

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

### ***Objective of the Proposal***

The *1998 Cedar Hills Regional Landfill Site Development Plan* (Site Development Plan) guides the current development of the Cedar Hills Regional Landfill (Cedar Hills or the landfill). The objective of the proposal is to revise the Site Development Plan to:

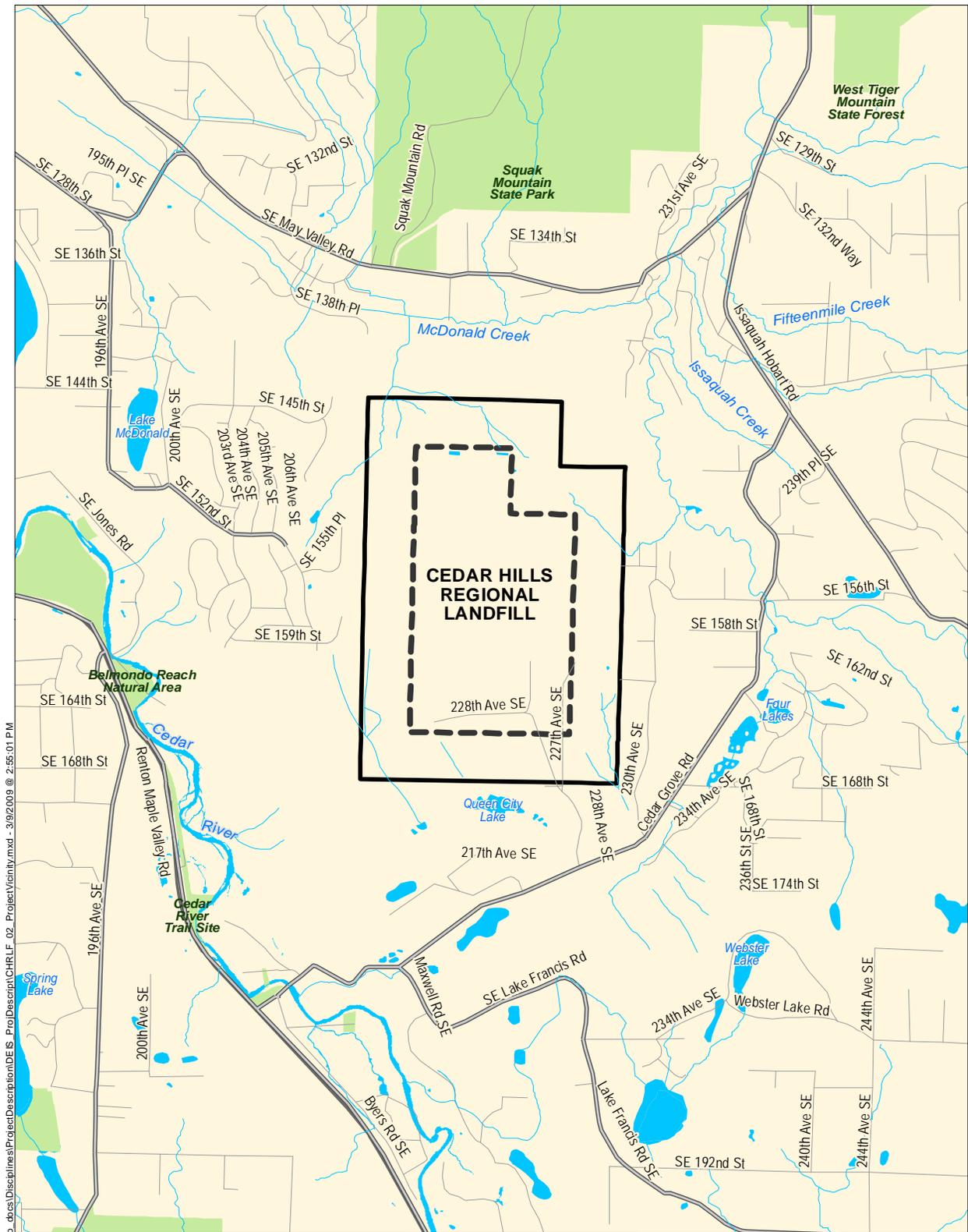
- Guide sequential development of additional landfill capacity and associated environmental control systems
- Extend the useful life of the landfill, and by doing so defer the additional cost to county ratepayers of other disposal options
- Increase the capacity of the landfill area without causing significant adverse impacts on the surrounding community

### ***Project Location***

Cedar Hills landfill is located on a 920-acre site in unincorporated King County at 16645 228th Avenue SE, Maple Valley, approximately four miles south of Issaquah and six miles east of Renton (see Figures 1 and 2). The site is accessed from Cedar Grove Road, and consists of the north one-half of section 28 and section 21 (except the northeast quarter of the northeast quarter), township 23 north, range 6 east, Willamette meridian.



**FIGURE 1**  
**Location of King County**  
**Cedar Hills Regional Landfill**



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Cedar Hills Landfill Boundary	Park
1000-foot Buffer Boundary	Arterial Road
Water Body	Local Road
Stream	

0 1,000 2,000  
Feet

**FIGURE 2**  
**Vicinity Map**

## **Background**

Use of the Cedar Hills site for solid waste disposal is allowed under a special use permit approved by the King County Board of County Commissioners in 1960. The permit requires a 1,000-foot buffer zone around the perimeter of the site be maintained in its natural state for the protection of the surrounding properties. Use of this buffer zone is currently limited to site access and approved uses not directly related to landfilling operations, such as environmental monitoring. This condition limits the currently permitted landfilling area to approximately 400 acres.

In December 2007, the King County Council approved the *Solid Waste Transfer and Waste Management Plan* (Transfer Plan). The Transfer Plan contains the following recommendation for the future of the landfill:

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

Maintaining the landfill benefits King County ratepayers by delaying increases in the solid waste disposal fee, which will occur when Cedar Hills reaches capacity and closes. When Cedar Hills closes, an alternate disposal option(s) will be selected. A study by R.W. Beck – the *Comparative Evaluation of Waste Export and Conversion Technology Disposal Options* – indicates that the cost for disposal after Cedar Hills closes will be higher than disposal at Cedar Hills. The estimated cost of disposal at Cedar Hills in 2009 is about \$36 per ton. According to another recent rate study by R.W. Beck, in 2009 Snohomish County expects to spend about \$53.75 per ton to export its waste to a landfill in eastern Washington. Using these costs for comparison, the savings to ratepayers of maintaining the landfill is about \$17 million dollars per year.

## ***Future Solid Waste Disposal Volumes***

In January 2009, the King County Solid Waste Division (KCSWD) prepared the tonnage forecast shown in Table 1. The KCSWD uses the tonnage forecast to calculate when capacity at Cedar Hills will be exhausted. The tonnage forecast is modified as needed to reflect changing waste generation due to economic conditions, regional growth, and other factors.

The January 2009 forecast is used to estimate the capacity that would be gained for each of the five Action Alternatives and the No Action Alternative. Due to changing economic conditions, this latest forecast reflects lower rates of solid waste generation than earlier forecasts.

In 2008, Cedar Hills received approximately 930,200 tons of solid waste, which resulted in the consumption of about 1,330,000 cubic yards of landfill capacity using a conversion rate of 1,400 lb/cubic yards (0.7 tons per cubic yard).

**Table 1. Solid Waste Forecast for King County<sup>1</sup> to 2030**

<b>Year</b>	<b>Forecast Tonnage</b>	<b>Forecast Volume Landfilled (cubic yards)</b>	<b>Year</b>	<b>Forecast Tonnage</b>	<b>Forecast Volume Landfilled (cubic yards)</b>
2008 <sup>2</sup>	930,200	1,328,857	2020	1,068,941	1,527,059
2009	895,000	1,278,571	2021	1,073,949	1,534,213
2010	905,000	1,292,857	2022	1,093,972	1,562,817
2011	910,000	1,300,000	2023	1,092,424	1,560,606
2012	910,000	1,300,000	2024	1,113,660	1,590,943
2013	930,000	1,328,571	2025	1,135,415	1,622,021
2014	965,000	1,378,571	2026	1,135,402	1,622,003
2015	990,391	1,414,844	2027	1,157,693	1,653,847
2016	994,497	1,420,710	2028	1,169,382	1,670,546
2017	1,013,460	1,447,800	2029	1,192,627	1,703,753
2018	1,033,022	1,475,746	2030	1,216,257	1,737,510
2019	1,047,805	1,496,864			

<sup>1</sup> Excludes the City of Seattle and Milton

<sup>2</sup> Actual data

## ***Development of Alternatives***

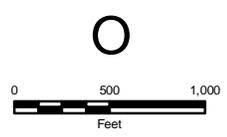
Initially, a wide range of alternatives was identified. From those, five Action Alternatives, alternatives that extend the useful life of the landfill, were selected for assessment through the Environmental Impact Statement (EIS) process. The Draft EIS will also analyze a No Action Alternative.

Figure 3 shows the existing landfill areas referenced in the descriptions of the alternatives.

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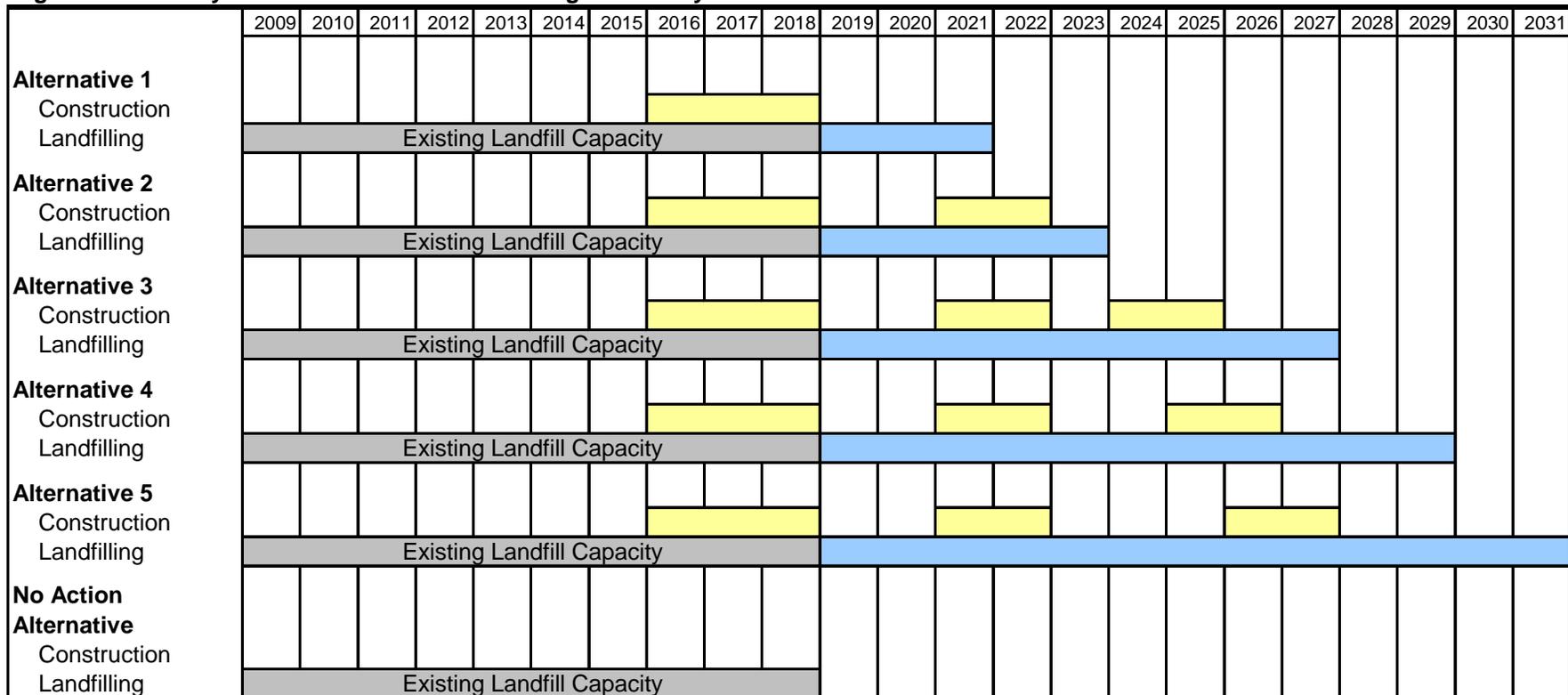


- Cedar Hills Landfill Boundary
- - - 1000-Foot Buffer Boundary



**FIGURE 3**  
**Existing Landfill Areas**

**Figure 4 Summary of Construction and Landfilling Periods by Alternative**



Yellow = estimated construction period

Blue = estimated extended landfill life

## Alternative 1 – Southwest Corner Development

### Overview

Alternative 1 would consist of one additional landfill area, or cell, which would be constructed in one two to three-year project (see Figure 4).

Overall, waste filling under Alternative 1 would cover approximately 114.2 acres:

- New bottom liner and leachate collection system 21.7 acres
- Filling over side slopes of previously lined areas 9.5 acres
- Additional filling over Areas 5, 6, and 7 after soil surcharging 83.0 acres

### Development Area

Alternative 1 would be located in the southwest portion of the landfill and would include development of the area currently containing the contaminated stormwater (CSW) lagoon, southwest (SW) siltation pond, and approximately one-half of the main stockpile area (see Figure 5).

Alternative 1 would also include removal of solid waste from the South Solid Waste Area (see Figure 3), and may include removal of solid waste from the Southeast Pit Refuse Area. The South Solid Waste Disposal Area may be used for contaminated stormwater lagoons, siltation ponds, or other auxiliary uses.

Alternative 1 would include enhanced development of Areas 5, 6, and 7 (stockpiling, surcharging, and landfilling).

### Buffer Zone

For Alternative 1, no landfilling or new or relocated infrastructure is planned within the 1,000-foot buffer zone. Modification of the Special Use Permit would not be required.

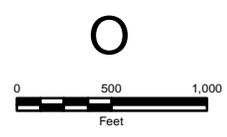
### Added Capacity

In total, Alternative 1 would add approximately 5 million cubic yards of capacity and extend the landfill's useful life by approximately three to four years.

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-  New Landfill Area
-  Remove Solid Waste and Restore
-  Cedar Hills Landfill Boundary
-  1000-Foot Buffer Boundary



**FIGURE 5**  
**Alternative 1**  
**Southwest Corner**  
**Development**

## Alternative 2 – Southwest Corner and Main Stockpile Development

### Overview

Alternative 2 would consist of two additional landfill areas, or cells. Each new landfill cell would be constructed over the two to three year period prior to completion of filling of the active cell (see Figure 4).

Overall, waste filling under Alternative 2 would cover approximately 139.5 acres:

- New bottom liner and leachate collection system 30.5 acres
- Filling over side slopes of previously lined areas 26.0 acres
- Additional filling over Areas 5, 6, and 7 after soil surcharging 83.0 acres

### Development Area

Alternative 2 would be located in the southwest portion of the landfill and would include development of the area currently containing the CSW lagoon, SW siltation pond, and the entire main stockpile area (see Figure 6).

Alternative 2 would include removal of solid waste from the South Solid Waste Area (see Figure 3), and may include removal of solid waste from the Southeast Pit Refuse Area. The South Solid Waste Disposal Area may be used for contaminated stormwater lagoons, siltation ponds, or other auxiliary uses.

Alternative 2 would include enhanced development of Areas 5, 6, and 7 (stockpiling, surcharging, and landfilling).

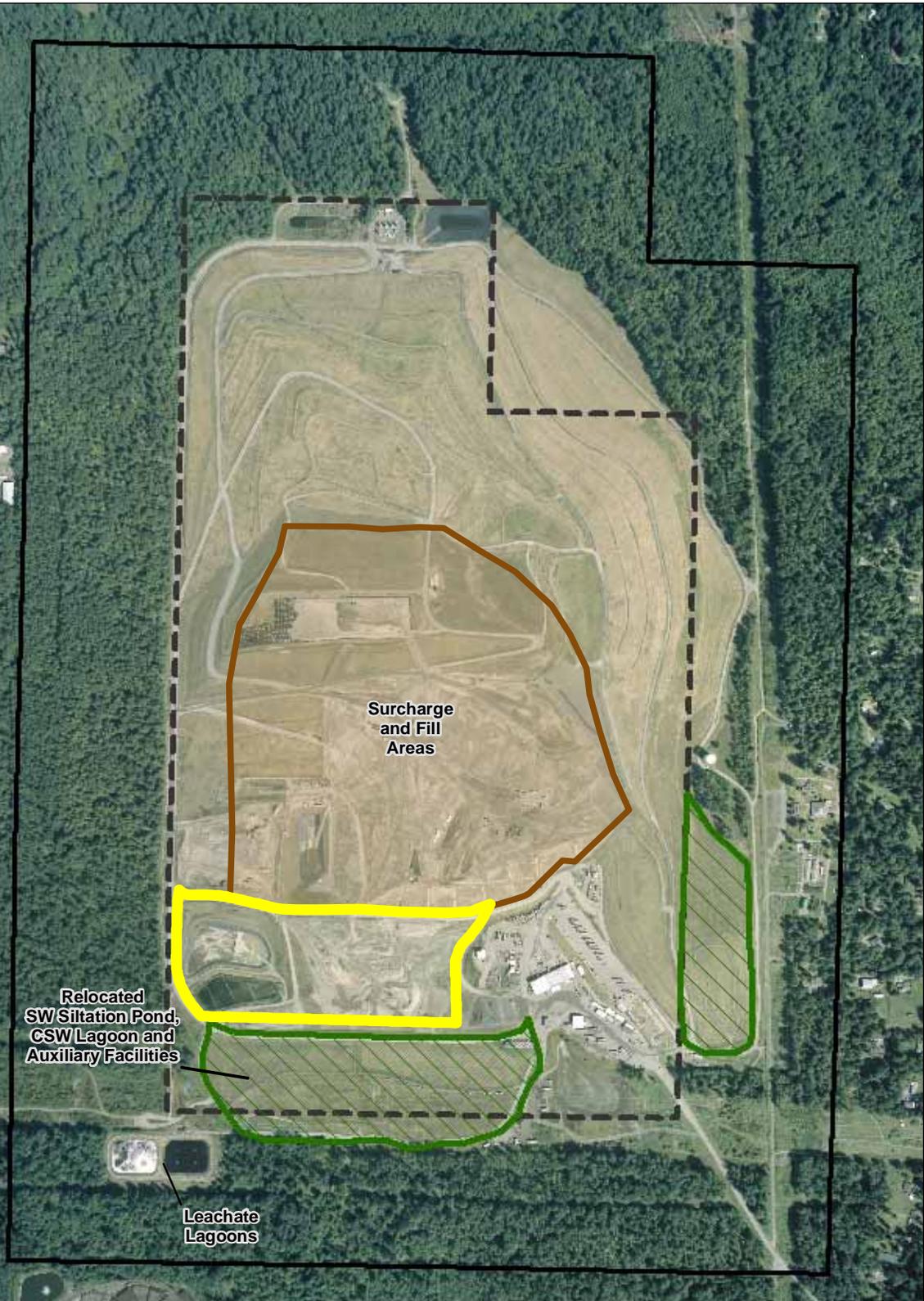
### Buffer Zone

For Alternative 2, no landfilling or new or relocated infrastructure is planned within the 1,000-foot buffer zone. Modification of the Special Use Permit would not be required.

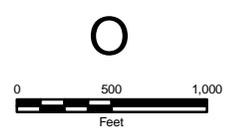
### Added Capacity

In total, Alternative 2 would add approximately 8.8 million cubic yards of capacity and extend the landfill's useful life by about five to six years.

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-  New Landfill Area
-  Remove Solid Waste and Restore
-  Cedar Hills Landfill Boundary
-  1000-Foot Buffer Boundary



**FIGURE 6**  
**Alternative 2**  
**Southwest Corner and**  
**Main Stockpile Development**

## Alternative 3 – South Side Development with Partial Wall

### Overview

Alternative 3 would consist of three additional landfill areas. Each new landfill cell would be constructed over the two to three year period prior to completion of filling of the active cell (see Figure 4).

Overall, waste filling under Alternative 3 would cover approximately 161.4 acres:

- New bottom liner and leachate collection system 43.4 acres
- Filling over side slopes of previously lined areas 35.0 acres
- Additional filling over Areas 5, 6, and 7 after soil surcharging 83.0 acres

### Development Area

Alternative 3 would be located on the southern side of the landfill and would include development of the area currently containing the CSW lagoon, SW siltation pond, main stockpile area, heavy equipment maintenance shop, and the area containing the compressor building adjacent to the Southwest Main Hill Refuse Area (see Figure 7). The facilities currently located within the proposed area covered by the alternative would require relocation to other areas of the site; some facilities may be relocated off-site.

This alternative includes the same land area as Alternative 2 and extends further to the northeast, to within approximately 50 feet of the eastern, 1,000-foot buffer zone. A mechanically stabilized earthen (MSE) wall would be constructed along the eastern end of the landfill cell footprint. The MSE wall would be used as an aboveground berm to support solid waste placed behind it. The wall would be approximately 1,200 feet long with an average height of 30 feet. Use of the MSE wall would allow continued use of the maintenance shop and administrative facilities, and would allow development of the area north of the shop for waste disposal.

Alternative 3 would include removal of solid waste from the South Solid Waste Area (see Figure 3). The South Solid Waste Disposal Area may be used for contaminated stormwater lagoons, siltation ponds, or other auxiliary uses.

Alternative 3 may include the removal of solid waste and soil from the southern portions of the Southwest Main Hill and East Main Hill Refuse Areas as well as all of the Southeast Pit Refuse Area where waste was disposed of many years ago. The removed solid waste materials would be placed in the active landfill area and any soil recovered would be recycled for cover material or for other uses. If waste and soil are removed from the Southeast Pit Refuse Area, a portion of the area could potentially be used for the relocation of infrastructure from the southeast administration/facilities area.

Alternative 3 would also include enhanced development of Areas 5, 6, and 7 (stockpiling, surcharging, and landfilling).

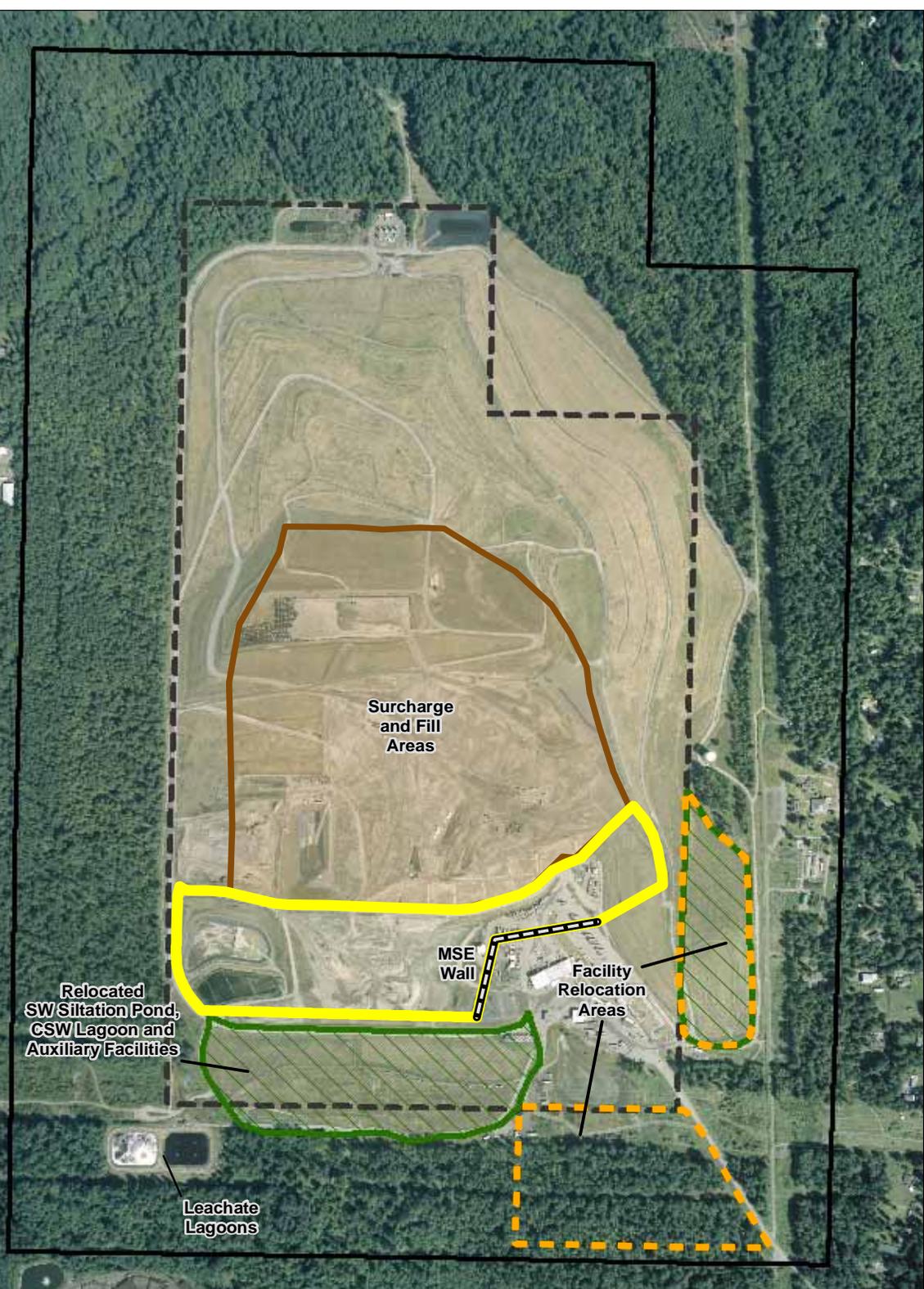
### Buffer Zone

For Alternative 3, no landfilling is planned within the 1,000-foot buffer zone. Relocated facilities may be placed within the 1,000-foot buffer near the southeast corner of the landfill, but not within the 1,000-foot buffer adjacent to residential areas. Modification of the Special Use Permit would be required to allow these activities.

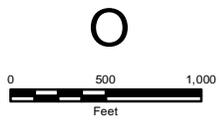
### Added Capacity

In total, Alternative 3 would add approximately 12.5 million cubic yards of capacity and extend the landfill's useful life by approximately eight to nine years.

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-  New Landfill Area
-  Remove Solid Waste and Restore
-  Facility Relocation Area
-  Cedar Hills Landfill Boundary
-  1000-Foot Buffer Boundary



**FIGURE 7**  
**Alternative 3**  
**South Side Development**  
**with Partial Wall**

## **Alternative 4 – South Side Development Including Support Area and Partial Main Hill**

### **Overview**

Alternative 4 would consist of three additional landfill areas, or cells. Each new landfill cell would be constructed over the two to three year period prior to completion of filling of the active cell (see Figure 4).

Overall, waste filling under Alternative 4 would cover approximately 179.5 acres:

- New bottom liner and leachate collection system 62.3 acres
- Filling over side slopes of previously lined areas 34.2 acres
- Additional filling over Areas 5, 6, and 7 after soil surcharging 83.0 acres

### **Development Area**

Alternative 4 would be located on the southern side of the landfill and would extend from approximately the west 1,000-foot buffer area to the east 1,000-foot buffer area (see Figure 8). It would include development of the area currently containing the CSW lagoon, SW siltation pond, main stockpile area, and the southeast area currently containing the administrative and maintenance facilities. The facilities currently within the proposed area covered by the alternative would require relocation to other areas of the site; some facilities may be relocated off-site.

Alternative 4 would include removal of solid waste from the South Solid Waste Area (see Figure 3) and would include removal of solid waste from the Southeast Pit Refuse Area. The removed solid waste materials would be placed in the active landfill area and any soil would be recycled for cover material or for other uses. Following waste and soil removal from the Southeast Pit Refuse Area, a portion of the area could potentially be used for the relocation of infrastructure removed from the southeast administration/facilities area. The South Solid Waste Disposal Area may be used for contaminated stormwater lagoons, siltation ponds, or other auxiliary uses.

Alternative 4 would also include enhanced development of Areas 5, 6, and 7 (stockpiling, surcharging, and landfilling).

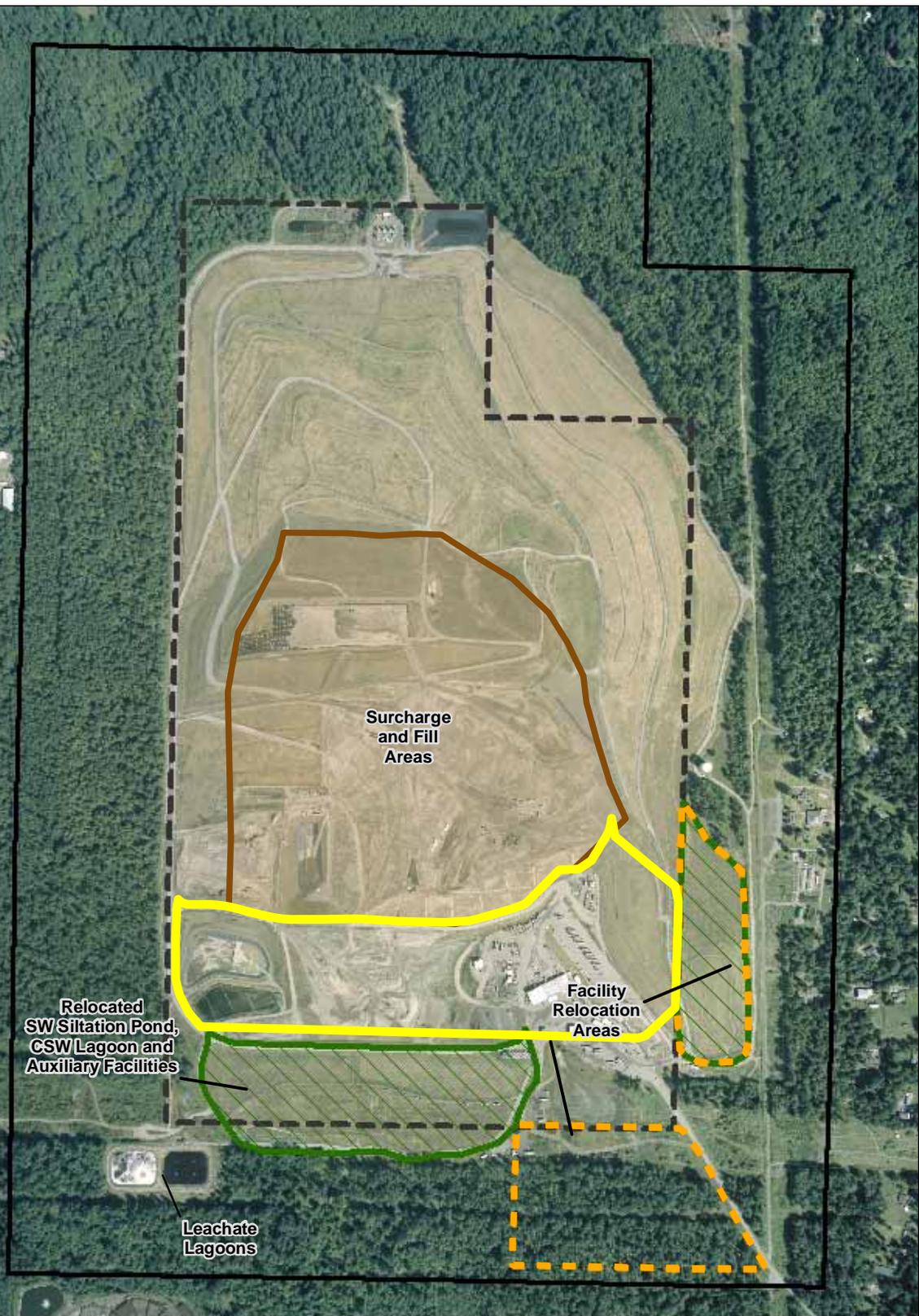
### **Buffer Zone**

With Alternative 4, there will be no new waste disposal operations in the 1,000-foot buffer zone other than access. Facilities requiring on-site relocation could be placed in the southeast corner of the property (see Figure 8) or in the Southeast Pit Refuse Area if refuse is removed from that area. Modification of the Special Use Permit would be required to allow these activities.

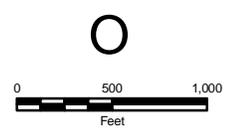
### **Added Capacity**

In total, Alternative 4 would add approximately 13.6 million cubic yards of capacity and extend the landfill's useful life by about 11 to 12 years.

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-  New Landfill Area
-  Remove Solid Waste and Restore
-  Facility Relocation Area
-  Cedar Hills Landfill Boundary
-  1000-Foot Buffer Boundary



**FIGURE 8**  
**Alternative 4**  
**South Side Development**  
**Including Support Area**  
**and Partial Main Hill**

## Alternative 5 – South Side Development Including Support Facility Area

### Overview

Alternative 5 would consist of three additional landfill areas, or cells. Each new landfill cell would be constructed over the two to three year period prior to completion of filling of the active cell (see Figure 4).

Overall, waste filling under Alternative 5 would cover approximately 178 acres:

- New bottom liner and leachate collection system 60.0 acres
- Filling over side slopes of previously lined areas 35.1 acres
- Additional filling over Areas 5, 6, and 7 after soil surcharging 83.0 acres

### Development Area

Alternative 5 would be located on the southern side of the landfill and would extend from approximately the west 1,000-foot buffer area to the top of the Southwest Main Hill Refuse Area and would overlay the west side of the hill (see Figure 9). This alternative would include development of the area currently containing the CSW lagoon, SW siltation pond, main stockpile area, and the southeast area that currently contains the administrative and maintenance facilities. The facilities currently within the proposed area covered by the alternative would require relocation; some facilities may be relocated off-site. The west side slope of the Southwest Main Hill Refuse Area would receive new liner and a leachate collection system.

Alternative 5 would also include removal of solid waste from the South Solid Waste Area (see Figure 3). The South Solid Waste Disposal Area may be used for contaminated stormwater lagoons, siltation ponds, or other auxiliary uses.

Alternative 5 would also include enhanced development of Areas 5, 6, and 7 (stockpiling, surcharging, and landfilling).

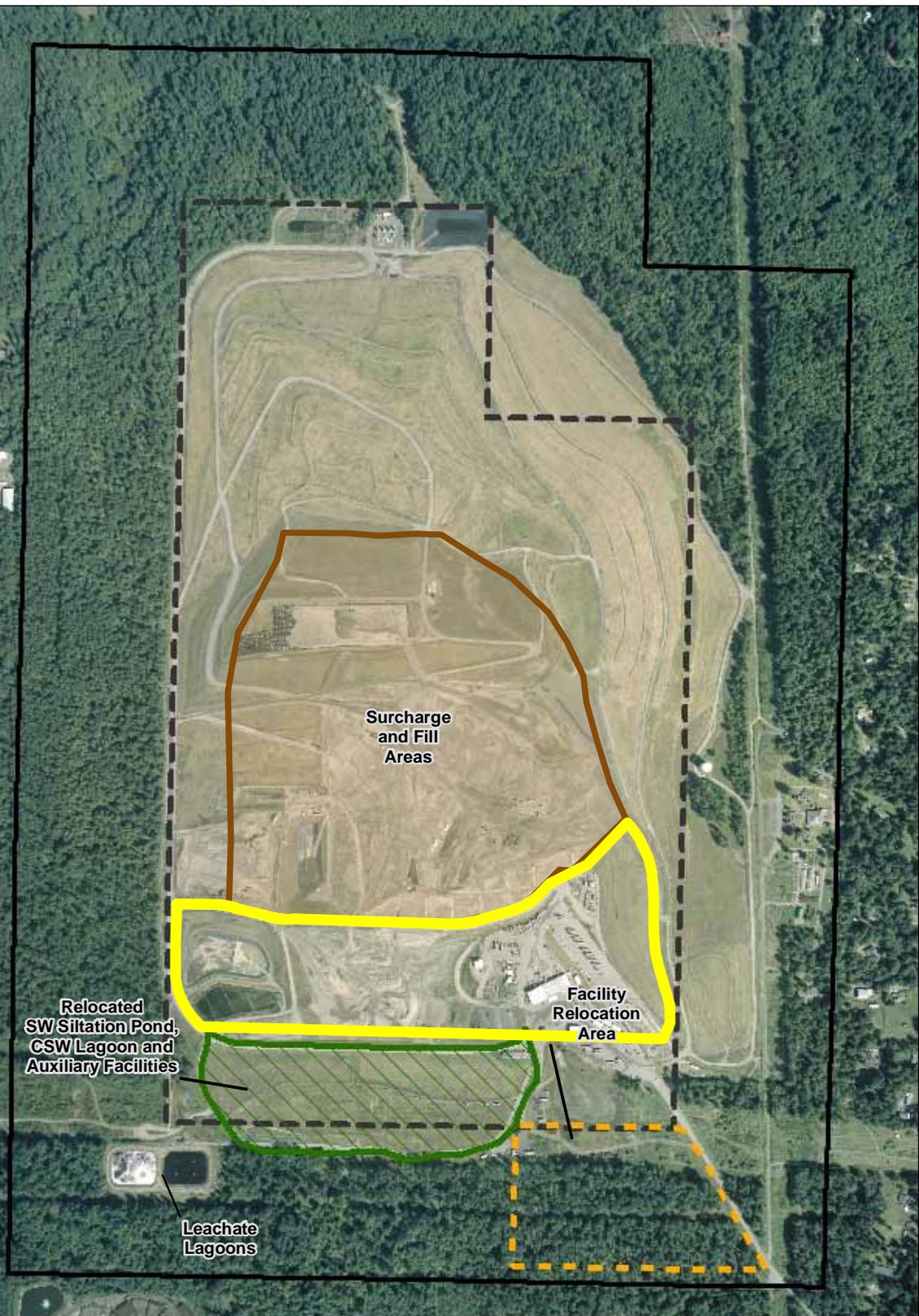
### Buffer Zone

With Alternative 5, there will be no new waste disposal operations in the 1,000-foot buffer zone other than access. Facilities requiring on-site relocation could be placed in the southeast corner of the property (see Figure 8). Modification of the Special Use Permit would be required to allow these activities.

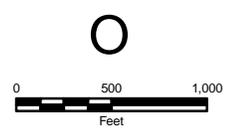
### Added Capacity

In total, Alternative 5 would add approximately 16.8 million cubic yards of capacity and extend the landfill's useful life by about 12 to 13 years.

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-  New Landfill Area
-  Remove Solid Waste and Restore
-  Facility Relocation Area
-  Cedar Hills Landfill Boundary
-  1000-Foot Buffer Boundary



**FIGURE 9**  
**Alternative 5**  
**South Side Development**  
**Including Support**  
**Facility Area**

## **No Action Alternative**

The environmental impact statement to be prepared for the project will also include a No Action Alternative. Under the No Action Alternative, future development at CHRLF would be limited to those activities that are included in the current Site Development Plan. Based on projected waste volumes, and according to the current Site Development Plan, CHRLF is expected to reach capacity in approximately 2018. Beyond that time, only closure construction, post-closure activities, and monitoring are planned at the site.