




MANAGEMENT LETTER

DATE: July 28, 2015

TO: Metropolitan King County Councilmembers

FROM: Kymber Waltnunson, County Auditor 

SUBJECT: Transfer Plan Report Outlines Viable and Cost-Effective Alternatives to Building a Northeast Transfer Station

The conclusion by the Solid Waste Division (SWD) that there are cost-effective alternatives to building a new \$100 million transfer station in northeast King County is reasonable.

We evaluated the analysis conducted by SWD and its consultants and found that there is evidence to support this conclusion. Our analysis also found:

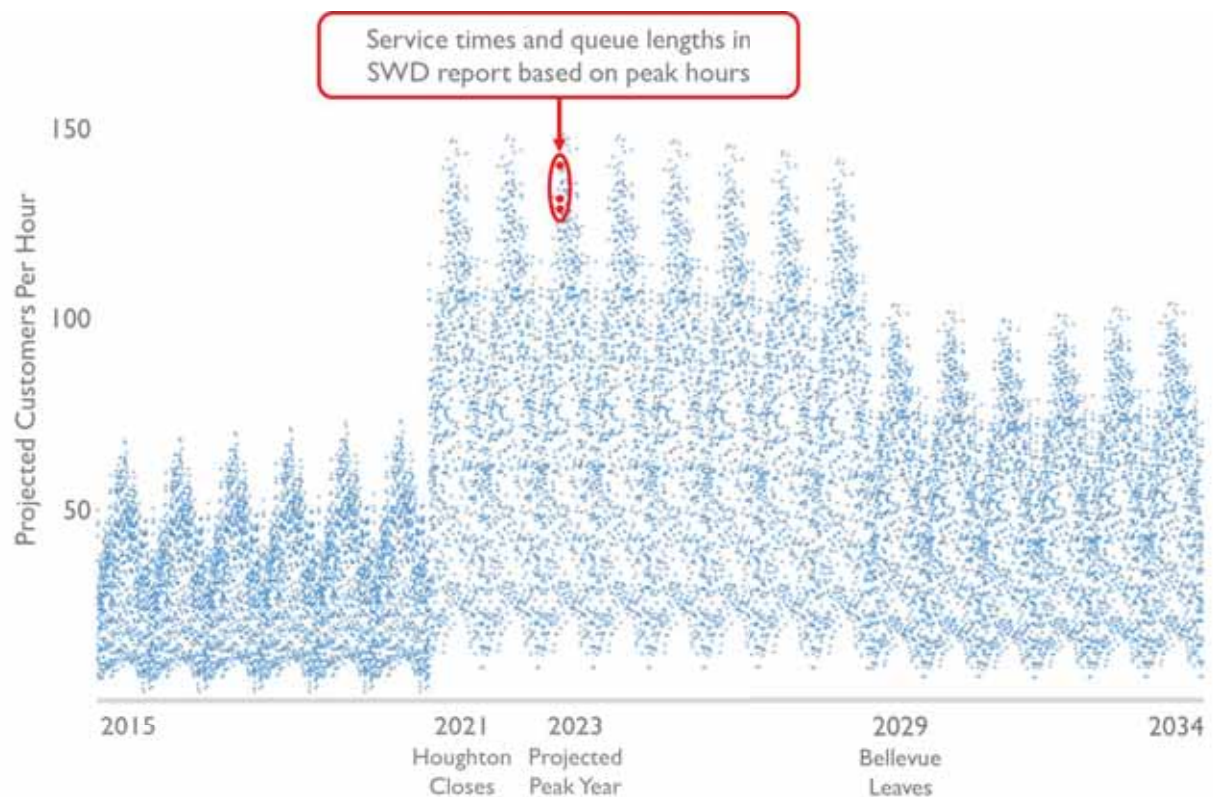
- **The service times and queue lengths described in the report represent conditions for less than two percent of customers.** However, even using these assumptions, SWD's report concludes that available mitigation strategies could reduce demand during peak times to acceptable levels without a new northeast transfer station.
- **Diversion of tonnage and transactions from the Houghton Transfer Station are key to whether worst-case scenarios will actually occur.** SWD's report assumes that 90 percent of current Houghton customers will go to the Factoria Transfer Station. Directing customers to closer stations with greater capacity or keeping Houghton open at least for weekend self-haul customers could reduce the service times and queue lengths assumed in the report.
- **More precise impact and cost analysis of mitigation strategies could provide policy-makers with additional options to avoid the predicted "worst-case scenarios."** While the report includes analysis of several mitigation strategies, some were evaluated using limited data, and other options were not evaluated; therefore we make a recommendation for SWD to test the impact and reassess the costs of some strategies.
- **There is significant risk associated with building a new transfer station now, as it would obligate the County to spend hundreds of millions of dollars to build and operate a facility that may not be needed.** Although the current forecast appears reasonably reliable, SWD has overestimated long-range tonnage in its past forecasts. This uncertainty around future tonnage reiterates why it makes sense to pursue alternatives to building a new transfer station as decisions about how to implement mitigation strategies can be made closer to the projected peak year when there will be greater certainty about tonnage.

The remainder of this letter provides additional information about these issues and other related matters.

Do the service times in the SWD report represent typical wait times?

No – SWD’s analysis shows worst-case wait times during periods of peak demand, which means these are not the conditions that most customers would experience. SWD and its consultant looked at the peak hours, of the peak days, of the peak year to determine service times and queue lengths. Exhibit A below illustrates the number of self-haul trips projected to occur each hour on weekends for the next 20 years at the Factoria Transfer Station (without any mitigation). SWD and its consultant analyzed conditions during three hours when demand is expected to be much greater than usual.

Exhibit A: SWD report shows conditions not representative of what typical customers will experience.



Source: Auditor’s Office analysis of SWD report methodology and historic hourly demand at Factoria Transfer Station. Projections assume 90 percent of Houghton customers move to Factoria in 2021.

Additionally, the service times and queue lengths in the report are not the average experiences of customers during those three hours, but rather what was experienced by fewer than 10 percent of customers during these exceptionally high-peak hours. This means that while a number of customers may still experience service times and queues that exceed standards, fewer than two percent of all customers would experience the conditions shown in the report. This conservative analysis bolsters SWD’s conclusion that there are viable and less expensive alternatives to

building a new northeast transfer station. This is because it shows that service times could be mitigated to within standards even during peak times with exceptionally high projected demand.

What is the impact of closing the Houghton Transfer Station?

The questions of when to close Houghton and where its customers might go should it close, have a significant impact on the predicted wait times at the Factoria Transfer Station.

Keeping the Houghton Transfer Station open would effectively eliminate potential overcrowding at Factoria, even in the peak year of 2023. Due to current plans for the station, SWD assumed in its analysis that Houghton would close in 2021, two years before the projected peak year.

SWD's analysis assumes that 90 percent of former Houghton self-haul customers would go to the Factoria Transfer Station. However, because many of Houghton's current customers are geographically closer to the Shoreline Transfer Station than they are to Factoria, this assumption could be on the high end of the possible range. An estimate of 65 percent diversion to Factoria may be a more reasonable figure based on the current proportion of tonnage going to Houghton from cities that are closer to Shoreline than Factoria.

In addition, there are many steps SWD could take to actively encourage customers to use less congested transfer stations. For example, SWD could incentivize or advertise Shoreline to residents in northern cities such as Bothell and Woodinville. These two northern cities make up almost a quarter of Houghton's current self-haul tonnage and transactions. Therefore, the decisions these self-haul customers make about where to go once Houghton is closed will have significant impacts on potential wait times at Factoria.

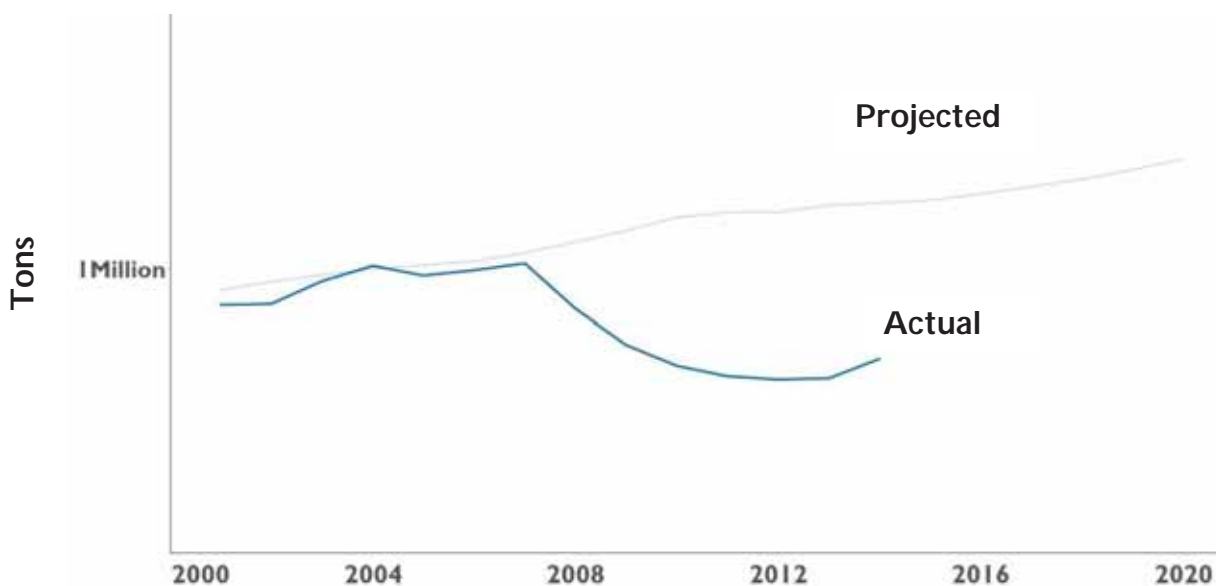
What was SWD's method for forecasting tonnage and customer transactions?

SWD used forecasts of population growth and other economic factors to estimate potential waste generation in the future. These tonnage estimates are the basis of estimating the number and type of customers using transfer stations and are integral to determining whether additional transfer stations are needed as well as determining the size and location of new stations. The forecasts rely both on external projections of population and economic growth and internal estimates of the relationship between those variables and solid waste generation and customer transaction rates. As a result, the accuracy of SWD's forecasts depends on both the accuracy of the external population and economic forecasts and the accuracy of how SWD estimates the relationship between these factors.

How accurate have SWD's tonnage forecasts been in the past?

In the past, SWD's annual short-range (four-year) forecasts have been mostly accurate in its projections for the ensuing year, but less accurate for later years. The long-range forecasts in the 2001 Comprehensive Plan and the 2006 Transfer Station Plan substantially overestimated tonnage. Exhibit B shows the difference between the tonnage predicted and the actual tonnage, which saw a major decrease during the Great Recession.

Exhibit B: SWD's previous long-range forecasts have overestimated tonnage.



Source: Auditor's Office analysis based on SWD data.

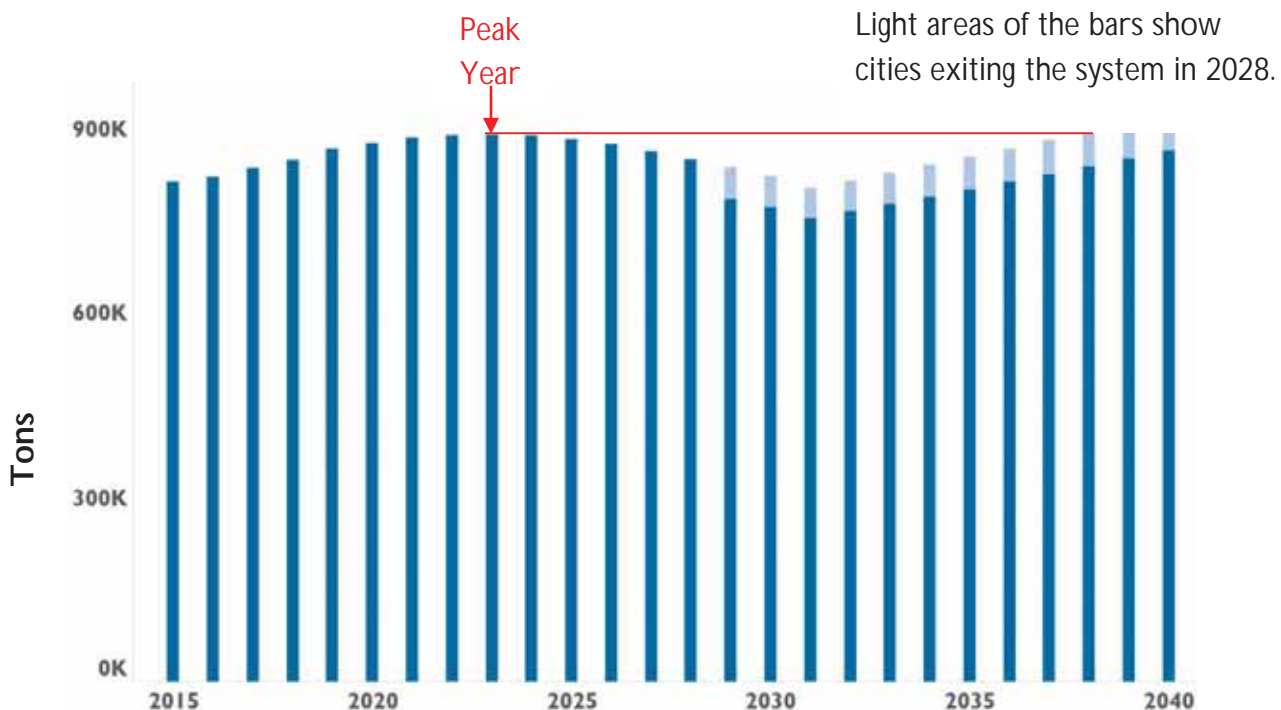
How likely is the current forecast to be more accurate than past forecasts?

Although SWD has strengthened its forecasting methods, long-range forecasting is inherently uncertain. SWD's current forecast takes into account changes in relationships between economic variables and solid waste generation rates as a result of the recession and incorporates assumptions about progress toward recycling goals. As a result, the current forecast provides a more nuanced, and potentially more accurate, prediction of future needs. Even so, it could still overestimate or underestimate future tonnage if economic growth or waste generation rates are different from what was assumed.

How does the participation of Bellevue and other Points cities impact the system?

SWD currently forecasts that even if Bellevue and the other cities stay in the system after 2028, tonnage will not return to peak levels until 2038. Currently, Bellevue and four of the five Points cities (Clyde Hill, Hunts Point, Medina, and Yarrow Point) have not signed an extended interlocal agreement and thus are scheduled to leave the system in July 2028. Exhibit C shows that even if these cities choose to stay in the system, SWD does not expect tonnage (and therefore transactions) to reach anticipated 2023 peak levels again until 2038.

Exhibit C: Even if the Points cities stay in the system after 2028, tonnage will not return to peak levels until 2038.



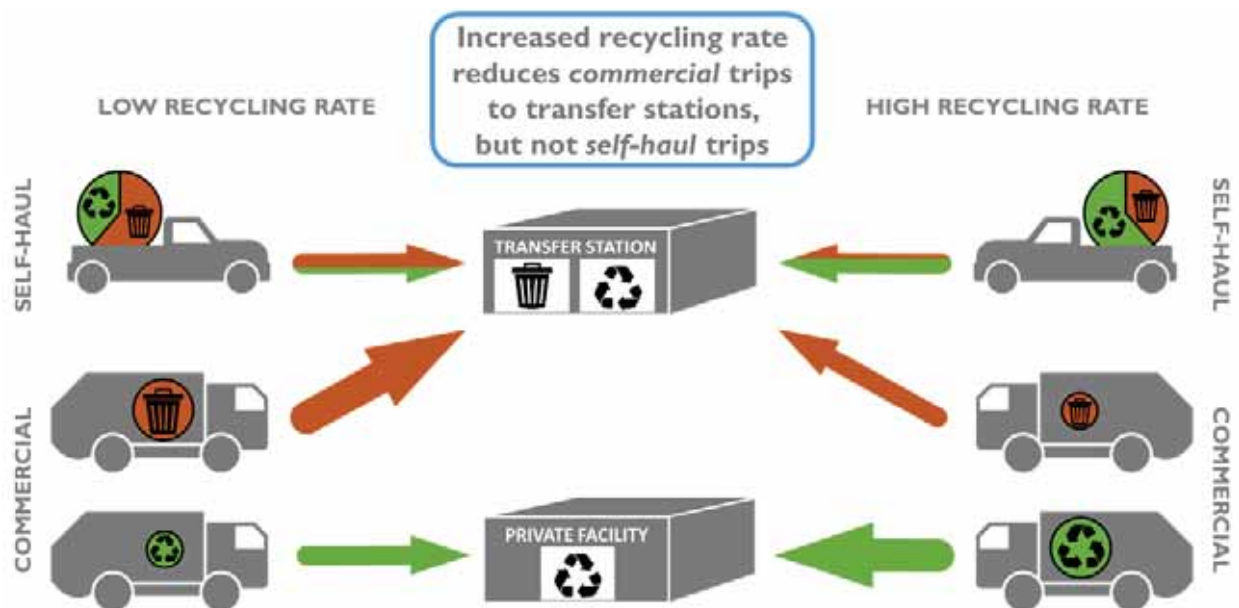
Source: Auditor's Office analysis utilizing SWD tonnage forecasts.

How important is achieving a 70 percent recycling rate goal to the decision to build a new Northeast Regional Transfer Station?

Achieving SWD's 70 percent recycling goal is not the decisive factor in whether a new Northeast Regional Transfer Station is needed. The key problem identified by the report as to whether a new northeast transfer station is necessary is the transactional capacity for self-haul customers at the Factoria Transfer Station in 2023. Self-haul customers account for 85 percent of transactions at transfer stations. As illustrated in Exhibit D, the assumed recycling rate does not have a large impact on the number of self-haul transactions; therefore, it is less relevant to the

decision of whether a new transfer station is needed. However, achieving recycling goals does have an important impact on the sustainability and cost of the entire system, as it extends the time that the Cedar Hills Regional Landfill can remain open and delays more costly exporting of solid waste.

Exhibit D: Reaching 70% recycling rate will not impact number of self-haul trips.



Source: Auditor's Office analysis.

How did SWD analyze potential strategies to mitigate congestion?

While SWD's analysis of the impact of mitigation strategies is logical based on currently available information, it likely under or over states the impact of these strategies.

SWD conducted a multi-step analysis for nine mitigation strategies and the estimated impacts of most strategies were based on a number of assumptions about how much tonnage would be reduced. For example, the impact of providing information about current wait times was based on SWD's best estimate. Little literature exists to help in this regard, but the intervening years between now and 2023 provide an opportunity for SWD to test potential mitigation strategies to determine which are the most effective during peak times in the summer. Understanding the impact of potential mitigation strategies could help SWD prevent queuing on peak days. It could also enhance customer's satisfaction with the transfer station system as it provides information that customers can use to make informed decisions about using the system.

Are there other mitigation strategies that could help reduce demand and avoid the worst case scenario?

Yes – there are additional strategies, like product stewardship and excluding non-system users that were not reviewed as a part of SWD’s analysis. Product stewardship is a process where the designers, manufacturers, or sellers of a product are responsible for taking the product back at the end of its useful life. This provides an alternative to consumers putting the product into the waste stream. For example, while there are currently some products where this service is available, increasing this service could potentially reduce demand on transfer stations and the landfill by preventing trips for certain products. While SWD is active in promoting this strategy, it was not considered in the report.

Excluding non-system users is another possible mitigation strategy.¹ Non-system users currently make up two percent of the trips at the Factoria Transfer Station. SWD has stated that they did not include this strategy, as they believe the percentage would be too small to impact the system and excluding users would reduce revenue. While prohibiting these users has revenue implications for the county, preventing these users could be limited to the peak year of demand on the system (2023) and thus help prevent the potential worst-case scenario SWD characterizes in its report.

How do the costs for a new transfer station compare to costs of mitigation strategies?

Based on SWD’s analysis of the cost of alternatives, building a new Northeast Regional Transfer Station is the most expensive option with approximately \$100 million in capital costs and millions per year in operating costs. In the case of alternatives to building a new transfer station, SWD’s analysis envisions staffing enhancements at the Factoria and Shoreline transfer stations to address the added volume at those stations once Houghton closes and assuming no northeast transfer station is built. SWD’s analysis assumes that the staffing enhancements at Factoria and Shoreline will be provided seven days a week, 365 days a year, even though the potential problems of congestion are only projected to occur during a few peak times in the peak years. SWD attributes this assumption to the requirements of the current labor agreement. Since the enhanced staffing levels would not be required until years in the future, SWD has time to ensure the flexibility to enhance staffing only during peak periods, rather than 365 days a year. Therefore, in our opinion, SWD’s analysis significantly overstates the cost of alternatives to building a new transfer station.

Nevertheless, SWD’s analysis still concludes that mitigation alternatives would be less expensive than building and operating a new northeast transfer station. Continuing to refine the cost

¹ Non-system users include residents of the city of Seattle and other counties.

analysis and including additional mitigation options could provide greater flexibility and rigor to future decisions on how to deal with peak demand.

Recommendation 1	The Solid Waste Division should test the impact and reassess the costs of the mitigation strategies. The results of this testing and cost refinement should be reported to the County Council.
Recommendation 2	The Solid Waste Division should ensure it has sufficient flexibility to provide enhanced staffing to handle peak-period volume during peak periods only, rather than year-round.

Acknowledgments

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

Larry Brubaker, Senior Principal Management Auditor; Peter Heineccius, Senior Management Auditor; and Elise Garvey, Management Auditor, conducted this review. Ben Thompson, Deputy County Auditor, was the project supervisor. Please contact Ben Thompson at 477-1035 if you have any questions about the issues discussed in this letter.

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