

Long-Term Disposal Study Frequently Asked Questions

The purpose of this Frequently Asked Questions (FAQ) document is to be a reference for common questions in response to the Long-Term Disposal Study (the Study). This FAQ addresses assumptions and decisions around the study and is not meant to be a summary of the study.

Report Scope

How does this 2025 Long-Term Disposal Report differ from past studies on long-term disposal methods?

Two studies were conducted to inform decisions made in the 2019 Comp Plan with an additional study completed afterward, per a King County Council proviso request:

- [RW Beck \(2007\)](#) identified Mass Burn (MB), Refuse Derived Fuel (RDF) and Advanced Thermal Recycling (e.g. pyrolysis and gasification) as options that could be explored further as potential waste conversion technologies alongside Waste Export by Rail (WEBR).
- [Normandeau \(2017\)](#) analyzed waste export and various waste-to-energy options for feasibility. This study looked at technological, environmental and financial criteria, and determined that Mass Burn was the most appropriate of the waste-to-energy options to consider further.
- [Arcadis \(2019\)](#) conducted a study after the Comp Plan was adopted in response to a King County Council proviso, which compared waste export and mass burn.

The 2025 Long-Term Disposal Report specifically analyzes 5 disposal options that were either listed for further consideration in the 2019 Comp Plan or based on the consultant's expertise in this area as viable options. The study comprehensively analyzes these options across a range of criteria.

What does this study cover and what doesn't it cover?

This Long-Term Disposal Report is a comparative evaluation of five different disposal methods considering three different waste tonnage scenarios that we might expect for the years 2040-2060. The methods and the tonnage scenarios are described in Chapter 2 of the report. The report compares the five disposal options against six categories with several sub-criteria nested underneath each category.

The study is not a detailed, project level analysis of each disposal option nor is it intended to address State Environmental Policy Act (SEPA) requirements for any of the options. It does not focus on waste diversion, but on the disposal options for the non-diverted wastes. Projected actions from *Re+*, King County's zero waste of resources initiative, are considered

throughout the analysis. The study addresses capital and operating costs as well as various revenues, but it is not a long-term rate impact study.

In the process of conducting analysis for the report, the consultants determined that three of the disposal options considered are not feasible for King County's waste stream. Thus, the final report does not analyze combined disposal options (the exception being that all thermal conversion technologies require some level of Waste Export by Rail for byproducts). Also, the analysis does assume a need to ramp up Waste Export by Rail operations ahead of the closure of the Cedar Hills Regional Landfill (CHRL) as a means of transitioning between the landfill and the next method.

The study also does not include an in-depth analysis on energy sales from Mass Burn, siting for a Mass Burn Facility, or an Equity Impact Review for any of the options. This is information the King County will analyze after the next disposal option is decided. See below for more information.

Why is a site for a Mass Burn facility and in-depth consideration of siting impacts not included in the analysis?

Siting a Mass Burn facility is a large, time-consuming, and expensive effort. Since a decision between the two final options (Mass Burn and Waste Export by Rail) has not yet been made, it was premature to incur the significant cost of an in-depth site analysis report at this time. The study does note a few local impacts, such as traffic and noise, that could be determined without a specific site.

To update the Comprehensive Solid Waste Management Plan (Comp Plan), which will be submitted for adoption by early 2028, the County must complete an Environmental Impact Statement (EIS) of the entire Comp Plan update and that will include the long-term disposal option decision. The EIS will provide more detailed local environmental impacts of building a Mass Burn facility within the county but not at a specific location (and this study will happen before the long-term disposal option decision is made).

Why wasn't an in-depth Equity and Social Justice (ESJ) analysis conducted as part of the Long-Term Disposal Report?

The study includes analysis of certain ESJ factors that do not require a site determination. Most ESJ factors, however, are based on the demographic makeup of communities, and could not be assessed without a site. A full ESJ analysis will be part of any site-specific capital project. For example, if the County were to choose Mass Burn for long-term disposal in the Comp Plan update and ILA (interlocal agreement) partner cities were to approve that update, the County would conduct a full ESJ analysis during the siting process.

How is Re+, King County's program for zero waste of resources, incorporated into this work?

Re+, King County's program for zero waste of resources, was used to determine the three tonnage scenarios (high, low, medium) which were used in the analysis. County staff

modeled different projected performance levels of effectiveness for Re+ (see Section 1.1 of the Study for more details). These three scenarios estimated total tons by year from 2040 to 2060 and the composition of the different materials in that waste stream (e.g. glass, metal, paper, etc.). This is important as some disposal options are better suited for processing some materials versus others.

Disposal Options

Can we consider combining multiple options (e.g., waste export by rail and pyrolysis)? Would this reduce costs?

All thermal treatment options initially considered (Mass Burn, gasification, and pyrolysis) require the export of some of their byproducts in the form of ash and char, so in essence, all those options include some level of combination with Waste by Rail.

However, since Refuse Derived Fuel, gasification, and pyrolysis were deemed infeasible for King County's waste stream (across all three tonnage scenarios) even at smaller levels due to their inability to effectively process the heterogeneous nature of municipal solid waste, it does not benefit King County to combine them with other options for study.

The two final options considered in the study include Waste Export by Rail and Mass Burn with Waste Export by Rail (for ash, which accounts for a projected 25% by weight of total waste).

Can we consider early export of waste by rail to extend the life of the landfill and allow technology to evolve? Would this reduce costs?

Separate analysis of this question is underway and will be presented to the Metropolitan Solid Waste Advisory Committee (MSWAC) and Solid Waste Advisory Committee (SWAC) by Q2, 2025. It is already evident, because the closure of Cedar Hills Regional Landfill is so soon (estimated between 2038 and 2040) the County would need to export a substantial portion of its waste each year to buy more time at the landfill. Additionally, most of the costs of running the landfill at any level are largely fixed, allowing precious few opportunities for cost savings. This means that the costs of landfilling are minimal, but the County would need to pay an additional ~\$70-\$100/ton for each ton exported, leading to increased costs. So, it will likely be more cost-effective to make a decision on a disposal option and implement that option than try to extend the life of the existing landfill.

Can we consider partnering with another jurisdiction for disposal?

All of King County's closest neighbors already export their waste to external landfills, and none currently have plans to build and operate a Mass Burn facility. If waste export is chosen, there could be opportunities to partner with another county or the City of Seattle on their export contract. SWD staff met with a neighboring county to discuss long term disposal and

will continue these conversations, as appropriate. SWD would be pleased to evaluate any such partnership proposals.

What disposal methods do our neighboring jurisdictions use?

Kitsap, Snohomish, and Skagit counties, as well as the City of Seattle, all export their waste by rail to landfills external to their municipalities.

Pierce County sends their waste to a private landfill in the county. That landfill is estimated to reach capacity around 2034-2036 after which Pierce County plans to switch to Waste Export by Rail.

For the options not considered feasible in the study (pyrolysis, gasification, refuse derived fuel), is it likely the options could evolve over the next 10-15 years to meet disposal needs?

It is not clear if these technologies will have a viable future for handling municipal solid waste (MSW). Key concerns for the two thermal treatment technologies (pyrolysis and gasification) are that they need relatively clean and homogenous feedstocks, which is not the characteristic of MSW. There is also no existing thermal facility that the consultants could identify that can handle the amount of waste King County generates on an annual basis.

The concerns with the Refuse Derived Fuel option largely concern volume (King County generates several hundred thousand tons of MSW each year) and the composition of waste. Organic waste contains chlorides which makes them unsuitable for the types of applications that more homogenous Refuse Derived Fuel are typically used for (like boilers for cement kilns). Further, contracting for the sale of Refuse Derived Fuel is also a significant challenge.

However, SWD staff will keep an eye on these and other technologies in case they do some day develop into viable options for large scale waste disposal.

Why did the study not consider a new landfill as a potential option?

Building another landfill in King County was not included in this study because it was decided in the 2001 Comp Plan and reiterated in the 2019 Comp Plan (Chapter 6) that the County will “not consider the option of developing a replacement landfill either in King County or in another county,” because, “conditions...such as land availability, environmental considerations, public acceptance, cost, and other issues would impede any effort to site a replacement landfill.” (from the Report, Section 1.0)

Criteria

Why does the Water Consumption criterion not include energy offsets?

The Life Cycle Analysis (LCA) models used in the study include the impacts of offsetting energy sources. These models assumed that energy derived from landfills or Mass Burn facilities would offset hydroelectricity, the predominant energy source for King County, and

would eliminate the need for dams (to varying degrees depending on the disposal type analyzed). The State of Washington considers hydroelectric power to be a baseline power source, and therefore, these dams would not be deconstructed, eliminating the offsets calculated in the LCA models. The impacts from transportation and process have been kept in the tables.

Why was the Water Eutrophication criterion not included in the comparison tables?

In standard comparison models, leachate management is the contributor to Eutrophication potential for Waste Export by Rail. For Eutrophication potential, data are available for Mass Burn facilities and for landfills that manage leachate using wastewater treatment plants; however, LCA research on leachate evaporation systems is sparse, so available models did not include existing values for landfills using the evaporative leachate ponds used by the potential receiving landfills evaluated in this study. Therefore, results could not be considered comparable or reliable for this study's modeling (from the Study, section 2.4.1.1).

What do the numbers for Human Health Toxicity – Cancer Potential mean?

Mass Burn creates significantly more cancer potential than Waste Export by Rail primarily due to the combustion of plastics, which would be combusted inside King County. The Cancer toxicity measurement units used are a way to standardize the potential cancer-related impacts of many different toxic chemicals, based on their characteristics, into a single measure per mass of the chemical. The Cancer Potential parameter multiplies the unit impacts by the total mass of chemicals released into the environment to estimate the potential increase in cancer-related morbidity in the total human population. Mass Burn creates 1.5 million times more of these types of particulates than Waste Export by Rail. Thus, the Cancer Potential results are not about causation or actual cases of cancer but instead are about potential increase. The LCA model cannot assess human exposure to the chemicals released, only the amount of chemicals released and their toxicity (from the Study, section 8.5).

Rate Impacts

What is the rate impact of Waste Export By Rail (WEBR) and Mass Burn with WEBR?

The study does not include a study of long-term financial rate impacts as there are many factors that go into rate setting that are not directly related to the method of disposal. However, the study does examine capital and operational costs as well as revenue offsets and finds that Waste Export by Rail costs are significantly lower than Mass Burn for the study period (estimated \$108.19/ton vs. \$230.99/ton for the medium tonnage scenario in 2040 dollars) based on current contract pricing for rail transport and disposal. Waste Export by Rail is a variable cost based on tonnage and rate for contract term duration.

Next Steps

How can cities and the public be involved in the long-term disposal option selection process? What is the timeline for involvement?

The main mechanism for further involvement is the SEPA process. SWD will hold 1 virtual and 4 in-person opportunities during the Scoping Period to gather feedback from partner cities and communities. The Scoping Period is anticipated to occur mid-2025. In 2026, another set of opportunities (1 virtual and 4 in-person) will take place during the Draft EIS comment period. This FAQ will be updated once dates have been set for these events.

How will the Solid Waste Advisory Committees be using the report contents to move towards a final recommendation to the County Council? Will there be guidance for the advisory committees for weighing various impacts and criteria included in the study?

SWD recommends that committee members discuss the Study and how they would like to use the findings with their city representatives and other stakeholders. SWD staff are happy to provide briefings to city councils or city staff and others, including answering questions. SWD will not be providing guidance for weighing the criteria—the division recognizes that the priorities of the 37 cities in the King County solid waste system and other stakeholders may differ.