOUGHTON TRANSFER STATION

Dear Councilmember Hague:

Thank you for taking the time to address the Kirkland City Council on January 21, 2014 and your kind words about our community and City Council. We appreciate your thoughtful and thorough representation of the interests of our residents and congratulate you on your deserving appointment as Vice-Chair of the King County Council and Chair of the Committee of the Whole.

During your remarks, you asked if the City Council is still committed to the closure of the Houghton Transfer Station by 2021. I would like to strongly reiterate that the Kirkland City Council remains steadfast and unanimous in its long-held position that the Houghton Transfer Station should be completely closed by 2021 as promised in our 2005 Memorandum of Understanding with the County and in the adopted 2006 Transfer System Plan.

As noted in the attached Kirkland City Council *Resolution R-5001* and the *King County Solid Waste Transfer and Waste Export Plan Position Statement Regarding the Houghton Transfer Station* as unanimously adopted by the Kirkland City Council on September 17, 2013, it is our position that King County should:

> ***Construct the new Factoria Transfer Station as currently designed as soon as possible. Initiate a siting process in 2014 for an expanded Factoria [Transfer Station] on the Eastgate property or a new northeast transfer station capable of handling the combined solid waste of the cities remaining in the County system at that time that cannot be handled by the new Factoria transfer station. Complete the expansion by the 2021 and close the Houghton Transfer Station.***

For your convenience, I have also attached an October 29, 2013 letter to Executive Constantine which includes our comments on the recommendations made in the draft Transfer Station Plan Review.

The Council has further reaffirmed Kirkland's position by the approval of Resolution R-5031 which was adopted by the Council at our meeting of February 4, 2014. I have included a copy of Resolution R-5031 for your information.

If you have any questions concerning this position, please do not hesitate to contact me or our Kirkland Interim Public Works Director, Pam Bissonnette at (425) 587-3802.

Sincerely,
Kirkland City Council

By Amy Walen
Mayor

Attachments (3)

Cc: Kirkland City Council
Kurt Triplett, Kirkland City Manager
Marilynne Beard, Kirkland Deputy City Manager
Pam Bissonnette, Kirkland Interim Public Works Director
John MacGillivray, Kirkland Solid Waste Programs Lead

RESOLUTION R-5001

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF KIRKLAND ADOPTING A POSITION STATEMENT ON THE CLOSURE OF THE HOUGHTON TRANSFER STATION, THE CONSIDERATION OF LIMITING SELF HAULING AT TRANSFER STATIONS AND THE ESTABLISHMENT OF DIFFERENT CUSTOMER CLASSES TO AVOID DISPROPORTIONATE FINANCIAL IMPACTS ON THOSE WHO SIGNED THE AMENDED AND RESTATED INTERLOCAL AGREEMENT THROUGH 2040.

WHEREAS, King County Solid Waste Division (KCSWD) has owned and operated the Houghton Transfer Station in the City of Kirkland for many years; and

WHEREAS, it has been the goal of the City to close this facility for many years because it does not meet the majority of criteria necessary for a safe and modern transfer station and is the only transfer station located entirely within a residential neighborhood with only local access; and

WHEREAS, with the assistance of the Metropolitan Solid Waste Advisory Committee (MSWAC), KCSWD has been formulating a Solid Waste Transfer and Waste Export Plan that results in the closure of the Houghton Transfer Station as well as considering alternative plans for handling solid waste in King County; and

WHEREAS, concurrently with this effort, the County was negotiating with a number of cities the Amended and Restated Interlocal Agreement (Amended ILA) that would extend the duration of the Amended ILA and by which the Cities using KCSWD facilities would continue to be part of the KCSWD system; and

WHEREAS, failure of some of the cities to agree to the Amended ILA will have disproportionate financial impacts on the cities that did sign if no differential solid waste rate is established; and

WHEREAS, the Kirkland City Council approved the Amended ILA on February 19, 2013, based in part on assurances by the KCSWD that the Houghton Transfer Station would be closed and that a differential solid waste rate would be established; and

WHEREAS, the Council wishes to present a Position Statement to KCSWD as to its preferences in these matters,

NOW, THEREFORE, be it resolved by the City Council of the City of Kirkland as follows:

Section 1. The City Council adopts the attached Position Statement, which is incorporated by reference, recommending 1) to provide the County sufficient time to site, design, construct, and commission facilities to serve them, Bellevue and the other cities who have elected not to extend their contracts for solid waste disposal with

King County should be provided a date certain in the near term beyond which they will be precluded from returning to the system; 2) a new transfer station should be constructed and the Houghton Transfer Station closed; 3) that King County Solid Waste Division's Transfer Plan review should consider alternatives for limiting self-haul at existing and new transfer stations, while exploring disposal options for small business users who are not commercial haulers; and 4) different customer classes should be established by King County to ensure that system users who extended contracts with King County do not pay a disproportionate share of the cost of improvements to system assets as a result of other Cities' decisions not to extend their contracts for solid waste disposal with King County.

Section 2. The City Council authorizes the City Manager or designee to present the attached Position Statement to KCSWD at its Final Transfer Plan Review Workshop on September 27, 2013, as well as for subsequent King County Council deliberations.

Passed by majority vote of the Kirkland City Council in open meeting this 17th day of September, 2013.

Signed in authentication thereof this 17th day of September, 2013.

MAYOR

Attest:

City Clerk

R-5001
Position Statement

CITY OF KIRKLAND

KING COUNTY SOLID WASTE TRANSFER AND WASTE EXPORT PLAN POSITION STATEMENT

Regarding Houghton Transfer Station, Self-Hauling and Financial Impacts

September 17, 2013

The current adopted Solid Waste Transfer System Plan of 2006 is the preferred plan, having been arrived at by significant and long regional negotiation. That Plan has been called into question by the City of Bellevue and four satellite cities when, unlike other cities in the King County Solid Waste (KCSW) service area, they elected not to extend their contracts with King County for solid waste disposal beyond 2028. By not extending the contract, Bellevue and the satellite cities are signaling they will be leaving the system by 2028.

The King County Solid Waste Division (KCSWD) is now not planning to include Bellevue and the other cities' tonnage, which comprises about 10% of the entire system and 50% of the tonnage processed by the Factoria Transfer Station in Bellevue. Yet the KCSWD has not proposed differential solid waste rates to account for the financial impact of these cities leaving the system as the KCSWD continues to state hope that Bellevue and the other cities will change positions and remain within the KCSW system. This has resulted in adverse impacts and uncertainty to those cities that elected to extend their contracts to 2040, and in particular to the City of Kirkland, the host of the Houghton Transfer Station. The closure of Houghton has been predicated on the construction of Factoria and a new northeast transfer station. There needs to be sufficient time to site, design, construct and commission operation of a transfer station. This may take 10-15 years even though solid waste transfer stations are essential public facilities under the Growth Management Act (GMA). Therefore, the issue of whether Bellevue and the other cities will change their positions must be resolved.

1. **Position Statement Regarding Planning Assumptions and Timing:** To provide the County sufficient time to site, design, construct, and commission facilities to serve them, Bellevue and the other cities who have elected not to extend their contracts for solid waste disposal with King County should be provided until the end of 2014 to extend their ILAs, beyond which they will be precluded from returning to the system. In the meantime, planning for cities remaining within the system will proceed without tonnages of those leaving the system and on the assumption that Bellevue and the other cities will not be remaining in the system after 2028.

2. **Position Statement Regarding the Houghton Transfer Station:** Construct the new Factoria Transfer Station as currently designed as soon as possible. Initiate a siting process in 2014 for an expanded Factoria on the Eastgate property or a new northeast transfer

station capable of handling the combined solid waste of the cities remaining in the County system at that time that cannot be handled by the new Factoria transfer station. Complete the expansion by 2021 and close Houghton Transfer Station.

3. **Self-Haul Position Statement:** To limit cost and subsidy of self-haul services, both capital and operating, the KCSWD's Transfer Plan review should consider alternatives for limiting self-haul at existing transfer stations and in the design of new transfer stations while exploring disposal options for small business users who are not commercial haulers. Those using self-haul services that do not belong to the KCSWD system should be surcharged to recover the full cost of self-haul services.

4. **Rate Differential Position Statement:** Different customer classes should be established by King County to ensure system users do not pay a disproportionate share of the cost of improvements to system assets as a result of the decision by Bellevue and other cities not to sign an Amended and Restated Interlocal Agreement through 2040. The rate differential should be established to account for the full pay-off costs incurred for development of KCSWD system assets prior to the end of the mid-2028 Solid Waste Interlocal Agreement (SWIA) term. These rate differentials should reflect actual costs necessary for paying off construction bonds issued on behalf of the KCSWD with costs apportioned to the solid waste tonnage originating in those cities that elected to end their SWIA in mid-2028. The KCSWD should put verification measures in place that ensure any rate differential applies only to solid waste originating in cities that elected to end their ILA's in mid-2028, regardless if solid waste is self-hauled or delivered by a commercial carrier. The costs of any verification measures should be included in the overall rate differential applied to those cities that elect to end their SWIA in mid-2028.

October 29, 2013

Executive Dow Constantine
King County Chinook Building
401 5th Ave. Suite 800
Seattle, WA 98104

RE: CITY OF KIRKLAND SUPPLEMENTARY COMMENTS
ON TRANSFER STATION PLAN REVIEW RECOMMENDATION

Dear Executive Constantine:

Thank you for the extended opportunity to provide comments on the recommendations made in the County's recent review of the Solid Waste Transfer and Export Plan. On September 17, 2013, the Kirkland City Council unanimously adopted a position statement concerning the Transfer Plan Review (attached). On October 16, 2013, Kirkland staff submitted comments on the Transfer Plan recommendation to the Solid Waste Division via email (attached). At the October 18, 2013 Metropolitan Solid Waste Advisory Committee (MSWAC) meeting, Kirkland staff verbally reiterated our comments to the County and the MSWAC membership.

We generally support the recommendation in the draft transfer plan of proceeding with the Base Alternative but downsized as necessary to accommodate the withdrawal of the City of Bellevue and similar communities that did not extend their contracts. However, the language below from the draft transfer plan creates a serious cause of concern.

TRANSFER PLAN REVIEW RECOMMENDATION:
"Based on analysis of the alternatives and preliminary stakeholder feedback, the Division recommends proceeding with a variation of the Base Alternative which would include ***deferring the opening date of the new Northeast transfer station so that the Division can assess the timing and potential phasing of the new station [emphasis added].*** *This recommendation would proceed with construction of the new Factoria station as currently designed,* ***while studying whether additional space and services could be added to the new Factoria station that could affect a new Northeast station. With flexibility in the timing and scope of a new Northeast facility, the division would also evaluate options to further mitigate impacts on the Houghton neighborhood [emphasis added].*** *Mitigation could include closing Houghton to commercial traffic between opening the new Factoria and final closure of Houghton* ***[no date provided].*** *The project to site a new facility in the south county to replace the Algona Transfer Station would continue as scheduled. This variation on the Base Alternative recognizes the value of a regional system that provides equivalent services to all system ratepayers."*

I would like to strongly reiterate the Kirkland City Council's position that the Houghton Transfer Station should be closed as promised by 2021 in observance of King County's firm commitment to Kirkland in its 2005 Memorandum of Understanding and in the 2006 adopted Transfer System Plan. Please accept our supplementary comments below:

- We urge the County to begin the siting process for the NE Transfer Station in 2014 in earnest to ensure that construction is completed by 2021 and the Houghton Transfer Station closed.

- By the County's own admission, construction of the new Factoria Transfer Station as currently designed will not handle all the tonnage and services for northeast King County even when Bellevue leaves the system. A new NE transfer station, or an expanded Factoria Transfer Station, will be required in any case.

- By the County's own admission, it will take at least 3 years to do a siting study with or without including an expansion of the Factoria Transfer Station. It will then take 2 years for design and permits, and 2 years to build for a total of 7 years. If initiated in 2014 there is enough time for completion of the process in time to close Houghton on schedule by 2021. Delays for further studies can only delay the closure of the Houghton Transfer Station.

- The County should have adequate resources to complete the siting process of the Northeast Transfer Station concurrent with any study of the Factoria Transfer Station. During the siting process the size and services of the new facility would be determined.

- By the County's own admission, the expansion of Factoria in lieu of a new NE site will not require redesign and reconstruction of the Factoria facility as currently designed. The process undertaken to identify and/or purchase parcels in NE King County to site a new NE Transfer Station as compared to an expansion of Factoria are not mutually exclusive.

The City of Kirkland has been an accommodating host to a King County transfer station for well over 50 years and our residents and businesses have enjoyed its financial and convenience benefits, but also have shouldered the burdens associated with high volumes of traffic, noise and odors in a residential neighborhood. While Kirkland remains firmly committed to fulfilling its regional obligation to host critical public facilities, the Houghton Transfer Station has outlived its useful life, no longer meets any critical service criteria in the Transfer Plan, and our patient residents affected by the facility have been promised its closure by 2021. Mitigation at the Houghton Transfer Station is not what was promised. Closure is. Please remove any language in the Transfer Plan Review recommendation that would defer a siting study of a new NE Transfer Station thereby risking delay of the closure of the Houghton Transfer Station beyond 2021, and take actions in accord with this direction.

Sincerely,

Joan McBride, Mayor
City of Kirkland

Attachments (2)

Cc: Kirkland City Council
Kurt Triplett, Kirkland City Manager
Marilynne Beard, Kirkland Deputy City Manager
Pam Bissonnette, Kirkland Interim Public Works Director
John MacGillivray, Kirkland Solid Waste Programs Lead
Kevin Kiernan, Assistant King County Solid Waste Division Director
Jane Hague, King County Councilmember
Rod Dembowski, King County Councilmember

Council Meeting: 02/04/2014
Agenda: Other Business
Item #: 8. h. (3).

RESOLUTION R-5031

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF KIRKLAND REAFFIRMING ITS POSITION IN SUPPORT OF THE CLOSURE OF THE HOUGHTON TRANSFER STATION BY 2021.

WHEREAS, King County Solid Waste Division has owned and operated the Houghton Transfer Station in the City of Kirkland for many years; and

WHEREAS, the Houghton Transfer Station has outlived its useful life and no longer meets any of the critical service criteria in the County's 2006 adopted Solid Waste Transfer System Plan; and

WHEREAS, the City Council has repeatedly articulated its desire to see the Houghton Transfer Station closed by 2021 as committed to by King County in the 2005 Memorandum of Understanding entered into with the City and in the Transfer System Plan; and

WHEREAS, on September 17, 2013, the City Council unanimously passed Resolution R-5001 adopting a position statement which included its support for the closure of the Houghton Transfer Station by 2021; and

WHEREAS, the comment period on the King County Solid Waste Division's Transfer Plan review was extended until February 3, 2014; and

WHEREAS, on January 21, 2014, King County Council Vice Chair Jane Hague addressed the Kirkland City Council and asked that the Kirkland City Council reaffirm its position;

NOW, THEREFORE, be it resolved by the City Council of the City of Kirkland as follows:

Section 1. The City Council reaffirms its position that the King County Solid Waste Division should proceed with the construction of the new Factoria Transfer Station, concurrently initiate the siting for a new Northeast Transfer Station, and close the Houghton Transfer Station by 2021.

Section 2. The City Council authorizes the City Manager or his designee to transmit this Resolution to the King County Council.

Passed by majority vote of the Kirkland City Council in open meeting this _____ day of _____, 2014.

Signed in authentication thereof this _____ day of _____, 2014.

_____
MAYOR

Attest:

_____
City Clerk

Approved 3/21/14

KING COUNTY SOLID WASTE ADVISORY COMMITTEE (SWAC)
MOTION ON TRANSFER PLAN REVIEW FINAL REPORT DATED MARCH 2014

I move that SWAC recommend Executive and Council approval of the Transfer Plan Review Final Report, including the following key recommendations of the report:

- Proceed this year with a new Factoria Recycling and Transfer Station (RTS) using current design and permits (with minor modifications to retain flexibility).
- Continue siting evaluations for a South County RTS.
- 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, and compare trade-offs and benefits with the adopted Transfer Plan.
- To focus on zero waste of resources by 2030.

Attachment 4

Metropolitan Solid Waste Advisory Committee (MSWAC)

May 9, 2014

Adopted Motion re: Transfer Plan Review Report and Recommendations

I move that MSWAC support King County approval of the Transfer Plan Review Final Report and Recommendations with amendments being considered by the County that identify facilities that are operational, planned for construction, and planned for closure, and identify potential future transfer system capital improvements, per Tables 1 and 2 attached to this motion, and which include the following recommendations:

- Proceed this year with a new Factoria Recycling and Transfer Station (RTS) using current design and permits,
- Continue siting evaluations for a South County Recycling and Transfer Station (RTS),
- Pending environmental review, revise the 2006 Solid Waste Transfer and Waste Management Plan and the pending Comprehensive Solid Waste Management Plan to address the transfer station network to include among the new or upgraded urban Recycling and Transfer Stations, the following facilities: Bow Lake, Factoria, Shoreline, and South County, consistent with Table 1,
- Pending environmental review, revise the 2006 Solid Waste Transfer and Waste Management Plan and the pending Comprehensive Solid Waste Management Plan to address the transfer station network to include a new northeast transfer station or other transfer stations or drop boxes in unincorporated areas as potential future facilities to retain flexibility in the system, consistent with Table 2, and
- In collaboration with stakeholders, evaluate the costs and impacts to cities and the system of the use of a mix of capital facilities and operational approaches to address system needs over time, including implementation of strategies including but not limited to demand management and increased use of currently underutilized transfer stations to ensure an efficient and equitable regional transfer station system..
- The Houghton, Renton and Algona transfer stations should close no later than 2021, 2018, and 2020 respectively.

Transfer Station & Solid Waste Management System Configuration:

Designated Facilities. The Amended and Restated Solid Waste Interlocal Agreement 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
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

Demand Assessment. 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 with demonstrated need ○ North East or other Transfer Stations ○ Drop Boxes in unincorporated areas	• Assessment of progress on waste redirection/balancing strategies ○ Redirect Commercial ○ 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 • Identify strategies/facilities to add capacity
Materials Recovery/Conversion facilities	• Monitor technology and costs
Intermodal or related facilities	• Refinement of early-export disposal strategies

Attachment 5

Transfer Plan Review
Part 2

Final Report

Prepared in accordance with Council Motion 14145

King County
Department of
Natural Resources and Parks
Solid Waste Division

Waste **Prevention** | *Resource* **Recovery** | *Waste* **Disposal**

www.kingcounty.gov/solidwaste

June 2015

Table of Contents

Acronyms, Abbreviations, and Common Terms

Cedar Hills	Cedar Hills Regional Landfill
division	King County Solid Waste Division
HHW	Household Hazardous Waste
ILA	Interlocal Agreement
LOS	Level of service; a grade that can be used to assess capacity and operational performance
MSWMAC	Metropolitan Solid Waste Management Advisory Committee
NERTS	Northeast Recycling and Transfer Station
self-haul or self-hauler	Anyone who brings garbage, recyclables, and/or yard waste to a transfer facility except a commercial collection company
SEPA	State Environmental Policy Act
service performance indicators	Indicate potential service issues and need for further evaluation: • Service times for commercial customers of 16 minutes or less • Service times for self-haul customers of 30 minutes or less • Inbound queuing and potential impacts to off-station roadways and/or driveways
service time	Time customers spend on-site measured from the inbound scale to the outbound scale
SWAC	Solid Waste Advisory Committee
Transfer Plan	The adopted 2006 Solid Waste Transfer and Waste Management Plan
TSO	Transfer Station Operator

Introduction

Purpose Statement

This report has been prepared in response to Council Motion 14145, which directs the King County Solid Waste Division to determine how to manage transactional demand at transfer stations in the northeast service area of King County. This report identifies demand management strategies and compares them to the adopted plan with the goal of minimizing customer wait times and managing the effective utilization of transfer stations.

Summary of findings

There are several options for managing transactional demand in the northeast portion of the county. These options will require certain policy and procedure changes. If they are implemented, a Northeast Transfer Station is not needed at this time but should remain an option as a potential future facility.

Other key findings:

- Implementation of demand management strategies enables the planned closure of the Houghton Transfer Station and not building a new Northeast.
- The Renton, Algona, and Enumclaw transfer stations do not share a customer base with the northeast and are not directly affected by demand management strategies.
- Bow Lake was designed for increased capacity and will expand regardless of any options selected to serve the northeast.
- Any selected demand management strategy applied in our peak year of 2023 should continue to be effective in 2028 should Bellevue and the four Point Cities elect to stay in the system.
- Renton has some effect on other stations but not enough to change the demand management options.
- Some demand management strategies, such as mandatory collection and material bans, require legislative action by the King County Council and participating cities.

A complete explanation of findings can be found in the "Conclusion" section of this report.

Concepts Analyzed

The division analyzed four concepts to determine how to meet the goals of this report. Since the adopted plan calls for the construction of a new Northeast, that concept was included for comparative purposes and remains an available option.

- Do Not Build Northeast (Concept 0)
    - No Northeast
    - Does not direct commercial haulers
    - Does not restrict self-haulers

- Redirect Commercial (Concept 1)
    - No Northeast
    - Redirects commercial haulers, primarily to Shoreline

- Restrict Self-Haul (Concept 2)
    - No Northeast
    - Restricts self-haulers from using Factoria at certain times and extends operating hours at Factoria

- Build Northeast (Concept 3)
    - Build Northeast

No-Build Actions that Meet Desired Service Times and Queue Lengths

The following no-build concepts, combined with mitigation strategies, meet desired wait times and queue lengths.

A full list of demand management strategies and mitigation strategies can be found in the "Study Elements" section of this report. An explanation of how these actions were analyzed and packaged can be found in the "Methodology for Evaluating Concept and Strategy Packages" section of this report.

No-Build Options That Meet Desired Service Times and Queue Lengths

CONCEPTS	FACTORIA	SHORELINE
Do Not Build Northeast (Concept 0)	• Extend operating hours (6 a.m. to 10 p.m. weekdays, 8 a.m. to 8 p.m. weekends) • Implement incentive pricing on minimum load fees of $22 or $41.25 depending on peak hour times and day of the week	• Add staff • Add an outbound scale
Do Not Build Northeast and Redirect Commercial (Concept 1)	• Ban yard and wood waste from transfer stations and redirect to existing private site or new public site • Implement mandatory curbside collection • Lower-cost bulky item collection to reduce self-haul transactions	• Add staff • Add an outbound scale
Do Not Build Northeast and Restrict Self-Haul (Concept 2)	• Ban yard and wood waste from transfer stations and redirect to existing private site or new public site • Implement mandatory curbside collection • Lower-cost bulky item collection to reduce self-haul transactions	• Add staff • Add an outbound scale

Costs

Though the division can analyze and forecast future costs associated with operational and capital improvements, some costs customers could incur are more difficult to measure. For example, commercial haulers have indicated that not building a Northeast would result in more trucks on the road and more miles driven, which could cause collection rates paid by the customer to increase. A Hauler Survey that explains what could happen if a Northeast is not built can be found in Appendix C.

Strategies with an operational emphasis tend to have lower recurring costs but are subject to inflation over time. Though the analysis shows that operational costs do escalate over time, those costs never reach the upfront amount the division would need to pay to build a new Northeast. Strategies with an emphasis on capital tend to have higher one-time costs and are not subject to inflation. To compare the costs of the different build/no-build strategies, a Net Present Value calculation was used to account for the different cost and revenue streams over time.

Building a new Northeast Transfer Station is the most expensive of the modeled strategies for managing transactional demand in the northeast service area. The upfront capital costs of building a new station exceeds the operational and policy costs associated with strategies like adding an outbound scale at Shoreline or extending hours at Factoria.

A complete cost analysis and comparison of the different concepts and strategies can be found in Appendix I.

Environmental Impacts

Both build and no-build actions can result in environmental impacts and would require a State Environmental Policy Act review.

Regionally, not building a Northeast would lead to more cars on the road driving farther and burning more fuel to reach transfer stations, increasing greenhouse gas emissions. Building a new transfer station also creates greenhouse gas emission impacts during its construction.

At Factoria, the environmental impacts most likely to occur are additional vehicle traffic during evening peak commuting hours.

At Shoreline, although the addition of staff and an outbound scale could result in reduced queuing and reduced negative air quality impacts, as well as a decrease in self-haul traffic, an increase in commercial traffic would occur.

A more extensive explanation of potential environmental impacts projected under the various packages can be found in the “Methodology for Evaluating Concept and Strategy Packages” section of this report.

70 Percent Recycling Rate: Tonnage vs. Transactions

King County has set a goal of reaching a 70 percent recycling rate by 2020. The region stands to benefit substantially through economic and environmental impacts. The single largest influence on landfill capacity is the fact that 78 percent of what is being brought into the transfer system to be landfilled could be recycled instead. When the landfill reaches capacity, the region will face more expensive disposal options. While the recycling goal is an important one to achieve for extending the life of the landfill, it has only a small effect on the number of customers using the transfer system. Though an increase in recycling leads to a decrease in garbage tonnage, self-haulers, the primary drivers of transfer station capacity needs, would continue to use stations at the same rate and create the same transactional demand.

Responsiveness to Comments

On March 31, 2015, the Solid Waste Division submitted the *Draft Transfer and Waste Management Plan* to the King County Council and opened the draft for review by cities, stakeholders, and the public, who were encouraged to submit their comments. The public comment period was scheduled to close on April 29, but to give its customers and stakeholders enough time to respond to the draft plan, the public comment period was extended by seven days. On May 6, the public comment period ended and the division began reviewing the comments in preparation for submitting the final report to council on June 30.

The division received 20 letters, containing various comments, from cities, the general public, and a Solid Waste Advisory Committee member. Those comments, as well as responses, can be found in Appendix J. Some comments received, including retaining building a Northeast as an option, cost analysis and comparisons of concepts, and equitable distribution of transfer service and fees, among others, influenced the final report. Changes made to the body of the report in response to comments are also noted in Appendix J.

Recommendations

Though the results show a Northeast is not needed at this time, the modeled demand management strategies are untested and would benefit from real-life analysis in order to determine how the strategies can be distributed as equitably as possible. Additionally, regional discussion with cities and stakeholders is needed to inform policies to be included in an updated *Comprehensive Solid Waste Management Plan* (Comp Plan). Such policy discussions include maximizing the lifespan of the Cedar Hills Regional Landfill, increasing recycling and diversion efforts to reach a 70 percent recycling rate, providing system-wide customer service excellence, and ensuring a sustainable rate model is in place to cover system expenses.

The division recommends the following:

- Do not build a new Northeast Transfer Station at this time, but keep it as an option for a future potential facility.
- Develop and test the following demand management strategies:
    a. Conduct a pilot program to test the effectiveness and potential impacts of using demand management strategies, including web cameras to inform customers of station activity in real time.
    b. Work with private industry customers and stakeholders to develop a low-cost bulky item collection pilot in target regions of the county by May 2016.
    c. Research point of sale (IT system) needs to support differential pricing for transactions at the transfer stations and identify implementation needs by May 2016. Implement necessary technology changes by September 2017.
    d. In 2017, begin a 12-month pilot to test the effectiveness and potential impacts of extended hours and incentive pricing. Following the pilot, transmit a report and recommendation to Council in March 2019.
- Identify the steps needed to achieve 70 percent recycling rates.
- Continue the *Comprehensive Solid Waste Management Plan* process with city partners and other stakeholders to address key policy issues and produce a draft *Comprehensive Solid Waste Management Plan* for review in early 2017.
- Upon adoption of the *Comprehensive Solid Waste Management Plan*, the system's infrastructure should be reassessed to ensure it fully supports the adopted strategies and goals of the system.

Background

In King County, the transfer system serves a population of about 1.4 million residents and numerous businesses ranging across 2,000 square miles from rural and remote to densely urban and suburban.

This review is focused on the urban transfer system and one central question in particular: *How do we serve the northeast area?* Impacts of closing the Renton Transfer Station are also addressed.

There are options for providing service – from capital investments to policy changes to operational strategies. This report provides information so that these options can be compared. Then, with feedback from stakeholders, a final report will be prepared with a recommended course of action.

Purpose of Review

In 2013, in collaboration with its stakeholders, the King County Solid Waste Division (division) conducted a comprehensive review of the Solid Waste Transfer and Waste Management Plan (Transfer Plan). One of the recommendations of that report was to continue to evaluate the best capital and operational approaches to provide service to the northeast county. This report addresses that recommendation, along with other analysis specified in Council Motion 14145:

> By March 31, 2015, the division shall transmit a draft report to the Council, followed by a final report by June 30, 2015, prepared in collaboration with stakeholders, on strategies to manage transactions at transfer stations, as well as other operational and capital strategies such as increased use of underutilized transfer stations.
>
> - The report shall address the management of transfer station transactions through the use of strategies intended to avoid excessive user wait times resulting from overutilization of individual stations.
> - The report shall analyze options E1 and E2 in the Transfer Plan Review Report.
> - The report shall also analyze the effect of the potential closure of the Renton Transfer Station on the self-haul service needs of residents currently served by the Renton Transfer Station, with particular attention to the accessibility and convenience provided to current transfer station clients by the Renton station, compared with drive time and potential waits associated with alternative transfer station options.
> - The report shall analyze options for self-haul service for residents currently served by the Renton Transfer Station in the event of a closure of the station.

The report also addresses recommendations of the Transfer Plan Review Final Report (Revised and Amended June 2014):

> 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.

Questions and concerns expressed by cities and other stakeholders during the review process are also addressed in the report.

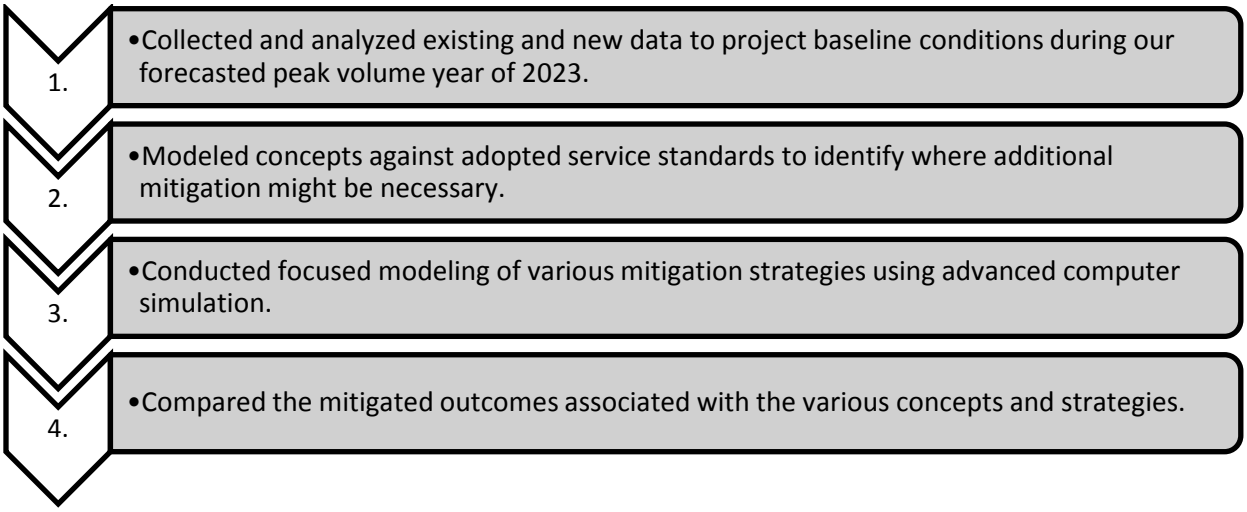
This second review of the Transfer Plan will inform the revision of the comprehensive solid waste management plan update.

Process

A team of consultants collected and analyzed the data that led to the findings presented in this report. An advisory committee composed of members of the Metropolitan Solid Waste Management Advisory Committee and the Solid Waste Advisory Committee provided feedback and advice to the Solid Waste Division throughout the review. Workshops provided a larger group of stakeholders with updates and helped to identify outstanding questions and concerns. Surveys of transfer station self-haulers and commercial haulers were also conducted.

The data collection and analysis process was composed of four key steps to ensure a thorough review of regional solutions.

Data Collection and Analysis Process



Key Assumptions

Key assumptions informed by Council Motion 14145, as well as previous review in 2013, include:

1. The review focused on the northeast service area and the Renton Transfer Station.
2. All concepts assumed that the Houghton Transfer Station would close sometime before 2023.
3. Each concept was analyzed both with the Renton Transfer Station open and with it closed.
4. Factoria was modeled based on the design of the station currently under construction.
5. Analysis focused on 2023 because that year represents the forecasted peak for system tonnage, so any potential service problems could be identified and mitigation applied under a worst case scenario.
6. A 70 percent recycling rate would be achieved in 2020.
7. The City of Bellevue, along with four of the five Point Cities – Clyde Hill, Hunts Point, Medina, and Yarrow Point – will leave the system in July 2028.
8. Concept 3, Build a Northeast Recycling and Transfer Station, was included because it is in the adopted Transfer Plan and provides a useful comparison to the other concepts.

Transfer Plan Review Part 1

As a follow-up to the 2006 Transfer and Waste Management Plan that was developed in collaboration with advisory committees and reviewed by an independent consultant, the King County Council requested a review of that plan in 2013. The report for that review was provided to Council on March 3, 2014. Council amended the report in May 2014 and directed that additional review be done. The report recommended the following:

- Proceed with a new Factoria Recycling and Transfer Station in 2014.
- Continue the siting process for a South County Recycling and Transfer Station.
- 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.
- Revise the 2006 Solid Waste Transfer and Waste Management Plan and the pending Comprehensive Solid Waste Management Plan to address the transfer station network to include among the new or upgraded urban Recycling and Transfer Stations: Bow Lake, Factoria, Shoreline, and a new South King County Recycling and Transfer Station.
- 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 recycling and transfer station, or other capital projects as potential future facilities to retain flexibility in the system.

As of June 2015, the division has completed construction of the Bow Lake Recycling and Transfer Station, begun construction of a new Factoria Recycling and Transfer Station, and is in the process of siting a new South County Recycling and Transfer Station to replace the Algona Transfer Station.

South County Service Area

Although it is an integral part of our urban transfer system, the south county service area, currently served by the Algona Transfer Station, is not significantly impacted by decisions regarding the north part of the county. The Transfer Plan Review Part 1 concluded that a new South County Recycling and Transfer Station would be necessary to replace the aging Algona Transfer Station. The Bow Lake Recycling and Transfer Station is not sufficient to serve the south county service area, even if the Renton Transfer Station were to remain open. For more information see the Transfer Plan Review Final Report.

Council Motion 14145 specifically directed additional review of the northeast and Renton service area needs. Decisions made for the northeast service area, currently served by the Houghton Transfer Station, will have little or no impact on the south county service area as there is virtually no overlap in the customer base. There is minimal overlap between the Renton and south county service areas. Tables showing what percentage of the loads delivered to each urban transfer station come from which city, for both self-haul and commercial-haul can be found in Appendix H. Additionally, in a recent survey of transfer station customers (see Appendix B), less than four percent of Renton Transfer Station self-haulers said that they would use the Algona Transfer Station if the Renton station were to close. That represents about a two percent increase in transactions in the south county service area or about 6 to 7 customers per day.

Transfer Plan Review Part 2

In July 2014, following council adoption of Motion 14145, the division began the process to undertake further review of the Transfer Plan. Through the advisory committees – MSWMAC and SWAC – and a special Transfer Plan Review committee, the division benefited from diverse participation and views to ensure the effectiveness of this study. In addition to the committee meetings, the division held two workshops to reach out to a broader audience. To foster awareness of the study as it progressed, information was distributed and posted on the division's website. As with the previous review, the process began with outreach to stakeholders and adoption of guiding principles.

Guiding principles

In collaboration with its stakeholders, the division adopted the following principles to guide the transfer plan review process:

- Participants in the King County solid waste system will have access to efficient and reliable regional transfer 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, conversion, and recycling options and technologies.
- The system will comply with all applicable local, state, and federal regulations.
- The system will support the following long-term goals:
    1. Extend the life of the Cedar Hills Regional Landfill through 2040
    2. Achieve Zero Waste of Resources by 2030
    3. Achieve 70 percent recycling by 2020
    4. Provide stable, competitive rates
    5. Environmental excellence
- This review will be conducted in a transparent and collaborative manner between King County and its stakeholders.

Stakeholder Engagement

To assist with the Transfer Plan review, an advisory committee composed of MSWMAC and SWAC members met in August, September, and October to review demand management strategies, the effect of Renton closure, and other topics responsive to the Council motion. Workshops in November and February provided a larger group of stakeholders with updates and helped to identify outstanding questions and concerns. Transfer Plan Review advisory committee members, links to the meeting and workshop information, and stakeholder comments can be found in Appendix F.

In addition, the division conducted an online survey focused on Houghton, Factoria, and Renton Transfer Station self-haulers from mid-November to early January. The purpose of the survey was to provide the division with additional data related to customer origin and type, types of waste disposed, reasons for using the stations, and curbside garbage subscription levels in order to better understand how and why self-haulers use the stations. Questions included how frequently self-haulers take loads to the stations, what materials they bring, how transfer system use would change if Houghton or Renton closed, and

what the most important transfer station features or elements are and customer willingness to pay for a new Northeast Recycling and Transfer System. For more detailed information see Appendix B.

Information was also requested from the commercial haulers to assess how potential changes to the transfer system might affect the haulers and their customers. Division staff sent a list of questions to each of the commercial haulers and also met with representatives from Waste Management, Republic and Recology Cleanscapes to discuss the information. Questions that were discussed include: potential routing and cost impacts if Houghton and Renton closed; potential routing and cost impacts if haulers were directed to use specific transfer stations; facility operating hours; potential use of private transfer stations to haul directly to Cedar Hills (regional direct); and bulky waste collection. For more detailed information see Appendix C.

Consultant Roles and Expertise

The division contracted with a team of consultants to provide data collection and analysis. AECOM (formerly URS) provided project management oversight of the team which included Transpo Group, and The Greenbusch Group.

All three firms have expertise in environmental and impact analysis on commercial and industrial facilities, including transfer stations, as a core portion of their business. Some of their specific project experience includes: design and construction management of the Seattle South Transfer Station; SWD Intermodal Facility Siting Study; Snohomish County Transfer Station Master Planning; Bow Lake Transfer Station Master Plan, Advanced Traffic Management System, and Noise Analysis and Compliance; First Avenue Transfer Station traffic impact analysis; and Waterfront Streetcar Maintenance Facility Siting Study and Design. All of these projects involved environmental review, permitting strategies, cost analysis and scheduling. The team was supported by IDAX, using video technology to monitor and calculate service times and vehicle queuing at key locations at the stations.

The division was further supported by Cascadia Consulting Group, which developed an online customer survey to provide more information about self-haul use of transfer stations. Specific projects that Cascadia has completed include on-site customer surveys at Seattle and King County solid and hazardous waste collection facilities; a web-based survey of participants in King County's Business Hazardous Waste pilot project; an industry-wide "recycling best management practices" survey for the federal Airport Cooperative Research Program; and various targeted research efforts for the cities of Seattle, Olympia, and Bellingham.

Data Collection

The consultant team collected data on weekdays and Saturdays at the Shoreline, Houghton, Factoria, Renton, and Bow Lake stations to understand the existing conditions and operations of each facility (Appendix A). Appendix L contains more detailed information about the collected data and the roles and responsibilities for collection and analysis.
Data collected included:

Traffic counts – First, consultants placed traffic counters at each station for a number of days in September 2014 to determine the weekday and Saturday three-hour peak period for each station. 24-hour tube counts were conducted over a two-week period at the approaches to each station.

Service time counts – Next, consultants returned to the site during the station's 3-hour peak period. Each vehicle entering the site was tracked through license plate identification to measure delay and service times for various activities on-site. The processing times at the entry scale, exit scale, self-haul tipping floor area, and commercial tipping floor area were collected at each site. In addition, the

processing time for the recycling area, household waste, and yard waste areas were measured at the transfer stations where that service is provided.

Video – Simultaneous with the service time counts, video was taken to document the traffic volumes at key locations as well as the vehicle type.

Customer origin/destination surveys – At the same time the service time counts were taken, customers were asked the origin of their trip to understand the distribution of customers using the station. This is useful information to consider when looking at the potential future closure of stations (i.e., Houghton, Renton) or analyzing a potential shift in station operations (i.e., redirecting commercial haulers or restricting self-haul).

Off-site traffic analysis – Traffic counts were collected at key intersections surrounding each station during each station's respective weekday and Saturday station peak-hour period. This information was used to assess the impacts to the off-site intersections based on the site traffic anticipated under each of the concepts. The off-site analysis was conducted using Synchro[i] software, a program used to evaluate the capacity of intersections. Synchro is used by all the cities in which the stations are located. Synchro provides a level of service (LOS) grade that can be used to assess overall intersection capacity and operational performance. (Attachment B to Appendix A, LOS Definitions, provides a more detailed explanation of intersection LOS criteria.)

Noise monitoring – Concurrent with the traffic and service time counts, noise measurements were taken to understand noise levels at the boundary of the station properties and to identify noise levels of vehicle types using the station. Noise measurements were taken at Bow Lake, Renton, and Shoreline; for Factoria, 2012 noise measurements were used.

Process Used to Forecast and Analyze Data

Using data from several sources, the consultant team developed a model to analyze site conditions at the selected transfer stations. Tonnage data is a necessary input to the model, but the number of transactions at the stations determines how well traffic flows at a given site. Data from the cashiering system that collects daily transaction and tonnage information, and data that was collected on-site on both weekdays and weekends were all used to develop the model.

Tonnage forecast and assumptions

Population and other demographic data from the Puget Sound Regional Council and local economic forecasting firm of Dick Conway and Associates provide a basis for the tonnage forecast. Key demographic data used includes population growth, employment, household size, and per capita income. Other assumptions in the forecast include:

- A 70 percent recycling rate is achieved in 2020
- The City of Bellevue, along with four of the five Point Cities – Clyde Hill, Hunts Point, Medina, and Yarrow Point – will leave the system in July 2028

These assumptions are discussed in more detail below.

By 2031, based on current recycling goals being considered by the cities and the county for the update of the Comprehensive Solid Waste Management Plan, the division is forecasting that 70 percent of all waste generated will be recycled. This is expected to have little or no effect on transactions since the material will still be received and handled at the recycling and transfer stations. The division projects

[i] Synchro, Trafficware, version 8.0

that the gains in recycling will be gradual – about one percent a year. The increased curbside collection of recyclable materials – single, multi-family, and non-residential – will somewhat reduce commercial tons and transactions at transfer stations. The forecast also projects that self-haulers will recycle about 35 percent of the waste brought to the transfer stations – reducing total disposed, but with minimal effects to transactions.

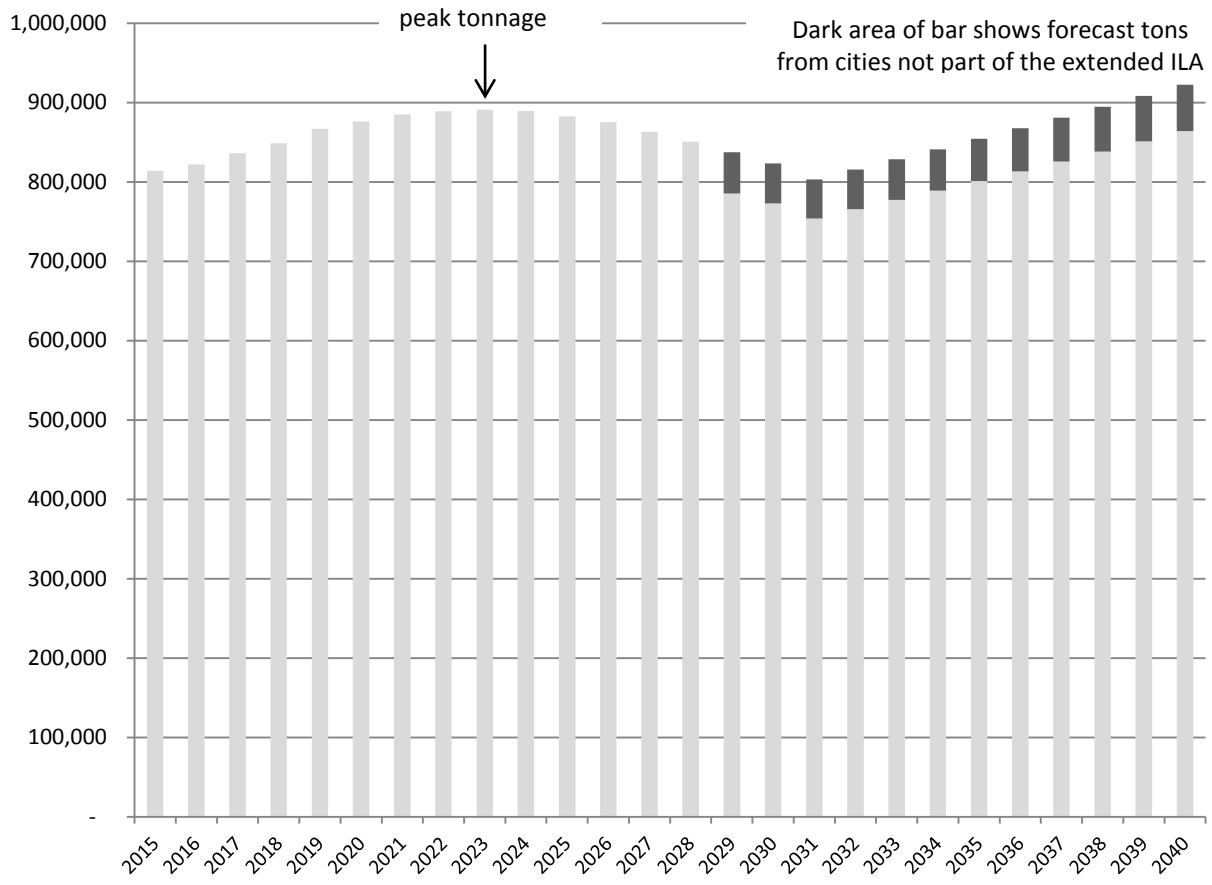
Population growth, higher per capita income, and increased employment are directly correlated with an increase in consumption and waste generation. In King County, population is expected to grow at a steady rate of about one percent per year and employment is expected to increase at an annual rate of about 1.8 percent over the forecast period. Per capita income is also expected to grow by about two percent a year (adjusted for inflation). Household size is expected to decrease from an average of about 2.6 persons per household to 2.4 persons per household; a decrease in household size tends to increase waste generation per capita.

King County currently has Solid Waste Interlocal Agreements with thirty-seven cities in King County. These agreements establish the respective responsibilities of the parties in the solid waste management system including guaranteeing that waste produced in the cities will be directed to the King County solid waste system. Thirty-two cities have signed ILAs which are in effect through 2040 and five cities – Bellevue and four Point Cities – have ILAs which are in effect through June 2028.

The tonnage forecast projects that the peak year for garbage disposed (about 900,000 tons) will be 2023. At that time, Bellevue and the four Point Cities will still be part of the County's solid waste system. After July 2028, if Bellevue and the four Point Cities have not signed the Amended and Restated Interlocal Agreement and are not a part of the system, the cities' contracted haulers will need to take the garbage collected from these cities to their own transfer stations and will not use the County transfer system. Since Bellevue and the four Point Cities generate approximately eight percent of the commercial tonnage, the system would see a commensurate drop in tonnage, as shown in Figure 1.

If Bellevue self-haulers did not use the Factoria Recycling and Transfer Station there would be an approximate 35 percent reduction in transactions; however, this would not occur until July 2028.

Figure 1: Forecast of Garbage Disposed 2015-2040



Garbage Forecast Sensitivity

Any forecast is sensitive to changes in the factors that were used to develop the forecast. Three important factors that influence the garbage forecast add degrees of uncertainty – the proposed vs. actual recycling rate, the number of cities that are participating in the system, and the economy. The recycling rate is the most sensitive in terms of deviation from the forecasted tonnage numbers, followed by the numbers of cities participating in the regional system, and economic conditions.

Recycling rate: The current forecast assumes that the recycling rate will increase by one percent per year. A total of approximately 1.7 million tons of waste is generated (recycled and disposed) by households and business each year. A one percentage point deviation in the recycling rate has an almost three times larger effect than the one percent deviation in job growth. If a 60 percent recycling rate is reached, rather than 70 percent, by 2031 it would increase disposal by about 250,000 tons in that year (+33 percent). The recycling rate has remained relatively flat for the past several years, but the county and the cities are working together to plan how to achieve the 70 percent recycling rate.

Cities participating in the County's solid waste system: Currently, Bellevue and the four Point Cities have not signed the Amended and Restated ILA, so they will not be a part of the system after 2028. The planning assumptions for the forecast were based on this scenario for the long term planning

horizon. If those cities reconsider and sign the ILA, the division would expect to receive an additional 50,000 tons more per year.

Economic factors: If growth in employment exceeds the forecast then additional garbage would be created. An estimated 2,300 tons of garbage could be expected for every 5,000 jobs exceeding the forecast. In the short run, the margin of error is rather small. A one percent increase in employment causes garbage disposed to go up by about 3,200 tons (which equals about one percent of all the garbage generated by the non-residential sector). From 2012 to 2013 the region experienced a 3.6 percent growth rate in employment, which amounted to an additional 11,500 tons of garbage.

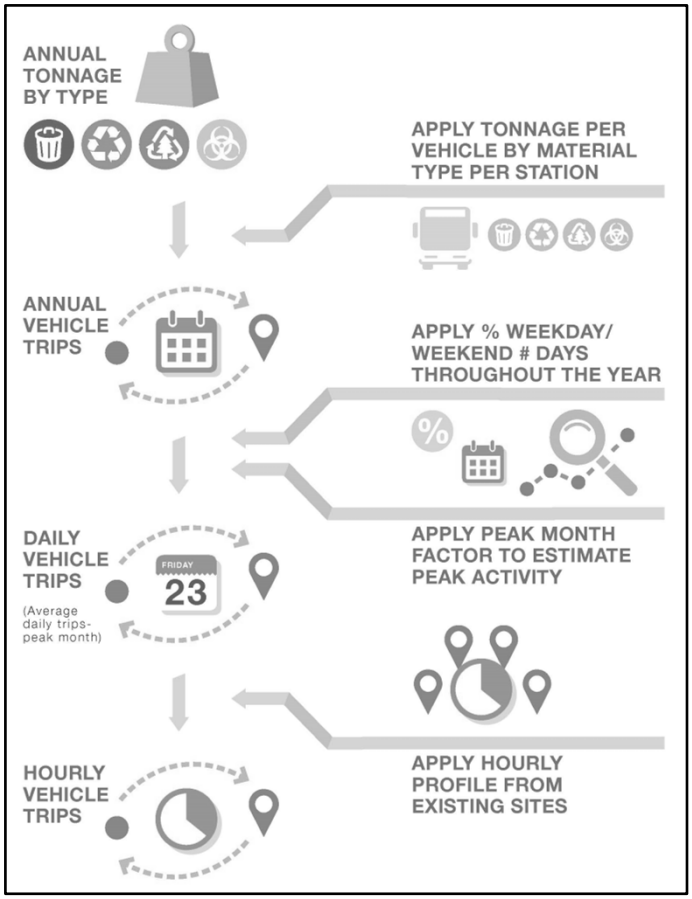
Site Traffic – Trip Generation Methodology

A multi-step process was utilized to estimate the peak hour trip generation for each site based on annual tonnage forecasts (see Figure 2). The process used to develop the peak hour trip generation forecasts is illustrated below.

In general, the forecasts consider the following:

- Annual tonnage by type (i.e., garbage, recycle, yard waste, HHW)
- Average load (in tons) per vehicle for all material
- Weekday/weekend allocation
- Peak month and seasonal variations
- Weekday and weekend hourly distribution of traffic by customer type (commercial haul, self-haul, transfer trailers, and recycling)

Figure 2: Trip Generation Methodology



Analysis period

The traffic analysis focuses primarily on 2023 because that year represents the forecasted peak for system tonnage and therefore the year that capacity issues might arise. Given the range of customers that utilize the transfer stations, from the commercial-haulers to the general public, both the weekday and Saturday peak periods were analyzed. The specific peak hours vary at each station and as such were identified through comprehensive hourly counts taken over a multiple-week period. Details for each station are presented in the individual station assessment sections in Appendix A.

This analysis used a 90th percentile peak hour demand factor. This factor means that 10 percent of the time the demand is greater, but the demand can be considerably less. The 90th percentile is used to help to account for the seasonal variations of the facilities. It also helps to ensure that traffic volumes do not exceed the station capacity and impact adjacent city streets on a regular basis. Furthermore, the division designs the facilities for the 90th percentile demand, so it is appropriate that the traffic analysis apply a similar standard. Peak demand factors are typically used in the industry as it provides a

reasonable worst-case of peak conditions. For more detailed information about how the 90th percentile was calculated, see Appendix A, page 6.

Trip generation estimates prepared for each station and each concept considered the local factors such as tonnage per vehicle and hourly distribution patterns to estimate peak-hour activity. The detailed description of the calculation factors are provided for each station in the station assessment section in Appendix A.

On-Site Traffic Analysis

The internal traffic flow at the transfer stations is a complex transportation network with multiple service points and circulation needs. This includes the inbound process at the scale house, the primary tipping floor, additional material recycling and disposal stations, and the outbound operations at the scale house. This interconnected system is further complicated by the presence of commercial and self-haul traffic that utilize different areas of the tipping floor and, depending on the station, potentially separate scales.

The on-site evaluation of each station used VISSIM, a microscopic traffic simulation model. Using this model, a transfer station can be analyzed as one connected network including all circulation roadways, scale house operations, tipping floor access and capacity, and activity for other materials such as yard waste, recycling, or household hazardous waste. In addition, the VISSIM model includes the multiple vehicle types observed at each station.

PTV Vissim is a microscopic multi-modal traffic flow simulation software package developed by PTV Planung Transport Verkehr AG in Karlsruhe, Germany. The name is derived from "**V**erkehr **I**n **S**tädten - **SIM**ulationsmodell" (German for "Traffic in cities - simulation model"). VISSIM was first developed in 1992 and is today a global market leader. (Wikipedia)

Before the VISSIM model was used for any analysis of existing and forecast conditions, a comprehensive calibration process was completed for each weekday and Saturday peak period model. The existing conditions in the model were calibrated to match conditions as they were observed in the field at each station. Existing operational information was collected during the weekday and Saturday peak 3-hour periods. Each vehicle entering the stations during this time was tracked by license plate to measure delay and service times for various activities on-site. The processing times at the entry scale, exit scale, self-haul tipping floor area, and commercial tipping floor area were recorded. This data was used to understand the timing and movement of customers using the station so constraints could be identified.

In addition, the processing time for the recycling area, household hazardous waste, and yard waste areas were measured at the transfer stations where that service is provided. Default values in the VISSIM model such as vehicle travel speeds and dwell times at the various areas at the stations were modified from the default values in the model to match the observed data. The scope of the extensive data collection at each station is reviewed in more detail in the station assessment section in Appendix A.

Benchmarks

As part of the Transfer Plan review process, the division looked at how other nearby transfer systems compare to the King County system. Primarily, information was gathered from four other nearby systems – the City of Seattle, Snohomish County, Pierce County, and Kitsap County.

The King County transfer system (comprised of six urban and two rural transfer stations and two rural drop boxes) serves a population of about 1.4 million, about half a million more than Snohomish County and about double the population of the City of Seattle. It serves an area of about 2,000 square miles, which is about the same as Snohomish County. In 2013, the King County system handled about 786,000

tons of garbage, which is almost 90 percent of what was handled by all of the other systems combined. In contrast, the King County system handles far less separated organics than the City of Seattle or Pierce County, largely because, unlike King County, those systems transfer organics collected at the curb through their facilities. The King County system handles almost as many transactions as the City of Seattle, Snohomish County, and Kitsap County systems combined. Most of those transactions are generated by self-haul customers; the City of Seattle and Snohomish County report similar percentages of self-haul. Table 1 includes the details of the transfer systems in King, Snohomish, Kitsap, and Pierce counties and the City of Seattle.

Table 1: Regional Benchmarks

	King Co	City of Seattle	Snohomish Co	Pierce Co	Kitsap Co
Population	1,385,000	659,000 (2014)	746,000	820,000	230,000
Area Served	2,050 sq. mi.	82 sq. mi.	2,087 sq. mi.	1,669 sq. mi.	395 sq. mi.
Transfer Station Garbage Tons	786,072	247,271	412,445	56,913	178,081
Organics Tons	7,577	72,946	9,324	36,711	349
Transactions	707,255	264,857	335,047	not available	122,722
Percentage Self-Haul Transactions	85 percent	85 percent	80 percent	not available	not available
Transfer Facilities	8 transfer stations and 2 drop boxes	2 transfer stations	3 transfer stations and 3 drop boxes	3 transfer stations and 2 drop boxes	1 transfer station and 3 drop boxes
Garbage Per Ton Fee[ii]	$129.40	$145	$108.78	$144.97	$70.45
Recycling Rate	53%	56%	45%	not available	42%

All data is for 2013 unless otherwise noted.

The other jurisdictions were also asked about the average time that customers spend at their facilities – inbound scale to outbound scale. The City of Seattle reported an average time on-site at the South Transfer Station of about 7 and a half minutes for commercial haulers and about 13 minutes for self-haulers. Pierce County estimated an average of about 18 minutes on-site during the week and a weekend peak average closer to 30 minutes. At Kitsap County's Olympic View Transfer Station the average is about 16 minutes. In the King County system, the average time on-site varies between transfer stations. Table 2 shows the 2014 average minutes on-site at King County's transfer stations.

[ii] 2015 per ton fee; includes state refuse tax, and for King County and the City of Seattle includes a moderate risk waste surcharge.

Table 2: 2014 Average Minutes On-site
(Inbound Scale to Outbound Scale)

	Weekday		Weekend	
	Commercial	**Self-Haul**	**Commercial**	**Self-Haul**
Algona	13	13	12	11
Bow Lake	8	14	9	13
Enumclaw	9	12	6	12
Factoria	14	14	12	12
Houghton	11	13	11	11
Renton	10	11	12	10
Shoreline	9	14	15	13
Vashon	8	10	4	10

Jurisdictions were also asked about how long customers wait before entering the site. Snohomish County had information from a 2012 customer survey – according to customers, the average wait was just over 1 minute, with about 62 percent reporting no wait, and only 3 percent reporting a wait of 10 minutes or longer; 15 minutes was the longest reported wait time. Pierce County estimated that the longest wait time at the largest transfer station is usually less than 2 minutes, although it can be up to 10 minutes during the busiest times, and wait times for smaller sites and yard waste tend to be longer. Information about wait time was not available from the City of Seattle or Kitsap County. The division does not collect data on how long customers wait before they enter the station. Customer complaints about wait times are rare. Queue lengths at King County stations are discussed in more detail later in this report.

Another aspect that was explored was the use of tare weights or radio-frequency identification (RFID) for commercial haulers and other customers with charge accounts. Tare weights are not widely used. Both the City of Seattle and Snohomish County use RFID for commercial haulers and the City of Seattle uses RFID for some other large account customers as well. Use of RFID could be implemented at facilities to help to improve efficiency and service to commercial haulers; however there would be little or no effect on transfer station capacity because this improvement would not address the projected constraints at the stations.

For more detailed benchmark information, see Appendix E.

Study Elements

To address the Council motion, the division looked at data in several different ways, testing combinations of concepts and demand management strategies for their effect on capacity and other aspects of the transfer system. Three different concepts that would not build a Northeast Recycling and Transfer Station were created and compared to one concept that did build a new Northeast Recycling and Transfer Station.

Using the developed model, the consultants identified constraints for each concept at each transfer station. Next, the team identified potential strategies to mitigate the constraints. Of the strategies

identified, those most likely to be effective were modeled. The strategies and solutions selected varied by site, depending on the issue that needed to be solved.

Capacity

This review focused on the transactional capacity at the transfer stations. Transactional capacity (also called trip, customer, or vehicle capacity) refers to the ability of a particular transfer station to process the number of customers using the station, without causing excessive service times or off-site queues that block driveways or roadways. Factors that might affect capacity include:

- Property size and layout, e.g., distance from gate to scale house and from scale house to tipping building
- Station size and layout, e.g., number of stalls and flexibility to reconfigure
- Operating method, e.g., direct dump vs. pit or flat floor
- Peak demand times, e.g., Saturday in July vs. Wednesday in February
- Hours of operation
- Time it takes customers to use the site, e.g., time spent on the scale, time spent unloading waste or recycling, and time spent moving from one point to another

Concept Descriptions

Four concepts were developed to address the Council motion.

- Concept 0 – No Northeast, does not direct commercial haulers, no self-haul restrictions
- Concept 1 – Direct commercial haulers, no Northeast (E1*)
- Concept 2 – Restrict self-haul, no Northeast (E2*)
- Concept 3 – Build Northeast

**Reflect E1 and E2 as referenced in Council Motion 14145*

All of the concepts assume that the Houghton Transfer Station will close by 2023. In addition, each concept was analyzed both with the Renton Transfer Station open and with it closed. The division included Concept 3, Build Northeast, because it is called for in the adopted Transfer Plan and is useful as a comparison to the other concepts. These concepts represented a starting point for addressing transactional constraints. Analysis was completed to determine the extent to which these concepts would avoid extensive customer wait times, or to what degree additional mitigations strategies would be needed.

Concept 0: This concept assumes that a new Northeast Recycling and Transfer Station would not be built. It is used as the baseline concept to identify issues in the system. It assumes current customer use patterns. It does not direct commercial haulers to use any particular stations nor are there any self-haul restrictions. Operating hours remain similar to the current hours and HHW and recycling are available at Factoria.

Concept 1: Concept 1 directs commercial haulers to specific stations to more evenly balance use across the system (see Table 3). This concept is adapted from Alternative E1 from the *Transfer Plan Review Report*. Concept 1 differs from E1 in that it does not assume extended hours, additional scales, or a queuing lane except as potential mitigation strategies. E1 also assumed that Renton would remain open, while Concept 1 was analyzed with Renton open and closed. Concept 1 would require a council ordinance to restrict commercial hauler use of Factoria and to direct them to alternate stations. This concept assumes that operating hours would be similar to current operating hours and that HHW and recycling would be available at Factoria.

Table 3: Concept 1: Direct commercial haulers

	cities/surrounding areas directed to Factoria	cities/surrounding areas directed to Shoreline	cities/surrounding areas directed to Renton	cities/surrounding areas directed to Bow Lake
a)	***Without Renton***			
	Beaux Arts, Bellevue, Carnation, Clyde Hill, Hunts Point, Issaquah, Medina, Newcastle, North Bend, Redmond, Sammamish, Snoqualmie, Yarrow Point	Bothell, Duvall, Kenmore, Kirkland, Lake Forest Park, Shoreline, Woodinville	n/a – Renton closed or not accepting commercial	Mercer Island, Renton
b)	***With Renton***			
	Beaux Arts, Bellevue, Carnation, Clyde Hill, Hunts Point, Medina, Mercer Island, Redmond, Sammamish, Yarrow Point	Bothell, Duvall, Kenmore, Kirkland, Lake Forest Park, Shoreline, Woodinville	Issaquah, Newcastle, North Bend, Renton, Snoqualmie	

Note: Cities/surrounding areas not shown in the table would not be directed to a specific transfer station.

Concept 2: This concept would restrict self-haul use at Factoria during peak commercial hours – 6 a.m. to 3 p.m. It is adapted from Alternative E2 from the *Transfer Plan Review Report*. Concept 2 differs from E2 in that it restricts self-haul use until 3 p.m. instead of 4 p.m., it assumes that recycling would be available, and it assumes HHW service, additional scales, or a queueing lane except as potential mitigation strategies. E2 also assumed that Renton would remain open, while Concept 2 was analyzed with Renton open and closed. To make this possible, the King County council would need to approve an ordinance that restricts self-haul use. Like E2, Concept 2 assumes extended Factoria hours of 6 a.m. to 10 p.m. weekdays and 8 a.m. to 8 p.m. on weekends.

Concept 3: This is the only concept that assumes a new Northeast Recycling and Transfer Station would be built to serve the area currently served by the Houghton Transfer Station. For analysis purposes, the division considered locations near the end of State Route 520 and in the Totem Lake area. It assumes that a new Northeast station would be of a similar size, design, and operation as the new Factoria station and that the operating hours would be similar to the operating hours of the existing Houghton Transfer Station.

Overview of Strategies

This review analyzed a variety of mitigation strategies that manage transfer station transactions – individually and in concert with each other – to determine what impact they might have on use of the transfer system. Goals included more evenly balancing use of transfer stations across the system and avoidance of excessive user wait times and queue lengths.

Concepts 1 and 2 both have demand management strategies built into the concept.

- Concept 1 directs commercial haulers to use certain transfer stations so that transfer system use is more evenly balanced and in particular so that use of Shoreline is increased.

- Concept 2 restricts the hours that self-haulers can use Factoria and also extends the hours so that self-haulers are encouraged to use the extended hours or to use alternative transfer stations during the restricted hours.

Additional mitigation strategies analyzed fall into two general categories: those that reduce the number of customers using a particular transfer station or the transfer system in general and those that increase the number of customers that can be served at a station. Operational, policy, and capital strategies were considered. All demand management strategies identified during the Transfer Plan Review Part 1 are included in the current review.

The key demand management strategies that reduce the number of customers using the transfer system or a particular transfer station that were analyzed include:

- Extend operating hours
- Incentive/peak pricing
- Provide wait time information (video feed using existing cameras)
- Mandatory curbside garbage collection
- Lower cost curbside bulky waste collection
- Higher minimum fee
- Lower regional direct fee to encourage haulers to use their own transfer stations
- Do not provide HHW service at Factoria, provide at separate location elsewhere in service area
- Ban materials from disposal and recycling

Strategies that improve site capacity that were considered include:

- Add scales and/or queueing lanes
- Add stalls/ increase the tip floor capacity
- Provide unloading assistance

The effectiveness of each strategy, or a combination of strategies, varies from station to station. A more thorough description of the strategies follows:

Extend operating hours: The intended effect of extending hours is to encourage self-haulers to use the station at times other than the peak operating hours. The current operating hours for Factoria are 6:30 a.m. to 4 p.m., Monday-Friday, and 8:30 a.m. to 5:30 p.m., Saturday and Sunday. Concept 2 includes the extended hours of 6 a.m. to 10 p.m. on weekdays and 8 a.m. to 8 p.m. on Saturdays and Sundays at Factoria. These same extended hours were considered for Factoria under other concepts as well.

Impacts of this strategy include more vehicle traffic during peak afternoon commute hours and potential impacts to neighboring businesses. Changing the hours would require approval of an ordinance by the King County council. In addition, a new environmental review would be needed to analyze the effects of the increased traffic during the afternoon commute hours.

Incentive/peak pricing: The division looked at implementing incentive/peak pricing via a variable minimum fee of $22 or $41.25 depending on peak hour times and day of the week. This strategy, in conjunction with extended operating hours, would encourage self-haulers to use the transfer station during hours when the station is not as busy. Price elasticity research indicates that a fifty percent price increase during peak hours would cause about a fifteen percent drop in transactions during those hours,

thus moving transactions to other transfer stations or to off-peak hours. Depending on the concept, the division could expect to realize a revenue increase of about $700,000 to $2.2 million (in 2023) from this strategy. Potential issues with this strategy include fee equity, potential adverse impacts on low income customers and small business owners, and customer dissatisfaction.

Provide wait time information: Cameras located at the scale house could provide information to customers that are going to make a trip to the transfer station. The cameras could provide views of the entrance to the station and at points within the station so that the customer could decide whether to delay their trip to a time when that station is not as busy. The division could make use of cameras that may already be in place to show a photo that is frequently refreshed on the Solid Waste Division website. Costs associated with this option would be minimal. Some other transfer facilities and other high-traffic services provide this type of information via their websites; however, none could provide any information about how it had affected traffic volumes.

Mandatory curbside garbage collection: This strategy would require that all residents subscribe to curbside garbage collection. Estimates of the impact this strategy would have on reducing trips to the transfer station vary by station and are based on information provided by self-haul customers.

Table 4: Estimated percentage reduction in self-haul transactions if mandatory garbage collection

Algona	Bow Lake	Factoria	Houghton	Renton	Shoreline
10.6%	14.9%	6.5%	1.4%	11.6%	16.6%

For this strategy to be effective, it would require the County and all of the cities that do not currently have mandatory collection to pass ordinances. At this time, residents in 24 of the 37 cities in the solid waste system and the unincorporated area are not required to have curbside garbage collection. Issues with this strategy include possible dissatisfaction due to reduction in choice, difficulty with serving some properties with curbside collection, and potential impacts on low income residents.

Lower cost bulky item collection: Because a high percentage of what self-haulers are bringing to the transfer station are bulky wastes that do not fit into a curbside garbage can, a strategy that was analyzed is lower cost curbside bulky item collection. Many cities currently have a rate in their contracts for bulky waste pick-up, but the rate is high enough that it is not widely used. Costs range from a low of just over $20 up to about $100 with a median cost of about $50 to $65 per item. In an online survey of self-haulers, a majority of respondents said that they would be willing to pay for curbside bulky waste pick-up if it was priced at $25 per item ($35 for refrigerators/freezers). The reduction in trips varies by station, but overall it is estimated that this strategy would have only a small impact because the number of customers who only bring bulky items to the stations and indicate a lower cost curbside service is relatively small as a percentage of total transactions. The cities and haulers would be primarily responsible for changing their contracts to institute a lower bulky waste item collection rate.

Higher minimum fee: This strategy considers what the effect raising the minimum fee would have on self-hauler use of the transfer stations. Since garbage disposal is necessary, the price elasticity tends to be lower in comparison to other goods and services. The minimum fee was increased 100 percent (doubled) to model the effect. Model results indicate that if the fee is doubled system wide, there would be an estimated 7.5 percent decrease in overall transactions. If the fee were doubled at the Factoria Recycling and Transfer Station only, there would be an estimated 20 percent reduction in transactions at Factoria. Depending on whether the fee was doubled system-wide or just at Factoria, there would be a revenue increase of about $10 to 15 million (assuming a minimum fee of $55 in 2023). Issues with this strategy include fee equity, potential adverse impacts on low income customers and small business owners, and customer dissatisfaction.

Lower regional direct fee: The Regional Direct Fee (RDF) is a discounted fee charged to commercial collection companies that bring solid waste to Cedar Hills in large transfer trailers via their own transfer stations and processing facilities. The current RDF is $103.50, which is about 14 percent less than the Basic Fee. Prior to 2003, the RDF was about 28 percent lower than the Basic Fee. When the RDF was lower, about 25 percent of solid waste was brought directly to Cedar Hills. Currently, only about 1 percent comes directly to Cedar Hills. However, lowering the RDF would have little to no effect in the northeast or Factoria service areas because, according the commercial haulers, any waste diverted from the transfer stations would be from the Bow Lake, Algona, and Renton transfer stations. Additionally, at this time there is not sufficient private transfer capacity available.

No HHW service at Factoria: This strategy would remove transactions from Factoria and allow the space to be used for vehicle queuing. If HHW service is not provided at the station, however, it will need to be provided elsewhere. Building a new, fixed facility, would entail a siting process, SEPA process for the new facility, and permits including land use and building permits. The estimated cost for a separate HHW facility is about $9 million. Issues with this strategy include finding a suitable site in the urban service area, potential increases in improper disposal, and a decrease in services available at the transfer station. HHW collection service could be provided by the Wastemobile instead, but finding adequate sites may be challenging.

Ban materials: This strategy would ban the disposal or recycling of yard waste and clean wood waste at Factoria (for both self-haul and commercial customers). Banning these materials would remove an estimated one-third of materials from the transfer station. If not accepted at Factoria, these materials would need to be taken to other King County transfer stations or to private sector facilities. Another solution would be to site a drop box to accept yard waste and wood waste. The estimated cost to site and build a drop box facility is about $18.5 million. To support recycling goals, if this strategy is selected, it is recommended that a disposal ban on these materials be implemented system-wide. This effort would also require monitoring and enforcement to be effective. Issues with banning yard waste and wood waste include a decrease in service at the transfer stations, potential revenue loss, and siting a new drop box facility.

Additional scales/lanes: Adding scales and/or queuing lanes addresses specific site constraints. For instance, where the model indicates that there is a queue waiting to exit the site then an additional outbound scale was considered. Additional queueing space does not shorten wait time, but could help mitigate off-site impacts. Capital costs for scales and queuing lanes range from about $1 to 2 million. New permits would be needed including a possible SEPA process.

Increase tip floor capacity: Tip floor capacity could be increased by making operational changes or by banning materials. Operational changes were considered under all of the concepts including reconfiguring the tipping floor to maximize the number of vehicles and assuming that there would be no resource recovery from mixed loads. Material bans were considered as a mitigation strategy for Factoria – if there were no disposal or recycling of yard and wood waste, it would free up space on the tipping floor.

Unloading assistance: Adding staff on the tipping floor to assist customers with unloading would reduce self-haul time on the tipping floor by an estimated 25 percent, reducing overall time on-site and allowing more customers to be served each hour. For this strategy to be effective, it would require a large increase in staffing resulting in high additional operational costs – about $4 million in 2023 (equal to about $4.50 per ton). Some additional staff facilities to accommodate the larger staff would also be needed with a cost of about $1 million.

Resource Recovery and Recycling Goals and Assumptions

The division periodically conducts waste characterization studies at the transfer stations to assess the material make-up of the waste stream. These studies show that up to 78 percent of the waste that is landfilled could be recycled. Many loads arrive with large amounts of recyclable cardboard, metals, and clean wood which all have readily available markets. To help increase our overall recycling rate and put these valuable materials back into the economy, the division launched a pilot resource recovery program in 2014. This entails dumping material-rich loads on the tipping floor and picking through to reclaim the recyclable materials. In addition to the goal of increasing recycling, recovering recyclable materials from the waste stream reduces greenhouse gas emissions, conserves resources, and extends the life of the landfill.

In order to recover recyclable materials from the waste stream at the transfer stations, space on the tipping floor must be used. All concepts, except Concept 3, assumed that all floor space at the Factoria Recycling and Transfer Station would be needed for customer unloading and processing of garbage, resulting in limited space for resource recovery. Resource recovery would continue at the Shoreline and Bow Lake facilities. Under Concepts 1 and 2, resource recovery at Shoreline would experience some constraints during peak hours. These limitations would result in an overall reduction in the recycling rate potential of about one and one-half percent.

Costs

Though the division can analyze and forecast future costs associated with operational and capital improvements, some costs customers could incur are more difficult to measure. For example, commercial haulers have indicated that not building a Northeast would result in more trucks on the road and more miles driven, which could cause collection rates paid by the customer to increase. A Hauler Survey that explains what could happen if a Northeast is not built can be found in Appendix C.

Strategies with an operational emphasis tend to have lower recurring costs but are subject to inflation over time. Though the analysis shows that operational costs do escalate over time, those costs never reach the upfront amount the division would need to pay to build a new Northeast. Strategies with an emphasis on capital tend to have higher one-time costs and are not subject to inflation. To compare the costs of the different build/no-build strategies, a Net Present Value (NPV) calculation was used to account for the different cost and revenue streams over time (see below table for NPV calculations).

Building a new Northeast Transfer Station is the most expensive of the modeled strategies for managing transactional demand in the northeast service area. The upfront capital costs of building a new station exceeds the operational and policy costs associated with strategies like adding an outbound scale at Shoreline or extending hours at Factoria.

The division applied NPV to all four concepts, with Renton both opened and closed, over three different time periods – 17 years, 30 years, and 50 years – to create a comprehensive cost analysis throughout the useful life of a transfer station. Based on the analysis, a no-build approach is the least expensive option in all three of the different time periods. Building NERTS has a substantially higher cost, in both the short- and long-term, because that concept includes upfront capital costs, as well as operating and maintenance costs. Under all concepts, keeping Renton open is more expensive than closing it.

Net Present Value Calculation for 2023-2053

Do Not Build a Northeast (Concept 0) with Renton Closed	$236,499,661

Do Not Build a Northeast (Concept 0) with Renton Open	$271,987,544
Redirect Commercial (Concept 1) with Renton Closed	$284,561,024
Redirect Commercial (Concept 1) with Renton Open	$313,077,615
Restrict Self-Haul (Concept 2) with Renton Closed	$307,348,969
Restrict Self-Haul (Concept 2) with Renton Open	$342,393,235
Build Northeast (Concept 3) with Renton Closed	$351,519,043
Build Northeast (Concept 3) with Renton Open	$387,006,927

A complete cost analysis and comparison of the different concepts and strategies can be found in Appendix I.

Environmental Impacts

Actions implemented instead of building a new Northeast can result in environmental impacts and would require a State Environmental Policy Act review.

Regionally, not building a Northeast would lead to more cars on the road driving farther and burning more fuel to reach transfer stations, increasing greenhouse gas emissions.

At Factoria, the environmental impacts most likely to occur are additional vehicle traffic during evening peak commuting hours.

At Shoreline, although the addition of staff and an outbound scale could result in reduced queuing and reduced negative air quality impacts, as well as a decrease in self-haul traffic, an increase in commercial traffic would occur.

A complete explanation of potential environmental impacts projected under the various packages can be found in the "Methodology for Evaluating Concept and Strategy Packages" section of this report.

Methodology for Evaluating Concept and Strategy Packages

The following section provides a summary of the methodology used to evaluate the concepts and demand management strategies. For more detailed information, see Appendix A.

Analytical work began by determining how each of the concepts would perform relative to customer service times. These measures focus on the individual operations of the station as well as the experience of the station users, and define the station constraints and inform the identification of potential station improvements. The service performance indicators used for preliminary analysis were selected from the adopted Transfer Plan. The primary performance indicators are:

- Service times for commercial customers of 16 minutes or less[iii]
- Service times for self-haul customers of 30 minutes or less[iv]
- Inbound queuing and potential impacts to off-station roadways and/or driveways

[iii] Measured scale-to-scale consistent with service time indicators identified in the 2006 Solid Waste Transfer and Waste Management Plan

[iv] Measured scale-to-scale consistent with service time indicators identified in the 2006 Solid Waste Transfer and Waste Management Plan

In addition to these primary performance measures, the internal queuing at either the tipping floor or outbound scale was considered due to its potential impact to overall station operations.

Figure 3 was used as a preliminary screening tool only to identify potential areas of concern. If one or more of the indicators was exceeded, the concept and site received a "minus" illustrating that additional evaluation was needed (as reflected in the Tier 2 Screening). The degree to which any given concept exceeded an expectation varies and thus this information was only used to identify where more mitigation may be appropriate. More detailed information is provided for each site and concept.

Figure 3: Preliminary Screening to Determine Concepts/Sites That May Require Additional Mitigation Strategies (2023 Conditions)

SITE WITH RENTON

WEEKDAY					SATURDAY			
CONCEPT 0	CONCEPT 1	CONCEPT 2	CONCEPT 3	SITE	CONCEPT 0	CONCEPT 1	CONCEPT 2	CONCEPT 3
⊕	⊕	⊕	⊕	RENTON	⊕	⊕	⊕	⊕
⊕	⊕	⊖	⊕	SHORELINE	⊖	⊖	⊖	⊕
⊖	⊖	⊖	⊕	FACTORIA	⊖	⊖	⊖	⊕
⊖	⊖	⊖	⊖	BOWLAKE	⊖	⊖	⊖	⊖

SITE WITHOUT RENTON

WEEKDAY					SATURDAY			
CONCEPT 0	CONCEPT 1	CONCEPT 2	CONCEPT 3	SITE	CONCEPT 0	CONCEPT 1	CONCEPT 2	CONCEPT 3
—	—	—	—	RENTON	—	—	—	—
⊕	⊖	⊖	⊕	SHORELINE	⊖	⊖	⊖	⊕
⊖	⊖	⊖	⊖	FACTORIA	⊖	⊖	⊖	⊕
⊖	⊖	⊖	⊖	BOWLAKE	⊖	⊖	⊖	⊖

⊕ Station is forecast to operate as defined based on KC service time standards and queue lengths (2006 Solid Waste Transfer and Waste Management Plan).

⊖ Station is forecast to exceed KC service time standards and queue lengths.

Summary of Constraints

VISSIM modeling identified operating constraints at the Shoreline, Factoria, and Bow Lake stations. No constraints were identified at the Renton Transfer Station under any of the concepts. Keeping Renton open did not significantly change constraints identified at Shoreline, Factoria, or Bow Lake.

Shoreline

Commercial tipping floor: The primary constraint identified at Shoreline is the commercial-haul tipping floor which is constrained by the number of stalls and the dwell time of vehicles on the tipping floor itself.

Outbound scale: Another constraint is the outbound scale. The model shows queues at the outbound scale extending back to the commercial tipping floor during the Saturday peak-hour resulting in longer

commercial-haul service times. If capacity of the commercial tipping floor were increased by decreasing on-floor dwell times or increasing stalls, the outbound scale would become a more notable constraint.

Factoria

Self-haul tipping floor: The primary constraint at Factoria is the self-haul tipping floor. The self-haul tipping floor is constrained by the number of stalls and the dwell time of vehicles on the tipping floor itself. The self-haul tipping floor cannot accommodate all of the self-haul vehicles within the peak-hour.

Outbound scale: Another constraint of the station is the outbound scale. Although not an issue at the rate vehicles are processed on the tipping floor; if the tipping floor capacity is increased (by decreasing on-floor dwell times or increasing stalls) the outbound scale would become a constraint.

On-station queue storage: Based on the long queues that the model predicts, there is not enough room to accommodate the high volumes of vehicles anticipated during the peak hours. This results in queues that extend off-station, blocking adjacent businesses along SE 32nd Street and extending onto Richards Road.

Bow Lake

Inbound scale capacity: Capacity constraints exist at the inbound scale resulting in vehicle queues that extend back to and onto Orillia Road. The service time results are affected by the capacity of the inbound scale. Despite the variance in weekday and Saturday vehicle demands, the on-station service times are approximately the same. This indicates that the inbound scale is operating at its maximum capacity and lacks the capacity to accommodate the forecasted demand. The Bow Lake Recycling and Transfer Station is designed to accommodate additional scales as they become necessary.

Outbound scale capacity: Due to the capacity restriction on the inbound scale, the analysis of the unmitigated concepts does not identify capacity constraints on the outbound scale. However, if the inbound scale capacity is increased, the capacity of the existing outbound scale was identified as a constraint, because on-site queuing would extend from the outbound scale house into the self-haul tipping floor area, as well as self-haul and commercial-haul service times increase.

Tier 1/Tier 2 Screening

In order to efficiently evaluate a wide range of strategies for all concepts and stations, a screening process was employed. The consultants and the division used a two-tiered (Tier 1/Tier 2) process to identify the potentially most effective strategies for concepts that did not meet the station capacity indicators shown in Figure 3 above.

The Tier 1 screening analyzed the reduction in transactions (inbound vehicle trips) that would result from implementing the various demand management strategies. This screening also considered environmental and other factors such as noise and air quality, cost implications, economic and social justice, and regulatory requirements. Each strategy was analyzed individually, at each station, under each concept (see Attachment F of Appendix A for more detail). The resulting peak-hour station traffic volumes were compared to the estimated station capacity to identify the potential benefits of the strategy.

For second, or Tier 2 screening, the most promising strategies from Tier 1 were combined with the detailed VISSIM model developed for each station. Those strategies that had the most positive effect in reducing the number of inbound vehicle trips and also made sense from an operational or regulatory point of view were combined. Based on a review of the individual strategies and the assessments

prepared for the Tier 1 screening, the following combinations were identified for detailed Tier 2 evaluation and modeling.

Shoreline

Strategy combinations were identified based on the results of the Tier 1 screening process. The Tier 2 screening process included the testing of the strategy combinations using VISSIM. The effectiveness of the strategies was tested for the without-Renton scenario as that time period represents the period with the highest peak-hour demand for the stations. Various strategy combinations were applied for Concepts 0 to 2. See Appendix A for detailed tables for all concepts.

The following combinations were identified for detailed evaluation:

Concept 0:

- Combination A1 (Saturday only) – add one Transfer Station Operator(TSO) on commercial floor
- Combination A2 (Saturday only) – add one TSO on commercial floor with added outbound scale
- Combination B (Saturday only) – add one TSO on commercial floor + mandatory curbside collection

Concept 1:

- Combination A1 (weekday & Saturday) – add one TSO on commercial floor
- Combination A2 (weekday & Saturday) – add one TSO on commercial floor with added outbound scale
- Combination B (weekday & Saturday) – add one TSO on commercial floor + mandatory curbside collection

Concept 2:

- Combination A1 (weekday & Saturday) – add one TSO on commercial floor
- Combination A2 (weekday & Saturday) – add one TSO on commercial floor with added outbound scale
- Combination B (weekday & Saturday) – add one TSO on commercial floor + mandatory curbside collection

Concept 3:

- No modeling necessary

Results

The results of the combinations tested on the concepts and demand management strategies are shown and discussed below.

Concept 0

Combinations A and B were tested on Concept 0 without-Renton traffic volumes as the without-Renton traffic volumes are higher, modeling the worst-case scenarios. Only the Saturday peak hours were evaluated under Concept 0 as the weekday peak hours under Concept 0 already met the adopted service time and queue values.

Concept 0 with the addition of Combinations A2 or B, meet both the adopted service time and queue values. Concept 0, with Combination A1, exceeds the adopted indicator commercial-haul service time value by approximately 4 minutes.

Concept 1

Concept 1 with Combinations A and B were evaluated for the without-Renton conditions. Results show that Concept 1 along with any strategy combination meets the weekday service time and threshold queues, but only Concept 1 with Combination A2 meet the Saturday adopted service time value.

Concept 2

The modeled results show that only Concept 2 along with Combination A2 meets the adopted service time and queue values for both weekday and Saturday. Concept 2 with Combination B meets the adopted service time and queue values during the Saturday peak conditions. Concept 2 with Combination A1 does not meet the adopted service time value for either the weekday or Saturday peak periods.

Concept 3

Concept 3 is within the adopted travel time and threshold inbound queue values, and as such, no additional demand management strategies were modeled.

Table 5: Summary of Demand Management Strategies Applied to Shoreline

Shoreline	Cost Estimate	Environment	Service (service time and queue[i])	Other
Concept 0 Combination A **A1 – Add 1 TSO on commercial floor (weekend only)** **A2 – Add 1 TSO on commercial floor (weekend only) + outbound scale**	• ~$70,000 increase in SWD operating cost (A1 and A2) • ~$1.7 million capital cost (A2) • ~$0.24 increase in per ton tip fee (A2)	• Reduced queuing and associated air quality impacts (A2)	• Weekend self-haul service time 29 min., commercial service time 20 min. (A1) • Weekend self-haul service time 17 min., commercial service time 12 min. (A2) • Weekend inbound queue 4 vehicles (A1 and A2) *Note that weekday for Concept 0 does not require mitigation so weekday times were not modeled.*	• Permit needed (A2)
Concept 0 Combination B **Add 1 TSO on commercial floor (weekend only) + mandatory curbside collection**	• ~$70,000 increase in SWD operating cost	• Minor increase in commercial haul traffic and decrease in self-haul traffic	• Weekend self-haul service time 22 min., commercial service time 15 min. • Weekend inbound queue 4 vehicles *Note that weekday for Concept 0 does not require mitigation so weekday times were not modeled.*	• Mandatory collection requires Cities and County to pass ordinances • Mandatory collection issues include reduction in citizen choice, some properties not easily served by curbside, and potential adverse impact on low income residents

Shoreline	Cost Estimate	Environment	Service (service time and queue[i])	Other
Concept 1 Combination A A1 – Add 1 TSO on commercial floor (weekdays and weekend) A2 – Add 1 TSO on commercial floor (weekdays and weekend) + outbound scale	• ~$340,000 increase in SWD operating cost (A1 and A2) • ~$1.7 million capital cost (A2) • ~$0.54 increase in per ton tip fee (A2)	• Reduced queuing and associated air quality impacts (A2)	• Weekday self-haul service time 20 min., commercial service time 15 min. (A1) • Weekday self-haul service time 17 min., commercial service time 13 min. (A2) • Weekend self-haul service time 37 min., commercial service time 22 min. (A1) • Weekend self-haul service time 17 min., commercial service time 12 min. (A2) • Weekday inbound queue 3 vehicles (A1 and A2) • Weekend inbound queue 6 to 7 vehicles (A1 and A2)	• Permit needed for additional scale (A2)
Concept 1 Combination B Add 1 TSO on commercial floor (weekdays and weekend) + mandatory curbside collection	• ~$340,000 increase in SWD operating cost • ~$0.38 increase in per ton tip fee	• Reduced queuing and associated air quality impacts • Minor increase in commercial haul traffic and decrease in self-haul traffic	• Weekday self-haul service time 19 min., commercial service time 15 min. • Weekend self-haul service time 27 min., commercial service time 20 min. • Weekday inbound queue 3 vehicles • Weekend inbound queue 5 vehicles	• Mandatory collection requires Cities and County to pass ordinances • Mandatory collection issues include reduction in citizen choice, some properties not easily served by curbside, and potential adverse impact on low income residents
Concept 2 Combination A A1 – Add 1 TSO on commercial floor (weekdays and weekend) A2 – Add 1 TSO on commercial floor (weekdays and weekend)	• ~$340,000 increase in SWD operating cost (A1 and A2) • ~$1.7 million capital cost (A2) • ~$0.54 increase in per ton tip fee (A2)	• Reduced queuing and associated air quality impacts (A2)	• Weekday self-haul service time 38 min., commercial service time 23 min. (A1) • Weekday self-haul service time 19 min., commercial service time 13 min. (A2) • Weekend self-haul service time 29 min., commercial service time 20 min. (A1) • Weekend self-haul service time 17 min.,	• Permit needed for additional scale (A2)

Shoreline	Cost Estimate	Environment	Service (service time and queue[i])	Other
+ outbound scale			commercial service time 12 min. (A2) • Weekday inbound queue 8 to 11 vehicles (A1 and A2) • Weekend inbound queue 4 vehicles (A1 and A2)	
Concept 2 Combination B Add 1 TSO on commercial floor (weekdays and weekend) + mandatory curbside collection	• ~$340,000 increase in SWD operating cost • ~$0.38 increase in per ton tip fee	• Reduced queuing and associated air quality impacts • Minor increase in commercial haul traffic and decrease in self-haul traffic	• Weekday self-haul service time 28 min., commercial service time 21 min. • Weekend self-haul service time 22 min., commercial service time 15 min. • Weekday inbound queue 5 vehicles • Weekend inbound queue 4 vehicles	• Mandatory collection requires Cities and County to pass ordinances • Mandatory collection issues include reduction in citizen choice, some properties not easily served by curbside, and potential adverse impact on low income residents
Concept 3 not modeled – no mitigation required				

[i] Shoreline queue length information: intersection of Meridian Ave N / N 165th St located approximately 15 vehicles from the scale

Summary

Increases in station traffic range from 44 to 76 vehicles per hour between the different concepts during the weekday peak period under with-Renton conditions and range from 44 to 96 vehicles per hour during the weekday peak period under the without-Renton conditions. During the Saturday peak period, peak demand volumes range from 67 to 86 vehicles per hour under with-Renton conditions and range from 67 to 92 vehicles per hour under without-Renton conditions.

- Analysis of on-site operations showed operational issues at the commercial-haul tipping floor and the outbound scale resulting in commercial-haul service times exceeding the adopted service time value primarily during the Saturday peak periods.
  - Three demand management strategy combinations were analyzed to improve on-site operations under Concepts 0 to 2 without-Renton conditions, both during the weekday and Saturday peak periods. Combination A2 (add a TSO on the commercial tipping floor and additional outbound scale) under Concepts 0 to 2 meets both the adopted weekday and Saturday service time and queue threshold values. The other combinations under the without-Renton conditions exceed either the adopted service time or the queue threshold values.
- The mitigated time on-site for commercial haulers, depending on the concept and time of week, would range from about 12 to 22 minutes. For self-haulers, the mitigated wait times on-site would range from about 17 to 38 minutes. The existing time on-site for commercial haulers is between 12 and 13 minutes and for self-haulers it is about 17 to 18 minutes.
- The mitigated queue length for customers waiting to get into the station ranges from about 3 vehicles up to about 46 vehicles. The existing queue ranges from 1 to 2 vehicles.

- Evaluation of off-station intersections showed minimal increases in traffic for Concept 2. Concept 2 represented the highest peak demand thus represents a more conservative analysis when considering the impacts to the other concepts and the greatest impact to the off-station intersections.

Factoria

Strategy combinations were identified based on the results of the Tier 1 screening process. Reductions in peak hour demand from applying the strategies range up to about 34 percent. Specific strategies examined at the Factoria station and the estimated reductions include:

- Extend operating hours, 4 percent reduction
- Lower cost curbside bulky waste collection, 3.4 percent reduction
- Mandatory curbside garbage collection, 4 percent reduction
- Incentive/peak pricing, 15 percent reduction
- Higher minimum fee at Factoria only, 20 percent reduction
- No HHW service, 3 percent reduction
- Ban yard waste and wood waste from disposal and recycling, 34 percent reduction

In addition to the demand strategies noted above, potential physical station improvements were identified to address the operational constraints. These improvements considered the addition of increased staffing, the addition of an outbound scale, and added internal vehicle queueing.

The Tier 2 screening process included the testing of the strategy combinations using VISSIM. The effectiveness of the strategies was tested for the without-Renton scenario as that represents the period with the highest peak-hour demand. Various strategy combinations were applied for Concept 0 and Concept 2. Modeling was not conducted for Concept 1 as the demand is similar to Concept 0. No VISSIM modeling was conducted for Concept 3 because analysis showed it met most of the adopted service time and queue threshold values. See Appendix A for detailed tables for all concepts.

The following combinations were identified for detailed evaluation:

Concept 0:

- Combination A (weekday & Saturday) – extended hours + incentive/peak pricing
- Combination B (weekday & Saturday) – increase staffing (decrease dwell time) + higher minimum fee
- Combination C (weekday & Saturday) – banned materials + mandatory curbside collection + lower cost curbside bulky waste collection

Concept 1:

- No modeling necessary (Concept 1 is similar to Concept 0, results of Concept 0 analysis will apply)

Concept 2:

- Combination C (weekday & Saturday) – banned materials + mandatory curbside collection + lower cost curbside bulky waste collection
- Combination D (weekday & Saturday) – added internal queuing (expanded entry lane and repurpose of HHW area) + HHW banned

Concept 3:

- No modeling was necessary because analysis showed that the concept met most of the adopted service time and queue threshold values.

Results

The results of the combinations tested on the concepts and demand management strategies are shown and discussed below.

Concept 0

Concept 0 with combination C2 is the only package that meets the adopted service time values, and falls within the threshold of vehicle queues for both the weekdays and Saturday peak periods. While the improvements identified in Combination B reflect improvements in service times and queues relative to Concept 0, the resulting values do not meet the adopted service time and queue threshold values.

Concept 1

No strategy combinations were tested for Concept 1 as peak-hour demand is similar to forecasts for Concept 0. Future operations for Concept 1 under the scenarios tested would be similar.

Concept 2

Concept 2 with Combination C meets the adopted travel time and queue threshold values for both weekdays and Saturday. Concept 2 with Combination D exceeds the adopted self-haul service time value. Due to the additional on-site queue storage, the queues that were previously off-site are now mostly accommodated on-site, greatly increasing the service times.

Concept 3

No combinations were modeled for Concept 3 as the service times and queues meet the adopted values under all scenarios with the exception of the self-haul service times exceeding the adopted value under the weekday peak period. During this period, on-site service times are anticipated to exceed the adopted values by approximately 8 minutes. Based on the results from the Concept 0 evaluation, the application of the strategy combinations tested would likely result in a decrease in service times, improving these conditions.

Table 6: Summary of Demand Management Strategies Applied to Factoria

Factoria	Cost Estimate	Environment	Service (service time and queue[ii])	Other
Concept 0 Combination A Extend hours, peak pricing	• ~$1.5 million increase in SWD operating cost • ~$2.3 million revenue increase • Net per ton tip fee decrease ~$0.50	• Additional vehicle traffic during p.m. peak commute hours • Noise code limits lower in evening • New SEPA needed for extended hours	• Weekday self-haul service time 38 min., commercial service time 12 min. • Weekend self-haul service time 41 min., commercial service time 20 min. • Weekday and weekend inbound queue 3 to 6 vehicles	• KC rate ordinance to implement peak price • KC process to change hours • Impact from noise and traffic on neighboring residents and businesses during extended hours • Issues include fee equity (transfer station fees would be higher in northeast area than other areas of the county), potential adverse impacts on low income customers and small business owners, and customer dissatisfaction due to higher cost

Factoria	Cost Estimate	Environment	Service (service time and queue[ii])	Other
				• More issues may be identified during SEPA process
Concept 0 Combination B **B1 – Unloading assistance, higher minimum fee** **B2 – Unloading assistance, higher minimum fee, additional outbound scale**	• ~$4 million increase in SWD operating cost • ~$1 to 2 million capital cost • ~$15.4 million revenue increase • Net per ton tip fee decrease ~$7.50	• Shifts vehicle traffic in the region resulting in increased vehicle miles travelled	• Weekday self-haul service time 51 to 52 min., commercial service time 12 to 16 min. (B1 and B2) • Weekend self-haul service time 50 min., commercial service time 29 min. (B1) • Weekend self-haul service time 29 min., commercial service time 16 min. (B2) • Weekday inbound queue 35 to 39 vehicles, blocks driveways of neighboring businesses (B1 and B2) • Weekend inbound queue 48 vehicles, blocks driveways of neighboring businesses (B1) • Weekend inbound queue 11 vehicles (B2)	• King County rate ordinance to double minimum fee at Factoria • Issues include fee equity (transfer station fees would be higher in northeast area than other areas of the county), potential adverse impacts on low income customers and small business owners, and customer dissatisfaction due to higher cost
Concept 0 Combination C **C1 – Ban yard/wood waste, mandatory collection, curbside bulky waste collection** **C2 – Ban yard/wood waste, mandatory collection, curbside bulky waste**	Site and build yard/wood waste drop box • ~$600,000 increase in SWD operating cost • ~$18.5 million capital cost • ~$2.30 increase in per ton tip fee Yard/wood waste goes elsewhere • No added cost	• Siting process needed if build a drop box to handle yard/wood waste • Shifting vehicle traffic in the region resulting in increased vehicle miles travelled • Minor increase in commercial haul traffic and decrease in	• Weekday self-haul service time 23 to 25 min., commercial service time 11 to 13 min. (C1 and C2) • Weekend self-haul service time 32 min., commercial service time 20 min. (C1) • Weekend self-haul service time 23 min., commercial service time 15 min. (C2) • Weekday inbound queue 2 to 3	• King County process to implement material ban; band would require monitoring and enforcement (not included in costs) • Potential customer dissatisfaction and adverse impacts to small businesses • Permits needed if siting/building new drop box • Mandatory collection would require Cities and County to pass ordinances • Mandatory collection issues include reduction in citizen choice, some properties not

Factoria	Cost Estimate	Environment	Service (service time and queue[ii])	Other
collection, additional outbound scale	to SWD • ~$1.40 increase in per ton tip fee due to revenue loss Additional outbound scale • ~$1 million capital cost	self-haul traffic	vehicles (C1 and C2) • Weekend inbound queue 4 to 5 vehicles (C1 and C2)	easily served by curbside, and adverse impact on low income residents • Cities and haulers would be primarily responsible for determining a system that would lower bulky waste collection cost; lower cost would make service more accessible • Additional outbound scale would require permit • More issues may be identified during SEPA/permitting process
Concept 1 not modeled due to similarity of peak hour demand with Concept 0 – same strategies could be applied with similar results				
Concept 2 Combination C Ban yard/wood waste, mandatory collection, curbside bulky waste collection	Extended operating hours • ~$1.5 million increase in SWD operating cost • ~$2.00 increase in per ton tip fee Site and build yard/wood waste drop box • ~$600,000 increase in SWD operating cost • ~$18.5 million capital cost • ~$2.30 increase in per ton tip fee Yard/wood waste goes elsewhere • No added cost to SWD • ~$1.40 increase in per ton tip fee due to	• Additional vehicle traffic during p.m. peak commute hours • Noise code limits lower in evening • New SEPA needed for extended hours • SEPA needed if site/build new drop box • Shift of vehicle traffic in the region and increased vehicle miles travelled • Minor increase in commercial haul traffic and decrease in self-haul traffic	• Weekday self-haul service time 23 min., commercial service time 12 min. • Weekend self-haul service time 22 min., commercial service time 15 min. • Weekday and weekend inbound queue 2 to 3 vehicles	• KC process to change hours • Impact from noise and traffic on neighboring residents and businesses during extended hours • King County process to implement material ban; band would require monitoring and enforcement (not included in costs) • Issues include customer dissatisfaction and adverse impacts to small businesses • Permits needed if site/build new drop box • Mandatory collection would require Cities and County to pass ordinances • Mandatory collection issues include reduction in citizen choice, some properties not easily served by curbside, and adverse impact on low income residents • Cities and haulers would be primarily responsible for determining a system that would lower bulky waste collection cost; lower cost would make service more accessible

Factoria	Cost Estimate	Environment	Service (service time and queue[ii])	Other
	revenue loss			• More issues may be identified during SEPA/permitting process
Concept 2* Combination D **Added internal queuing (expanded entry lane and repurpose of HHW area), second inbound lane along SE 32nd St, and no HHW service** **Concept 2 includes extended hours at Factoria: 6 a.m. to 10 p.m. on weekdays and 8 a.m. to 8 p.m. on weekends*	Extended operating hours • ~$1.5 million increase in SWD operating cost • ~$2.00 increase in per ton tip fee Queuing improvements • ~$2.4 million capital cost • ~$0.20 increase in per ton tip fee Site/build separate HHW facility • ~$9.1 million capital cost • ~$0.80 increase in per ton tip fee	• Additional vehicle traffic during p.m. peak commute hours • Noise code limits lower in evening • New SEPA needed for extended hours • Permits and SEPA for expanded entry and queueing • Permits and SEPA for inbound lane on SE 32nd – proximity to stream • Reduced impact on local streets and neighbors • Some reduction in traffic at Factoria • Some shift of vehicle traffic in the region and increase in vehicle miles travelled • Siting for new HHW facility	• Weekday self-haul service time 30 min., commercial service time 13 min. • Weekend self-haul service time 1 hour, 6 min., commercial service time 22 min. • Weekday and weekend inbound queue 3 to 7 vehicles *Note that service time (scale-to-scale) increases for this combination is because the queue is moved on site.*	• KC process to change hours • Impact from noise and traffic on neighboring residents and businesses during extended hours • Siting process and permits needed for new HHW facility • Issues include customer dissatisfaction and potential increase in improper disposal • More issues may be identified during SEPA/permitting process
Concept 3 not modeled because analysis showed that the concept met most of the adopted service time and queue threshold values.				

[ii] Factoria queue length information: first driveway located approximately 10 vehicles from the scale; Richards Road intersection located approximately 60 vehicles from scale

Summary

- Between the different concepts, increases in station traffic range from 55 to 113 vehicles per hour during the weekday peak period under with-Renton conditions, and range from 69 to 127 vehicles per hour during the weekday peak period under the without-Renton conditions. During the Saturday peak period, peak demand volumes range from 74 to 152 vehicles per hour under with-Renton conditions, and range from 91 to 168 vehicles per hour under without-Renton conditions.
- Analysis of on-site operations showed that moving vehicles through the self-haul tipping floor was the constraint at Factoria, so that vehicles would wait to enter the tipping, resulting in queues extending off-site, beyond the queue thresholds, as well as service times exceeding the adopted values under Concepts 0 to 2 for the weekday and/or Saturday peak conditions.
  - Seven combinations were analyzed to improve on-site operations under Concepts 0 and 2 without-Renton conditions, both during the weekday and Saturday peak periods. Combinations C1 and C2 (banned materials, mandatory curbside collection, lower cost curbside bulky waste collection, and as part of Combination C2 only, an additional outbound scale) under Concepts 0 and 2, respectively, meet both the weekday and Saturday adopted service time and queue threshold values. The other combinations under the without-Renton conditions exceed either the adopted service time or the queue threshold values.
- The mitigated time on-site for commercial haulers, depending on the concept and time of week, would range from about 11 to 29 minutes. For self-haulers, the mitigated wait times on-site would range from about 22 to 52 minutes. The existing time on-site for commercial haulers is between 11 and15 minutes and for self-haulers it is about 22 to 23 minutes.
- The mitigated queue length for customers waiting to get into the station ranges from about 2 vehicles up to about 48 vehicles. The existing queue is about 1 vehicle.
- Evaluation of off-station intersections showed minimal traffic increases for Concept 0. Concept 0 represented the highest peak demand and represents a more conservative analysis when considering the impacts to the other concepts and the greatest impact to the off-station intersections.

Bow Lake

Strategy combinations were identified based on the results of the Tier 1 screening process. The Tier 2 screening process included the testing of the strategy combinations using VISSIM. The effectiveness of the strategies was tested for the without-Renton scenario as that time period representing the period with the highest peak-hour demand for the stations. See Appendix A for detailed tables for all concepts.

The following combinations were identified for detailed evaluation:

Concept 0:

- Combination A – additional inbound scale
- Combination B1 – additional inbound scale and additional outbound scale
- Combination B2 – additional inbound scale, additional outbound scale, and outbound queue pocket (on-station)

Due to similar peak-hour demands for the concepts, the Tier 2 evaluation utilizing VISSIM applied the following strategy combinations to Concept 0 (weekday and Saturday) only.

Results

The results of the combinations tested on the concepts and demand management strategies are shown and discussed below.

Concept 0

Concept 0 with the addition of Combination B2 meets the adopted service times for the Saturday peak demand, but exceeds the adopted service time targets for the weekday period. The commercial-haul times exceed the adopted service time value by 1-minute and the self-haul times exceed the adopted service time value by 5 minutes. Relative to the existing service times, Combination B2 results in the most similar performance levels.

Although the self-haul service times with Combination B2 appear to be worse on the weekday compared with Concept 0 by itself, the queues are reduced by 95 vehicles. As noted previously, the unmitigated service times for Concept 0 are skewed due to the forecasted queueing and the metering effect of the inbound scale house. The inbound vehicle queues for the weekday and Saturday conditions are well under the threshold, with a maximum queue length of six vehicles.

Concepts 1, 2, and 3

Peak-hour demands for all scenarios are similar between Concept 0 and Concepts 1, 2, and 3. As such, no VISSIM modeling was conducted for Concepts 1, 2, and 3.

Table 7: Summary of Demand Management Strategies Applied to Bow Lake

Bow Lake	Cost Estimate[iii]	Environment	Service (service time[iv] and queue[v])	Other
Concept 0 Combination A **Additional inbound scale**	• ~$270,000 increase in SWD operating cost • ~$1.2 million capital cost • ~$0.40 increase in per ton tip fee	• Reduced queuing and associated air quality impacts • Reduced impact on local streets	• Weekday self-haul service time 57 min., commercial service time 45 min. • Weekend self-haul service time 1 hour 10 min., commercial service time 52 min. • Weekday inbound queue 4 vehicles • Weekend inbound queue 52 vehicles	• More issues may be identified during SEPA/permitting process
Concept 0 Combination B **B1 – Additional inbound scale, additional outbound**	• ~$270,000 increase in SWD operating cost • ~$2.1 million capital cost (B1) • ~$2.9 million capital cost (B2) • ~$0.55 increase in per ton tip fee	• Reduced queuing and associated air quality impacts • Reduced impact on local streets	• Weekday self-haul service time 45 min., commercial service time 31 min. (B1) • Weekday self-haul service time 35 min., commercial service time 17 min. (B2) • Weekend self-haul	• More issues may be identified during SEPA/permitting process

Bow Lake	Cost Estimate[iii]	Environment	Service (service time[iv] and queue[v])	Other
scale **B2 – Additional inbound scale, additional outbound scale, outbound queue pocket**	(B2)		service time 36 min., commercial service time 26 min. (B1) • Weekend self-haul service time 28 min., commercial service time 13 min. (B2) • Weekday inbound queue 3 vehicles (B1 and B2) • Weekend inbound queue 6 to 7 vehicles (B1 and B2)	
Concepts 1, 2, and 3 not modeled due to similarity of peak hour demand with Concept 0 – same strategies could be applied with similar results				

[iii] Cost estimates for operating cost and per ton tip fee are for 2023; capital costs are total project cost inflated
[iv] Service time is defined as time on site (scale-to-scale) and does not include time spent in queue offsite
[v] Bow Lake queue length information: intersection of S 188th St / Orillia Rd S located approximately 32 vehicles from the scale

Summary

- Increases in station traffic range from 85 to 88 vehicles per hour between the different concepts during the weekday peak period under with-Renton conditions and range from 110 to 118 vehicles per hour during the weekday peak period under the without-Renton conditions. During the Saturday peak period, peak demand volumes range from 110 to 111 vehicles per hour under with-Renton conditions and range from 140 to 152 vehicles per hour under without-Renton conditions.
- Analysis of on-site operations showed operational issues at the inbound scales, resulting in queues extending beyond the adopted inbound queue thresholds.
  - Three combinations were analyzed to improve on-site operations under Concept 0 without-Renton conditions, both during the weekday and Saturday peak periods. Combination B2 (an additional inbound and outbound scale and outbound queue storage pocket) meets the Saturday adopted service time and queue threshold values as well as being near the adopted service time values and meeting the queue threshold values on the weekdays. The other combinations under the without-Renton conditions exceed either the adopted service times or the queue threshold values.
- The mitigated time on-site for commercial haulers, depending on the concept and time of week, would range from about 13 to 52 minutes. For self-haulers, the mitigated wait times on-site would range from about 28 minutes up to about an hour and ten minutes. The existing time on-site for commercial haulers is about 13 minutes and for self-haulers it is between 26 and 27 minutes.
- The mitigated queue length for customers waiting to get into the station ranges from about 3 up to about 52 vehicles. The existing queue is about 2 to 3 vehicles.
- Evaluation of off-station intersections showed minimal increases in traffic for Concept 0 relative to without-project conditions. Concept 0 represented the highest peak demand, and thus represents a more conservative analysis when considering the impacts to the other concepts and the greatest impact to the off-station intersections.

Concept 3

Concept 3 is the only concept which would build a new Northeast Recycling and Transfer Station (NERTS) to replace the Houghton Transfer Station.

Service

At Factoria, during peak weekday hours, self-haul service times would exceed the adopted service time value of 30 minutes or less, but would be within the standard for commercial. Saturday service times would be within standard for self-haul and commercial. Off-site queues would not impact local businesses or streets (see Tables 9 and 10 for more information).

Table 8: Factoria Without Renton Weekday

	Peak Hour Demand (inbound trips)	Service Times[2] in minutes		Inbound Queue[3]
		Self-Haul	Commercial	
Existing[1]	36	23:00	11:00	1
Concept 3 (2023)	71	38:00	12:00	2

Table 9: Factoria Without Renton Saturday

	Peak Hour Demand (inbound trips)	Service Times[2] in minutes		Inbound Queue[3]
		Self-Haul	Commercial	
Existing[1]	46	22:00	15:00	1
Concept 3 (2023)	93	25:00	15:00	3

1. Existing conditions reflects the configuration of the planned station and 2014 volumes observed.
2. Measured scale-to-scale.
3. First driveway located approximately 10 vehicles from the scale. Richards Road intersection located approximately 60 vehicles from scale.

Cost

The cost of a new Northeast Recycling and Transfer Station is estimated at about $97 million in 2015 dollars.

- The average cost (2015-2040) per ton to build NERTS would be about $7 per ton
- Would add about $5 per year to the average single-family household curbside collection cost (median 2015-2040)

In the online customer survey conducted from mid-November 2014 to early January 2015, Houghton users were asked about their willingness to pay higher fees to replace the Houghton Transfer Station with a new nearby facility. Randomly, survey participants were asked if they would be willing to pay $8 or $15 more per ton. While more would be willing to pay the lower increase, overall about 75 percent said they would be willing to pay the higher fee, 10 percent said they weren't sure, and about 15 percent said they would not be willing. While only Houghton users, who would be the primary

beneficiaries of a new station, were asked, capital costs are spread across all system users. See Appendix B for more detailed customer survey information.

Environment

Building a Northeast Recycling and Transfer Station may not substantially change the number of vehicle trips in the region, but would reduce the driving distance of customers and haulers and would reduce overall fuel consumption and greenhouse gas emissions. In addition, extended wait times and therefore idling vehicles at stations can result in localized effects to air quality. Providing an additional station would reduce wait times and the potential for localized air quality effects at Factoria and Shoreline.

Renton

The current Transfer Plan calls for the Renton Transfer Station to close when replacement capacity is available. The 2013 Draft Comprehensive Solid Waste Management Plan recommends reserving the option to retain the Renton station until new urban transfer facilities have been sited and impact of the closure has been fully evaluated. The City of Renton has affirmed that it wants the station closed in 2018. The review process considered how closing the Renton Transfer Station would affect the transfer system under each concept. And as specified in Council Motion 14145 the division evaluated the following:

- The effect of the potential closure of the Renton Transfer Station on the self-haul service needs of residents currently served by the Renton Transfer Station, with particular attention to the accessibility and convenience provided to current transfer station clients by the Renton station, compared with drive time and potential waits associated with alternative transfer station options.
- Options for self-haul service for residents currently served by the Renton Transfer Station in the event of a closure of the station.

Service

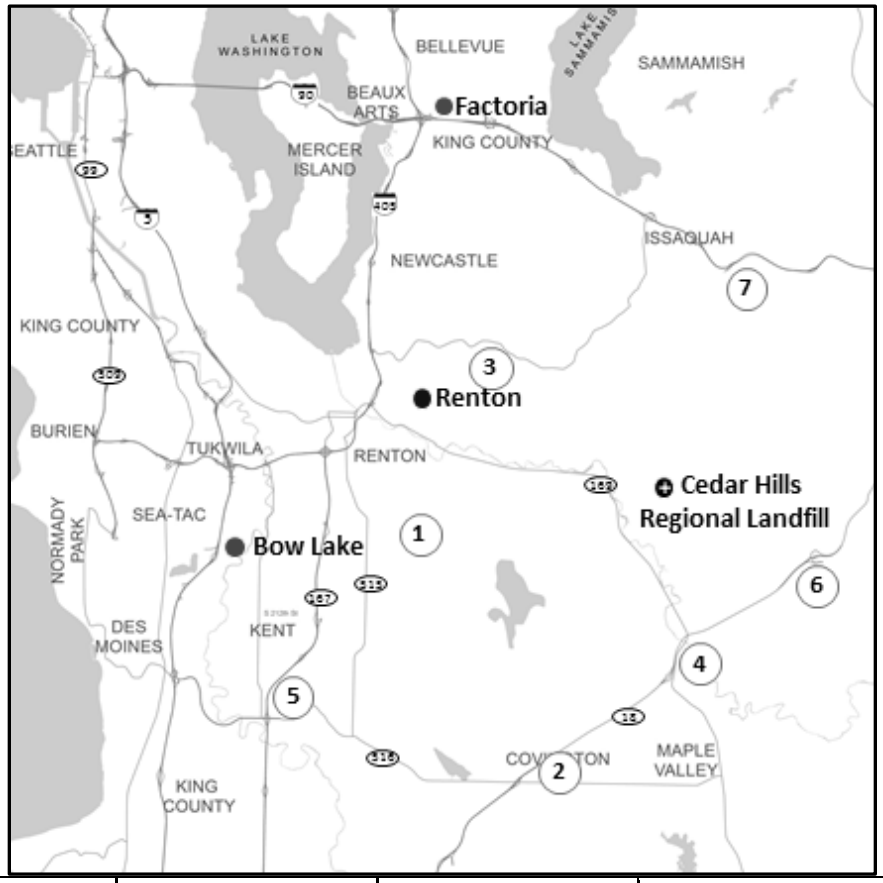
Under all concepts, if the Renton Transfer Station were to remain open, the station would not experience any service time or queueing issues. Renton would continue to provide garbage service and recycling service as space allows. Under the current configuration, space is not available to provide separate yard waste collection.

Alternatives to the Renton Transfer Station

Over 97 percent of Renton Transfer Station self-haul customers who participated in the recent online customer survey said that they were satisfied with the current transfer station – 80 percent were very satisfied.

The vast majority of survey respondents, over 90 percent, said that geographic location was the most important factor in choosing a transfer station. While many self-haulers that use the Renton transfer Station are geographically located at a nearly equal distance to Factoria or Bow Lake there may be differences in travel time or experience that make Renton more desirable for the customers that use the station. Figure 4 shows the travel times to the Renton, Bow Lake, and Factoria stations. The locations were chosen based on trip origin information from Renton Transfer Station self-haulers. Travel times could be longer in traffic.

Figure 4: Drive Distances and Times



Location	Renton		Bow Lake		Factoria	
	miles	minutes	miles	minutes	miles	minutes
1	6.42	10	8.58	16	13.73	18
2	13.12	22	13.39	22	22.41	32
3	2.41	6	10.18	16	8.36	18
4	12.61	19	18.23	25	19.92	27
5	8.77	12	5.5	10	15.82	18
6	14.02	22	23.37	31	17.01	24
7	9.47	17	17.23	27	8.90	13

If Renton were to close, about 47 percent of survey respondents said they would use Factoria instead, 17 percent would use Bow Lake, 7 percent would use Enumclaw, and about 4 percent said they would use Algona. However, less than 5 percent said they would be satisfied with these options and over 70 percent said they would be very dissatisfied. Were Renton to close, customers making use of other stations would experience queues and service times associated with whichever Concept and mitigation strategies are chosen.

Cost

The cost to repair and retain the Renton Transfer Station would be about $2 million. The added cost, capital and operating, to retain Renton would be about $1.60 per ton in 2023. The advantage Renton has from a cost perspective is its close proximity to Cedar Hills thus relatively low hauling cost despite lacking a compactor.

Environment

Keeping Renton open would not have any significant impacts from a traffic or noise perspective. Shorter driving distances for customers and for division trucks traveling to the Cedar Hills landfill would reduce overall fuel consumption and greenhouse gas emissions.

Summary

- Under all modeled concepts, Renton does not experience any constraints
- It has some effect on how other stations function, but the impact is not enough to be a deciding factor in whether or not to keep it open
- If the station were to close, current users would primarily use Factoria and Bow Lake

Conclusion

This review determined that there are multiple options available to the region for shifting transactional demand at the transfer stations. The impacts varied by station, therefore the solutions are also different at each station.

This review revealed that the Shoreline Recycling and Transfer Station would experience some constraints if a Northeast Recycling and Transfer Station were not built. These constraints could be mitigated by a combination of adding some staff, mandatory curbside collection, and adding an outbound scale:

- The capital cost of adding an outbound scale would be about $1.7 million; the operational cost of adding staff would range from about $70,000 to $340,000 annually depending on the concept
- Permits would be needed for the capital improvements

This review also determined that closing the Houghton Transfer Station and not building a Northeast Recycling and Transfer Station would, if unmitigated, result in on-site service times at Factoria for commercial haulers of up to 22 minutes and for self-haul customers of over an hour. In addition, substantial off-site queueing with weekday queues of up to about 130 vehicles and Saturday queues over 180 could occur; queues of this length would extend well beyond the intersection of SE 32nd Street and Richards Road. However, mitigation strategies could reduce both service times and queue lengths to acceptable levels. Potential strategies analyzed for Factoria include extending hours, adding peak pricing, adding staff to help with unloading vehicles, banning yard and wood waste from both disposal and recycling, not providing HHW service at this site (service would be provided at a yet to be determined location somewhere in the area), adding internal queuing space, improving curbside bulky collection service, and mandatory curbside collection. The mitigation strategies for Factoria with the most impact would require combinations of strategies including the following:

- Extending operating hours and implement peak pricing
- Extending hours would increase operating costs, but the cost may be offset by pricing incentives. Eliminating yard and wood waste from both disposal and recycling services along with mandatory curbside collection and less-expensive curbside bulky collection service; this combination could be implemented with or without extended operating hours and could be further enhanced by adding a second outbound scale
    - Provide yard and wood waste disposal and recycling services at other locations
        - Options range from providing a drop box somewhere in the service area at a capital cost of approximately $18.5 million and an operating cost of about $600,000 annually, to allowing the material to flow to other transfer facilities and private

service providers which would have minimal direct costs, but could result in revenue loss

- Implementing mandatory garbage collection and less-expensive options for curbside collection of bulky items, in combination with other mitigation strategies; independently these actions would likely have a relatively small effect on demand at the station
    - Cities and the County would need to pass ordinances requiring that everybody pay for the service; potential issues include reduction in citizen choice and dissatisfaction, some properties are not easily served by curbside, and potential adverse impact on low-income residents
    - Establishing a system that would lower bulky waste collection cost; lower cost would make service more accessible to low- and middle-income households; cities and haulers would be primary parties responsible for implementation

At Bow Lake, the review identified that constraints related to the inbound and outbound scale capacity will exist in the future under all scenarios. These constraints were anticipated during station design, so the scale complex was designed to accommodate additional scales when they become necessary:

- Adding inbound and outbound scale capacity along with outbound queue improvements would address constraints under all concepts
    - The capital cost of the improvements would be about $2.9 million; the operational cost would be about $270,000 annually

In general, whether or not the Renton Transfer Station closes is not a significant factor in capacity constraints at other sites, although keeping it open would ease demand on the transfer system. However, customers of that station have expressed clearly that they value both the geographic location of the station and the service that it provides.

Recommendations

Though the results show a Northeast is not needed at this time, the modeled demand management strategies are untested and would benefit from real-life analysis. More importantly, it is critical we continue the regional discussion with cities and stakeholders to inform policies to be included in an updated *Comprehensive Solid Waste Management Plan* (Comp Plan). Such policy discussions include maximizing the lifespan of the Cedar Hills Regional Landfill, increasing recycling and diversion efforts to reach a 70 percent recycling rate, providing system-wide customer service excellence, and ensuring a sustainable rate model is in place to cover system expenses.

The division recommends the following:

- Do not build a new Northeast Transfer Station at this time, but keep it as an option for a future potential facility.

- Develop and test the following demand management strategies:

    a. Conduct a pilot program to test the effectiveness and potential impacts of using demand management strategies, including web cameras to inform customers of station activity in real time.

b. Work with private industry customers and stakeholders to develop a low-cost bulky item collection pilot in target regions of the county by May 2016.

c. Research point of sale (IT system) needs to support differential pricing for transactions at the transfer stations and identify implementation needs by May 2016. Implement necessary technology changes by September 2017.

d. In 2017, begin a 12-month pilot to test the effectiveness and potential impacts of extended hours and incentive pricing. Following the pilot, transmit a report and recommendation to Council in March 2019.

- Identify the steps needed to achieve 70 percent recycling rates
- Continue Comp Plan process with city partners and other stakeholders to address key policy issues and produce a draft Comp Plan for review in early 2017.
- Upon adoption of the Comp Plan, the system's infrastructure should be reassessed to ensure it fully supports the adopted strategies and goals of the system.

King County

KING COUNTY

1200 King County Courthouse
516 Third Avenue
Seattle, WA 98104

Signature Report

June 10, 2014

Motion 14145

Proposed No. 2014-0097.2 **Sponsors** Hague

A MOTION acknowledging receipt of a report related to review of the 2006 Solid Waste Transfer and Waste Management Plan submitted in compliance with Ordinance 17696, Section 25, Proviso P1.

WHEREAS, Ordinance 17696 contained a proviso in Section 25 stating that no more than one million seven hundred and fifty thousand dollars shall be encumbered or expended before the solid waste division completes a review and report on the 2006 Solid Waste Transfer and Waste Management Plan and the council acknowledges receipt of the report by adoption of a motion by the council, and

WHEREAS, the solid waste division, with participation of stakeholder groups, reviewed the 2006 Solid Waste Transfer and Waste Management Plan, and

WHEREAS, the solid waste division provided an opportunity for the public and stakeholder groups to submit comments and questions related to this review and considered such comments and questions in its preparation of the report, and

WHEREAS, the executive has transmitted to the King County council the requested report and a motion, and

WHEREAS, the extensive review process demonstrated that efforts to manage self haul transactions throughout the transfer station system are needed, and

WHEREAS, the review further demonstrated the need for a revision to the 2006 Solid Waste Transfer and Waste Management Plan that would align it with the results of this 2013-2014 Council-mandated review, and

WHEREAS, revisions to the 2006 Solid Waste Transfer and Waste Management Plan may also require updated traffic studies and compliance with the State Environmental Policy Act;

NOW, THEREFORE, BE IT MOVED by the Council of King County:

A. The report related to review of the 2006 Solid Waste Transfer and Waste Management Plan was submitted in compliance with Ordinance 17696, Section 25, Proviso P1; receipt is hereby acknowledged, satisfying the proviso.

B. Further discussions among the cities, King County Council staff, the auditor and the division resulted in refinements to the report, which is hereby amended to incorporate those refinements, and the amended report is set forth as Attachment A to this motion. The division concurs with the amended report.

C. By March 31, 2015, the division shall transmit a draft report to the Council, followed by a final report by June 30, 2015, prepared in collaboration with stakeholders, on strategies to manage transactions at transfer stations, as well as other operational and capital strategies such as increased use of underutilized transfer stations. The report shall address the management of transfer station transactions through the use of strategies intended to avoid excessive user wait times resulting from overutilization of individual stations. The report shall analyze options E1 and E2 in the Transfer Plan Review Report. The report shall also analyze the effect of the potential closure of the Renton Transfer Station on the self-haul service needs of residents currently served by

the Renton Transfer Station, with particular attention to the accessibility and convenience provided to current transfer station clients by the Renton station, compared with drive time and potential waits associated with alternative transfer station options. The report shall analyze options for self-haul service for residents currently served by the Renton Transfer Station in the event of a closure of the station. The report shall be accompanied by a motion acknowledging receipt of the report. The executive shall transmit the report and the motion in the form of a paper original and an electronic copy to the clerk of the council, who shall retain the original and provide an electronic copy to all councilmembers.

D. Upon completion of required environmental review, the executive shall transmit a revised and updated 2006 Solid Waste Transfer and Waste Management Plan that aligns with the provisions and recommendations of this 2013-2014 Review of the 2006 Solid Waste Transfer and Waste Management Plan, together with an ordinance that acknowledges receipt of the revised and updated plan. The revised and updated plan shall be prepared with the participation of the metropolitan solid waste advisory committee and the solid waste advisory committee. The executive shall transmit the revised and updated plan and ordinance in the form of a paper original and an electronic

copy with the clerk of the council, who shall retain the original and provide an electronic copy to all councilmembers.

Motion 14145 was introduced on 3/10/2014 and passed by the Metropolitan King County Council on 6/9/2014, by the following vote:

Yes: 9 - Mr. Phillips, Mr. von Reichbauer, Mr. Gossett, Ms. Hague, Ms. Lambert, Mr. Dunn, Mr. McDermott, Mr. Dembowski and Mr. Upthegrove
No: 0
Excused: 0

KING COUNTY COUNCIL
KING COUNTY, WASHINGTON

Larry Phillips, Chair

ATTEST:

Anne Noris, Clerk of the Council

Attachments: A. Transfer Plan Review Final Report Revised June 2014

Attachment A Revised

14145

Transfer Plan Review Final Report

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

Submitted March 2014

Revised & Amended June 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	Same 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 Woste 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.

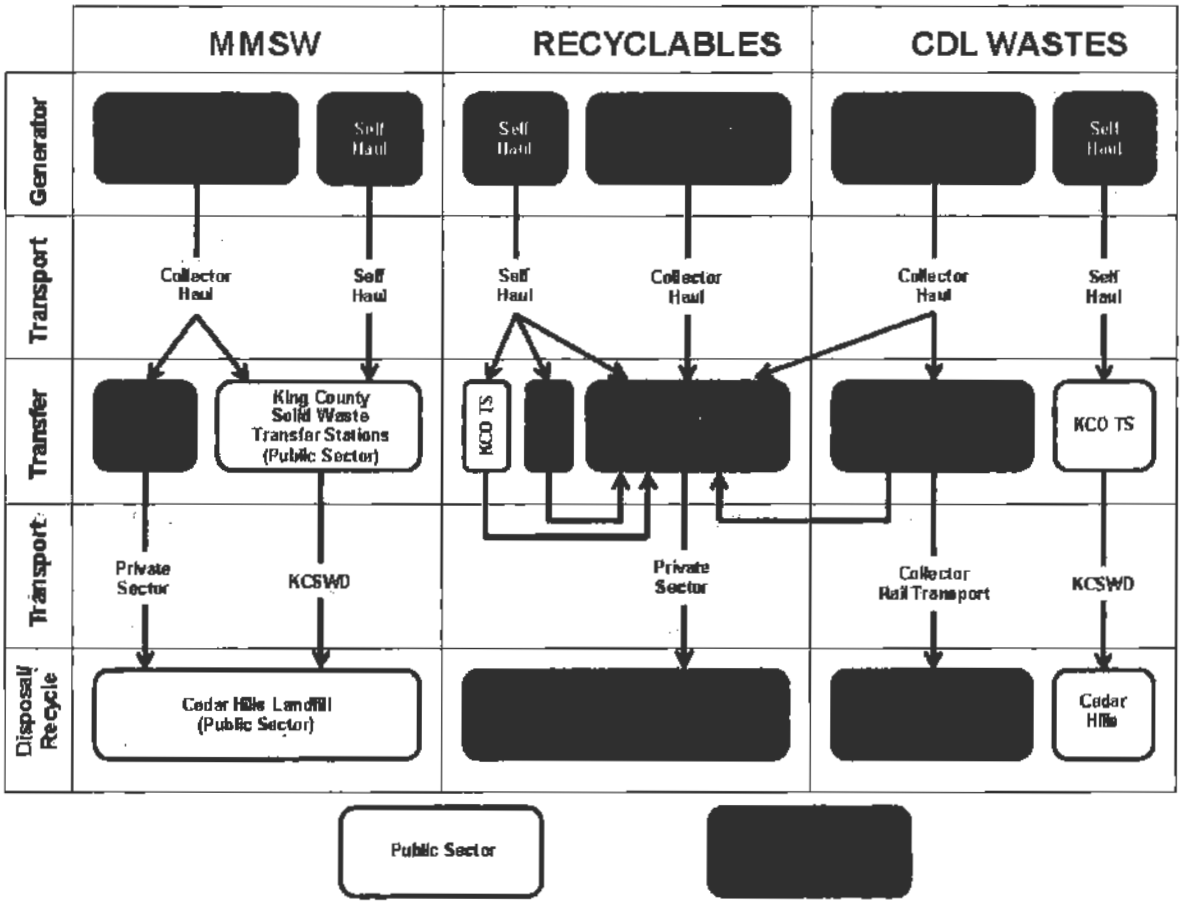
King County does not have the authority to collect waste or contract for collection services. Under state law, this authority is vested with the cities, or in the unincorporated areas with the Washington Utilities

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 municipol 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.

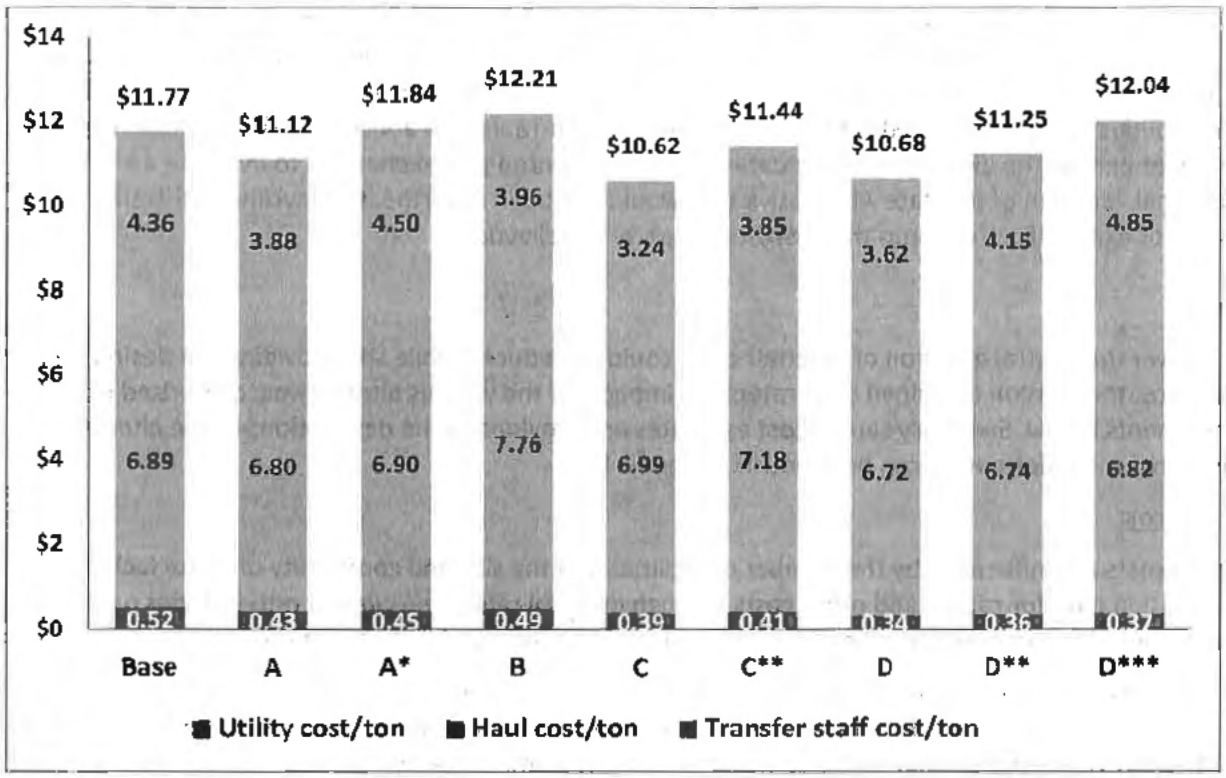
Operating cost

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 Feosibility 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:

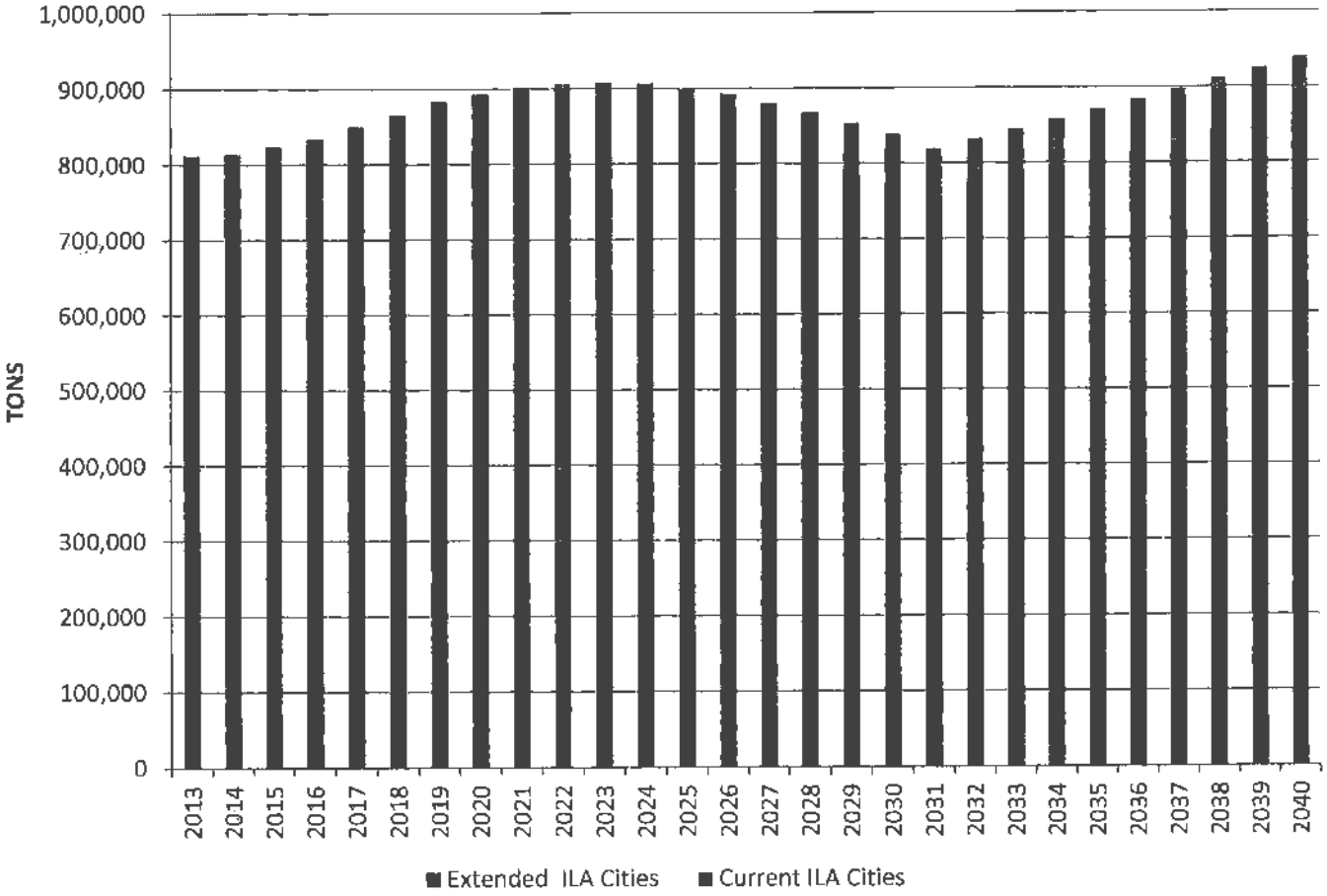
- population of the service area,
- employment rates,
- household size, and
- per capita income adjusted for inflation.

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 Bow Lake Factoria Northeast South County	Shoreline Bow Lake Expanded Factoria[3] South County	Shoreline Bow Lake Expanded Northeast[4] South County	Shoreline Bow Lake Expanded Northeast	Shoreline Bow Lake Expanded Factoria	Shoreline Bow Lake Factoria South County Renton
Closed facilities	Algona Renton Houghton	Algona Renton Houghton	Algona Renton Houghton	Algona Renton Houghton	Algona Renton Houghton	Algona Houghton
Do not build		Northeast	Factoria	Factoria South County	Northeast South County	Northeast

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.

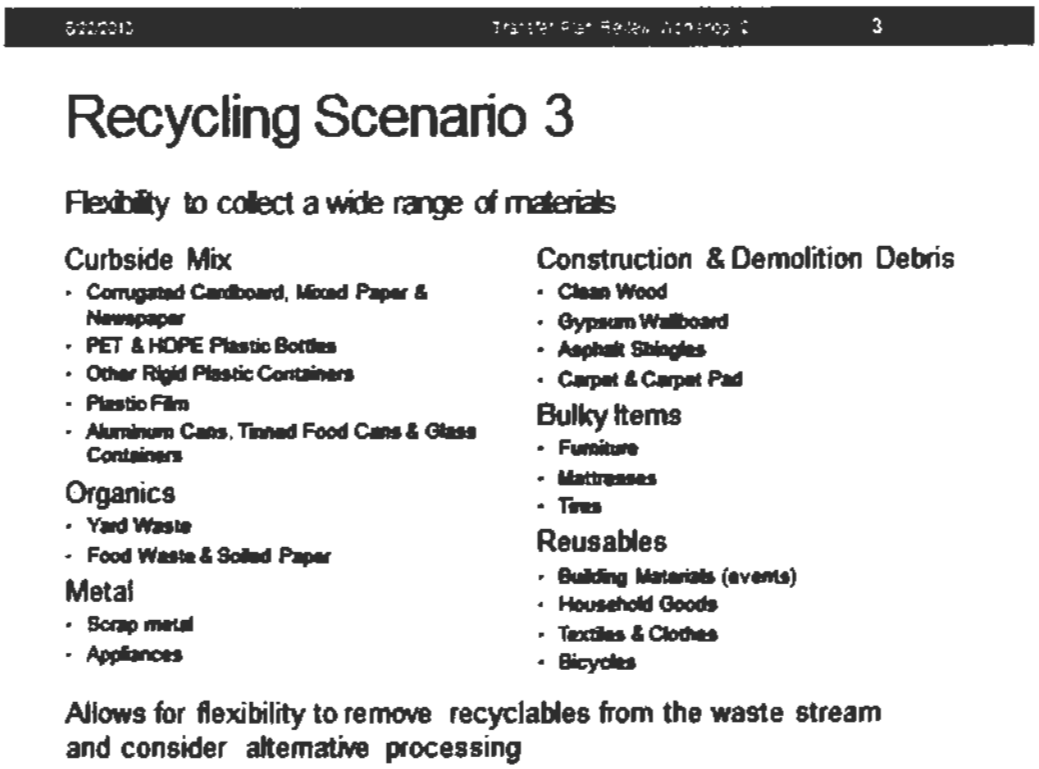
The Base Plan is the currently approved Transfer Plan and received the support of the most cities (10 out of 14) and Solid Waste Advisory Committee members (3 out of 4) that chose to comment on the draft Transfer Plan Review report. Because a primary objective of the Transfer Plan review was to determine 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

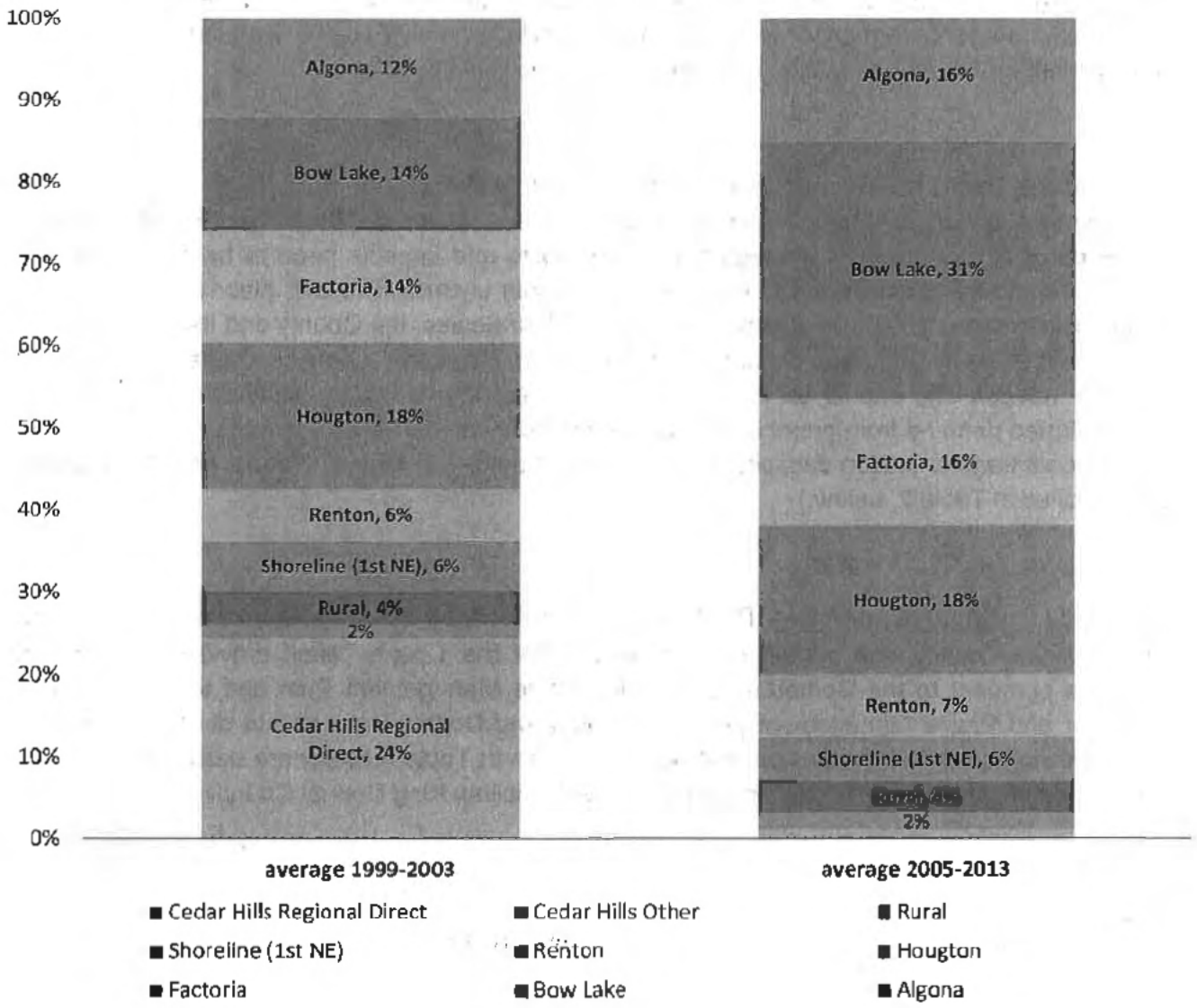
Under the King County Code, the County charges a lower rate if solid waste companies process waste at their own private transfer stations and haul it in transfer trailers directly to Cedar Hills. The rate reflects the County's avoided costs since the regional direct waste does not pass through the County's 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
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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
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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
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Waste Management
720 4th Ave, Ste 400
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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
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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,

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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.

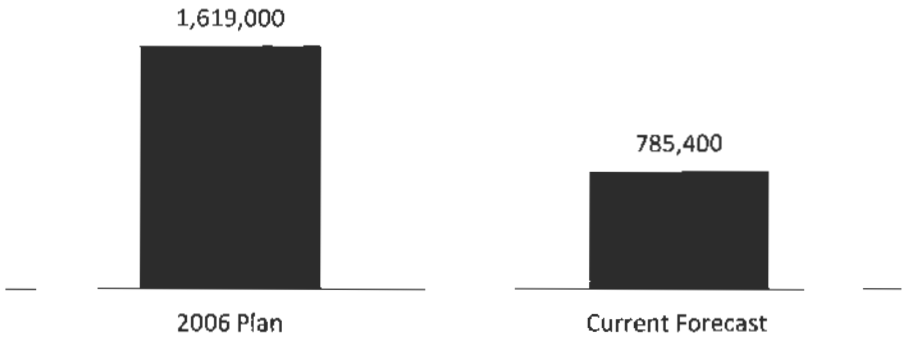
4a	**DONE**	SWD should update transfer system and individual facility plans as they have indicated. During this process, SWD should provide county policy-makers and regional partners a systematic analysis of: the incremental cost impacts of the number and capacities of the transfer stations; the functionalities 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.

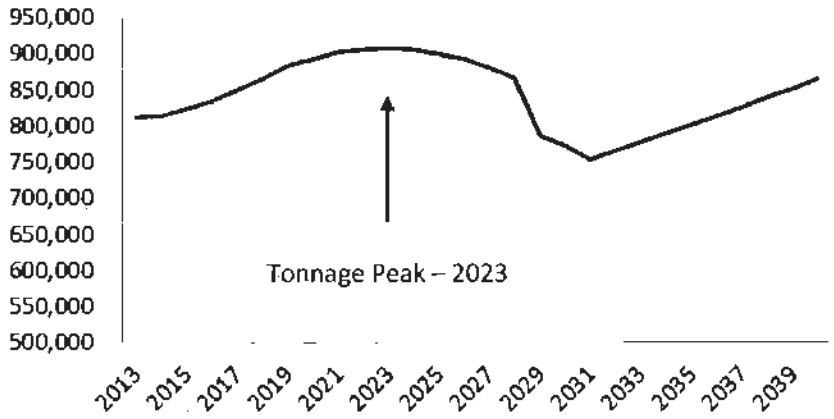
There would be adequate tonnage capacity within the system without a new northeast facility, and overbuilding capacity poses a financial risk.

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
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(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.

	Construction)	
Consider building a regional resource recovery park	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Nathan (surname not provided)	That is outside the scope of the Transfer Plan review.
Partner with Cities for alternative spaces and drop box sites using City real estate	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	Drop boxes would not provide sufficient capacity in the urban area. Drop boxes may have greater neighborhood impacts as they are not fully enclosed.
Cedar Hills Landfill		
Consider effects of Cedar Hills' closure	• 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 (surname not provided) • Nathan Jay • Maribel Mesina • Rainier Audubon Society • Jeff Scott (R.W. Scott	The Cedar Hills Regional Landfill (Cedar Hills) is currently projected to close after the end of 2025; projections will be updated in 2014. The division will work with its advisory committees to identify options for disposal post-Cedar Hills. Regardless of the method that is chosen for disposal after closure of Cedar Hills, transfer stations are an integral part of the solid waste system.

	Construction)	
Stop landfilling	• Phillip Schmidt-Pathmann	That is outside the scope of this review; the division will work with its advisory committees to identify options for disposal and criteria for decision making. The County's currently adopted plans call for continued to use of Cedar Hills until it reaches capacity and then for export to an out-of-county landfill. However, the division has recommended exploring other options for disposal after Cedar Hills reaches capacity and closes and exploring options to reduce the amount of waste going to Cedar Hills during its lifetime through the use of waste conversion technologies as well as expanded recycling.
Include effect of changes to Cedar Hills rent	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	The rent paid to the County's general fund for use of the property owned by the general fund was determined by an independent appraisal. The rent payment schedule assumes the current landfill development plan and will be updated if there are changes to that plan in the future. The rent payment schedule was integrated into the 2012 rate study.
Transfer station at Cedar Hills (now or post-closure)	• Rob Aigner, Harsch Investment Properties • 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 Construction)	The role of Cedar Hills in the solid waste system after the landfill reaches capacity and closes will be considered in future plans; however, due to its location it would not be an adequate substitute for a South County RTS.
Need a second proxy disposal location to represent post-closure operations	• John Brekke (Brekke Properties, Viking Development)	Identification of another proxy location could not be supported.

Include post-closure long-haul costs	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	Costs for disposal after closure of Cedar Hills are estimated in the 2012 Rate Study.
Consider using direct haul to Cedar Hills instead of keeping facilities open during transfer station construction	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	The division is considering allowing some additional curbside collection vehicles to use the landfill during the Factoria construction to help alleviate traffic at the site.
Consider using direct haul to Cedar Hills during peak periods and emergencies	• 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)	Based on conditions, such as roads, additional use of Cedar Hills will be considered on a case by case basis.
Capacity		
Consider future system capacity in case Bellevue does not leave the system	• Keith Livingston	The division recommends retaining the option to construct a Northeast facility in the future, should Bellevue decide to sign an extended ILA.
Extend facility hours to increase capacity	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking	To strengthen the feasibility of alternatives, increased service hours were assumed if the station would be receiving additional waste.

	Development) • Nathan (surname not provided)	
Mandatory garbage collection and recycling services could reduce the need for transfer station capacity	• City of Auburn	Mandatory garbage collection is at the discretion of each city. Currently, garbage collection is mandatory in 13 cities including Auburn, Bothell, Enumclaw, Kent, Kirkland, and Renton. However, everyone in King County has access to garbage collection, almost all have access to recycling and yard waste collection, and the majority of King County residents do subscribe to curbside services. However, many also periodically use the transfer stations. The most recent customer survey (2011) indicates that most self-haulers use a transfer station because they have a large amount of garbage or yard debris or a bulky item which cannot be accommodated by the regular curbside collection. Most self-haulers are not using the transfer station to dispose of regular household trash. Because much of the material self-haulers dispose at the transfer stations is recyclable, current station designs and the draft comprehensive solid waste management plan prioritize inclusion of increased recycling at new transfer facilities. Current plans prioritize collection of yard waste, clean wood, card board, and scrap metal. Recycling rates vary from city to city depending on the level of service being provided, the rate structure and mandatory pay/participation policies. Mandatory garbage collection does not always correlate to high recycling rates. For example, both Algona and Auburn have mandatory garbage collection but Auburn's single family recycling rate is 53 percent while Algona's is 37 percent. In nearly all cities and unincorporated areas of King County the cost of curbside recycling service is included in the cost of curbside garbage service, so if a customer has garbage collection they are likely to use the curbside recycling service as well. No city or unincorporated area in King County – except Seattle, which is not part of the King County system – requires their residents to recycle. However, all communities prohibit single-family customers from putting yard waste in their garbage. This requirement has resulted in very high recycling rate – over 90 percent – for yard waste from single-family homes. Eleven cities in King County (including Seattle) include the cost of yard waste collection in the cost of curbside garbage service. These cities also have the highest single-family recycling rates in the county (57 to 66 percent). Note

		that even Seattle with mandatory garbage collection and requirements for their residents to recycle and separate their food scraps and yard waste for composting still finds the need to provide self-haul services at their transfer stations.
Increased recycling/waste reduction could reduce the need for transfer station capacity	• 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	The County's current recycling rate, overall, is about 52 percent. 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 be gradually 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, will also be necessary to achieve a 70 percent recycling rate. Without regional support, the county will not achieve the 70 percent recycling goal.
Restrictions on self-haul could reduce the need for transfer station capacity	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Nathan (surname not provided)	Self-haul restrictions were considered in several of the alternatives. While restrictions on self-haul might encourage some customers to sign up for curbside collection, the vast majority of self-haulers are not disposing of regular household waste. Restrictions on self-haul would primarily change traffic and use patterns at transfer facilities, but would not provide a significant overall reduction in the number of customers. During the review process, many stakeholders expressed concern that self-haul restrictions would increase illegal dumping.
Waste from Auburn in Pierce County is going to the Algona Transfer Station; disincentives could reduce the need for transfer capacity	• John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega	The portions of Auburn that are within Pierce County are part of the King County solid waste system and should be going to a King County facility. That tonnage is included in the forecast and provides revenue to the solid waste system.

	Riggers & Erectors) • Nathan Jay • Maribel Mesina	
Curbside collection of bulky waste could reduce need for transfer capacity	• John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	As recommended in the draft comprehensive solid waste management plan, the division will continue to work with the cities and others to explore options to increase the efficiency and reduce the price of curbside collection of bulky items, while diverting as many items as possible for reuse or recycling, which could help alleviate some self-haul traffic at facilities. In the division's 2011 survey of customers, about 12 percent of residential self-haulers said that they were coming to the transfer station because they had items too big to fit in the garbage can.
Alternative disposal methods (such as waste-to-energy, refuse derived fuel, composting, anaerobic digestion) could reduce the need for transfer station capacity	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Nathan (surname not provided)	Most jurisdictions that use alternative disposal technologies still use transfer stations as the receiving locations where smaller vehicles take their loads for consolidation into larger loads that then go to further processing. The division is exploring options for adding alternative technologies to current and future facilities and for alternatives to disposal at the Cedar Hills landfill.
Increased use of onsite compactors at commercial properties will reduce need for transactional capacity at transfer stations	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Nathan (surname not provided)	The majority of the self-haul transactions are currently from single family residences. The division will continue to work with cities and others to identify cost effective options for curbside collection of materials, such as bulky waste, and will track developments that lead to significant changes in transactions.
Current system has excess capacity, direct commercial haulers to underutilized facilities	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	In some areas (Shoreline and Enumclaw) there is additional capacity; however, there is not sufficient capacity in the areas served by the Algona, Factoria, or Houghton facilities. E1 considers how to make use of system capacity through directing commercial haulers to specific facilities. Directing commercial haulers is a policy change that would require

	• Eleanor Brekke-Parks (Brekke Properties)	action by the King County Council and would affect curbside collection rates for customers in the affected areas.
Restrict out-of-system self-haulers to reduce need for capacity	• 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 • Nathan (surname not provided) • Jeff Scott (R.W. Scott Construction)	The number of customers bringing solid waste from outside of the system does not contribute significantly to the need for transfer stations and increases revenue. The county does not encourage out-of-system customers.
Okay to exceed capacity 2021-2028	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Nathan (surname not provided)	Exceeding vehicle capacity has a variety of consequences such as the time it takes commercial haulers to unload at the transfer station, which influences curbside collection costs, and queue length which can impact local streets. The division seeks to provide adequate service in all areas of the county.
Level of Service (LOS)		
Provide original level of service	• John Brekke (Brekke	Please see Milestone Report 2 for detailed information on the level of service standards

results	Properties, Viking Development)	failures of existing urban transfer stations and what, if any, mitigation measures exist.
Reconsider LOS criteria (especially drive time and emergency capacity), drive time standard is not important	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Nathan (surname not provided)	The LOS standards were developed by regional consensus. Drive time does not appear to be a deciding factor.
Dislikes LOS system	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Nathan (surname not provided)	The criteria were developed with extensive stakeholder input as an objective method for evaluating the transfer system and reflect broad interest.
LOS capacity standards incorrectly applied/C should not be considered failing	• Eleanor Brekke-Parks (Brekke Properties) • John Brekke (Brekke Properties, Viking Development) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina • Nathan (surname not provided)	The standard used in the 2006 Transfer System Plan was developed using transportation industry standards of measurement for capacity of roadways and intersections – called a level of service or LOS measurement. An LOS measurement is a qualitative measure based on quantitative data. For the 2006 Plan consultants were retained to refine methodology and to apply them to the transfer stations; for this analysis the division applied the same methodology. An LOS of C was the target for capacity, not a failing grade.

Include LOS data for different years/ include LOS data for each transfer station	• Dana Brekke • Jan Brekke s • 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)	The division analyzed two different years to provide a snapshot of capacity. 2027 was used because it was the final full year that Bellevue would be part of the system. See http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Alternatives-Station-Detail.pdf for more detail on individual facilities.
Detailed drive-time data show failures are isolated and limited	• John Brekke (Brekke Properties, Viking Development)	Results show that drive time LOS failures are not a significant factor in the need for transfer system upgrades. However, it is important to note that increases in drive time, whether they result in LOS failure or not, will increase collection costs for curbside customers and for self-haul customers will increase cost and greenhouse gas emissions due to longer drive times.
Drive time maps have overlaps	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	More than one facility was considered when evaluating drive times.
Disaster agreements with neighboring jurisdictions eliminate need for emergency storage	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Nathan (surname not provided)	Any region wide disaster would likely have the same effect on neighboring jurisdictions.

Rates/Fees		
Charge differential rates	• City of Bothell • City of Kirkland • Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	A future rate study will consider differential rates that could be based on recovery of capital costs for transfer system improvements over two different time periods (through June 2028 and through December 2040) and/or other consequences of some cities not adopting the amended and restated interlocal agreement. Input on the rate study will be sought from the division's advisory committees.
Self-haul service should be charged more	• Rob Aigner, Harsch Investment Properties • 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 Construction)	The fee for self-haul customers will be considered in a future rate study.
Develop a rate forecast through 2040	• City of Kenmore • City of Redmond • City of Shoreline • City of Woodinville	Decisions related to the capital program are a key input to the rate analysis. Policy decisions made through this process will be incorporated into a future rate study.

Rate discussion needs more depth	• Rob Aigner, Harsch Investment Properties	Policy decisions made through this process will be incorporated into a future rate study. For a more in depth discussion of rates see the 2012 Rate Study.
Separate rate for small business self-haulers	• 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 • Jeff Scott (R.W. Scott Construction)	A future rate study could consider small business self-haulers as a separate customer class.
Reduced regional direct rate would decrease demand for transfer stations	• 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 • Jeff Scott (R.W. Scott	By definition, "regional direct" is solid waste that has gone through a transfer station. Currently, there is not private transfer station capacity sufficient to accept the amounts of waste that were processed prior to elimination of the regional direct fee subsidy.

	Construction)	
Increase fees to match neighboring jurisdictions – higher tipping fees would reduce demand	• 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 • Jeff Scott (R.W. Scott Construction)	Solid waste fees are based on the cost to provide programs and services; fees are not set higher than necessary.
Interlocal Agreements		
County has not signed extended interlocal agreements	• John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	The King County Council approved Ordinance 17677 on October 21, 2013, which authorized the King County Executive to enter into amended and restated interlocal agreements with any city that is part of the King County solid waste system. The County signed the amended and restated interlocal agreements on November 6, 2013. Thirty-two cities have adopted the new ILA which extends commitment to the system through 2040.
Consider how new interlocal agreements could affect solid waste plans	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	Under the current interlocal agreements, the County is responsible for management of waste from 37 cities through June 2028, and for management of waste from 32 cities through 2040. The County will continue discussions with cities of issues arising as a result of some cities' choice not to enter into the new ILA.

	• Nathan (surname not provided)	
Give cities a deadline to sign the new interlocal agreement	• City of Kirkland • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties)	The County submitted the amended and restated ILA to the Cities for approval on December 28, 2012 with a request for a statement of interest by February 28 and action by April 30, 2013. This date was set so that the County could make the appropriate decision on refinancing debt that was primarily incurred during Bow Lake construction. Based on the response received, bonds were financed at historically low rates, to the advantage of ratepayers. April 30, 2013 was not intended as a deadline after which a city could not chose to extend its commitment to the King County solid waste system. Having as many cities as possible adopt the amended and restated ILA is in the interest of solid waste system ratepayers as it provides even greater economies of scale; therefore, the County will continue to work with those cities that have not yet signed the new ILA to encourage a longer commitment to the regional solid waste system. The County will discuss with cities how to manage the issues associated with having non-extending cities in the system. This discussion will include considerations of latecomer provisions if cities opt to extend at a later date and development of a rate structure which appropriately allocates costs among extending and non-extending cities.
Haulers' Role and Collection Costs		
Collection cost data insufficient/unreliable/requires further study	• City of Algona • Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Cindy Flanagan • Nathan Jay	The division very much appreciates the information that was provided by the commercial haulers and respects the difficulty of projecting potential cost increases without detailed studies. While specific, detailed information was not provided, throughout this process, and in past discussions related to transfer system configuration, the haulers have consistently stated that the further they must drive to reach a transfer facility, the higher the cost will be for their collection customers. CleanScapes has provided some updated information which has been incorporated into the report in Table 5. A map of the commercial hauler's collection areas can be found on the Transfer Plan review project website http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-SW-

	• Maribel Mesina • Nathan (surname not provided) • Jeff Scott (R.W. Scott Construction)	Collection-Service-Areas-2014-07.pdf.pdf.
Include the division's initial request for collection cost information in the report	• City of Auburn	The following email was sent to each hauler operating in King County: Thank you for your participation in the first workshop of the King County Transfer & Waste Management Plan Review. As we discussed at the meeting, the Solid Waste Division is developing alternative scenarios for reconfiguring King County's planned transfer station system. King County's current transfer station plan calls for construction of three new full-service facilities: a Northeast King County facility located north of Lake Sammamish; a South King County facility in the Auburn-Algona area; and a new Factoria facility adjacent to the current Factoria station. The Algona, Houghton, Renton, and the existing Factoria transfer facilities would all be closed. The alternative scenarios being considered all include closure of Algona, Renton, Houghton, and the existing Factoria transfer stations, except for one scenario that might keep Houghton open for self-haulers only. However, these scenarios present various options for reducing construction of new replacement transfer facilities, including: • Build Factoria and South County facilities only; • Build Northeast and South County facilities only; and • Build Northeast facility only. A summary of the current plan and alternative scenarios is attached. To fully identify the impacts of each scenario, we need input from _____ and the other haulers serving King County. We are requesting your assistance in identifying potential impacts to your operations and your customers for each scenario. We have specifically been requested by stakeholders to estimate the cost impacts to commercial collection companies associated with extra drive time and how these costs will affect the collection rates charged to residents and businesses. Given the quick timeline for this review, we would appreciate receiving input from

		_____ before the end of August if possible. If you have any questions about this request, please contact me. Further information about the Plan Review, including materials distributed at the first meeting, is available at a dedicated website: http://your.kingcounty.gov/solidwaste/about/plan-review.asp#schedule Thank you for your assistance.
Convert haulers' data to same format	• John Brekke (Brekke Properties, Viking Development)	The division attempted to provide information in a uniform manner by estimating cost per average household for some alternatives. The impacts of collection cost increases would not be uniform across the county.
Include cost impacts by city	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	This information is not available.
Include individual city and private hauler contract terms, costs and contract duration data in the report	• Dana Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	This information is available from each city.
Cities need time to negotiate collection rates	• Rob Aigner, Harsch Investment Properties • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	Cities that contract with private haulers are on individual contract cycles. In any given year, only a few cities will negotiate new contracts.

	• Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina • Jeff Scott (R.W. Scott Construction)	
Show haulers' base of operations on facility maps	• John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	This is information is available from the commercial haulers.
Alternative fuels will reduce collection costs	• 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)	The majority of the collection vehicles already use compressed natural gas.
Haulers decide where to take	• John Brekke (Brekke Properties, Viking	In accordance with state law RCW 81.77.020 and 36.58.040, counties are prohibited from providing curbside garbage collection services. Legal authority for regulating

waste	Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina • Jeff Scott (R.W. Scott Construction)	collection is shared primarily between the state – acting through the Washington Utilities and Transportation Commission (WUTC) – and the cities. The WUTC sets and adjusts rates and requires compliance with the state and local adopted solid waste management plans and related ordinances. RCW 81.77 also includes a process for allowing cities to opt out of the WUTC regulatory structure and either contract directly for solid waste collection or provide city-operated collection systems. Most of the garbage, recyclables, and organics collection in the county's service area are provided by four private-sector companies – Republic Services, Inc. (formerly Allied Waste, Inc.), Waste Management, Inc., Waste Connections, Inc., and CleanScapes, Inc. Except for CleanScapes, which only provides contracted services, these companies operate both through the WUTC and service contracts with individual cities. Most of the 37 cities in the service area contract directly with one or more of these private companies for collection services. Eight cities (Beaux Arts, Black Diamond, Covington, Hunts Point, Kenmore, Medina, Woodinville, and Yarrow Point) and all of the unincorporated areas receive collection services from these private companies operating under certificates issued by the WUTC. Two cities – Enumclaw and Skykomish – provide municipal collection services within their own jurisdictions. Both the original and the amended and restated interlocal agreements assign responsibility for different aspects of solid waste management to the county and the cities. The county is assigned operating authority for transfer and disposal services, is tasked with providing support and assistance to the cities for the establishment of waste prevention and recycling programs, and is the planning authority for solid waste. Each city is the designated authority for collection services within their corporate boundaries and agrees to direct solid waste generated and/or collected within those boundaries to the King County transfer and disposal system. While a city might direct, through a service contract with a hauler, at which facility solid waste must be transferred, the County currently has no authority to do so. Alternative E1 considers a policy change that would require action by the King County Council, which would allow the division to direct haulers to a particular facility.
Have a third-party review of commercial hauler collection costs	• Dana Brekke • Jan Brekke • John Brekke (Brekke	The review process, as set by ordinance, does not include a third-party review. Were there to be a third-party review, the County could not compel the haulers to

	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)	participate.
Revise Table 5 "Collection Cost Estimate Summary" to reflect updated information	• CleanScapes	Table 5 has been revised to reflect the updated information.
Miscellaneous		
Change code regarding salvaging at transfer stations	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Nathan (surname not provided)	State law, WAC 173-350-310, requires that scavenging (salvaging) be prohibited at intermediate solid waste handling facilities (transfer stations).
Update King County Performance Audit	• Jan Brekke • John Brekke (Brekke Properties, Viking Development)	The King County Council has included a follow-up to the 2011 Performance Audit in the County Auditor's work program. This follow-up will focus on recommendation 4 from the audit that the Solid Waste Division should update the transfer system plan to provide "systematic analysis of the incremental cost impacts of the number, capacities and functionality of the transfer stations and assessment of project financing and delivery methods".

Include adjacent land owned by King County at Factoria, Algona, Houghton, Bow Lake and other sites in retention and repair costs	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Nathan (surname not provided)	The division considered how to repair and retain current facilities. Expansion onto adjacent property would not be considered repair and retention.
200 lineal feet not required for compactors	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development) • Eleanor Brekke-Parks (Brekke Properties) • Mike Cotter (Omega Riggers & Erectors) • Nathan Jay • Maribel Mesina	To safely maneuver (backing up) the tractor-trailer combination, 200 lineal feet is needed. The division considered a pull through design for the Houghton Transfer Station, but that would reduce the handling capacity by one-half.
Reconsider Milestone Report Three public/private recommendations	• Dana Brekke • Jan Brekke	Evaluation of the public/private structure of the system is outside the scope of the Transfer Plan review.
Include framework for financial policies and host city mitigation, including compensation agreements	• Dana Brekke • Jan Brekke • John Brekke (Brekke Properties, Viking Development)	These topics are outside the scope of the Transfer Plan review. The County will continue discussions with cities on these topics.
Include advantages and cost of an intermodal transfer station	• John Brekke (Brekke Properties, Viking Development)	Evaluation of an intermodal is outside the scope of the Transfer Plan review.

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April 25, 2014

The Honorable Dini Duclos
Federal Way City Councilmember
Chair, SCA Caucus of the RPC
6300 Southcenter Blvd
Tukwila, WA 98188

Dear Chair Duclos:

Thank you for your letter of April 15, 2014, requesting answers to questions the Regional Policies Committee have about the Solid Waste Plan Final Report. The report recommended the following;

- Proceed this year with a new Factoria Recycling and Transfer Station using current design and permits (with minor modifications to retain flexibility)
- Continue siting process for a South County Recycling and Transfer Station
- Work with stakeholders on developing the optimal "no-build" option for future Northeast capacity and compare trade-offs and benefits with the adopted Transfer Plan

With that in mind, we offer the following answers to your questions.

CLOSURE OF EXISTING TRANSFER STATIONS

1. Kirkland's MOU with King County provides that the "County should focus investment in part to expand, relocate, or replace, ... transfer stations when safety, efficiency, capacity, or customer services needs cannot be met by existing transfer facilities." Given that the Houghton Transfer station is the second busiest station in the system and fails to meet 18 of 26 level-of-service criteria in the Transfer Plan, and given that the County has repeatedly promised to close Houghton, how can the SWD justify anything other than closing Houghton by 2021?

Answer: The three Alternatives recommended for further evaluation – Base, E1, and E2 – all include closing Houghton in 2021.

2. Similarly, how does the SWD justify not closing Renton as scheduled by 2018?

Answer: **As part of the Transfer Plan review, the division was requested to assess whether changes could be made that could reduce future capital expenditures while still meeting desired service objectives and levels. Alternatives E1 and E2 considered keeping Renton open as means to reduce capital expenditures while maintaining a higher level of service than would be available if it were to close.**

Subsequently, the division has received input from the City of Renton opposing keeping the station open. Closure of the Renton Transfer Station would be incorporated into the further evaluation of Alternatives E1 and E2.

3. In solid waste as in realty, it is "location , location, location." What is the current population served by the Houghton station?

Answer: **The Houghton Transfer Station currently serves a population of approximately 270,000 people.**

4. If Houghton is closed without a replacement, what populations and uses would Shoreline and Factoria stations have to serve?

Answer: **Options E1 and E2 call for policy changes that would impact the populations served either by redirecting waste or limiting self-haul. Other demand management options could also be employed that could impact population served. The division is recommending a discussion of these options by the region. It is anticipated that both stations would provide services for commercial and self-haul garbage customers, recycling services, and Factoria would provide Household Hazardous Waste services.**

COST

1. What are the rate impacts of the different scenarios vs. the base plan?

Answer: **The cost per ton impacts to current rates ranged from as high as $16.39 (Base Plan) to as low as $5.16 (D***). This equates to an added cost per month for the average household of $0.34 to $1.08. Attachment 1 provides estimates based on forecasts for inflation and bond rates that were available at the time of the Transfer Plan review analysis and assume 20-year bonds at 5 percent. This chart has been corrected from a previous version to add .21 cents per ton to the average cost for scenarios that include South County. Other figures remain unchanged.**

2. What are the estimated capital costs for each of the remaining transfer stations to be built under the Base Plan and Option E? Include all costs (including but not limited to design, engineering, land acquisition, environmental studies and compliance, permitting, construction, mitigation, overhead, etc.).

Answer: See Attachment 2 – Cost and Debt Service By Facility and By Year

3. What is the annual debt service by year for each new facility in the Base Plan and Option E through 2040? List the assumptions (i.e. costs, length of bonds, interest rates, etc.) that form the basis of your calculations.

Answer: See Attachment 2– Cost and Debt Service By Facility and By Year

4. What is the rate impact for annual debt service for each new facility in the Base Plan and Option E using the most recent tonnage projections? List the yearly tonnage projections used in your calculations.

Answer: See Attachment 2 – Cost and Debt Service By Facility and By Year

5. What are the total annual estimated operating costs for each of the transfer stations in the system for the Base Plan and Option E and what is the rate impact?

Answer: Operating costs are not expected to vary significantly between alternatives, because the system must handle the same number of tons and transactions. For this reason, the division did not perform in-depth analysis of this issue. Regardless of the number of transfer stations, the number of tons and transactions remains essentially the same, requiring staff and equipment to receive, process, and transport. Transportation costs will vary depending on distance to the disposal or processing location.

The division is recommending continued evaluation of E1 and E2 and comparison with the Base Plan. More detailed operational cost analysis could be included in that evaluation.

6. Alternatives E1/E2 do not meet 12 of the 26 service criteria and only save $0.38 to $0.42 per month for the average rate-payer compared to the base plan. Do these costs include hauling costs? Alternatives E1/E2 would involve hauling further distances because the transfer stations are not distributed regionally. King County's September 2013 analysis of Alternative C showed that for that option hauling costs are a larger component of the monthly rates than the capital costs of building the new transfer station facilities. Unless the projected cost saving of between 38-cents and 42- cents per month for Alternatives E1/E2 include hauling costs, the costs may be incomplete and misleading.

Answer: **This appears to be a reference to Appendix G, which was an early evaluation tool that was replaced and superseded in the final report by the chart comparing impacts of the Base Plan and E1 and E2. The Appendix is of limited utility because the table was structured so that only a system with entirely new stations could meet all service level criteria (and if any station did not meet a particular criterion, the alternative was assigned a "no" for that criterion, even if all other stations satisfied the criterion. Ultimately, the "E" alternatives were determined to be feasible. The projected savings are for capital costs only. The division recommended additional analysis regarding costs comparing E1/E2 (or some combination) and the Base Plan.**

7. What happens to the rate if the tonnage drops and you do not meet your projections?

Answer: **Fixed costs, such as debt service, would need to be spread over a smaller base requiring either reductions in expenditures or an increase in revenue.**

8. Is there anything the County can do to cover the bond payments if the tonnage drops, short of cutting services or increasing the rate?

Answer: **The division is evaluating ways to optimize non-tip fee revenue, such as revenue from carbon credits.**

9. According to your last rate submittal, disposal operations at the Cedar Hills landfill cost approximately $13M and estimated disposal costs in 2026 after Cedar Hills closes in 2025 were $56M for waste export. What is the impact on the rate for disposal costs after Cedar Hills closes in 2025?

Answer: **In 2015, the system will save an estimated $7 to $8 per ton by disposing at Cedar Hills as compared to the cost of waste export to an out-of-county landfill. This is one of the reasons that King County's disposal costs are significantly lower than Seattle's. When Cedar Hills closes, disposal costs are expected to increase; the extent of the increase will depend on a number of factors including the disposal option(s) chosen.**

FACTORIA

1. The County has a current permit to rebuild the Factoria Transfer Station. **The permit was approved based on a certain number of vehicle transactions and certain acceptable traffic levels at the station and on local streets.** How would the E1 and E2 alternatives impact the number of vehicle transactions (both commercial and self-haul) and traffic on local streets as compared to the assumptions in the current permit?

Answer: **The number of vehicles using the Factoria Recycling and Transfer Station is expected to increase under Alternatives E1 and E2.**

2. Why do you think it is a good idea to extend the hours that the Factoria transfer station is open for self-haul to 11pm on weeknights? Who is going to think that is a good idea on a nice summer evening, when windows are open, only to hear garbage being dumped into transfer trailer beds?

Answer: **For Alternatives E1 and E2, the division modeled extended hours at Factoria to increase capacity. Unlike the current facility, the new Factoria Recycling and Transfer Station will be fully enclosed.**

LEVEL OF SERVICE

1. The County proposed two less expensive alternatives (E1 and E2) which fail to meet 12 of 26 level-of-service criteria to include standards for vehicle capacity, self-haul, recycling, and local traffic. The more expensive Base Plan satisfies all level-of-service criteria for a cost to the average rate-payer of between .38 cents to .42 cents more per month. Does the County share the concern that the E1 and E2 alternatives may create a second class transfer system and that we may regret not implementing the Base Plan?

Answer: **See comments above regarding Appendix G. The division recommends further evaluation of E1 and E2 and comparison with the Base Plan.**

2. Arrayed over the service hours of the day, what are the projected drive times for concentric bands served by Houghton compared to the next nearest existing station?

Answer: **This level of analysis is complex and costly. As a result, the division would like to understand the specific concerns to determine if other information can address the issues.**

NORTHEAST TRANSFER STATION

1. Is it true that a transfer station siting process can take years to complete and starting a siting process now to identify viable and available properties for a Northeast Transfer Station does not obligate the County to actually design or construct the station?

Answer: **A siting process is expected to take 2 to 3 years. A siting process would not obligate the County to design or construct a Northeast Recycling and Transfer Station.**

2. How certain is the SWD that no Northeast Transfer Station (NETS) is needed? What are the risks if the Solid Waste Division is wrong?

Answer: **Based on current projections, the E1 and E2 options (or some combination) provide sufficient capacity for tonnage and transactions without a new NE station. The Solid Waste Division's recommendation is to refine the E1 and E2 options to determine the optimal "no build" option and then compare the costs and benefits of that option to the Base Plan (which is more expensive, but provides higher levels of service). The Solid Waste Division agrees with the Auditor that further a regional discussion is appropriate and that options should be kept open regarding whether or when a new northeast facility would be needed.**

RECYCLING

1. During the RPC presentation we were informed that self-haulers recycle about 5% of their loads, which is well under the 52% that is recycled via curbside pick-up. If that's the case, why would we want to encourage customers to self-haul their trash to transfer stations? Wouldn't it be better to discourage that behavior by keeping curbside pick-up prices down?

Answer: **More than two-thirds of self-haul customers do use curbside service. Most self-haulers use the transfer stations to dispose of bulky materials or amounts of material that are too large to be picked up with regular curbside service, including many materials that could be recycled such as scrap metal, large loads of yard debris, large amounts of cardboard, and recyclable wood. New transfer stations facilitate expanded recycling.**

SEPA AND EIS

1. Will there be a SEPA process on a closure without opening a new northeast station to allow us to understand the impact of packer trucks and self-haulers on other highways?

Answer: **Any significant changes to the Transfer Plan would likely be subject to environmental review under SEPA, which would include traffic analysis.**

2. If King County selects an alternative (E1 or E2) to the Base Plan as recommended in the 2006 Transfer Station Plan, would the SWD be required to complete another Environmental Impact Statement to evaluate the potential environmental impacts of the alternative recommendations before the new plan could be implemented?

Answer: **It is likely that material changes to the Base Plan would require environmental review.**

TONNAGE ESTIMATES

1. In 2005, the County estimated 1.6m tons would be processed by the system in 2030. Revised tonnage estimates call for 785,000 and 860,000 tons in 2030 and 2040, respectively. How confident is the County in its revised tonnage estimates and its ability to provide service under Alternatives E1/E2?

Answer: **Forecasts are based on the best available information and based on current projections, alternatives E1 and E2 can accommodate system tonnage and transactions.**

2. Bellevue has indicated that it does not intend to sign an extended interlocal agreement (ILA) with the County, and that it will leave the system when the current ILA expires in 2028. Does the Solid Waste Division (SWD) believe that it is prudent to plan for a regional system that does not include the tonnage produced by Bellevue at this time?

Answer: **The division works to retain as much flexibility as possible while incorporating the best information available at the time, thus the current tonnage forecast does not include tonnage that is not contractually committed to the system.**

3. The fact that Bellevue has decided to not extend it ILA with the County makes planning for the future of the system challenging. A new Northeast Transfer Station is needed to handle Bellevue's tonnage. In order for both Bellevue and King County to plan, the County should establish a deadline. When should that deadline be?

Answer: **The financial polices committee of MSWMAC is evaluating latecomer provisions, which could include a recommended deadline. However, presumably, any deadline could be changed in the future if the region determined it was beneficial to do so.**

4. Even if Bellevue opts out of the County system, King County's projections show the tonnage rising back up to the current levels in upcoming years. Considering the length of time that siting a station requires, would it not be prudent to move forward with siting a NE station for the future?

Answer: **There is sufficient time for further discussions with stakeholders, and the division agrees with the Auditor that additional regional discussions on this issue are appropriate.**

5. Under Alternative E1, how will the County legally require haulers to take waste to specific transfer stations to maximize the use the system's available tonnage capacity? What enforcement mechanism will be used?

Answer: **The County would likely adopt an ordinance directing certain tonnage to specific stations. The enforcement mechanism would be identified in the ordinance.**

6. How much solid waste tonnage reduction and slower growth projections is converted to increased tonnage in new and existing recyclables, requiring more efficient and compartmentalized stations to handle it?

Answer: **The current forecast assumes a one percent annual increase in recycling until a recycling rate of 70 percent is achieved. Achieving the 70 percent recycling goal assumes that transfer stations will recycle 35 percent of the solid waste delivered by self-haul customers. Expanded recycling capabilities will be needed to achieve that goal.**

7. What are the tonnage reduction factors that would drive a closure of Houghton?

Answer: **Tonnage reduction would not be the driving factor in closing Houghton.**

8. Is it realistic to drive 18% of the system tonnage to other existing stations?

Answer: **Operational and policy changes would be needed. The division would work with stakeholders to identify which changes to pursue.**

9. What future increases in tonnage would drive a need for a new Northeast station if Houghton is closed without a replacement in place?

Answer: **The need for a new station could be driven by tonnage increases or by desire for new or improved services.**

10. By recommending the "No build" Alternatives E1 and E2, the County is gambling that its tonnage projections are correct. In 2008, the economy experienced an unforeseen recession which resulted in a significant decrease in the tonnage projections made in the 2006 Transfer Plan which indicates that the County's tonnage estimates may be wrong. The tonnage projections are based on a 70% recycling rate. However the region is only at 52%. What if the County is wrong about the recycling rate and what if the economy rebounds? What is the County's back-up plan if the tonnage estimates are too low? Would the County be willing to conduct a sensitivity analysis of their risk before excluding the Northeast Transfer Station option?

Answer: **The division is recommending continued evaluation of E1 and E2 in consultation with stakeholders. A sensitivity analysis as described above could be included in that evaluation.**

The 70 percent recycling goal was established in consultation with MSWMAC during development of the draft comprehensive solid waste management plan. MSWMAC's current work program includes revisiting that draft plan beginning in August. Reaching the 70 percent goal would require significant commitment and involvement from cities and hauler partners.

TRAFFIC IMPACTS

1. What are the traffic impacts to the north end cities from diverted trips to the Shoreline Transfer Station? What routes would diverted traffic take? What will be the impact on SR 522 and SR 104 if Houghton closes? What provisions will be made for diversions of transfer station traffic due to unforeseen detours? Will the impacted cities receive ongoing mitigation dollars for roadway repairs? If a decision is made to add to traffic in some locations for a public service, would there be mitigation payments or support for mitigation projects?

Answer: **The division would work with the region on these implementation issues, if the determination is made to redirect commercial traffic to Shoreline.**

TRANSACTIONAL CAPACITY

1. Regarding transactional capacity at a new Factoria station, there will be 2.75 times more self-haul unloading bays, almost three times the self-haul trip capacity on weekdays and three-and-a-half times more self-haul unloading bays and self-haul trip capacity on weekend days, so why does the SWD conclude that "the point of failure is managing the transactions"? (Currently, the Factoria transfer station has 4 unloading bays for self-haul and the new Factoria transfer station will have 11 unloading bays during the weekdays and 14 unloading bays during the weekend days for self-haul.)

Answer: **Currently, at Factoria waste is disposed on two sides of the pit. One side has eight self-haul stalls and the other side has four commercial stalls (commercial stalls are twice as large as self-haul stalls.) Typically, the station is operated so that commercial haulers and self-haulers do not dump across from one another, which means that only four self-haul stalls and two commercial stalls are typically used at the same time. However, the station is sometimes operated to allow dumping in all eight self-haul stalls and all four commercial stalls during busier periods to avoid excessive queuing. In addition, on weekends when commercial haulers are generally not present, eight self-haul stalls are commonly used, and the commercial side of the station may be opened to self-haul customers as needed for a maximum of 16 stalls.**

The new station will generally operate with three commercial bays and 11 self-haul bays. However, the flat floor design provides significantly more flexibility than the current outdated pit design. The operating area can be reconfigured as demand changes between the time of day, week, or year. This will allow us to reallocate the available space based on the type of customer demand being served.

2. What operational changes can be made to the system to handle sufficient transaction/vehicle capacity (e.g. longer hours, build second compactor at Factoria now and add queuing lane, etc.)?

Answer: **There is potential for adding a scale and a queuing lane at Factoria, among other options (and an additional compactor is proposed to be included in the current construction contract). The division would work with stakeholders to identify preferred options.**

3. What is the maximum vehicular and transactions capacity of the system? Does the calculation assume the closure of Houghton and Renton open or the closure of both stations?

Answer: **See Attachment 3. To determine capacity, the division extrapolates based on the historical inflow of both tons and vehicles on an hourly basis. Considering these well-established patterns provides a more accurate picture of how a station will actually function rather than averaging activity across all days or hours.**

OTHER

1. Has mandatory curbside collection, that some cities already have, been considered?

Answer: **The County cannot require cities to institute mandatory collection, and there is still demand for self-haul services from residents and businesses in cities with mandatory collection. Over 80 percent of our self-haul customers have curbside collection services, so a mandatory system would not likely make a significant difference in our self-haul transactional volume.**

2. Can the system incentivize commercial haulers to utilize the Cedar Hills Landfill and bypass the transfer stations (using the Regional Direct Rate)?

Answer: **When the Regional Direct rate was increased, most tonnage that previously went directly to Cedar Hills went to Bow Lake instead. As a result, it is not anticipated that adjusting the Regional Direct rate would address capacity issues in NE King County. Pages 45 and 46 of the Transfer Plan Review Final Report provide more detailed information.**

QUESTIONS FOR THE AUDITOR

Three additional questions in your letter were identified as better directed to the King County Auditor. I understand that those questions have since been responded to directly by Audit staff.

Thank you again for taking the time to write. If you have any further questions or concerns, please feel free to contact me at 206-477-4501 or by email at pat.mclaughlin@kingcounty.gov.

Sincerely,

Pat D. McLaughlin
Division Director

cc: Sound Cities Association Board of Directors
Sound Cities Association Public Issues Committee
Sound Cities Association Mayors and Managers/Administrators
Metropolitan King County Councilmembers
ATTN: Michael Woywod, Chief of Staff
Anne Noris, Clerk of the Council
King County Regional Policy Committee
Ben Thompson, Deputy Auditor, King County Auditor
Bob Thomas, Senior Principal Management Auditor, King County Auditor
Dow Constantine, King County Executive
Diane Carlson, Director of Regional Initiatives, King County Executive's Office Christie True, Director, Department of Natural Resources & Parks (DNRP) Kevin Kiernan, Assistant Division Director, Solid Waste Division (SWD), DNRP Diane Yates, Intergovernmental Liaison, SWD, DNRP

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MEMORANDUM

DATE: April 18, 2014

TO: Councilmember Dini Duclos, Federal Way City Council
Chair, Sound Cities Association Caucus of the Regional Policy Committee

FROM: Kymber Waltmunson, King County Auditor

SUBJECT: Questions for the Auditor's Office regarding the Follow-up on the 2011 Performance Audit of Solid Waste Transfer Station Capital Projects

Thank you for your letter of April 15, 2014, and your interest in the management letter we issued in March 2014 as part of our follow-up to our 2011 performance audit. Both the original audit and the follow-up are posted on our webpage, www.kingcounty.gov/auditor. As you may know, our original audit recommended 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. The main reason for this recommendation was our finding in 2011 that the information and analyses underlying the 2006 Plan, especially the tonnage forecast, were out of date.

Now, with the revised forecast showing even lower waste tonnage, implementing our recommendation remains important. We are encouraged that work began on the update last year and that the Solid Waste Division (SWD) is currently engaged in an iterative process wherein stakeholder input can help to improve the Plan.

Our answers to the three questions you directed to the auditor follow.

Question 1:
Regarding the Northeast Transfer Station and Financial Risk from Overbuilding:
In your independent review of the Solid Waste Transfer System, why did you conclude there is no need for a new Northeast transfer station and overbuilding poses a financial risk?

We welcome this opportunity to clarify what the report says on the matter of a new northeast transfer station. It is important to note that we did *not* conclude there is no need for a new northeast transfer station. Here are two passages from our management letter that are pertinent to your question:

> 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 (SCRTS). 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 (NERTS).

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.

What our modeling showed was that, in the case of tonnage handling, there would be sufficient systemwide tonnage-handling capacity without a northeast station based on the currently planned number of compactors and hours of operations by the time Factoria would be built, and then especially if a new south facility comes on board to replace Algona. The same was true for systemwide transactional capacity. See more about capacity in our answer to your other two questions below.

We also found, however, that with the closure of Renton and Houghton, and without a new northeast station, there could be problems at Factoria in handling self-haul transactions during the busiest years in the planning period at certain times per day. The reason this could happen, despite the overall adequate system capacity, is that each station has its own transaction-handling capacity per hour, which can be surpassed if customers arrive in large numbers during certain periods. These potential problems, in terms of wait times and queues, could be addressed through a number of strategies as detailed in our report, and as SWD has outlined in its presentation to the Regional Policy Committee on April 9, 2014.

Building a northeast station would be one way to address transactional capacity issues and hence we would not say, without exception, that there is no need for the station; but there are many other ways as well to deal with the transactional capacity issue. A financial risk results from committing to build a facility that may not be needed if there are other, less expensive ways to handle customer service issues. Once a facility is built the decision cannot be undone. Maintaining flexibility in decision-making now could position the County and its partners to respond to changing conditions and new technology.

Questions 2 and 3:

Regarding Maximum Capacity of Transfer Station System:
What is the maximum tonnage capacity of the transfer station system today (2014), not the amount of tons handled, but the maximum capacity that could be handled?
What is the maximum tonnage capacity of the transfer station system once it is built-out with a new Factoria and South King County transfer stations?

Regarding Transactional Capacity at Factoria: What is the transactional capacity for the new Factoria transfer station and how does this compare with the transactional capacity today?

Regarding questions 2 and 3, some caveats about assumptions and how information is portrayed are important to consider. Based on information provided to us from SWD for the newer stations (Shoreline, Bow Lake, Factoria, SCRTS, and NERTS) the upward limiting factors for tonnage handling are the number and capacity of the compactors and the hours of operations. For transactions, some of the key limiting factors include hours of operation, the number of stalls, and how vehicles are processed in and out of the station.

We mention these caveats, because there are different ways that capacity can be portrayed yet still be accurate. For example, the Shoreline Transfer Station currently has one compactor installed, but has space and was designed for adding a second compactor. Its upward limiting capacity can therefore be portrayed both as 100 tons per hour with one compactor, or 200 tons per hour if the second compactor is installed. Similarly, the planning concept for SCRTS is to have one compactor initially in operation but the ability to operate two.

The way council staff presented and explained tonnage and transactional capacity estimates at the Council's Committee of the Whole meeting on April 16, 2014 was helpful. Council staff used the same numbers we have, and described how they got to their estimates. They also appropriately mentioned that the numbers were theoretical in terms of what tons and transactions could be handled if arrivals of customers could be spread out to make full utilization of capacity.

The Committee of the Whole's agenda materials for April 16, 2014, which include the council staff PowerPoint presentation materials and the capacity estimates are linked here. The PowerPoint can be found as attachment 14 to agenda item 7. Since these estimates are based on the same information we have, and were fairly presented, we refer you to those estimates in answer to your questions.

cc: King County Councilmembers
King County Regional Policy Committee
Sound Cities Association
Christie True, Director, Department of Natural Resources and Parks
(DNRP) Pat McLaughlin, Director, Solid Waste Division, DNRP
Ben Thompson, Deputy County Auditor, King County Auditor's Office (KCAO)
Bob Thomas, Senior Principal Management Auditor, KCAO

Appendix J: Comments Received

http://your.kingcounty.gov/solidwaste/about/Planning/documents/TWMP-Comments-on-Report.pdf