

# **Project Program Plan**

## **Cedar Hills Regional Landfill 2010 Site Development Plan**



**July 2010**



**King County**

**Department of Natural Resources and Parks  
Solid Waste Division**



## 1 Introduction

The King County Solid Waste Division (the division) of the Department of Natural Resources and Parks has prepared this Project Program Plan summarizing the preferred alternative for future development of the county's Cedar Hills Regional Landfill. The preferred alternative described in this plan was developed based on environmental review, operational feasibility, cost, stakeholder interest, and flexibility to further expand landfill capacity if future circumstances warrant.

Upon King County Council approval of a preferred alternative, the division will prepare a Site Development Plan that provides the detailed implementation plan and budget for the selected alternative.

## 2 Project Background

The Cedar Hills Regional Landfill was first approved for solid waste disposal under a Special Permit issued by the King County Board of County Commissioners in 1960. Located on a 920-acre site in the Maple Valley area, the landfill has provided for the safe and efficient disposal of the county's solid waste since 1965. Estimates in the *Final 2001 Comprehensive Solid Waste Management Plan* indicated that the Cedar Hills landfill would reach its permitted capacity and close in 2012. With the *Draft 2009 Comprehensive Solid Waste Management Plan*, this projected closure date was extended to 2018, due in large part to the implementation of best management practices in daily landfill operations, natural settling of the waste through decomposition, and ongoing waste prevention and recycling. The estimated 2018 closure date (based on 2009 solid waste tonnage forecasts) assumes that no further landfill development would occur beyond what is planned in the 1998 Site Development Plan.

Once the landfill reaches capacity and closes, the division will transition to an alternative method of disposal, such as transporting waste to an out-of-county landfill or to a waste-to-energy or other waste conversion facility. Based on early studies of options for future landfill development and the associated cost savings, the division presented the following recommendation in the *Solid Waste Transfer and Waste Management Plan*, which was approved by the King County Council in 2007:

*Explore opportunities for taking advantage of available landfill capacity to extend the life of this cost-effective disposal option; revise the Cedar Hills Site Development Plan and seek to maximize the capacity (lifespan) of the landfill, subject to environmental constraints, relative costs to operate, and stakeholder interests.*

A subsequent comparative evaluation of alternatives for disposal (R.W. Beck 2007) confirmed that in-county landfill disposal is significantly less expensive than the projected cost of other disposal options. Thus by extending the life of the landfill and delaying the transition to a new disposal method, the county can delay the expenses and subsequent rate increases that will be needed to accommodate this transition.

### 3 Environmental Review Process

Based on the preliminary analyses and recommendation, the division initiated preparation of an Environmental Impact Statement (EIS) to identify and evaluate development alternatives for the Cedar Hills landfill (KCSWD 2010). The environmental review is part of a process designed to:

- Identify landfill development alternatives that would increase the capacity of the Cedar Hills landfill;
- Evaluate potential environmental impacts associated with the landfill development alternatives;
- Extend the useful life of the Cedar Hills landfill and, by doing so, defer the higher cost to King County ratepayers of other disposal options; and
- Increase the capacity of the landfill without causing significant adverse impacts on the surrounding community and environment.

Five action alternatives for future development of the Cedar Hills landfill and a No Action Alternative were evaluated under the requirements of the State Environmental Protection Act (SEPA) to determine the potential environmental impacts of each alternative and mitigation measures that would be needed to address those impacts. Under the No Action Alternative, the Cedar Hills landfill is expected to reach its permitted capacity in 2018. Action Alternatives 1 through 5 provide a range of development scenarios to extend the capacity of the landfill. With each progressive alternative, the expected life of the landfill increases from about three to thirteen years beyond 2018.

The environmental review examined the potential for impacts to earth; air and odor; surface water; groundwater; upland vegetation, wetlands and wildlife; noise and vibration; human health; land use; scenic resources (aesthetics, light, and glare); cultural resources; transportation; public services and utilities; and greenhouse gases. The evaluation determined that none of the alternatives posed any significant adverse environmental impacts compared with the No Action Alternative. No additional mitigation measures were proposed, except to provide supplementary landscaping to further obscure views of the landfill.

The environmental review included an extensive public process. In April 2009, a scoping meeting was held to gather public comment on the range of issues to be evaluated during the environmental review of the five alternatives. Comments were received from more than 45 individuals or agencies during the scoping period. The Solid Waste Division briefed both the King County Solid Waste Advisory Committee and the Metropolitan Solid Waste Management Advisory Committee. Based on the comments received, additional studies related to air quality, noise, and vibration were included as part of the SEPA review process.

The Draft EIS was issued on September 30, 2009, and a public comment period was provided from September 30 to November 6, 2009 to allow review and comment. The Draft EIS was published on the division's web site, distributed at several county libraries, and mailed to regulators, state agencies, cities, Unincorporated Area Councils, tribes, and school districts. On October 22, 2009, a public hearing was held, which included a presentation about the Draft EIS and an opportunity to ask questions and provide comment. About 22 citizens attended the public hearing. Throughout the public comment period, 27 written comments were received on the

Draft EIS. The division considered all of the comments received and determined that no additional environmental studies were needed to proceed with preparation of the Final EIS.

As part of the SEPA requirements, the Final EIS (KCSWD 2010) was prepared, including a Responsiveness Summary, which provides the division's responses to all the questions and comments received during the public comment period for the Draft EIS. The text of the Final EIS was revised as needed to clarify or correct information. These changes were not substantive. The division did, however, withdraw Alternative 4 from further consideration for reasons described in Section 4.1 of this plan.

Based on the environmental review and other considerations (discussed in the following section), the division recommended a preferred alternative (Alternative 2) in the Final EIS. Upon council approval of the Project Program Plan and final selection of an alternative, the Site Development Plan for the selected alternative will be prepared and submitted to the Council for approval.

## **4 Selection of a Preferred Alternative**

Figure 1 shows the existing features of the landfill site, including the refuse areas, facilities, ponds, and buffer zone. All five action alternatives originally considered (shown in Figure 2) propose development in the southern portion of the Cedar Hills landfill, located within areas permitted for landfilling activities under the Special Permit issued in 1960. None of the alternatives propose solid waste disposal within the protective 1,000-foot buffer around the site.

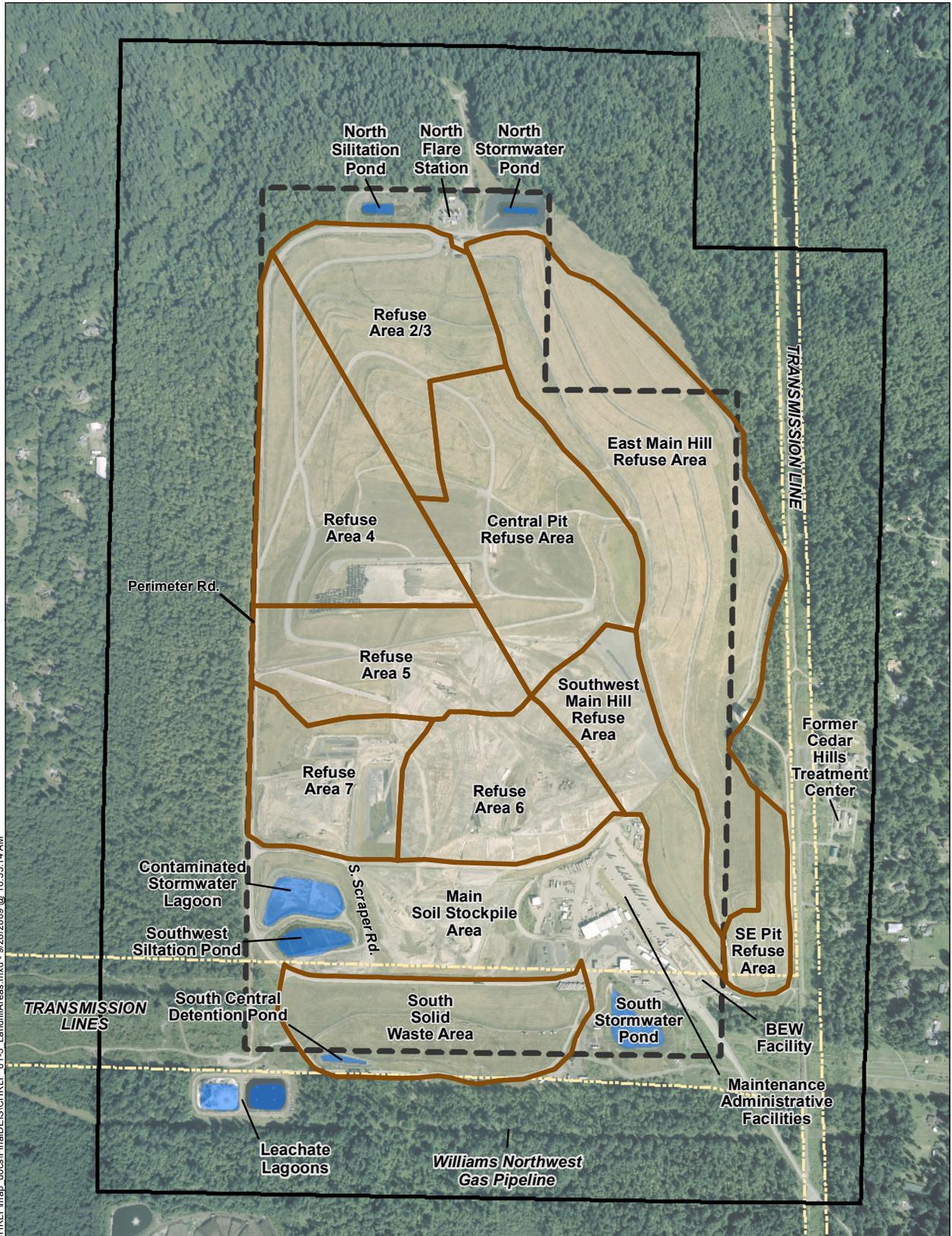
Alternative 2 is the preferred alternative; the basis for this selection is described in greater detail later in this section. First, a brief description of alternatives is provided.

### **4.1 Brief Description of the Alternatives**

In addition to the action alternatives, a No Action Alternative was evaluated during the environmental review. The No Action Alternative assumes that no further development of the landfill will occur beyond what is approved in the most recent (1998) Site Development Plan. In addition to providing a potential option for the landfill, it provides a baseline against which the action alternatives can be compared.

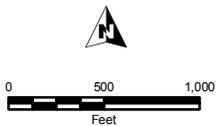
Under the No Action Alternative, the landfill is expected to reach capacity and close in 2018. Refuse Areas 6 and 7 would continue to be filled. As Areas 5, 6, and 7 approach capacity, they have received or will receive interim cover and will be used for stockpiling of some soil, allowing time for the waste to settle. Once Area 7 has received interim cover, Areas 5, 6, and 7 will sequentially resume receiving additional solid waste and then the placement of final cover. The final elevation would not exceed 780 to 800 feet above mean sea level. The additional landfill capacity gained through this process is about 1 to 1.5 million cubic yards.

Under the No Action Alternative, the main soil stockpile and stormwater ponds would remain in their current locations, and no additional activity would occur in the 1,000-foot buffer zone. Some maintenance and administrative facilities would be upgraded or built, including an equipment wash facility, additional parking, and a facilities maintenance building. All development under this alternative is allowed under the existing Special Permit.



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- Disposal Area Boundary
- Cedar Hills Regional Landfill Boundary
- 1000-Foot Buffer Boundary
- BPA Easement Boundary



**FIGURE 1**  
**Existing Landfill Areas**



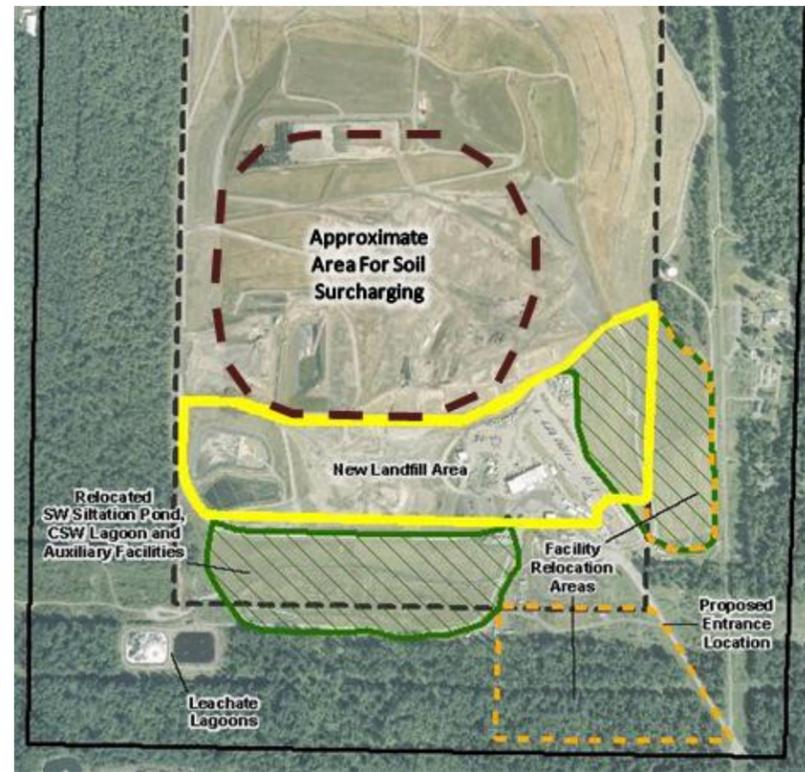
Alternative 1



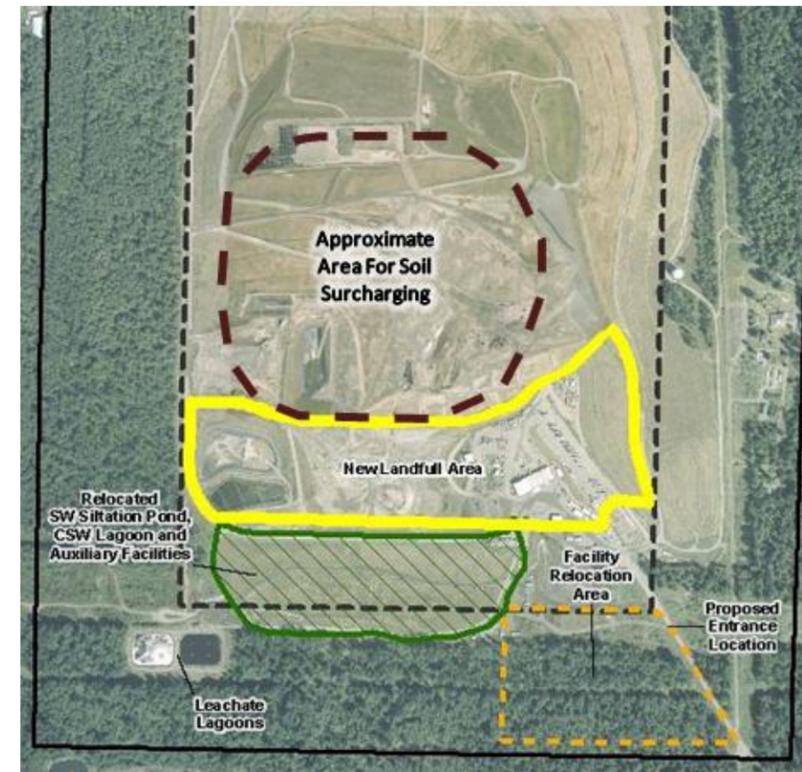
Alternative 2 (preferred alternative)



Alternative 3



Alternative 4 (withdrawn as discussed in Section 4.1)



Alternative 5

- New Landfill Area
- Soil Surcharge Area
- Remove Solid Waste and Restore Buffer Area
- Cedar Hills Regional Landfill Boundary
- 1000-Foot Buffer Boundary
- Facility Relocation Area
- Mechanically Stabilized Earthen (MSE) Wall
- Optional Excavation Area for Restoration or Facility Relocation



NOTE: Only areas of proposed landfill development shown. Maps do not show the northern portion of the landfill.

**FIGURE 2**  
**Cedar Hills Regional Landfill**  
**Development Area for the Five Action Alternatives**



The action alternatives are, for the most part, incremental in nature, with added areas of development leading to increased years of life. Estimates of added capacity are based on the January 2009 tonnage forecast.

All proposed action alternatives expand upon the No Action Alternative and involve the following activities (refer to Figure 2):

- Development of a new refuse area in the southwest corner of the landfill, which would include the area containing the contaminated stormwater (CSW) lagoon, southwest siltation pond, and all or part of the main soil stockpile.
- Removal of solid waste and soil from the South Solid Waste Area (SSWA), which would be used for relocation of the lagoon, siltation pond, and other auxiliary uses. The recovered soil would be used for daily landfill cover, and the portion of the SSWA within the buffer would be restored.
- The option to excavate solid waste and soil from the SE Pit Refuse Area within the buffer to obtain soil for use as daily landfill cover. Under Alternatives 1 and 2 the SE Pit Refuse Area would be restored with clean soil and native vegetation. Under Alternative 3, the area would either be restored or could be considered for relocation of some maintenance and administration facilities. The SE Pit Refuse Area would not be excavated under Alternative 5.

Development activities unique to each of the action alternatives are as follows:

**Alternative 1** would develop 31.2 acres for construction of a new refuse area in the southwest portion of the landfill. The developed portion would include the area containing the CSW lagoon, siltation pond, and about one-half of the main soil stockpile area. This alternative would extend the useful life of the landfill by three to four years.

**Alternative 2 (the preferred alternative)** would develop 56.5 acres for construction of one to two new refuse areas. It would develop the entire main soil stockpile area along with the CSW lagoon and siltation pond. This alternative would extend landfill life for five to six years.

**Alternative 3** would develop 78.4 acres for construction of up to three new refuse areas. It would include the area developed under Alternative 2, extending to the northeast across the upper portion of the maintenance administrative facility area and into the southern portion of the Southwest Main Hill Refuse Area. This alternative would include the construction of a mechanically stabilized earthen wall along the southeast portion to support solid waste placed behind it. The wall would provide a protective barrier that would allow continued use of most maintenance and administrative facilities and landfill development to the north of that area. The SE Pit Refuse Area and southeast portion of the buffer zone could be considered for relocation of some maintenance and administrative facilities. This alternative would extend landfill life for eight to nine years.

**Alternative 4 (withdrawn from further consideration)** proposed the development of 96.5 acres for construction of up to three new refuse areas, which would include the area developed under Alternative 2, extending across the maintenance administrative facility area and the southern portion of the Southwest and East Main Hill refuse areas up to the eastern boundary of the buffer zone. The division withdrew Alternative 4 from further consideration in the Final EIS based on comments received on the Draft EIS on potential noise associated with the removal of the Southwest and East Main Hill refuse areas. These two refuse areas, which form the south

main hill, provide an additional noise buffer for the Bio Energy (Washington), LLC (BEW) landfill gas-to-energy facility, which began operations in May 2009. Because BEW is still in the process of refining its operations at this time, it is uncertain how the absence of the south main hill could affect noise levels at the property line in the future.

**Alternative 5** would develop 95.1 acres with construction of up to three new refuse areas. It would include the area developed under Alternative 2, extending across the maintenance and administrative facility area and the southern portion of the Southwest Main Hill Refuse Area, where it would overlay the west side of the hill. Under this alternative, no soil or refuse would be excavated from the portion of the landfill near the eastern boundary of the buffer or the SE Pit Refuse Area. This alternative would extend landfill life for 12 to 13 years.

## **4.2 Basis of Selection of the Preferred Alternative**

Alternative 2 (Figure 2) was selected as the preferred alternative based on an analysis of five factors. A discussion of these determining factors and their role in the selection of Alternative 2 are discussed in the following sections.

### **4.2.1 Environmental Impacts**

The Final EIS determined that none of the alternatives pose any significant adverse environmental impacts compared with the No Action Alternative. Alternative 2 maximizes the use of readily available space at the landfill with no significant potential adverse impact on the environment.

Under Alternative 2, no solid waste disposal or relocation of infrastructure is planned within the buffer, whereas Alternatives 3 and 5 consider use of the buffer for maintenance and administrative facilities. Under the preferred alternative, the facilities currently located in the southeast portion of the landfill site would remain in place.

### **4.2.2 Future Flexibility**

Alternative 2 offers landfill capacity to 2024 with the least amount of disruption to existing landfill structures and the buffer. At the same time, this alternative preserves the flexibility to implement further development as proposed in Alternatives 3 and 5, if warranted in the future.

As new transfer facilities, such as the currently under construction Bow Lake Recycling and Transfer station, are built with the space and capacity to handle more operations, some maintenance and other support activities may be relocated to the new stations, rather than being located at Cedar Hills. Changes such as these, which would not be fully realized until the planned new transfer facilities have been constructed, would modify assumptions made in Alternatives 3 and 5. Additionally, changes in available disposal technologies and regulations concerning landfill development and operation may alter the economic rationale for further landfill expansion over time.

The selection of Alternative 2 provides for a significant extension of landfill capacity, with the flexibility to pursue further development in the future should it become prudent or necessary to do so. If extension of landfill life is desired beyond 2024, Alternatives 3 and 5 could be considered. Further review may be required prior to implementation of one of these alternatives.

### **4.2.3 Special Permit**

The landfill is still operating under the Special Permit issued in 1960. All landfill development proposed under Alternative 2 is allowed under this existing permit. Alternatives 3 and 5, however, which propose activity in the buffer, would likely require additional permitting through the appropriate regulatory agencies.

### **4.2.4 Public Review of the Draft EIS**

Many of the comments received during the public comment period for the Draft EIS concerned development activities that could result in noise, odors, fugitive dust emissions, effects on surface and groundwater, and the maintenance of a sufficient buffer zone around the landfill operations.

As discussed earlier in this plan, Alternative 2 is one of the least disruptive alternatives in terms of existing landfill features and development in the buffer zone.

### **4.2.5 Cost**

Alternative 2 would extend the life of the landfill by five to six years. The cost to develop, operate, and close the new area is significantly less than the cost of the No Action Alternative, which would require transitioning to a new method of disposal in 2019.

Implementation of Alternative 2 would be financed through the landfill reserve fund. The cost for new area development, associated facility improvements, and area closure would total approximately \$70 million (in current dollars). The cost to operate Cedar Hills would remain consistent with current costs.

Assuming costs similar to those paid by other regional governments for waste export, which vary greatly, the savings from implementing Alternative 2 would range from approximately \$12 million to \$50 million (in 2009 dollars) over the six-year period 2019 to 2024. At this time, savings compared with waste conversion technologies, which have per ton costs ranging from \$42 to \$74/ton, would be greater (R.W. Beck 2007).

## **5 Schedule**

Preliminary engineering design, planning, and permitting for the implementation of Alternative 2 would begin in 2012 after completion of the detailed Site Development Plan. The design would be completed and construction would begin in 2014. Construction would continue from 2014 through 2017, and a new plan of operations would be developed. The new landfill area would open in 2018. The schedule would be reviewed annually, comparing projected tonnage forecasts and landfill life, and modified as appropriate (i.e., activities could be accelerated if the forecast of near-term tonnage increases).

## **6 References**

KCSWD. 2010. Final Environment Impact Statement: Cedar Hills Regional Landfill 2010 Site Development Plan. King County Solid Waste Division, Seattle, WA.

R.W. Beck. 2007. Comparative Evaluation of Waste Export and Conversion Technologies Disposal Options. Prepared for the King County Department of Natural Resources and Parks, Solid Waste Division by R.W. Beck, Inc., Seattle, WA.