

Attachment B
Community Criteria Evaluation Data Sheets

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1.0 POPULATION NEAR THE SITE

This criterion measures the number of people living near the site. A site with fewer people living nearby is preferable.

How the raw score of the criterion was determined:

Data Source:

The State GIS system is the main source of data for evaluating this criterion.

- Parcel/Tax Map Key (TMK) maps, source: County of Kaua'i
- Population and census tract description: 2010 Census Blocks, source: United States (U.S.) Census Bureau (February 2011)

Data Acquisition:

- Uploaded the Kauai Parcel/TMK Maps into Arc Geographic Information System (GIS) Explorer and queried the site TMK.
- Uploaded the 2010 Census Blocks from the State GIS System and queried the Population blocks with a population of one or greater.
- Measured and identified the distance that is within 0.5 miles of the proposed landfill site boundary.
- Identified the Census Block GEOID and determined the population count for the Census Blocks that were within the 0.5 miles of the proposed landfill.

The total population shown (i.e., the raw data) is the number of people listed in the 2010 census as living in U.S. Census Blocks located within 0.5 miles of the site border.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the highest population, 10 is the lowest population, and intermediate values were scaled proportionately.

Raw Score (population)	Scaled Score	Measure
669 – 707	1	Landfill site(s) with the highest population among prospective sites. Intermediate values scaled proportionally.
590 – 668	2	
512 – 589	3	
433 – 511	4	
355 – 432	5	
276 – 354	6	
198 – 276	7	
119 – 197	8	
41 – 119	9	
1 – 40	10	Landfill site(s) with the lowest population among prospective sites.

Data Evaluation and Site Scores:**1.1 KĀLEPA**

- Complications obtaining the data: None
- Complications calculating the scaled score: None

No.	Site	Census Block Geo ID	Population	Total Population Within ½ mile of the Site Border
1	Kālepa	150070404005005	649	707
		150070404001148	53	
		150070404003006	5	

- Raw Score: 707 people
- Scaled Score: 1

1.2 KEKAHA MAUKA

- Complications obtaining the data: None
- Complications calculating the scaled score: One census block, 150070409006002 had a population of 285 persons and was located 0.579 miles from the landfill boundary. It was not included in the total count of population within 0.5 miles of the site.

No.	Site	Census Block Geo ID	Population	Total Population Within ½ mile of the Site Border
2	Kekaha Mauka	150070409001218	1	1

- Raw Score: 1 person
- Scaled Score: 10

1.3 KĪPŪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None

No.	Site	Census Block Geo ID	Population	Total Population Within ½ mile of the Site Border
3	Kīpu	150070404001268	5	38
		150070404001250	1	
		150070404001214	2	
		150070404001241	30	

- Raw Score: 38 people
- Scaled Score: 10

1.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: None

No.	Site	Census Block Geo ID	Population	Total Population Within ½ mile of the Site Border
4	Koloa	150070406033019	279	279

- Raw Score: 279 people
- Scaled Score: 6

1.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: None

No.	Site	Census Block Geo ID	Population	Total Population Within ½ mile of the Site Border
5	Kumukumu	150079400001193	3	154
		150079400001185	2	
		150079400001219	44	
		150079400001216	59	
		150079400001005	6	
		150079400001003	40	

- Raw Score: 154 people
- Scaled Score: 8

1.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: None

No.	Site	Census Block Geo ID	Population	Total Population Within ½ mile of the Site Border
6	Maalo	150070404001026	17	17

- Raw Score: 17 people
- Scaled Score: 10

1.7 PUU O PAPA I

- Complications obtaining the data: None
- Complications calculating the scaled score: One census block, 150070408001089 has a population of 22 persons and is located 0.555 miles from the landfill boundary. It was not included in the total count of population within 0.5 miles of the site.

No.	Site	Census Block Geo ID	Population	Total Population Within ½ mile of the Site Border
7	Pu'u O Papai	150070408001092	2	20
		150070408001141	18	

- Raw Score: 20 people
- Scaled Score: 10

1.8 UMI

- Complications obtaining the data: None
- Complications calculating the scaled score: One census block, 150070407006035 has a population of 9 persons and is located 0.516 miles from the landfill boundary. Another census block, 150070407001002 has a population of 173 persons and is located 0.527 miles from the landfill boundary. These two blocks were not included in the total count of population within 0.5 miles of the site.

No.	Site	Census Block Geo ID	Population	Total Population Within ½ mile of the Site Border
8	Umi	150070407006026	35	360
		150070407006019	116	
		150070407006067	1	
		150070407003023	208	

- Raw Score: 360 people
- Scaled Score: 5

2.0 NUMBER OF RESIDENCES, SCHOOLS, HOSPITALS OR BUSINESSES ALONG THE ACCESS ROADWAY

This criterion measures the number of residences, schools, hospitals or non-compatible businesses along the site access roadway. Sites with fewer residences, schools, hospitals, and non-compatible businesses along the roadway leading to the landfill are preferable. Agricultural land and agriculture associated mills were not counted. The “access road” is the roadway between the landfill site and the nearest highway that is expected to receive landfill traffic. The “access road” could be any county or state street or road as long as it has no county, state, or federal numerical designation. Sites with fewer residences, schools, hospitals, or businesses along the access roads are preferred.

How the raw score of the criterion was determined:

Data Source: Residences, schools, hospitals, and businesses were identified using TerraMetrics satellite maps and TMK maps. The number of entities along the access road was calculated using County of Kaua'i and State of Hawai'i Office of Planning GIS maps.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the greatest number of residences, schools, hospitals or non-compatible businesses along the site access roadway, 10 is the least number, and intermediate values were scaled proportionately.

Raw Score (# of entities along roadway)	Scaled Score	Measure
21 – 22	1	Landfill site(s) with the most residences, schools, hospitals, and non-compatible businesses along the access roadway.
18 – 21	2	Intermediate values scaled proportionally.
16 – 18	3	
13 – 16	4	
11 – 13	5	
9 – 11	6	
6 – 9	7	
4 – 6	8	
1 – 4	9	
0 – 1	10	Landfill site(s) with the fewest residences, schools, hospitals, and non-compatible businesses along the access roadway.

Data Evaluation and Site Scores:

2.1 KĀLEPA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Zero entities along the roadway
- Scaled Score: 10

2.2 KEKAHA MAUKA

- Complications obtaining the data: None
- Complications calculating the scaled score: None

- Raw Score: Zero entities along roadway
- Scaled Score: 10

2.3 KĪPŪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Zero entities along roadway
- Scaled Score: 10

2.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Zero entities along roadway
- Scaled Score: 10

2.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: 22 entities along roadway
- Scaled Score: 10

2.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Zero entities along roadway
- Scaled Score: 10

2.7 PUU O PAPAĪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Zero entities along roadway
- Scaled Score: 10

2.8 UMI

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Zero entities along roadway
- Scaled Score: 10

3.0 DISPLACEMENT OF RESIDENCES AND/OR BUSINESSES INCLUDING AGRICULTURAL BUSINESSES

This criterion measures the displacement of residences and/or business at the site. Use of vacant land is preferred.

How the raw score of the criterion was determined:

Residences, schools, hospitals, and businesses were identified using TerraMetrics satellite maps and TMK maps. Parcel and lease information was collected, including and evidence such as the presence of dwellings, structures, or other indications of active use (e.g., crops). Site specific outside knowledge, as well as information from site reconnaissance conducted December 9, 2011 was added, where appropriate.

How the scaled score of the criterion was determined:

The scaled score for this criterion is a binary measure, either a 1 or 10, as shown in the following table.

Raw Score	Scaled Score	Measure
Yes	1	A residence and/or business would be displaced.
No	10	No displacement of residences and/or businesses.

Data Evaluation and Site Scores:

3.1 KĀLEPA

- Complications obtaining the data: None
- Complications calculating the scaled score: Active agricultural crops were observed onsite.
- Number of residences displaced: 0
- Number of businesses displaced: At least 1. Active agriculture use was observed during site reconnaissance.
- Raw Score: 1 site
- Scaled Score: 1

3.2 KEKAHA MAUKA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Number of residences displaced: 0
- Number of businesses displaced: 1. Active agricultural use was observed onsite during site reconnaissance.
- Raw Score: 1 site
- Scaled Score: 1

3.3 KĪPŪ

- Complications obtaining the data: None

- Complications calculating the scaled score: None
- Number of residences displaced: 0
- Number of businesses displaced: 1. Active agricultural use was observed onsite during site reconnaissance.
- Raw Score: 1 site
- Scaled Score: 1

3.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Number of residences displaced: 0
- Number of businesses displaced: 1. The Old Koloa Sugar Mill is within the potential site boundary. Although there is an active business located nearby it may not be displaced. Grazing use was observed onsite during site reconnaissance.
- Raw Score: 1 site
- Scaled Score: 1

3.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: Entire parcel of land is 2,181 acres. It is unclear how many (if any) and which agricultural businesses might be displaced.
- Number of residences displaced: 0
- Number of businesses displaced: At least 1. The reference databases did not indicate the current uses of the land, but use of the land for active livestock grazing was noted during site reconnaissance.
- Raw Score: 1 site
- Scaled Score: 1

3.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: Entire parcel of land is 2,181 acres. It is unclear how many (if any) and which agricultural businesses might be displaced.
- Number of residences displaced: 0
- Number of businesses displaced: 6 (potentially). Parcel (TMK 3-9-002:020) is owned by the State of Hawai'i and has six agricultural lessees:
 - Bunao, Aurora: 247 acres
 - Butler, Lara: 156 acres
 - Kapaa Banana Company: 2 acres
 - Gooding, Kelly: 19 acres
 - Sanchez, Alison and William: 769 acres
 - Calipjo, Elesther: 432 acres

- Raw Score: 6 sites (potentially)
- Scaled Score: 1

3.7 PUU O PAPA I

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Number of residences displaced: 0
- Number of businesses displaced: 1. Active agricultural use was observed onsite during site reconnaissance.
- Raw Score: 1 site
- Scaled Score: 1

3.8 UMI

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Number of residences displaced: 0
- Number of businesses displaced: 1. Active agricultural use was observed onsite during site reconnaissance.
- Raw Score: 1 site
- Scaled Score: 1

4.0 PROXIMITY TO SITES OF ARCHAEOLOGICAL AND/OR HISTORICAL SIGNIFICANCE

This criterion measures the distance between the site and the nearest archaeological/historical area. Sites that have archeological and/or historical significance, or are near areas of significance may be more costly to develop.

How the raw score of the criterion was determined:

Data Source:

- Archeological and historical significance is determined by the listing of the site by the State Historic Preservation Division, Department of Land and Natural Resources (DLNR).
- See Hammatt and Shideler 2011: Section 8.

Distances were measured from nearest point on the boundary of the subject archeological/historical area to the nearest edge of the proposed landfill site.

How the scaled score of the criterion was determined:

The range in distances between each landfill site and the closest area of known archeological and/or historical significance was transformed to a 3-value point scale where 1 is the shortest distance, 5 is an intermediate distance, and 10 is the greatest distance, as shown in the following table.

Scaled Score	Measure
1	Score for site with a known area of significant archeological or historical importance located less than 0.25 miles from a site boundary.
5	Score for site with a known area of significant archeological or historical importance located between 0.25 and 0.50 miles from a site boundary.
10	Score for site with a known area of significant archeological or historical importance located more than 0.5 miles from a site boundary.

Data Evaluation and Site Scores:

4.1 KĀLEPA

- Complications obtaining the data: The Kālepa, Hanamā'ulu Ahupua'a project area has not been reviewed in a prior archaeological inventory survey. Nevertheless a thorough background study has concluded "there is very low probability of their being historic properties other than post-1878 plantation infrastructure" (Hammatt and Shideler 2011)
- Complications calculating the scaled score: No portion of the Kālepa, Hanamā'ulu Ahupua'a project area has been previously studied (prior to the Hammatt and Shideler 2011 study). It is noted that neighboring sites are located in a different environmental zone (on top of the Kālepa ridge) than the project area, and their presence does not necessarily increase the likelihood of archaeological sites being found within the Kālepa project area.
- Areas of known archeological and/or historical significance have been listed as being located on the site property?: No
- Areas of known archeological and/or historical significance have been listed as being located on property within a quarter mile of the site?: Yes
- Closest areas of archeological and/or historical significance to site boundary: Approximately 0.2 miles. No known sites are within the project area.

- Raw Score: Less than 0.25 miles
- Scaled Score: 1*
- Notes: *As noted, neighboring sites are located in a different environmental zone (on top of the Kālepa ridge) than the project area, and their presence does not necessarily increase the likelihood of archaeological sites being found within the flats of the Kālepa project area.

4.2 KEKAHA MAUKA

- Complications obtaining the data:
 - This assessment is complicated by the fact that the only prior archaeological study at the site (Coward and Hammatt 2011) only addressed a 10-acre southern portion of the proposed landfill area and did not involve any subsurface testing.
 - A thorough background study (Hammatt and Shideler 2011: Section 3.4.3) has concluded the following: There are also several known burials and some cultural deposits within approximately 0.9 miles of the project area, and the parcel contains some areas of Jaucas Sand, both of which increase the possibility of finding sub-surface cultural remains. Overall, however, there is low site density in the surrounding area and the parcel has been heavily modified by historic and modern agriculture. Archaeological concerns are focused on the possibility of human burials. Given the distance and/or location of the known sites within the vicinity, our assessment does not indicate that any known historic properties would be impacted by development of the parcel, and therefore no mitigation measures for known historic properties are currently deemed necessary. Although the probability of surface archaeological finds within the project area is regarded as rather low, we do not have data regarding the prospect of subsurface finds given the lack of any prior testing in the project area and the general lack of subsurface testing in the vicinity. The possibility of sub-surface finds is higher in the areas with Jaucas Sand soils in the northwestern and seaward portions of the Kekaha-Mauka project area, and archaeological monitoring of the Jaucas sand areas is a recommended mitigation measure even should an archaeological inventory survey find no significant subsurface sites or human skeletal remains.
- Complications calculating the scaled score: None. Straight-forward with the caveat that only a 10-acre southern portion of the proposed landfill site location has been addressed in a prior archaeological study (Coward and Hammatt 2011) and that study involved no subsurface testing.
- Areas of known archeological and/or historical significance have been listed as being located on the site property?: No
- Areas of known archeological and/or historical significance have been listed as being located on property within a quarter mile of the site?: No
- Closest areas of archeological and/or historical significance to site boundary: Approximately 0.46 miles. No known sites are within the project area.
- Raw Score: Between 0.25 and 0.5 miles
- Scaled Score: 5

4.3 KĪPŪ

Site-3010, a habitation complex, lies within 0.25 miles of the proposed landfill.

- Complications obtaining the data: Only a small western portion of the Kīpū, Ha'ikū Ahupua'a project area has been reviewed in an archaeological study prior to the present evaluation. Nevertheless a thorough background study has concluded, "there is a fairly low probability of

there being historic properties in the area due to agricultural disturbance.” (Hammatt and Shideler 2011)

- Complications calculating the scaled score: Only a small portion of the Kīpū, Ha'ikū Ahupua'a project area has been previously studied (prior to the Hammatt and Shideler 2011 study). Neighboring sites are generally located in a different environmental zone (along the river) than the project area, and their presence does not necessarily increase the likelihood of archaeological sites being found within the Kīpū project area. The complication is that sites have been reported and more may be expected along the Hulē'ia River which lies within a quarter mile of the Kīpū project area. These sites would be expected to be somewhat landform specific (close to the banks of the stream) and would not be expected at the distance back from the stream of the Kīpū project area. Hence the scaled score evaluation of "1" suggests greater concern for historic resources than may be appropriate.
- Areas of known archeological and/or historical significance have been listed as being located on the site property: No
- Areas of known archeological and/or historical significance have been listed as being located on property within a quarter mile of the site: Yes
- Closest areas of archeological and/or historical significance to site boundary: Approximately 0.14 miles. No known sites are within the project area.
- Raw Score: Less than 0.25 miles
- Scaled Score: 1*
- Notes: *As noted above the proximity to a stream (and stream-specific historic resources) may yield a scaled score evaluation suggesting greater concern for historic resources than may be appropriate.

4.4 KOLOA

No known sites are within the proposed landfill area but one designated site (Bennett's Site 85) lies between 0.25 and 0.5 mile away yielding an assigned scaled score of 5.

- Complications obtaining the data: The Kōloa, Pā'ā Ahupua'a project area has not been reviewed in a prior archaeological inventory survey. Nevertheless, a thorough background study has concluded, "there is low probability of finding sites within the project area." (Hammatt and Shideler 2011)
- Complications calculating the scaled score: None. Straight-forward with the caveat that no portion of the Kōloa, Pā'ā Ahupua'a project area has been previously studied (prior to the Hammatt and Shideler 2011 study).
- Areas of known archeological and/or historical significance have been listed as being located on the site property?: No
- Areas of known archeological and/or historical significance have been listed as being located on property within a quarter mile of the site?: No
- Closest areas of archeological and/or historical significance to site boundary: Approximately 0.37 miles. No known sites are within the project area.
- Raw Score: Between 0.25 and 0.5 miles
- Scaled Score: 5

4.5 KUMUKUMU

Although seven sites are known within the proposed landfill area from a recent archaeological inventory survey (SCS 2007), there is no preservation concern and no further work is indicated. A

historic petroglyph is recommended for preservation and is located very near to the border of the project area.

- Complications obtaining the data: The entire Kumukumu, Keālia Ahupua'a project area has been reviewed in a prior archaeological inventory survey (SCS 2007).
- Complications calculating the scaled score: While there are seven historic properties within the project area, these are recommended for no further work
- Areas of known archeological and/or historical significance have been listed as being located on the site property?: No (the seven identified sites within the project area merit no further work or direct concern)
- Areas of known archeological and/or historical significance have been listed as being located on property within a quarter mile of the site?: Yes
- Closest areas of archeological and/or historical significance to site boundary: Less than 0.1 miles. No sites are known within the project area.
- Raw Score: Less than 0.25 miles
- Scaled Score: 1*
- Notes: *The Kumukumu project area has undergone a recent archaeological inventory. The seven historic properties that are located within the project area have been sufficiently addressed through the archaeological inventory survey performed by SCS, and no further work is required to mitigate impacts for these sites. A historic petroglyph located very near to the project area border is recommended for preservation and thereby constitutes a site of historical significance within 0.25 miles of the Kukumukumu site boundary.

4.6 MAALO

No known sites are within the proposed landfill area or within 0.25 mile. Sites are present between 0.25 and 0.5 mile.

- Complications obtaining the data: The Ma'alo, Wailua Ahupua'a project area has not been reviewed in a prior archaeological inventory survey. Nevertheless a thorough background study has concluded, "there is low probability of there being historic properties in the area." (Hammatt and Shideler 2011)
- Complications calculating the scaled score: No portion of the Ma'alo, Wailua Ahupua'a project area has been previously studied (prior to the Hammatt and Shideler 2011 study). While there are several historic properties within one mile of the project area, these are located in a different environmental zone – along the south fork of the Wailua River, rather than the flat agricultural land that comprises the Ma'alo project area. Thus the proximity of these sites does not necessarily increase the likelihood of archaeological sites being found within the Ma'alo project area and may give an impression of greater historic preservation concern than is actually warranted.
- Areas of known archeological and/or historical significance have been listed as being located on the site property?: No
- Areas of known archeological and/or historical significance have been listed as being located on property within a quarter mile of the site?: No
- Closest areas of archeological and/or historical significance to site boundary: Approximately 0.48 miles. No sites are known within the project area.
- Raw Score: 0.25 – 0.5 miles
- Scaled Score: 5*

- Notes: * While there are several historic properties within one mile of the project area, these are located in a different environmental zone – along the south fork of the Wailua River, rather than the flat agricultural land that comprises the Ma'alo project area. Thus the proximity of these sites does not necessarily increase the likelihood of archaeological sites being found within the Ma'alo project area and may give an impression of greater historic preservation concern than is actually warranted.

4.7 PUU O PAPA'I

No known sites are within the proposed landfill area or within 0.5 mile. Sites are present just beyond one mile.

- Complications obtaining the data: The Pu'u o Pāpa'i, Makaweli Ahupua'a project area has not been reviewed in a prior archaeological inventory survey. Nevertheless a thorough background study has concluded, "there is a low probability of finding highly significant sites." (Hammatt and Shideler 2011)
- Complications calculating the scaled score: Straight-forward with the caveat that no portion of the Pu'u o Pāpa'i, Makaweli Ahupua'a project area has been previously studied (prior to the Hammatt and Shideler 2011 study).
- Areas of known archeological and/or historical significance have been listed as being located on the site property?: No
- Areas of known archeological and/or historical significance have been listed as being located on property within a quarter mile of the site?: No
- Closest areas of archeological and/or historical significance to site boundary: Approximately 1.1 miles. No known sites are within the project area.
- Raw Score: Greater than 0.5 miles
- Scaled Score: 10

4.8 UMI

No known sites are within the proposed landfill area or within 0.25 miles. Two sites (site 62, Waiopili Heiau, which was reported as destroyed by the time of Bennett's 1929 survey, and site 3043, petroglyphs) are shown approximately 0.5 miles from the potential landfill site. Several sites are present beyond 0.5 miles from the Umi site boundary.

- Complications obtaining the data: The Umi, Wahiawa Ahupua'a project area has not been reviewed in a prior archaeological inventory survey. Nevertheless a thorough background study has concluded, "there is a low probability of finding highly significant sites." (Hammatt and Shideler 2011: Section 5.4.3)
- Complications calculating the scaled score: The two previously identified sites (site 62 - Waiopili Heiau which was reported as destroyed by the time of Bennett's 1929 survey and site 3043 petroglyphs) are approximately 0.5 miles from the potential landfill site. Hence the locations of these two sites (one reported destroyed) straddle a point evaluation of "2" and "3". There is the caveat that no portion of the Umi, Wahiawa Ahupua'a project area has been previously studied (prior to the Hammatt and Shideler 2011 study).
- Areas of known archeological and/or historical significance have been listed as being located on the site property?: No
- Areas of known archeological and/or historical significance have been listed as being located on property within a quarter mile of the site?: No

- Closest areas of archeological and/or historical significance to site boundary: Approximately 0.47 miles. No known sites are within the project area.
- Raw Score: Between 0.25 and 0.5 miles
- Scaled Score: 5

5.0 COST OF SITE ACQUISITION

This criterion measures the cost of acquiring the ownership of the site, amortized over the life of the landfill (criterion 26). Sites with lower costs are preferred.

How the raw score of the criterion was determined:

Data Source: TMK records; Assessed values. The 2008 assessed value of the land and buildings was tabulated and divided by the number of acres within each parcel to calculate the cost per acre. The acreage of the landfill site within each parcel was multiplied by the cost per acre to estimate the site value. It is assumed that government-owned land need not be purchased (i.e., the raw score for government-owned lands was set to zero dollars).

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the highest cost, 10 is the lowest cost, and intermediate values were scaled proportionately.

Raw Score (\$ / year)	Scaled Score	Measure
12,825 – 13,579	1	The score for the site with the highest acquisition cost.
11,316 – 12,825	2	Intermediate values scaled proportionally.
9,807 – 11,316	3	
8,298 – 9,807	4	
6,790 – 8,298	5	
5,281 – 6,790	6	
3,772 – 5,281	7	
2,263 – 3,772	8	
755 – 2,263	9	
0 – 754	10	The score for the site with the lowest acquisition cost.

Data Evaluation and Site Scores:

5.1 KĀLEPA

- Complications obtaining the data: The use of TMK records is intended to provide a relative ranking between the sites and should not be construed to represent the anticipated actual cost of site acquisition.
- Complications calculating the scaled score: None. However, the owner may not be willing to sell the property, or may not be willing to sell at the assessed value.
- Cost of Site Acquisition:
 - Owner of property: Grove Farm Company, Inc.
 - Privately owned: Yes
 - Site valuation: \$157,754
- Life of Landfill: 26 years
- Raw Score: 6,067 \$/yr
- Scaled Score: 6

5.2 KEKAHA MAUKA

- Complications obtaining the data: The use of TMK records is intended to provide a relative ranking between the sites and should not be construed to represent the anticipated actual cost of site acquisition.
- Complications calculating the scaled score: None. However, the owner may not be willing to sell the property, or may not be willing to sell at the assessed value.
- Cost of Site Acquisition:
 - Owner of property: State of Hawai'i
 - Privately owned: No
 - Site valuation: \$5,805
- Life of Landfill: 60 years
- Raw Score: 0 \$/yr (It is assumed that government-owned land need not be purchased.)
- Scaled Score: 10

5.3 KĪPŪ

- Complications obtaining the data: The use of TMK records is intended to provide a relative ranking between the sites and should not be construed to represent the anticipated actual cost of site acquisition.
- Complications calculating the scaled score: None. However, the owner may not be willing to sell the property, or may not be willing to sell at the assessed value.
- Cost of Site Acquisition:
 - Owner of property: Grove Farm Company, Inc.
 - Privately owned: Yes
 - Site valuation: \$ 144,460
- Life of Landfill: 56 years
- Raw Score: 2,580 \$/yr
- Scaled Score: 8

5.4 KOLOA

- Complications obtaining the data: The use of TMK records is intended to provide a relative ranking between the sites and should not be construed to represent the anticipated actual cost of site acquisition.
- Complications calculating the scaled score: None. However, the owner may not be willing to sell the property, or may not be willing to sell at the assessed value.
- Cost of Site Acquisition:
 - Owner of property: Grove Farm Company, Inc.
 - Privately owned: Yes
 - Site valuation: \$ 108,865
- Life of Landfill: 69 years
- Raw Score: 1,578 \$/yr

- Scaled Score: 9

5.5 KUMUKUMU

- Complications obtaining the data: The use of TMK records is intended to provide a relative ranking between the sites and should not be construed to represent the anticipated actual cost of site acquisition.
- Complications calculating the scaled score: None. However, the owner may not be willing to sell the property, or may not be willing to sell at the assessed value.
- Cost of Site Acquisition:
 - Owner of property: Plantation Partners Kauai LLC
 - Privately owned: Yes
 - Site valuation: \$1,412,263
- Life of Landfill: 104 years
- Raw Score: 13,579 \$/yr
- Scaled Score: 1

5.6 MAALO

- Complications obtaining the data: The use of TMK records is intended to provide a relative ranking between the sites and should not be construed to represent the anticipated actual cost of site acquisition.
- Complications calculating the scaled score: None. However, the owner may not be willing to sell the property, or may not be willing to sell at the assessed value.
- Cost of Site Acquisition:
 - Owner of property: State of Hawai'i
 - Privately owned: No
 - Site valuation: \$ 881,894
- Life of Landfill: 264 years
- Raw Score: 0 \$/yr (It is assumed that government-owned land need not be purchased.)
- Scaled Score: 10

5.7 PUU O PAPA I

- Complications obtaining the data: The use of TMK records is intended to provide a relative ranking between the sites and should not be construed to represent the anticipated actual cost of site acquisition.
- Complications calculating the scaled score: None. However, the owner may not be willing to sell the property, or may not be willing to sell at the assessed value.
- Cost of Site Acquisition:
 - Owner of property: Robinson Family
 - Privately owned: Yes
 - Site valuation: \$135,705
- Life of Landfill: 95 years

- Raw Score: 1,428 \$/yr
- Scaled Score: 9

5.8 UMI

- Complications obtaining the data: The use of TMK records is intended to provide a relative ranking between the sites and should not be construed to represent the anticipated actual cost of site acquisition.
- Complications calculating the scaled score: None. However, the owner may not be willing to sell the property, or may not be willing to sell at the assessed value.
- Cost of Site Acquisition:
 - Owner of property: Alexander and Baldwin
 - Privately owned: Yes
 - Site valuation: \$486,215
- Life of Landfill: 53 years
- Raw Score: 9,174 \$/yr
- Scaled Score: 4

6.0 CEDED OR HAWAIIAN HOMESTEAD LAND

This criterion determines the ceded or Hawaiian homestead status of the site. Land that is ceded or homestead land is less desirable.

How the raw score of the criterion was determined:

The sites were evaluated to determine the initial ceded or homestead status of the site as provided in the TMK records of the State of Hawai'i and via input from the Office of Hawaiian Affairs (OHA). Data Sources were TMK records and an interview with D. Bucasas at OHA on November 20, 2008.

How the scaled score of the criterion was determined:

The scaled score for this criterion is a binary measure, either a 1 or 10.

Scaled Score	Measure
1	The score for the site if ceded, considered ceded, or homestead land.
10	The score of the site if it is not ceded, considered ceded, or homestead land.

Data Evaluation and Site Scores:

6.1 KĀLEPA

- Complications obtaining the data: TMK records are initially used to determine the status of the land. Further investigation with OHA was made to properly assess the status of the property to determine if it is ceded or homestead land.
- Complications calculating the scaled score: Further assessment of the site is required to determine the ownership and title history of the property. This assessment is outside of the scope of this present investigation.
- Raw Score: Not ceded, considered ceded, or homestead land
- Scaled Score: 10

6.2 KEKAHA MAUKA

- Complications obtaining the data: TMK records are initially used to determine the status of the land. Further investigation with OHA was made to properly assess the status of the property to determine if it is ceded or homestead land.
- Complications calculating the scaled score: Further assessment of the site is required to determine the ownership and title history of the property. This assessment is outside of the scope of this present investigation.
- Raw Score: Not ceded, considered ceded, or homestead land
- Scaled Score: 10

6.3 KĪPŪ

- Complications obtaining the data: TMK records are initially used to determine the status of the land. Further investigation with OHA was made to properly assess the status of the property to determine if it is ceded or homestead land.
- Complications calculating the scaled score: Further assessment of the site is required to determine the ownership and title history of the property. This assessment is outside of the scope of this present investigation.
- Raw Score: Not ceded, considered ceded, or homestead land
- Scaled Score: 10

6.4 KOLOA

- Complications obtaining the data: TMK records are initially used to determine the status of the land. Further investigation with OHA was made to properly assess the status of the property to determine if it is ceded or homestead land.
- Complications calculating the scaled score: Further assessment of the site is required to determine the ownership and title history of the property. This assessment is outside of the scope of this present investigation.
- Raw Score: Not ceded, considered ceded, or homestead land
- Scaled Score: 10

6.5 KUMUKUMU

- Complications obtaining the data: TMK records are initially used to determine the status of the land. Further investigation with OHA was made to properly assess the status of the property to determine if it is ceded or homestead land.
- Complications calculating the scaled score: Further assessment of the site is required to determine the ownership and title history of the property. This assessment is outside of the scope of this present investigation.
- Raw Score: Not ceded, considered ceded, or homestead land
- Scaled Score: 10

6.6 MAALO

- Complications obtaining the data: TMK records are initially used to determine the status of the land. Further investigation with OHA was made to properly assess the status of the property to determine if it is ceded or homestead land.
- Complications calculating the scaled score: Further assessment of the site is required to determine the ownership and title history of the property. This assessment is outside of the scope of this present investigation.
- Raw Score: Not ceded, considered ceded, or homestead land
- Scaled Score: 10

6.7 PUU O PAPAĪ

- Complications obtaining the data: TMK records are initially used to determine the status of the land. Further investigation with OHA was made to properly assess the status of the property to determine if it is ceded or homestead land.

- Complications calculating the scaled score: Further assessment of the site is required to determine the ownership and title history of the property. This assessment is outside of the scope of this present investigation.
- Raw Score: Not ceded, considered ceded, or homestead land
- Scaled Score: 10

6.8 UMI

- Complications obtaining the data: TMK records are initially used to determine the status of the land. Further investigation with OHA was made to properly assess the status of the property to determine if it is ceded or homestead land.
- Complications calculating the scaled score: Further assessment of the site is required to determine the ownership and title history of the property. This assessment is outside of the scope of this present investigation.
- Raw Score: Not ceded, considered ceded, or homestead land
- Scaled Score: 10

7.0 DISTANCE FROM PRINCIPAL HIGHWAY

This is the distance of the site from the nearest principal highway serving as the major means of transporting refuse to the landfill site. Sites closer to principal highways are preferred.

How the raw score of the criterion was determined:

Data Source: TerraMetrics satellite maps for identification of sites. Estimation of distances was based on the map distance measuring function. Principal highways were identified based on Hawaii DOT classifications.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the greatest distance, 10 is the least distance, and intermediate values were scaled proportionately.

Raw Score (miles)	Scaled Score	Measure
4.81 – 5.09	1	The score for the landfill site(s) with the greatest distance from a principal highway.
4.25 – 4.81	2	Intermediate values scaled proportionally.
3.68 – 4.24	3	
3.12 – 3.68	4	
2.55 – 3.11	5	
1.99 – 2.55	6	
1.42 – 1.98	7	
0.85 – 1.41	8	
0.29 – 0.85	9	The score for the landfill site(s) with the least distance from a principal highway.
0 – 0.28	10	

Data Evaluation and Site Scores:

7.1 KĀLEPA

- Complications obtaining the data: None
- Complications calculating the scaled score: None.
- Distance and direction to nearest major highway: 1.83 miles total to Kuhio Highway via Ma'alo Road.
- Raw Score: 1.83 miles
- Scaled Score: 7

7.2 KEKAHA MAUKA

- Complications obtaining the data: None
- Complications calculating the scaled score: None.
- Distance and direction to nearest major highway: Kaumualii Highway abuts the southwestern boundary.
- Raw Score: 0 miles
- Scaled Score: 10

7.3 KĪPŪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None.
- Distance and direction to nearest major highway: 0.75 miles south of Kaumualii Highway via Hulemalu, Aakukui, and Kipu Road.
- Raw Score: 0.75 miles
- Scaled Score: 9

7.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: None.
- Distance and direction to nearest major highway: Kaumualii Highway is 5.09 miles north of the site via Kaluahonu, Mahaulepu, Ala Kinoiki, and Maluhia Road.
- Raw Score: 5.09 miles
- Scaled Score: 1

7.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: None.
- Distance and direction to nearest major highway: The site abuts Kuhio Highway to the east.
- Raw Score: 0 miles
- Scaled Score: 10

7.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: None.
- Distance and direction to nearest major highway: 3.46 miles to Kuhio Highway via Ma'alo Road.
- Raw Score: 3.46 miles
- Scaled Score: 4

7.7 PUU O PAPAĪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None.
- Distance and direction to nearest major highway: Kaumualii Highway is 0.59 miles southwest of the site.
- Raw Score: 0.59 miles
- Scaled Score: 9

7.8 UMI

- Complications obtaining the data: None

- Complications calculating the scaled score: None.
- Distance and direction to nearest major highway: Kaumualii Highway is 1.46 miles northeast of the site via Halewili Road
- Raw Score: 1.46 miles
- Scaled Score: 7

8.0 SCHOOLS OR HOSPITALS ALONG ACCESS ROAD

This criterion measures the number of schools and/or hospitals located on the access road to the proposed landfill site. The “access road” is the roadway between the landfill site and the nearest highway that is expected to receive landfill traffic. The “access road” could be any county or state street or road as long as it has no county, state, or federal numerical designation. Sites with fewer schools and/or hospitals along the access roads are preferred.

How the raw score of the criterion was determined:

Parcels were identified using real property data. Information about hospitals, public schools, private schools, and preschools, were taken from lists of facilities available at the Hawaii Department of Health (DOH) and the Hawaii Department of Education.

Data Source: Hawai'i Department of Education. TerraMetrics satellite maps and Kauai County TMK records.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the greatest number of schools and hospitals, 10 is the least number, and intermediate values were scaled proportionately.

Raw Score (# of entities along roadway)	Scaled Score	Measure
1	1	The score for the landfill site(s) with the highest number of schools and hospitals along its access road.
0	10	The score for the landfill site(s) with the lowest number of schools and hospitals along its access road.

Data Evaluation and Site Scores:

8.1 KĀLEPA

- Complications obtaining the data: Available preschool information may not be comprehensive.
- Complications calculating the scaled score: None
- School or hospital on access road: None.
- Raw Score: 0
- Scaled Score: 10

8.2 KEKAHA MAUKA

- Complications obtaining the data: Available preschool information may not be comprehensive.
- Complications calculating the scaled score: None
- School or hospital on access road: None
- Raw Score: 0

- Scaled Score: 10

8.3 KĪPŪ

- Complications obtaining the data: Available preschool information may not be comprehensive.
- Complications calculating the scaled score: None
- School or hospital on access road: None
- Raw Score: 0
- Scaled Score: 10

8.4 KOLOA

- Complications obtaining the data: Available preschool information may not be comprehensive.
- Complications calculating the scaled score: None
- School or hospital on access road: None
- Raw Score: 0
- Scaled Score: 10

8.5 KUMUKUMU

- Complications obtaining the data: Available preschool information may not be comprehensive.
- Complications calculating the scaled score: None
- School or hospital on access road: None.
- Raw Score: 0
- Scaled Score: 10

8.6 MAALO

- Complications obtaining the data: Available preschool information may not be comprehensive.
- Complications calculating the scaled score: None
- School or hospital on access road: None.
- Raw Score: 0
- Scaled Score: 10

8.7 PUU O PAPAĪ

- Complications obtaining the data: Available preschool information may not be comprehensive.
- Complications calculating the scaled score: None
- School or hospital on access road: None
- Raw Score: 0

- Scaled Score: 10

8.8 UMI

- Complications obtaining the data: Available preschool information may not be comprehensive.
- Complications calculating the scaled score: None
- School or hospital on access road: None.
- Raw Score: 0
- Scaled Score: 10

9.0 RESIDENTIAL UNITS OR DEVELOPMENTS ALONG ACCESS ROAD

This criterion measures the number of residences or residential units located on the access road to the proposed landfill site. The “access road” is the roadway between the landfill site and the nearest highway that is expected to receive landfill traffic. The “access road” could be any county or state street or road as long as it has no county, state, or federal numerical designation. Sites with fewer residences along the access roads are preferred.

How the raw score of the criterion was determined:

Data Source: TerraMetrics satellite maps; TMK maps. Parcels were identified using real property data and number of residences was counted from satellite maps.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the greatest number of residences, 10 is the least number, and intermediate values were scaled proportionately.

Raw Score (# of entities along road)	Scaled Score	Measure
21 – 22	1	The score for the landfill site(s) with the most residential units or developments along its access road.
18 – 21	2	Intermediate values scaled proportionally.
16 – 18	3	
13 – 16	4	
11 – 13	5	
9 – 11	6	
6 – 9	7	
4 – 6	8	
1 – 4	9	
0 – 1	10	The score for the landfill site(s) with the fewest residential units or developments along its access road.

Data Evaluation and Site Scores:

9.1 KĀLEPA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Residential units or developments affected: None
- Raw Score: Zero entities

- Scaled Score: 10

9.2 KEKAHA MAUKA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Residential units or developments affected: None (directly on Highway 50)
- Raw Score: Zero entities
- Scaled Score: 10

9.3 KĪPŪ

- Complications obtaining the data: None
- Complications calculating the scaled score: Many potential sites have several available access roads. The access road with the most residences was used to calculate the scaled score.
- Residential units or developments affected: None
- Raw Score: Zero entities
- Scaled Score: 10

9.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Residential units or developments affected: Maluhia Road passes several residences.
- Raw Score: 22 entities
- Scaled Score: 1

9.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Residential units or developments affected: None
- Raw Score: Zero entities
- Scaled Score: 10

9.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Residential units or developments affected: None
- Raw Score: Zero entities

- Scaled Score: 10

9.7 PUU O PAPA I

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Residential units or developments affected: None
- Raw Score: Zero entities
- Scaled Score: 10

9.8 UMI

- Complications obtaining the data: None
- Complications calculating the scaled score: Many potential sites have several available access roads. The access road with the most residences was used to calculate the scaled score.
- Residential units or developments affected: None (directly on Highway 540)
- Raw Score: Zero entities
- Scaled Score: 10

10.0 QUALITY OF AGRICULTURAL LANDS

This criterion measures the quality of the site for agricultural uses. Sites with lower quality or potential as agricultural lands are preferred.

How the raw score of the criterion was determined:

This criterion is based on modification of an earlier criterion concerning the Kaua'i General Plan (GP) designation of potential landfill sites. The GP designates the existing Kekaha Sanitary Landfill Phase II as a public facility; however, there are no other landfill site designations contained in the GP. Because agricultural designated lands are prevalent, and in the past landfills have been considered as an acceptable land use practice, the siting of a landfill within agricultural zoned land should include consideration and evaluation of the agricultural quality of the land used. Review of the Agricultural Lands of Importance to the State of Hawai'i (ALISH) system for land productivity and the State of Hawai'i Land Use Commission's (LUC) Important Agricultural Land (IAL) designations are considered in this criterion.

The scaled score for this criterion was based on a scale where a site containing a majority of "Prime" land was scored a 1, a site containing a majority of "Unique" land was scored a 2, a site containing a majority of "Other Important" agricultural land was scored a 3, and a site containing a majority of "Unclassified" lands was scored a 4. Additionally, any site situated on designated IAL was assigned a scaled score of 1. As defined in Article XI, Section 3, of the State of Hawai'i Constitution, IAL are lands that cannot be reclassified or rezoned "without meeting the standards and criteria established by the legislature and approved by a two-thirds vote of the body (LUC) responsible for the reclassification or rezoning action."

Data Source:

- ALISH; Land Study Bureau; County of Kaua'i GP. Data assessment based on State of Hawai'i GIS Program, Office of Planning, 2011, <http://hawaii.gov/dbedt/gis/>.
- Important Agricultural Lands; Land Use Commission; State of Hawai'i GP. Data assessment based on State of Hawai'i GIS Program, Office of Planning, 2012, <http://hawaii.gov/dbedt/gis/>.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 4-value scale, as follows:

Raw Score	Scaled Score	Measure
1	1	Mostly Prime agricultural land or classified as IAL
2	4	Mostly Unique agricultural land
3	7	Mostly Other Important agricultural land
4	10	Mostly Unclassified land

Data Evaluation and Site Scores:

10.1 KĀLEPA

- Complications obtaining the data: None. Note that an earlier agricultural evaluation system proposed by the Land Study Bureau (LSB) in the 1960s and 1970s was not utilized. The rating system considered soil and related characteristics including texture, structure, depth, drainage, parent material, climate, rainfall, and topography. The LSB system rated agricultural land on scales from A through C, representing lands that are the most suitable for agriculture, and D through E, or the least desirable. Recent research by the College of

Tropical Agriculture and Human Resources (CTAHR), University of Hawai'i at Mānoa, et al., indicates there are issues with using LSB data alone to make land use decisions. Some of the findings are that the system is outdated and is based on sugar, pineapple, and other crops that were popular and viable at the time the system was established.

- Complications calculating the scaled score: Though the ALISH maps are current as of 1980, it is unclear whether the criteria used to designate agricultural land such as soil fertility, moisture, etc. are still valid.
- Raw Score: 1. The site is mostly comprised of Prime agricultural land according to ALISH maps. A raw score of 1 was therefore assigned.
- Scaled Score: 1

10.2 KEKAHA MAUKA

- Complications obtaining the data: None. Note that an earlier agricultural evaluation system proposed by the Land Study Bureau (LSB) in the 1960s and 1970s was not utilized. The rating system considered soil and related characteristics including texture, structure, depth, drainage, parent material, climate, rainfall, and topography. The LSB system rated agricultural land on scales from A through C, representing lands that are the most suitable for agriculture, and D through E, or the least desirable. Recent research by the College of Tropical Agriculture and Human Resources (CTAHR), University of Hawai'i at Mānoa, etc. al., indicates there are issues with using LSB data alone to make land use decisions. Some of the findings are that the system is outdated and is based on sugar, pineapple, and other crops that were popular and viable at the time the system was established.
- Complications calculating the scaled score: Though the ALISH maps are current as of 1980, it is unclear whether the criteria used to designate agricultural land such as soil fertility, moisture, etc. are still valid.
- Raw Score: 3. The site is comprised of mostly Other Important land, a smaller portion of Prime agricultural land, and is not designated as IAL according to the LUC.
- Scaled Score: 7

10.3 KĪPŪ

- Complications obtaining the data: None. Note that an earlier agricultural evaluation system proposed by the Land Study Bureau (LSB) in the 1960s and 1970s was not utilized. The rating system considered soil and related characteristics including texture, structure, depth, drainage, parent material, climate, rainfall, and topography. The LSB system rated agricultural land on scales from A through C, representing lands that are the most suitable for agriculture, and D through E, or the least desirable. Recent research by the College of Tropical Agriculture and Human Resources (CTAHR), University of Hawai'i at Mānoa, etc. al., indicates there are issues with using LSB data alone to make land use decisions. Some of the findings are that the system is outdated and is based on sugar, pineapple, and other crops that were popular and viable at the time the system was established.
- Complications calculating the scaled score: Though the ALISH maps are current as of 1980, it is unclear whether the criteria used to designate agricultural land such as soil fertility, moisture, etc. are still valid.
- Raw Score: 1. The site is comprised of almost all Prime agricultural land.
- Scaled Score: 1

10.4 KOLOA

- Complications obtaining the data: None. Note that an earlier agricultural evaluation system proposed by the Land Study Bureau (LSB) in the 1960s and 1970s was not utilized. The rating system considered soil and related characteristics including texture, structure, depth, drainage, parent material, climate, rainfall, and topography. The LSB system rated agricultural land on a scale from A through C, representing lands that are the most suitable for agriculture, and D through E, or the least desirable. Recent research by the College of Tropical Agriculture and Human Resources (CTAHR), University of Hawai'i at Mānoa, etc. al., indicates there are issues with using LSB data alone to make land use decisions. Some of the findings are that the system is outdated and is based on sugar, pineapple, and other crops that were popular and viable at the time the system was established.
- Complications calculating the scaled score: Though the ALISH maps are current as of 1980, it is unclear whether the criteria used to designate agricultural land such as soil fertility, moisture, etc. are still valid.
- Raw Score: 3. The site is comprised entirely of Other Important agricultural land, and is not classified as IAL according to the LUC.
- Scaled Score: 7

10.5 KUMUKUMU

- Complications obtaining the data: None. Note that an earlier agricultural evaluation system proposed by the Land Study Bureau (LSB) in the 1960s and 1970s was not utilized. The rating system considered soil and related characteristics including texture, structure, depth, drainage, parent material, climate, rainfall, and topography. The LSB system rated agricultural land on scales from A through C, representing lands that are the most suitable for agriculture, and D through E, or the least desirable. Recent research by the College of Tropical Agriculture and Human Resources (CTAHR), University of Hawai'i at Mānoa, etc. al., indicates there are issues with using LSB data alone to make land use decisions. Some of the findings are that the system is outdated and is based on sugar, pineapple, and other crops that were popular and viable at the time the system was established.
- Complications calculating the scaled score: Though the ALISH maps are current as of 1980, it is unclear whether the criteria used to designate agricultural land such as soil fertility, moisture, etc. are still valid.
- Raw Score: 1. The site is comprised of mostly Prime agricultural land, and smaller proportions of Unclassified land and Other Important agricultural land.
- Scaled Score: 1

10.6 MAALO

- Complications obtaining the data: None. Note that an earlier agricultural evaluation system proposed by the Land Study Bureau (LSB) in the 1960s and 1970s was not utilized. The rating system considered soil and related characteristics including texture, structure, depth, drainage, parent material, climate, rainfall, and topography. The LSB system rated agricultural land on scales from A through C, representing lands that are the most suitable for agriculture, and D through E, or the least desirable. Recent research by the College of Tropical Agriculture and Human Resources (CTAHR), University of Hawai'i at Mānoa, etc. al., indicates there are issues with using LSB data alone to make land use decisions. Some of the findings are that the system is outdated and is based on sugar, pineapple, and other crops that were popular and viable at the time the system was established.

- Complications calculating the scaled score: Though the ALISH maps are current as of 1980, it is unclear whether the criteria used to designate agricultural land such as soil fertility, moisture, etc. are still valid.
- Raw Score: 1. The site is almost entirely classified as Prime agricultural land.
- Scaled Score: 1

10.7 PUU O PAPA I

- Complications obtaining the data: None. Note that an earlier agricultural evaluation system proposed by the Land Study Bureau (LSB) in the 1960s and 1970s was not utilized. The rating system considered soil and related characteristics including texture, structure, depth, drainage, parent material, climate, rainfall, and topography. The LSB system rated agricultural land on scales from A through C, representing lands that are the most suitable for agriculture, and D through E, or the least desirable. Recent research by the College of Tropical Agriculture and Human Resources (CTAHR), University of Hawai'i at Mānoa, etc. al., indicates there are issues with using LSB data alone to make land use decisions. Some of the findings are that the system is outdated and is based on sugar, pineapple, and other crops that were popular and viable at the time the system was established.
- Complications calculating the scaled score: Though the ALISH maps are current as of 1980, it is unclear whether the criteria used to designate agricultural land such as soil fertility, moisture, etc. are still valid.
- Raw Score: 1. The site is comprised mostly of Prime agricultural land with a smaller portion of Other Important agricultural land.
- Scaled Score: 1

10.8 UMI

- Complications obtaining the data: None. Note that an earlier agricultural evaluation system proposed by the Land Study Bureau (LSB) in the 1960s and 1970s was not utilized. The rating system considered soil and related characteristics including texture, structure, depth, drainage, parent material, climate, rainfall, and topography. The LSB system rated agricultural land on scales from A through C, representing lands that are the most suitable for agriculture, and D through E, or the least desirable. Recent research by the College of Tropical Agriculture and Human Resources (CTAHR), University of Hawai'i at Mānoa, etc. al., indicates there are issues with using LSB data alone to make land use decisions. Some of the findings are that the system is outdated and is based on sugar, pineapple, and other crops that were popular and viable at the time the system was established.
- Complications calculating the scaled score: Though the ALISH maps are current as of 1980, it is unclear whether the criteria used to designate agricultural land such as soil fertility, moisture, etc. are still valid.
- Raw Score: 1. The site is comprised entirely of Prime agricultural land and was classified as IAL.
- Scaled Score: 1

11.0 CONSISTENCY OF THE SITE WITH THE EXISTING COUNTY LAND USE ZONING DESIGNATION

This criterion measures the consistency of the site with existing county land use zoning designations. Zoning consistent with use as a landfill is preferred.

How the raw score of the criterion was determined:

The regulations for land development and the construction of buildings and other structures are defined in the County's Comprehensive Zoning Ordinance (CZO). The regulations and standards prescribed by the CZO promote development that is compatible with the Island's scenic beauty and environment. Agriculturally zoned lands may be acceptable for use as a landfill, if a Change of Zone is granted, as was the case for the existing Kekaha Sanitary Landfill. Open lands may also be acceptable for use as a landfill. Other zoning classifications would be considered incompatible with use as a landfill.

Data Source: County of Kaua'i (CZO, and Planning Department, County of Kaua'i). The major County Zoning Districts include Residential (R), Resort (RR), Commercial (C), Industrial (I), Agriculture (A), Open (O), Special Treatment (ST), and Constraint (S).

How the scaled score of the criterion was determined:

The raw scores were transformed to a 3-value scale, as follows:

Scaled Score	Measure
1	The score when the siting of a landfill is clearly inconsistent with the underlying zoning classification
5	The score when the siting of a landfill would require a Change of Zone or other land use entitlement
10	The score when the siting of a landfill would not require a Change of Zone

Data Evaluation and Site Scores:

11.1 KĀLEPA

- Complications obtaining the data: None. The site zoning is: Agricultural (A).
- Raw Score: Site requires a Change of Zone or other land use entitlement.
- Scaled Score: 5

11.2 KEKAHA MAUKA

- Complications obtaining the data: None. The site zoning is: Agricultural (A).
- Raw Score: Site requires a Change of Zone or other land use entitlement.
- Scaled Score: 5

11.3 KĪPŪ

- Complications obtaining the data: None. The site zoning is: Agricultural (A).
- Raw Score: Site requires a Change of Zone or other land use entitlement.
- Scaled Score: 5

11.4 KOLOA

- Complications obtaining the data: None. The site zoning is: Agricultural (A).
- Raw Score: Site requires a Change of Zone or other land use entitlement.

- Scaled Score: 5

11.5 KUMUKUMU

- Complications obtaining the data: None. The site zoning is: Agricultural (A).
- Raw Score: Site requires a Change of Zone or other land use entitlement.
- Scaled Score: 5

11.6 MAALO

- Complications obtaining the data: None. The site zoning is: Agricultural (A).
- Raw Score: Site requires a Change of Zone or other land use entitlement.
- Scaled Score: 5

11.7 PUU O PAPA I

- Complications obtaining the data: None. The site zoning is: Agricultural (A).
- Raw Score: Site requires a Change of Zone or other land use entitlement.
- Scaled Score: 5

11.8 UMI

- Complications obtaining the data: None. The site zoning is: Agricultural (A).
- Raw Score: Site requires a Change of Zone or other land use entitlement.
- Scaled Score: 5

12.0 CONSISTENCY OF THE SITE WITH THE EXISTING STATE LAND USE DISTRICT DESIGNATION

This criterion measures the consistency of the site with existing state land use zoning designations. Zoning consistent with use as a landfill is preferred.

How the raw score of the criterion was determined:

The State Land Use Law (Chapter 205, Hawai'i Revised Statutes [HRS]) provides for the classification of all land in the State of Hawai'i into one of four Districts: Urban, Rural, Agricultural, and Conservation. Agriculturally zoned lands may be acceptable for use as a landfill, if a State Land Use District Boundary Amendment or State Special Use permit is granted. Other zoning classifications would be considered incompatible with use as a landfill.

Data Source: State of Hawai'i GIS data.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 3-value scale, as follows:

Scaled Score	Raw Data
1	Conservation, Rural, Urban (incompatible)
5	Agricultural (site requires a State Land Use District Boundary Amendment or State Special Use permit)
10	n/a (no current State Land Use category is compatible)

Data Evaluation and Site Scores:

12.1 KĀLEPA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Agricultural (site requires a State Land Use District Boundary Amendment or State Special Use permit).
- Scaled Score: 5

12.2 KEKAHA MAUKA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Agricultural (site requires a State Land Use District Boundary Amendment or State Special Use permit).
- Scaled Score: 5

12.3 KĪPŪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Agricultural (site requires a State Land Use District Boundary Amendment or State Special Use permit).
- Scaled Score: 5

12.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Agricultural (site requires a State Land Use District Boundary Amendment or State Special Use permit).
- Scaled Score: 5

12.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Agricultural (site requires a State Land Use District Boundary Amendment or State Special Use permit).
- Scaled Score: 5

12.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Agricultural (site requires a State Land Use District Boundary Amendment or State Special Use permit).
- Scaled Score: 5

12.7 PUU O PAPA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Agricultural (site requires a State Land Use District Boundary Amendment or State Special Use permit).
- Scaled Score: 5

12.8 UMI

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Agricultural (site requires a State Land Use District Boundary Amendment or State Special Use permit).
- Scaled Score: 5

13.0 LOCATION OF SITE RELATIVE TO THE UNDERGROUND INJECTION CONTROL (UIC) LINE

This criterion measures whether a site is located above or below the Underground Injection Control (UIC) Line administered by the DOH for purposes of protecting groundwater resources. Sites located below (makai of) the UIC line are preferred.

How the raw score of the criterion was determined:

The UIC line is set by the Department of Health Safe Drinking Water Branch.

Data Source: State GIS system. The sources of the data used by the State GIS system for this criterion are:

- The UIC data layer in the State GIS system is located at the following link: <http://hawaii.gov/dbedt/gis/uic.htm>
- Honolulu Land Information System (HoLIS), City and County of Honolulu, July 2011 for TMK delineations for the site. The HoLIS system is the source of the TMK data for each of the counties in the state. The TMK layer from HoLIS is used in the State GIS system. For verification, the link for the HoLIS system is at: <http://gis.hicentral.com/maps.html>

How the scaled score of the criterion was determined:

The scaled score for this criterion is a binary measure, either a 1 or 10, as shown in the following table.

Scaled Score	Raw Data
1	Site is located mauka (above) of the UIC Line
5	Site is bisected by the UIC Line
10	Site is located makai (below) of the UIC Line

Data Evaluation and Site Scores:

13.1 KĀLEPA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Mauka of the UIC Line
- Scaled Score: 1

13.2 KEKAHA MAUKA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Makai of the UIC Line
- Scaled Score: 10

13.3 KĪPŪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Mauka of the UIC Line
- Scaled Score: 1

13.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Mauka of the UIC Line
- Scaled Score: 1

13.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Mauka of the UIC Line
- Scaled Score: 1

13.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Mauka of the UIC Line
- Scaled Score: 1

13.7 PUU O PAPAĪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Mauka of the UIC Line
- Scaled Score: 1

13.8 UMI

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: Makai of the UIC Line
- Scaled Score: 10

14.0 PROXIMITY TO SURFACE WATER

This criterion measures the distance between the site and the nearest surface water resource. Sites further from surface water sources are preferred.

How the raw score of the criterion was determined:

The raw score was the distance from the site boundary to the nearest surface water resource, determined by using the distance calculation feature in the GIS program, ArcGIS Desktop 10 Service Pack 2, Build 3200 version.

Data Source:

- The State GIS system was used to identify streams. The sources of the data used by the State GIS system for this criterion are:
 - USGS Digital Line Graphs, 1983 version; CWRM Hawaii Stream Assessment database, 1993, DLNR Division of Aquatic Resources, 2004. The layer for the data is located at the following link: <http://hawaii.gov/dbedt/gis/streams.htm>.
- U.S. Fish & Wildlife National Wetlands Inventory was the source for data related to surface water resources such as reservoirs, lakes, and ponds. Wetlands as mapped by the National Wetland Inventory can be accessed at URL: <http://www.fws.gov/wetlands/data/Mapper.html>.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the shortest distance, 10 is the longest distance, and intermediate values were scaled proportionately.

Raw Score (miles)	Scaled Score	Measure
0.02 – 0.05	1	Intermediate values scaled proportionally.
0.05 – 0.10	2	
0.10 – 0.15	3	
0.15 – 0.20	4	
0.20 – 0.25	5	
0.25 – 0.30	6	
0.30 – 0.35	7	
0.35 – 0.40	8	
0.40 – 0.45	9	
0.45 – 0.48	10	

Data Evaluation and Site Scores:

14.1 KĀLEPA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Closest surface water resource to site boundary: Kawailoa Stream
- Raw score: 0.16 miles
- Scaled Score: 4

14.2 KEKAHA MAUKA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Closest surface water resource to site boundary: Waiawa Reservoir
- Raw score: 0.29 miles
- Scaled Score: 6

14.3 KĪPŪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Closest surface water resource to site boundary: Huleia Stream
- Raw score: 0.11 miles
- Scaled Score: 3

14.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Closest surface water resource to site boundary: Unnamed freshwater pond
- Raw score: 0.22 miles
- Scaled Score: 5

14.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Closest surface water resource to site boundary: Kumukumu River
- Raw score: 0.02 miles
- Scaled Score: 1

14.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Closest surface water resource to site boundary: Wailua River
- Raw score: 0.48 miles
- Scaled Score: 10

14.7 PUU O PAPA I

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Closest surface water resource to site boundary: Unnamed freshwater pond

- Raw score: 0.16 miles
- Scaled Score: 4

14.8 UMI

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Closest surface water resource to site boundary: Umi Reservoir
- Raw score: 0.15 miles
- Scaled Score: 4

15.0 DISTANCE TO THE NEAREST FLORA OR FAUNA HABITAT

This criterion measures the distance between the site and the nearest known rare, threatened, or endangered flora or fauna habitat. Sites further from flora or fauna habitats are preferred.

How the raw score of the criterion was determined:

The distance from the site boundary to the nearest Designated Critical Habitat (DCH) was taken as the raw scores, using critical habitat maps.

Data Source: The U.S. Fish & Wildlife Service, Pacific Islands Office, 2004 Received layer Kauai Ecosystem and Statewide Picturing, April, 2010. Hawaii State GIS Program: <http://hawaii.gov/dbedt/gis/criticalhab.htm>.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the shortest distance, 10 is the greatest distance, and intermediate values were scaled proportionately.

Raw Score (miles)	Scaled Score	Measure
0.40 – 0.65	1	Sites closest to flora and fauna habitat with rare, threatened or endangered species.
0.65 – 1.15	2	Intermediate values scaled proportionally.
1.15 – 1.65	3	
1.65 – 2.15	4	
2.15 – 2.65	5	
2.65 – 3.15	6	
3.15 – 3.65	7	
3.65 – 4.15	8	
4.15 – 4.65	9	
4.65 – 4.90	10	Sites farthest from flora and fauna habitat with rare, threatened or endangered species.

Data Evaluation and Site Scores:

15.1 KĀLEPA

- Complications obtaining the data: Although several of the proposed sites have potential wetlands mapped on or near the property, these are in many cases artificial impoundments that are or were part of an agriculture irrigation system. In most cases, these wetlands are really ponds or small, reservoirs that provide little or no true wetland habitat.
- Complications calculating the scaled score: The process of designating critical habitat areas for listed species is a complicated one, and the absence of DCH is not the same as an absence of any listed species. In many cases, the distribution of a listed species exceeds the area of designated critical habitat for that species.
- Threatened or endangered (T&E) flora and fauna habitat has been designated on the site:
No
- T&E flora and fauna habitat is located within one mile of the site boundary: No
- Closest T&E flora and fauna habitat to site boundary: The proposed Kalepa site is close to the southern end of Kalepa Ridge, between the ridge and Okinawa Reservoir. A small, seasonally flooded wetland is shown by the National Wetlands Inventory (NWI) to be located partly on or just adjacent to the property. This wetland is part of a narrow set of wetlands

along the stream connecting Aii and Okinawa reservoirs and extending along an intermittent tributary that drains the Kalepa site. The nearest DCH is to the north at Nonou Mountain, 3.0 miles from Kalepa site. The critical habitat unit is for several species of endangered plants.

- Raw Score: 3.0 miles
- Scaled Score: 6

15.2 KEKAHA MAUKA

- Complications obtaining the data: Although several of the proposed sites have potential wetlands mapped on or near the property, these are in many cases artificial impoundments that are or were part of an agriculture irrigation system. In most cases, these wetlands are really ponds or small, reservoirs that provide little or no true wetland habitat.
- Complications calculating the scaled score: The process of designating critical habitat areas for listed species is a complicated one, and the absence of DCH is not the same as an absence of any listed species. In many cases, the distribution of a listed species exceeds the area of designated critical habitat for that species.
- Threatened or endangered (T&E) flora and fauna habitat has been designated on the site:
No
- T&E flora and fauna habitat is located within one mile of the site boundary: Yes
- Closest T&E flora and fauna habitat to site boundary: Kekaha Mauka is closest of the sites to significant biological resources. The existing landfill, just makai of Kaunualii Highway, lies between the proposed Kekaha Mauka site and DCH along the coastal dunes. Biological resource value in this area is tied to the dunes themselves, and these extend inland only to the existing landfill property boundary. Important wetlands once existed across the Mānā Plain, and the NWI shows a diked impoundment wetland at the north end of the subject parcel (adjacent to the Kekaha airstrip). The nearest DCH are the coastal dunes, approximately 0.4 miles southwest of the Kekaha Mauka site. The critical habitat unit is for an endangered plant species.
- Raw Score: 0.4 miles
- Scaled Score: 1

15.3 KĪPŪ

- Complications obtaining the data: Although several of the proposed sites have potential wetlands mapped on or near the property, these are in many cases artificial impoundments that are or were part of an agriculture irrigation system. In most cases, these wetlands are really ponds or small, reservoirs that provide little or no true wetland habitat.
- Complications calculating the scaled score: The process of designating critical habitat areas for listed species is a complicated one, and the absence of DCH is not the same as an absence of any listed species. In many cases, the distribution of a listed species exceeds the area of designated critical habitat for that species.
- Threatened or endangered (T&E) flora and fauna habitat has been designated on the site:
No
- T&E flora and fauna habitat is located within one mile of the site boundary: No
- Closest T&E flora and fauna habitat to site boundary: The Kipu site is located in an area of pasture and scattered large trees. The nearest DCH is 1.5 mile to the south, encompassing higher elevation areas on Hā'upu Ridge. The critical habitat unit is for several species of plants.
- Raw Score: 1.5 miles

- Scaled Score: 3

15.4 KOLOA

- Complications obtaining the data: Although several of the proposed sites have potential wetlands mapped on or near the property, these are in many cases artificial impoundments that are or were part of an agriculture irrigation system. In most cases, these wetlands are really ponds or small, reservoirs that provide little or no true wetland habitat.
- Complications calculating the scaled score: The process of designating critical habitat areas for listed species is a complicated one, and the absence of DCH is not the same as an absence of any listed species. In many cases, the distribution of a listed species exceeds the area of designated critical habitat for that species.
- Threatened or endangered (T&E) flora and fauna habitat has been designated on the site:
No
- T&E flora and fauna habitat is located within one mile of the site boundary: Yes
- Closest T&E flora and fauna habitat to site boundary: The proposed Koloa site is located just northeast of the old Koloa Mill on former agriculture land. Biological resource value in this area is tied to underground caves that harbor the blind wolf spider (*Adelocosa anops*) and the Kauai cave amphipod (*Spelaeorchestia koloana*), both listed endangered species. The habitat for these animals is scattered, and DCH is all south and west of the site. Waita Reservoir is located to the northwest, and features designated in the NWI as wetlands (sedimentation ponds for the mill) are located immediately to the east of the site.
- Raw Score: 0.5 miles
- Scaled Score: 1

15.5 KUMUKUMU

- Complications obtaining the data: Although several of the proposed sites have potential wetlands mapped on or near the property, these are in many cases artificial impoundments that are or were part of an agriculture irrigation system. In most cases, these wetlands are really ponds or small, reservoirs that provide little or no true wetland habitat.
- Complications calculating the scaled score: The process of designating critical habitat areas for listed species is a complicated one, and the absence of DCH is not the same as an absence of any listed species. In many cases, the distribution of a listed species exceeds the area of designated critical habitat for that species.
- Threatened or endangered (T&E) flora and fauna habitat has been designated on the site:
No
- T&E flora and fauna habitat is located within one mile of the site boundary: No
- Closest T&E flora and fauna habitat to site boundary: A number of small wetlands associated with streams and valley bottoms occur nearby, but none are associated with the Kumukumu Site itself where the bottom of the swale within the site is forested. However, the perennial flow in this stream and possible presence of *hau* wetlands would place it within state and federal jurisdictional waters, requiring an Ordinary High Water Mark (OHWM) survey to establish the area of stream that is jurisdictional. The closest DCH is to the southwest at Nonou Mountain, 4 miles from Kumukumu site. The critical habitat unit is for two species of endangered plants.
- Raw Score: 4.0 miles
- Scaled Score: 8

15.6 MAALO

- Complications obtaining the data: Although several of the proposed sites have potential wetlands mapped on or near the property, these are in many cases artificial impoundments that are or were part of an agriculture irrigation system. In most cases, these wetlands are really ponds or small, reservoirs that provide little or no true wetland habitat.
- Complications calculating the scaled score: The process of designating critical habitat areas for listed species is a complicated one, and the absence of DCH is not the same as an absence of any listed species. In many cases, the distribution of a listed species exceeds the area of designated critical habitat for that species.
- Threatened or endangered (T&E) flora and fauna habitat has been designated on the site:
No
- T&E flora and fauna habitat is located within one mile of the site boundary: No
- Closest T&E flora and fauna habitat to site boundary: The proposed Ma'alo site is close to the Wailua River; Aii Reservoir is located immediately to the south (within 0.1 mile). The NWI shows small wetlands along the stream flowing into and out of Aii Reservoir. The nearest DCH is to the north at Nonou Mountain, 1.9 miles from Ma'alo site. The critical habitat unit is for two species of endangered plants.
- Raw Score: 1.9 miles
- Scaled Score: 4

15.7 PUU O PAPA I

- Complications obtaining the data: Although several of the proposed sites have potential wetlands mapped on or near the property, these are in many cases artificial impoundments that are or were part of an agriculture irrigation system. In most cases, these wetlands are really ponds or small, reservoirs that provide little or no true wetland habitat.
- Complications calculating the scaled score: The process of designating critical habitat areas for listed species is a complicated one, and the absence of DCH is not the same as an absence of any listed species. In many cases, the distribution of a listed species exceeds the area of designated critical habitat for that species.
- Threatened or endangered (T&E) flora and fauna habitat has been designated on the site:
No
- T&E flora and fauna habitat is located within one mile of the site boundary: No
- Closest T&E flora and fauna habitat to site boundary: The Pu'u o Papai site is presently in sugarcane, lying along the western slope of Pu'u O Papai (hill), above Mahinauli Gulch. A reservoir is shown on Pu'u O Papai, just southeast of the peak, about 0.4 miles southeast of the site. Another, much smaller NWI wetland is 0.5 miles away to the southwest. Both features are agricultural impoundments. The nearest DCH is 4.9 miles to the northwest, and the critical habitat unit is for several species of endangered plants.
- Raw Score: 4.9 miles
- Scaled Score: 10

15.8 UMI

- Complications obtaining the data: Although several of the proposed sites have potential wetlands mapped on or near the property, these are in many cases artificial impoundments that are or were part of an agriculture irrigation system. In most cases, these wetlands are really ponds or small, reservoirs that provide little or no true wetland habitat.

- Complications calculating the scaled score: The process of designating critical habitat areas for listed species is a complicated one, and the absence of DCH is not the same as an absence of any listed species. In many cases, the distribution of a listed species exceeds the area of designated critical habitat for that species.
- Threatened or endangered (T&E) flora and fauna habitat has been designated on the site:
No
- T&E flora and fauna habitat is located within one mile of the site boundary: No
- Closest T&E flora and fauna habitat to site boundary: This site is located on land that is mostly agricultural (coffee), with scattered areas of trees and weedy growth. A small unit of DCH is located 2.1 miles away to the east. Several small NWI wetlands are indicated in the area, the closest approximately 0.2 mile away; however, all are agriculture irrigation ponds. The much larger, Ipu-o-Lono Reservoir is located about 0.6 miles northeast of the site, in Kalaheo Gulch.
- Raw Score: 2.1 miles
- Scaled Score: 4

16.0 RAINFALL INTENSITY

This criterion measures the rainfall intensity at the site. Sites with more intense storm events generate more stormwater and leachate which must be managed, and are therefore more expensive. Sites with less intense storms are preferred.

How the raw score of the criterion was determined:

The National Weather Service (NWS) precipitation frequency data is the main source of data for evaluating this criterion. The data was revised in 2010 and is dated 2011.

Data Source:

- The NWS data is located at: http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_hi.html
- Additionally, the TMK information for the sites was obtained from the HOLIS system. The HOLIS system provides TMK data for each of the counties in the state. The longitude, latitude, and elevation of the points selected for estimating rainfall were obtained with the HOLIS system and Google Earth. The HOLIS data is located at the following link: <http://gis.hicentral.com/maps.html>. Google Earth can be accessed at the following link: earth.google.com/
- This criterion uses the 24-hour 100- year precipitation frequency (inches per hour) estimates from the NWS, Hawaiian Islands, Precipitation-Frequency Data Server (PFDS). The precipitation frequency is provided for storms of different durations and different frequency of occurrence. The state landfill regulations require the use of a storm of 24-hour duration and 25-year frequency. This criterion used the 24-hour storm and a 100-year frequency, which is a more restrictive value.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the greatest annual precipitation, 10 is the least annual precipitation, and intermediate values were scaled proportionately.

Raw Score (inches / hour)	Scaled Score	Measure
0.839 – 0.863	1	The site with the highest rainfall intensity.
0.789 – 0.838	2	Intermediate values scaled proportionally.
0.739 – 0.788	3	
0.689 – 0.738	4	
0.639 – 0.688	5	
0.589 – 0.638	6	
0.539 – 0.588	7	
0.489 – 0.538	8	
0.439 – 0.488	9	
0.413 – 0.438	10	The site with the lowest rainfall intensity.

Data Evaluation and Site Scores:

16.1 KĀLEPA

- Complications obtaining the data: The estimated maximum precipitation for the four corners and center of the proposed Kālepa landfill location were collected and then averaged to

obtain a precipitation estimate. The rainfall estimates varied in intensity between 0.770 and 0.780 inches per hour for the 24-hour 100-year duration.

- Complications calculating the scaled score: None
- Annual precipitation at the site: The average precipitation calculated for the site was 0.774 inches.
- Raw Score: 0.774 inches
- Scaled Score: 3

16.2 KEKAHA MAUKA

- Complications obtaining the data: The estimated maximum precipitation for the four corners and center of the proposed Kekaha Mauka landfill location were collected and then averaged to obtain a precipitation estimate. The rainfall estimates varied in intensity between 0.412 and 0.415 inches per hour for the 24-hour 100-year duration.
- Complications calculating the scaled score: None.
- Annual Precipitation at the site: The average precipitation calculated for the site was 0.413 inches.
- Raw Score: 0.413 inches
- Scaled Score: 10

16.3 KĪPŪ

- Complications obtaining the data: The estimated maximum precipitation for the four corners and center of the proposed Kīpū landfill location were collected and then averaged to obtain a precipitation estimate. The rainfall estimates varied in intensity between 0.592 and 0.684 inches per hour for the 24-hour 100-year duration.
- Complications calculating the scaled score: None.
- Annual Precipitation at the site: The average precipitation calculated for the site was 0.625 inches.
- Raw Score: 0.625 inches
- Scaled Score: 6

16.4 KOLOA

- Complications obtaining the data: The estimated maximum precipitation for the four corners and center of the proposed Koloa landfill location were collected and then averaged to obtain a precipitation estimate. The rainfall estimates varied in intensity between 0.695 and 0.720 inches per hour for the 24-hour 100-year duration.
- Complications calculating the scaled score: None.
- Annual Precipitation at the site: The average precipitation calculated for the site was 0.708 inches.
- Raw Score: 0.708 inches
- Scaled Score: 4

16.5 KUMUKUMU

- Complications obtaining the data: The estimated maximum precipitation for the four corners and center of the proposed Kumukumu landfill location were collected and then averaged to

obtain a precipitation estimate. The rainfall estimates varied in intensity between 0.849 and 0.874 inches per hour for the 24-hour 100-year duration.

- Complications calculating the scaled score: None.
- Annual Precipitation at the site: The average precipitation calculated for the site was 0.863 inches.
- Raw Score: 0.863 inches
- Scaled Score: 1

16.6 MAALO

- Complications obtaining the data: The estimated maximum precipitation for the four corners and center of the proposed Ma'alo landfill location were collected and then averaged to obtain a precipitation estimate. The rainfall estimates varied in intensity between 0.762 and 0.802 inches per hour for the 24-hour 100-year duration.
- Complications calculating the scaled score: None.
- Annual Precipitation at the site: The average precipitation calculated for the site was 0.774 inches.
- Raw Score: 0.774 inches
- Scaled Score: 3

16.7 PUU O PAPA I

- Complications obtaining the data: The estimated maximum precipitation for the four corners and center of the proposed Pu'u O Papai landfill location were collected and then averaged to obtain a precipitation estimate. The rainfall estimates varied in intensity between 0.468 and 0.487 inches per hour for the 24-hour 100-year duration.
- Complications calculating the scaled score: None.
- Annual Precipitation at the site: The average precipitation calculated for the site was 0.477 inches.
- Raw Score: 0.477 inches
- Scaled Score: 9

16.8 UMI

- Complications obtaining the data: The estimated maximum precipitation for the four corners and center of the proposed Umi landfill location were collected and then averaged to obtain a precipitation estimate. The rainfall estimates varied in intensity between 0.497 and 0.508 inches per hour for the 24-hour 100-year duration.
- Complications calculating the scaled score: None.
- Annual Precipitation at the site: The average precipitation calculated for the site was 0.503 inches.
- Raw Score: 0.503 inches
- Scaled Score: 8

17.0 PREVAILING WIND DIRECTION RELATIVE TO POPULATED AREAS

This criterion measures the prevailing wind direction relative to populated areas. A site located such that the trade winds do not blow towards populated areas is preferred.

How the raw score of the criterion was determined:

Populated areas are defined as locations with a collection of housing units comprising a subdivision; a delineated housing development; a group of homes located along a street or road; or a visitor serving facility, e.g. hotels. Wind direction data was compared to site maps and GIS maps delineating population centers on the Island of Kaua'i.

Data Source: National Oceanic and Atmospheric Administration (NOAA).

How the scaled score of the criterion was determined:

The scaled score for this criterion is a binary measure, either a 1 or 10, as shown in the following table.

Scaled Score	Measure
1	The score when the prevailing wind blows from the site toward populated areas
10	The score when the prevailing wind does not blow from the site toward populated areas

Data Evaluation and Site Scores:

17.1 KĀLEPA

- Complications obtaining the data: No site-specific data available.
- Complications calculating the scaled score: No site-specific data available on the incidence over time of prevailing winds (trade or Kona winds).
- Location of populated areas immediately downwind of trade or Kona generated winds: Hanamaulu (to SSW) could potentially be affected.
- Raw Score: 1 area
- Scaled Score: 1

17.2 KEKAHA MAUKA

- Complications obtaining the data: No site-specific data available.
- Complications calculating the scaled score: No site-specific data available on the incidence over time of prevailing winds (trade or Kona winds).
- Location of populated areas immediately downwind of trade or Kona generated winds: None
- Raw Score: 0 areas
- Scaled Score: 10

17.3 KĪPŪ

- Complications obtaining the data: No site-specific data available.
- Complications calculating the scaled score: No site-specific data available on the incidence over time of prevailing winds (trade or Kona winds).
- Location of populated areas immediately downwind of trade or Kona generated winds: None

- Raw Score: 0 areas
- Scaled Score: 10

17.4 KOLOA

- Complications obtaining the data: No site-specific data available.
- Complications calculating the scaled score: No site-specific data available on the incidence over time of prevailing winds (trade or Kona winds).
- Location of populated areas immediately downwind of trade or Kona generated winds: Koloa, approximately one mile to west.
- Raw Score: 1 area
- Scaled Score: 1

17.5 KUMUKUMU

- Complications obtaining the data: No site-specific data available.
- Complications calculating the scaled score: No site-specific data available on the incidence over time of prevailing winds (trade or Kona winds).
- Location of populated areas immediately downwind of trade or Kona generated winds: Hanamaulu (to SSW) could potentially be affected.
- Raw Score: 1 area
- Scaled Score: 1

17.6 MAALO

- Complications obtaining the data: No site-specific data available.
- Complications calculating the scaled score: No site-specific data available on the incidence over time of prevailing winds (trade or Kona winds).
- Location of populated areas immediately downwind of trade or Kona generated winds: None
- Raw Score: 0 areas
- Scaled Score: 10

17.7 PUU O PAPA

- Complications obtaining the data: No site-specific data available.
- Complications calculating the scaled score: No site-specific data available on the incidence over time of prevailing winds (trade or Kona winds).
- Location of populated areas immediately downwind of trade or Kona generated winds: May affect Kaumakani about 0.25 miles away to SSW.
- Raw Score: 1 area
- Scaled Score: 1

17.8 UMI

- Complications obtaining the data: No site-specific data available.
- Complications calculating the scaled score: No site-specific data available on the incidence over time of prevailing winds (trade or Kona winds).

- Location of populated areas immediately downwind of trade or Kona generated winds: May affect Hanapepe and Eleele approximately 2 miles away.
- Raw Score: 1 area
- Scaled Score: 1

18.0 HAUL DISTANCE FROM MAJOR MUNICIPAL SOLID WASTE GENERATION AREAS

This criterion measures the haul distance from major municipal solid waste generation areas to the site, weighted by the amount of solid waste hauled from each area. Sites closer to the island's centroid of waste generation are preferred.

How the raw score of the criterion was determined:

The haul distance from a transfer station to the landfill provides one important piece of information to assess the impact of the landfill location on cost of transportation. The other important aspect is the amount of waste that is to be hauled from the transfer station to the landfill. The combination of measures is the "ton-miles," which is a measure of the number of trips required. Since municipal solid waste (MSW) will be delivered from all four of the County's transfer stations, the sum of the ton-miles is a good measure to judge the impact of hauling the different amounts of waste from transfer stations that are different distances from the landfill site.

The cumulative annual ton-miles (annual tons of waste for each transfer station multiplied by the distance from the transfer station to the landfill) was calculated for the four County refuse transfer stations, and summed.

Data Source: The locations of the transfer stations are from the data provided in the County's Integrated Solid Waste Management Plan (September 2009), County of Kaua'i, Department of Public Works. The tonnage of wastes handled by each of the transfer stations in 2005 was provided by the County. Haul distances were calculated using Google Maps.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10 -point scale where 1 is the most ton-miles of waste requiring shipping, 10 is the least ton-miles of waste requiring shipping, and intermediate values were scaled proportionately.

Raw Score (ton-miles)	Scaled Score	Measure
1,230,953 – 1,271,002	1	The score for the site with the most ton-miles of waste requiring shipping each year.
1,150,853 – 1,230,952	2	Intermediate values scaled proportionally.
1,070,754 – 1,150,853	3	
990,654 – 1,070,753	4	
910,555 – 990,654	5	
830,455 – 910,554	6	
750,356 – 830,454	7	
670,256 – 750,355	8	
590,157 – 670,255	9	
550,106 – 590,156	10	The score for the site with the fewest ton-miles of waste requiring shipping each year.

Data Evaluation and Site Scores:

18.1 KĀLEPA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: 554,787 ton-miles

- Scaled Score: 10

18.2 KEKAHA MAUKA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: 1,271,002 ton-miles
- Scaled Score: 1

18.3 KĪPŪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: 570,170 ton-miles
- Scaled Score: 10

18.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: 808,086 ton-miles
- Scaled Score: 7

18.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: 550,106 ton-miles
- Scaled Score: 10

18.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: 604,032 ton-miles
- Scaled Score: 9

18.7 PUU O PAPAĪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Raw Score: 967,050 ton-miles
- Scaled Score: 5

18.8 UMI

- Complications obtaining the data: None

- Complications calculating the scaled score: None
- Raw Score: 800,237 ton-miles
- Scaled Score: 7

19.0 ADEQUACY OF SITE DRAINAGE

This criterion measures the adequacy of site drainage. The ability of the landfill to drain surface water naturally from on- and off-site tributary areas reduces engineering- and design-associated costs. Sites with soils conducive to good drainage are preferred (based on installation of a landfill liner system that meets or exceeds federal and state standards).

How the raw score of the criterion was determined:

Percent soil compositions of each proposed landfill site were calculated after exclusion of fill types. The soil type composing the highest percentage of soil at each landfill site was determined to be the primary soil type. The drainage classification of the primary soil type was used to determine the scaled score.

Data Source: The ability of a landfill to drain water is a function of the surface soils. Soil information was obtained from the Soil Survey Geographic (SSURGO) database for the Island of Kaua'i (USDA NRCS 2006). Soil series descriptions were obtained from the USDA Official Soil Series Descriptions (OSD) website (<http://soils.usda.gov/technical/classification/osd/index.html>) accessed on May 11, 2012.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 represents very poorly drained soils, 10 represents excessively drained soils.

Scaled Score	Measure
1	Poorly drained
4	Moderately well drained
7	Well drained
10	Excessively drained

Data Evaluation and Site Scores:

19.1 KĀLEPA

- Complications obtaining the data: None
- Complications calculating the scaled score: Soil is extremely heterogeneous in nature and actual site soils could differ significantly from what is presented in the 1:24,000 scale soil survey data. The analysis presented is for the dominant component within a soil map unit and smaller inclusions within soil map units are ignored.
- Soil findings:
 - The predominant soils at the Kālepa site are Lihue silty clay (66.5 percent [%] of the site) and Lihue gravelly silty clay (32.2% of the site). Kalapa silty clay comprises 1.3% of the soil at the site.
- Raw Score: Well drained
- Scaled Score: 8

19.2 KEKAHA MAUKA

- Complications obtaining the data: None

- Complications calculating the scaled score: Soil is extremely heterogeneous in nature and actual site soils could differ significantly from what is presented in the 1:24,000 scale soil survey data. The analysis presented is for the dominant component within a soil map unit and smaller inclusions within soil map units are ignored.
- Soil findings:
 - The predominant soils at the Kekaha Mauka site are Jaucas loamy fine sand (66.5%), Kekaha silty clay (20.4%), Kekaha clay (10.1%), and Nohili clay (4%).
- Raw Score: Excessively drained
- Scaled Score: 10

19.3 KĪPŪ

- Complications obtaining the data: None
- Complications calculating the scaled score: Soil is extremely heterogeneous in nature and actual site soils could differ significantly from what is presented in the 1:24,000 scale soil survey data. The analysis presented is for the dominant component within a soil map unit and smaller inclusions within soil map units are ignored.
- Soil findings:
 - The predominant soils at the Kipu site are Puhi silty clay loam (94.8%) and Kapaa silty clay (5.2%).
- Raw Score: Well drained
- Scaled Score: 8

19.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: Soil is extremely heterogeneous in nature and actual site soils could differ significantly from what is presented in the 1:24,000 scale soil survey data. The analysis presented is for the dominant component within a soil map unit and smaller inclusions within soil map units are ignored.
- Soil findings:
 - The predominant soils at the Koloa site are Waikomo stony silty clay (95.4%) and Kaena clay (4.3%). Kalapa silty clay comprises 0.3% of soil at the site.
- Raw Score: Well drained
- Scaled Score: 8

19.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: Soil is extremely heterogeneous in nature and actual site soils could differ significantly from what is presented in the 1:24,000 scale soil survey data. The analysis presented is for the dominant component within a soil map unit and smaller inclusions within soil map units are ignored.
- Soil findings:
 - The predominant soils at the Kumukumu site are Ioleau silty clay loam (55.5%), Lihue silty clay (18.4%), and Puhi silty clay loam (26.1%).

- Raw Score: Well drained
- Scaled Score: 8

19.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: Soil is extremely heterogeneous in nature and actual site soils could differ significantly from what is presented in the 1:24,000 scale soil survey data. The analysis presented is for the dominant component within a soil map unit and smaller inclusions within soil map units are ignored.
- Soil findings:
 - The soils at the Ma'alo site are Lihue silty clay (78.1%), Lihue gravelly silty clay (9.2%), Nonopahu clay (8.6%), Ioleau silty clay loam (2.9%), and Kalapa silty clay (1.2%).
- Raw Score: Well drained
- Scaled Score: 8

19.7 PUU O PAPA

- Complications obtaining the data: None
- Complications calculating the scaled score: Soil is extremely heterogeneous in nature and actual site soils could differ significantly from what is presented in the 1:24,000 scale soil survey data. The analysis presented is for the dominant component within a soil map unit and smaller inclusions within soil map units are ignored.
- Soil findings:
 - The predominant soils at the Pu'u O Papai site are Makaweli silty clay loam (96.6%) and Lihue gravelly silty clay (3.4%).
- Raw Score: Well drained
- Scaled Score: 8

19.8 UMI

- Complications obtaining the data: None
- Complications calculating the scaled score: Soil is extremely heterogeneous in nature and actual site soils could differ significantly from what is presented in the 1:24,000 scale soil survey data. The analysis presented is for the dominant component within a soil map unit and smaller inclusions within soil map units are ignored.
- Soil findings:
 - The predominant soils at the Umi site are Koloa stony silty clay (79.2%), Makaweli stony silty clay loam (18.9%), and Lihue silty clay (1.7%).
- Raw Score: Well drained
- Scaled Score: 8

20.0 COST OF DEVELOPMENT

This criterion measures the cost of site development, including but not limited to scale facilities, maintenance shops, cell preparation, drainage, control systems, bringing utilities to the site, excavation of the initial operating area, access road improvements, and other infrastructure related costs. The cost of development was divided by the site life, resulting in a cost per year of site life. Sites with lower costs are preferred.

How the raw score of the criterion was determined:

Total costs and estimated site life were estimated according to the methods and assumptions detailed in the Preliminary Engineering Evaluation contained in Section 5 of the Siting Summary Report.

Data Source: Unit and lump sum costs were based on recent costs for projects on Kaua'i and the neighboring islands.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the highest development cost per year, 10 is the lowest development cost per year, and intermediate values were scaled proportionately.

Raw Score (\$MM / year)	Scaled Score	Measure
2.94 – 3.04	1	The highest development cost per year.
2.73 – 2.94	2	Intermediate values scaled proportionally.
2.52 – 2.73	3	
2.31 – 2.52	4	
2.11 – 2.31	5	
1.90 – 2.11	6	
1.69 – 1.90	7	
1.48 – 1.69	8	
1.28 – 1.48	9	
1.17 – 1.27	10	The lowest development cost per year.

Data Evaluation and Site Scores:

20.1 KĀLEPA

- Complications obtaining the data: Cost estimates at this stage are planning-level in detail, and intended to be for comparative purposes only. Although the landfill will to be constructed in phases, these development costs measure the cost of developing the entire landfill footprint.
- Complications calculating the scaled score: Cost estimates are planning-level in detail. Calculations and assumptions are detailed in Section 5 of the Siting Summary Report.
- Life of the Landfill: 26 years
- Raw Score: 3.04 \$MM/yr
- Scaled Score: 1

20.2 KEKAHA MAUKA

- Complications obtaining the data: Cost estimates at this stage are planning-level in detail, and intended to be for comparative purposes only. Although the landfill will to be constructed in phases, these development costs measure the cost of developing the entire landfill footprint.
- Complications calculating the scaled score: Cost estimates are planning-level in detail, and the calculations and assumptions are detailed in Section 5 of the Siting Summary Report.
- Life of the Landfill: 60 years
- Raw Score: 2.15 \$MM/yr
- Scaled Score: 5

20.3 KĪPŪ

- Complications obtaining the data: Cost estimates at this stage are planning-level in detail, and intended to be for comparative purposes only. Although the landfill will to be constructed in phases, these development costs measure the cost of developing the entire landfill footprint.
- Complications calculating the scaled score: Cost estimates are planning-level in detail, and the calculations and assumptions are detailed in Section 5 of the Siting Summary Report.
- Life of the Landfill: 56 years
- Raw Score: 2.12 \$MM/yr
- Scaled Score: 5

20.4 KOLOA

- Complications obtaining the data: Cost estimates at this stage are planning-level in detail, and intended to be for comparative purposes only. Although the landfill will to be constructed in phases, these development costs measure the cost of developing the entire landfill footprint.
- Complications calculating the scaled score: Cost estimates are planning-level in detail, and the calculations and assumptions are detailed in Section 5 of the Siting Summary Report.
- Life of the Landfill: 69 years
- Raw Score: 1.77 \$MM/yr
- Scaled Score: 7

20.5 KUMUKUMU

- Complications obtaining the data: Cost estimates at this stage are planning-level in detail, and intended to be for comparative purposes only. Although the landfill will to be constructed in phases, these development costs measure the cost of developing the entire landfill footprint.
- Complications calculating the scaled score: Cost estimates are planning-level in detail, and the calculations and assumptions are detailed in Section 5 of the Siting Summary Report.
- Life of the Landfill: 104 years
- Raw Score: 1.56 \$MM/yr
- Scaled Score: 8

20.6 MAALO

- Complications obtaining the data: Cost estimates at this stage are planning-level in detail, and intended to be for comparative purposes only. Although the landfill will to be constructed in phases, these development costs measure the cost of developing the entire landfill footprint.
- Complications calculating the scaled score: Cost estimates are planning-level in detail, and the calculations and assumptions are detailed in Section 5 of the Siting Summary Report.
- Life of the Landfill: 264 years
- Raw Score: 1.17 \$MM/yr
- Scaled Score: 10

20.7 PUU O PAPA

- Complications obtaining the data: Cost estimates at this stage are planning-level in detail, and intended to be for comparative purposes only. Although the landfill will to be constructed in phases, these development costs measure the cost of developing the entire landfill footprint.
- Complications calculating the scaled score: Cost estimates are planning-level in detail, and the calculations and assumptions are detailed in Section 5 of the Siting Summary Report.
- Life of the Landfill: 95 years
- Raw Score: 1.62 \$MM/yr
- Scaled Score: 8

20.8 UMI

- Complications obtaining the data: Cost estimates at this stage are planning-level in detail, and intended to be for comparative purposes only. Although the landfill will to be constructed in phases, these development costs measure the cost of developing the entire landfill footprint.
- Complications calculating the scaled score: Cost estimates are planning-level in detail, and the calculations and assumptions are detailed in Section 5 of the Siting Summary Report.
- Life of the Landfill: 53 years
- Raw Score: 2.22 \$MM/yr
- Scaled Score: 5

21.0 COST OF OPERATIONS

This criterion measures the annual cost of site operations, including but not limited to equipment, operations, utility and fuel costs, management, personnel, leachate and gas management, daily cover, wet weather operations, and other services needed to properly operate and maintain a landfill. Sites with lower costs are preferred.

How the raw score of the criterion was determined:

Total costs and estimated site life were estimated according to the methods and assumptions detailed in the Preliminary Engineering Evaluation contained in Section 5 of the Siting Summary Report.

Data Source: Unit and lump sum costs were based on recent costs for projects on Kaua'i and the neighboring islands, including the annual operating costs at the existing Kekaha Sanitary Phase II Landfill.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the highest annual operational cost, 10 is the lowest annual operational cost, and intermediate values were scaled proportionately:

Raw Score (\$MM / year)	Scaled Score	Measure
5.43 – 5.44	1	The highest annual operational cost.
5.42 – 5.43	2	Intermediate values scaled proportionally.
5.40 – 5.42	3	
5.39 – 5.40	4	
5.38 – 5.39	5	
5.36 – 5.38	6	
5.35 – 5.36	7	
5.33 – 5.35	8	
5.32 – 5.33	9	
5.31 – 5.32	10	The lowest annual operational cost.

Data Evaluation and Site Scores:

21.1 KĀLEPA

- Complications obtaining the data: None. The cost of operations will be partially offset by the tipping fees collected.
- Complications calculating the scaled score: None
- Raw Score: 5.31 \$MM/yr
- Scaled Score: 10

21.2 KEKAHA MAUKA

- Complications obtaining the data: None. The cost of operations will be partially offset by the tipping fees collected.
- Complications calculating the scaled score: None
- Raw Score: 5.44 \$MM/yr

- Scaled Score: 1

21.3 KĪPŪ

- Complications obtaining the data: None. The cost of operations will be partially offset by the tipping fees collected.
- Complications calculating the scaled score: None
- Raw Score: 5.31 \$MM/yr
- Scaled Score: 10

21.4 KOLOA

- Complications obtaining the data: None. The cost of operations will be partially offset by the tipping fees collected.
- Complications calculating the scaled score: None
- Raw Score: 5.34 \$MM/yr
- Scaled Score: 8

21.5 KUMUKUMU

- Complications obtaining the data: None. The cost of operations will be partially offset by the tipping fees collected.
- Complications calculating the scaled score: None
- Raw Score: 5.36 \$MM/yr
- Scaled Score: 7

21.6 MAALO

- Complications obtaining the data: None. The cost of operations will be partially offset by the tipping fees collected.
- Complications calculating the scaled score: None
- Raw Score: 5.32 \$MM/yr
- Scaled Score: 9

21.7 PUU O PAPAĪ

- Complications obtaining the data: None. The cost of operations will be partially offset by the tipping fees collected.
- Complications calculating the scaled score: None
- Raw Score: 5.38 \$MM/yr
- Scaled Score: 5

21.8 UMI

- Complications obtaining the data: None. The cost of operations will be partially offset by the tipping fees collected.
- Complications calculating the scaled score: None
- Raw Score: 5.33 \$MM/yr

- Scaled Score: 9

22.0 AVAILABILITY OF UTILITIES (WATER)

The availability of various utilities was considered, as discussed below. This criterion measures the distance from the site to existing water utility lines, which indicates the anticipated cost of development. Sites closer to existing utility lines are preferable.

How the raw score of the criterion was determined:

The County of Kaua'i Wastewater Division provided maps of the exiting sewer lines for the entire island. As no sewer lines exist near any of the eight sites, each site may require special handling of sewage (e.g., via cesspools), and therefore this criteria is not expected to distinguish the sites.

The availability of telephone lines is not expected to distinguish the sites, because cell phones can be used.

We repeatedly tried to contact the KIUC regarding the availability of power near the sites, but did not receive any response. Visible electric lines in the vicinity were noted during site reconnaissance. This data will be updated as it becomes available.

The provision of water supply is essential to the operation of a landfill. It is used for dust control, irrigation, firefighting, potable water, and related necessities. The distance from the nearest water supply line to the site was measured to determine the length of connection (construction effort) required to provide water. The availability of water is considered the most important (and potentially costly) utility, and is therefore used to quantify this criterion.

Data Source: As-built water utility drawings were provided by the Department of Water and the Wastewater Division, County of Kaua'i, and supplemented by site reconnaissance. The raw score is the distance from the site to the nearest existing water source in miles.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the greatest distance from a water source, 10 is the shortest distance from a water source, and intermediate values were scaled proportionately.

Raw Score (miles)	Scaled Score	Measure
2.09 – 2.19	1	The score for the site with the greatest distance from a water source.
1.89 – 2.09	2	Intermediate values scaled proportionately.
1.69 – 1.89	3	
1.48 – 1.68	4	
1.28 – 1.48	5	
1.08 – 1.28	6	
0.88 – 1.08	7	
0.68 – 0.88	8	
0.47 – 0.67	9	
0.37 – 0.47	10	The score for the site with the shortest distance from a water source.

Data Evaluation and Site Scores:

22.1 KĀLEPA

- Complications obtaining the data: Definitive records were not available for all utilities at all sites, therefore in some cases the distances to the nearest utility lines are estimates.
- Location of Water Line: Ma'alo Road
- Raw Score: 1.76 miles
- Scaled Score: 3

22.2 KEKAHA MAUKA

- Complications obtaining the data: Definitive records were not available for all utilities at all sites, therefore in some cases the distances to the nearest utility lines are estimates.
- Location of Water Line: Kaumualii Highway
- Raw Score: 0.59 miles
- Scaled Score: 9

22.3 KĪPŪ

- Complications obtaining the data: Definitive records were not available for all utilities at all sites, therefore in some cases the distances to the nearest utility lines are estimates.
- Location of Water Line: Aakukui Road
- Raw Score: 0.48 miles
- Scaled Score: 9

22.4 KOLOA

- Complications obtaining the data: Definitive records were not available for all utilities at all sites, therefore in some cases the distances to the nearest utility lines are estimates.
- Location of Water Line: Mahaulepu Road
- Raw Score: 0.73 miles
- Scaled Score: 8

22.5 KUMUKUMU

- Complications obtaining the data: Definitive records were not available at all utilities for all sites, therefore in some cases the distances to the nearest utility lines are estimates.
- Location of Water Line: Kuhio Highway
- Raw Score: 0.37 miles
- Scaled Score: 10

22.6 MAALO

- Complications obtaining the data: Definitive records were not available for all utilities at all sites, therefore in some cases the distances to the nearest utility lines are estimates.
- Location of Water Line: Ma'alo Road
- Raw Score: 2.19 miles
- Scaled Score: 1

22.7 PUU O PAPA I

- Complications obtaining the data: Definitive records were not available for all utilities at all sites, therefore in some cases the distances to the nearest utility lines are estimates. Water utility maps for this site could not be located. It was assumed that the closest utility lines are located at Kaumualii Highway.
- Location of Water Line: Kaumualii Highway
- Raw Score: 1.10 miles
- Scaled Score: 6

22.8 UMI

- Complications obtaining the data: Definitive records were not available for all utilities at all sites, therefore in some cases the distances to the nearest utility lines are estimates. Water utility maps for this site could not be located. It was assumed that the closest utility lines are located Highway 540.
- Location of Water Line: Highway 540
- Raw Score: 0.55 miles
- Scaled Score: 9

23.0 ACCESS TO FIRE PROTECTION

This criterion measures the fire response time for the site. Sites with shorter response times are preferred.

How the raw score of the criterion was determined:

The County of Kaua'i Fire Department provided estimated response times to the landfill site from the nearest fire station.

Data Source: Captain David Bukoski, Kaua'i Fire Prevention Bureau

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the slowest fire response time, 10 is the quickest fire response time, and intermediate values were scaled proportionately.

Raw Score (minutes)	Scaled Score	Measure
14 – 15	1	The score for the landfill site with the slowest fire response time.
13 – 14	2	Intermediate values scaled proportionally.
12 – 13	3	
11 – 12	4	
10 – 11	5	
9 – 10	6	
8 – 9	7	
7 – 8	8	
6 – 7	9	
5 – 6	10	The score for the landfill site with the quickest fire response time.

Data Evaluation and Site Scores:

23.1 KĀLEPA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Nearest fire station: Lihue
- Raw Score: 10 minutes
- Scaled Score: 6

23.2 KEKAHA MAUKA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Nearest fire station: Waimea
- Raw Score: 15 minutes
- Scaled Score: 1

23.3 KĪPŪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Nearest fire station: Lihue
- Raw Score: 10 minutes
- Scaled Score: 6

23.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Nearest fire station: Koloa
- Raw Score: 10 minutes
- Scaled Score: 6

23.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Nearest fire station: Lihue
- Raw Score: 10 minutes
- Scaled Score: 6

23.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Nearest fire station: Lihue
- Raw Score: 10 minutes
- Scaled Score: 6

23.7 PUU O PAPA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Nearest fire station: Hanapepe
- Raw Score: 15 minutes
- Scaled Score: 1

23.8 UMI

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Nearest fire station: Kalaheo

- Raw Score: 5 minutes
- Scaled Score: 10

24.0 AVAILABILITY OF EXISTING ACCESS ROADWAY FROM HIGHWAY OR COLLECTOR STREET/ROAD

This criterion measures the availability of an existing access roadway from a highway or collector street/road. The "access road" could be any county or state street or road as long as it has no county, state, or federal numerical designation. Sites with shorter distances requiring development of access roads are preferred.

How the raw score of the criterion was determined:

Nearby roadways and likely access points to sites were identified on available maps. Distances were estimated between roadway(s) and access point(s), in miles.

Data Source: State of Hawai'i GIS maps, Google Earth database, and County of Kaua'i map information.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the longest distance requiring development of access roads, 10 is the shortest distance requiring development of access roads, and intermediate values were scaled proportionately.

Raw Score (miles)	Scaled Score	Measure
1.5 – 1.6	1	Site with the longest distance requiring development of access roads.
1.3 – 1.5	2	Intermediate values scaled proportionally.
1.1 – 1.3	3	
1.0 – 1.1	4	
0.8 – 1.0	5	
0.6 – 0.8	6	
0.4 – 0.6	7	
0.3 – 0.4	8	
0.1 – 0.3	9	
0 – 0.1	10	Site with the shortest distance requiring development of access roads.

Data Evaluation and Site Scores:

24.1 KĀLEPA

- Complications obtaining the data: Access points may change when final design plans are developed, and landowners are consulted. Therefore, distances to the nearest access roadway are estimates and should not be considered to be exact.
- Complications calculating the scaled score: None.
- Availability of existing access roadway: Ma'alo Road (Highway 583 and classified as a secondary highway), 1.3 miles to the west, is the nearest standard well-travelled roadway. Construction will be required to improve site access.
- Raw Score: 1.3 miles
- Scaled Score: 3

24.2 KEKAHA MAUKA

- Complications obtaining the data: Access points may change when final design plans are developed, and landowners are consulted. Therefore, distances to the nearest access roadway are estimates and should not be considered to be exact.
- Complications calculating the scaled score: None.
- Availability of existing access roadway: Kaunualii Highway abuts the southwestern boundary of the site. Minimal construction improvements are anticipated to be required.
- Raw Score: 0 miles
- Scaled Score: 10

24.3 KĪPŪ

- Complications obtaining the data: Access points may change when final design plans are developed, and landowners are consulted. Therefore, distances to the nearest access roadway are estimates and should not be considered to be exact.
- Complications calculating the scaled score: None.
- Availability of existing access roadway: The northern boundary of the site abuts Hulemalu Road, a well-traveled roadway.
- Raw Score: 0 miles
- Scaled Score: 10

24.4 KOLOA

- Complications obtaining the data: Access points may change when final design plans are developed, and landowners are consulted. Therefore, distances to the nearest access roadway are estimates and should not be considered to be exact.
- Complications calculating the scaled score: None.
- Availability of existing access roadway: Site is adjacent to Kaluahonu Road to the west. Well-traveled Maluhia Road is 2 miles to the west of the site and connects to Kaunualii Highway (2.76 miles north). Limited construction to Kaluahonu Road may be required to improve site access.
- Raw Score: 0 miles
- Scaled Score: 10

24.5 KUMUKUMU

- Complications obtaining the data: Access points may change when final design plans are developed, and landowners are consulted. Therefore, distances to the nearest access roadway are estimates and should not be considered to be exact.
- Complications calculating the scaled score: None.
- Availability of existing access roadway: Kuhio Highway abuts the site to the east.
- Raw Score: 0 miles
- Scaled Score: 10

24.6 MAALO

- Complications obtaining the data: Access points may change when final design plans are developed, and landowners are consulted. Therefore, distances to the nearest access roadway are estimates and should not be considered to be exact.
- Complications calculating the scaled score: None.
- Availability of existing access roadway: Ma'alo Road, (Highway 583 and classified as a secondary highway), the nearest well-travelled road, is 1.57 miles to the northwest. Construction will be required to improve site access.
- Raw Score: 1.57 miles
- Scaled Score: 1

24.7 PUU O PAPA

- Complications obtaining the data: Access points may change when final design plans are developed, and landowners are consulted. Therefore, distances to the nearest access roadway are estimates and should not be considered to be exact.
- Complications calculating the scaled score: None.
- Availability of existing access roadway: Site is 0.59 miles northeast of Kaumualii Highway. The access road is through agricultural fields and will require construction improvements.
- Raw Score: 0.59 miles
- Scaled Score: 7

24.8 UMI

- Complications obtaining the data: Access points may change when final design plans are developed, and landowners are consulted. Therefore, distances to the nearest access roadway are estimates and should not be considered to be exact.
- Complications calculating the scaled score: None.
- Availability of existing access roadway: The western boundary of the site abuts Halewili Road (Highway 540 and classified as a secondary highway), which is a well-traveled road.
- Raw Score: 0 miles
- Scaled Score: 10

25.0 PROXIMITY TO PARKS AND RECREATIONAL FACILITIES

This criterion reflects the distance between the site and the nearest park and/or recreational facility. Sites located further from parks or recreational facilities are preferred.

How the raw score of the criterion was determined:

The distance in miles from the footprint boundary to the nearest park or recreational facility was measured using a GIS system. The State GIS system was used to identify parks and recreational facilities.

Data Source: C&C parcel data (Oahu), GDSI parcel data (Kauai and Maui). The layer for the data is located at the following link: <http://hawaii.gov/dbedt/gis/parks.htm>

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the shortest distance to parks and recreational facilities, 10 is the longest distance to parks and recreational facilities, and intermediate values were scaled proportionately.

Raw Score (miles)	Scaled Score	Measure
0.40 – 0.48	1	The score for the shortest distance to parks and recreational facilities.
0.48 – 0.65	2	Intermediate values scaled proportionally.
0.65 – 0.82	3	
0.82 – 0.99	4	
0.99 – 1.16	5	
1.16 – 1.33	6	
1.33 – 1.50	7	
1.50 – 1.66	8	
1.67 – 1.83	9	
1.84 – 1.92	10	The score for the longest distance to parks and recreational facilities.

Data Evaluation and Site Scores:

25.1 KĀLEPA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Distance and direction from the site to the nearest park or recreational facility: 0.65 miles to the southeast
- Name of park or recreational facility: Hanamaulu Park
- Raw Score: 0.65 miles
- Scaled Score: 2

25.2 KEKAHA MAUKA

- Complications obtaining the data: None
- Complications calculating the scaled score: None

- Distance and direction from the site to the nearest park or recreational facility: 0.74 miles to the southeast.
- Name of park or recreational facility: Kekaha Beach Park
- Raw Score: 0.74 miles
- Scaled Score: 3

25.3 KĪPŪ

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Distance and direction from the site to the nearest park or recreational facility: 1.05 miles to the northeast.
- Name of park or recreational facility: Puhi Park
- Raw Score: 1.05 miles
- Scaled Score: 5

25.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Distance and direction from the site to the nearest park or recreational facility: 1.18 miles to west.
- Name of park or recreational facility: Koloa Park
- Raw Score: 1.18 miles
- Scaled Score: 6

25.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Distance and direction from the site to the nearest park or recreational facility: 1.12 miles to the North
- Name of park or recreational facility: Recreational park near to Anahola
- Raw Score: 1.12 miles
- Scaled Score: 5

25.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Distance and direction from the site to the nearest park or recreational facility: 0.4 miles to the northwest.
- Name of park or recreational facility: Wailua River State Park
- Raw Score: 0.4 miles

- Scaled Score: 1

25.7 PUU O PAPA I

- Complications obtaining the data: None
- Complications calculating the scaled score: None
- Distance and direction from the site to the nearest park or recreational facility: 1.92 miles to the southeast.
- Name of park or recreational facility: Hanapepe Heights House Lots Park
- Raw Score: 1.92 miles
- Scaled Score: 10

25.8 UMI

- Complications obtaining the data: None.
- Complications calculating the scaled score: None.
- Distance and direction from the site to the nearest park or recreational facility: 0.61 miles to the Northeast.
- Name of park or recreational facility: Kukuiohono Park and Golf Course
- Raw Score: 0.61 miles
- Scaled Score: 2

26.0 LANDFILL CAPACITY OR SITE LIFE

This criterion reflects the expected landfill capacity or site life, expressed in years. Sites with a longer expected site life are preferred.

How the raw score of the criterion was determined:

The "Site life" is the number of years the site is expected to accept waste based on the landfill geometry, the projected volume of waste generated, and the amount of soils used for daily cover. The expected landfill capacity, or site life, is calculated in the Preliminary Engineering Evaluation in the Siting Study Report. The uniform assumptions that were applied to all sites and other details of the calculation are detailed in the Preliminary Engineering Evaluation.

Data Source: Kekaha Landfill operation records and project correspondence with Waste Management of Hawaii and the DPW.

How the scaled score of the criterion was determined:

The raw scores were transformed to a 10-point scale where 1 is the shortest life expectancy, 10 is the longest life expectancy, and intermediate values were scaled proportionately.

Raw Score (years)	Scaled Score	Measure
26 – 39	1	The score for the site with the shortest life expectancy.
39 – 65	2	Intermediate values scaled proportionally.
66 – 92	3	
92 – 118	4	
119 – 145	5	
145 – 171	6	
171 – 198	7	
198 – 224	8	
224 – 251	9	The score for the site with the longest life expectancy.
251 – 264	10	

Data Evaluation and Site Scores:

26.1 KĀLEPA

- Complications obtaining the data: None
- Complications calculating the scaled score: Airspace volumes are estimates based on current landfilling practices that may not fully reflect actual operations and waste mass intake in the future. Unknown local geologic conditions can significantly affect the geometry of the landfill, and will be investigated in the future for those sites considered further for use as the County's landfill.
- Airspace volume and site life: The site conceptually has an airspace volume of 4,032,323 cy equating to 26 years of site life.
- Raw Score: 26 years
- Scaled Score: 1

26.2 KEKAHA MAUKA

- Complications obtaining the data: None

- Complications calculating the scaled score: Airspace volumes are estimates based on current landfilling practices that may not fully reflect actual operations and waste mass intake in the future. Unknown local geologic conditions can significantly affect the geometry of the landfill, and will be investigated in the future for those sites considered further for use as the County's landfill.
- Airspace volume and site life: The site conceptually has an airspace volume of 9,254,828 cy equating to 60 years of site life.
- Raw Score: 60 years
- Scaled Score: 2

26.3 KĪPŪ

- Complications obtaining the data: None
- Complications calculating the scaled score: Airspace volumes are estimates based on current landfilling practices that may not fully reflect actual operations and waste mass intake in the future. Unknown local geologic conditions can significantly affect the geometry of the landfill, and will be investigated in the future for those sites considered further for use as the County's landfill.
- Airspace volume and site life: The site conceptually has an airspace volume of 8,704,858 cy equating to 56 years of site life.
- Raw Score: 56 years
- Scaled Score: 2

26.4 KOLOA

- Complications obtaining the data: None
- Complications calculating the scaled score: Airspace volumes are estimates based on current landfilling practices that may not fully reflect actual operations and waste mass intake in the future. Unknown local geologic conditions can significantly affect the geometry of the landfill, and will be investigated in the future for those sites considered further for use as the County's landfill.
- Airspace volume and site life: The site conceptually has an airspace volume of 10,639,682 cy equating to 69 years of site life.
- Raw Score: 69 years
- Scaled Score: 3

26.5 KUMUKUMU

- Complications obtaining the data: None
- Complications calculating the scaled score: Airspace volumes are estimates based on current landfilling practices that may not fully reflect actual operations and waste mass intake in the future. Unknown local geologic conditions can significantly affect the geometry of the landfill, and will be investigated in the future for those sites considered further for use as the County's landfill.
- Airspace volume and site life: The site conceptually has an airspace volume of 16,164,268 cy equating to 104 years of site life.
- Raw Score: 104 years
- Scaled Score: 4

26.6 MAALO

- Complications obtaining the data: None
- Complications calculating the scaled score: Airspace volumes are estimates based on current landfilling practices that may not fully reflect actual operations and waste mass intake in the future. Unknown local geologic conditions can significantly affect the geometry of the landfill, and will be investigated in the future for those sites considered further for use as the County's landfill.
- Airspace volume and site life: The site conceptually has an airspace volume of 40,964,455 cy equating to 264 years of site life.
- Raw Score: 264 years
- Scaled Score: 1

26.7 PUU O PAPA

- Complications obtaining the data: None
- Complications calculating the scaled score: Airspace volumes are estimates based on current landfilling practices that may not fully reflect actual operations and waste mass intake in the future. Unknown local geologic conditions can significantly affect the geometry of the landfill, and will be investigated in the future for those sites considered further for use as the County's landfill.
- Airspace volume and site life: The site conceptually has an airspace volume of 14,794,854 cy equating to 95 years of site life.
- Raw Score: 95 years
- Scaled Score: 4

26.8 UMI

- Complications obtaining the data: None
- Complications calculating the scaled score: Airspace volumes are estimates based on current landfilling practices that may not fully reflect actual operations and waste mass intake in the future. Unknown local geologic conditions can significantly affect the geometry of the landfill, and will be investigated in the future for those sites considered further for use as the County's landfill.
- Airspace volume and site life: The site conceptually has an airspace volume of 8,182,034 cy equating to 53 years of site life.
- Raw Score: 53 years
- Scaled Score: 2