

# Executive Summary: Report of the Mayor's Advisory Committee on Landfill Site Selection

May 2012

**Mayor's Advisory Committee on Landfill Site Selection (MACLSS)  
City and County of Honolulu**

**Department of Environmental Services**  
City and County of Honolulu  
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# Executive Summary

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This report summarizes the efforts of the volunteer Mayor's Advisory Committee on Landfill Site Selection (Committee) to identify and rank potential landfill sites for consideration by the City and County of Honolulu (City). The guidance provided by the Committee will be used by the City as it moves forward with technical studies and analyses, including the preparation of an Environmental Impact Statement (EIS) for a new landfill site.

## 1.1 Need for a New Landfill Site

The provision of solid waste landfill capacity is a critical infrastructure element provided by the City to its citizens and is vital to the management of solid waste on O'ahu. A landfill is necessary for the disposal of non-combustible municipal solid waste (MSW), construction and demolition (C&D) waste, Honolulu Program of Waste Energy Recovery (H-POWER) related ash and residue, and other non-recyclable waste. A landfill is also necessary to provide a critical backup disposal site when H-POWER and other diversion facilities are unable to accept waste for processing (e.g., during periods of maintenance or repair).

The Mayor convened this Committee of volunteers pursuant to an amendment of the City's Special Use Permit granted by the State Land Use Commission (LUC) which extended the use of the Waimānalo Gulch Sanitary Landfill (WGSL) until July 2012. Condition No. 4 of the LUC decision required that the City begin to identify and develop one or more new landfill sites that shall either replace or supplement the existing WGSL.

In compliance with the LUC Condition No. 4, the City instructed the Committee that they were not to consider WGSL in their deliberations as the current WGSL could not supplement or replace itself. The City also related to the Committee that: (1) it is the City's intent to pursue the use of the WGSL until it reaches its full capacity; (2) that the sites the Committee will evaluate and rank will be considered for future use; and, (3) that the Committee's identification of landfill sites should include the provision for accepting MSW, C&D waste, and ash and residue from H-POWER.

## 1.2 Mayor's Landfill Site Selection Committee

The Mayor appointed a 12-member volunteer committee composed of citizens representing various communities and expertise on O'ahu. Three committee members left the Committee over the course of deliberations for personal reasons. The City decided to not replace the three members who resigned based on the number of meetings already held and the complexity of the issues covered. The final Committee of nine members provided experience and expertise from a broad range of backgrounds that included: public and community interests; State and City government; environmental and health sciences; legal and business professions; and others. The Committee was directed by the City to undertake the following:

- (1) Review a list of landfill sites identified by the City in prior studies and select the appropriate potential sites that should be subject to further evaluation using the Committee's community-based criteria. The Committee was tasked with developing its criteria with the assistance of the Facilitator and Consultant team;
- (2) Identify potential new landfill sites for consideration;

- (3) Identify and develop community-based criteria that are considered most important from a community's perspective in the siting of a new landfill; and
- (4) Produce a report on the results of its findings including a ranked list of sites for consideration by the City based on the application of the Committee's criteria. The community-based nature of the criteria were those that the Committee felt would not receive the same level of attention and weight as they would in mandated technical evaluations such as cost analyses, topographic and geotechnical studies, historical and cultural sites assessments, and surveys of flora and fauna, among others that will be performed by the City in subsequent steps culminating in the preparation of an EIS.

The Committee deliberated over the course of 10 meetings between January 2011 and April 2012.

As a result of its deliberations the Committee decided to reconsider the initial list of alternative landfill sites provided by the City and requested that the consultants further investigate land uses and sites not previously considered. The outcome of this investigation is described below.

### **1.3 The Site Identification Process**

The process of identifying landfill sites began with an inventory of approximately 43 potential landfill sites identified by the Department of Environmental Services (ENV) from the City's previous studies and investigations starting from approximately 1980. When the consultants began to evaluate these sites with exclusionary criteria such as runway airspace and others noted below it was clear there would be far fewer viable sites than suggested by the initial size of the list. The consultant discovered that many of the sites originally identified had been subsequently placed into residential development. Therefore, the majority of the 43 identified sites were no longer available for landfill use. During this period, the Committee was also asked to recommend potential new sites for consideration and inclusion in its report at this early stage of the process.

The evaluation of the remaining sites was subject to a two-step process. In the first step, the sites were evaluated against screening factors that would be used to identify sites for removal based on key attributes against which the site would no longer be considered viable. The screening factors that were used to evaluate the remaining sites included<sup>1</sup>:

- Protection of runway airspace
- Federal land ownership
- Conservation district designated land (any site with a Conservation district subzone other than the least restrictive General Subzone)
- Board of Water Supply (BWS) well capture zones
- Commission on Water Resource Management (CWRM) well sites
- Critical Habitats and Natural Area Reserve System (NARS) lands

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<sup>1</sup> The screening factor, Sites located above residential subdivisions or developments was added after the Committee decided to redirect the effort to identify sites inside of the UIC/No Pass line. This screening factor was subsequently removed by the Committee during the process.

- Impaired Water Bodies as designed by the Environmental Protection Agency (EPA) and Department of Health (DOH)
- Valued agricultural lands according to the Agricultural Lands of Importance to the State of Hawai‘i (ALISH) and Land Study Bureau (LSB) classification systems
- Parcel contains at least one structure as noted on aerial maps (this was later removed)
- Sites located above residential subdivisions or developments (this was later removed)

The second step involved the application of the Committee’s community-based criteria. Before this step was taken the Committee noted a number of points including:

- (1) The majority of the remaining sites evaluated are located outside of the Underground Injection Control (UIC)/No Pass line.

The Committee deliberated on this matter and decided it would be more encompassing to include for assessment potential landfill sites located within the UIC line and No Pass line. In its deliberations, the Committee understood City Council Resolution 03-09, Establishing A City Policy That Municipal Solid Waste Landfills Should Not Be Located Over The City’s Underground Drinking Water Sources, which at that time was an important part of the City’s practice to not site landfills within the UIC/No Pass line. However, the Committee also noted a landfill that is properly designed, engineered, and operated in accordance with environmental regulatory controls and safeguards, should not adversely affect groundwater.

- (2) Only one federal site, part of the Bellows Air Force Base (AFB), was identified<sup>2</sup>.

The Committee deliberated on this matter with some committee members noting that in order to increase the number of potential sites, lands that are owned by the federal government, with the exception of lands that are known to be actively used by the military, should be included for consideration. The Committee’s rationale for this inclusion was: (A) every option for the identification of potential sites should be made. Without specifically requesting the use of federal land, there would be no way of verifying that such use would not be possible; and, (B) federal lands should still be explored because there are processes available through Congressional action that can make possible the use of non-active military lands.

- (3) The City recommended that any site under consideration should be greater than 100 acres.

A 100-acre minimum site size was recommended to the Committee by the City and was originally agreed upon. However, after further deliberation the Committee felt that sites between 90 and 100 acres should also be considered to ensure that all locations that could be potentially usable are addressed. Potential sites of between 90 and 100 acres were thereafter included as a part of the site identification process.

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<sup>2</sup> This site was later removed from consideration due to a response from the Marine Corps Base Hawai‘i on February 9, 2011, indicating that the site was needed to support training requirements.

The City considered the issues above involving the Committee's desire to include land within the UIC/No Pass line, federal lands, and the minimum site size, and determined that the Committee must be allowed to conduct its own deliberating process without undue influence.

The Committee also noted during its deliberations that the siting of a landfill is a difficult exercise and that effort should be taken to develop the most extensive list of sites possible within the various federal and state constraints. The Committee therefore expanded the list of sites that would be assessed recognizing that some of the screening factors such as those identified above should be reassessed.

This resulted in a major shift from an evaluation of the remaining sites previously identified to an evaluation of new potential landfill sites. The consultant team thereafter reevaluated the island of O'ahu utilizing a Geographic Information System (GIS) based approach. This resulted in the identification of new sites that were subjected to the same analyses as the original sites. In undertaking the GIS based analysis the consultants noted the following:

- (1) A GIS based analysis is not a substitute for a more formal evaluation of a landfill that would be performed by the City in an EIS. The undertaking of an EIS level of assessment and evaluation must be performed for the proper identification of any landfill site prior to it being developed; and
- (2) A GIS based analysis involves a desktop level of study<sup>3</sup>. Investigative fieldwork could not and was not performed. Instead, existing available data was utilized that was either in the public domain (i.e., the State of Hawaii GIS Website and other public GIS sources), or was obtained by consulting directly with the agencies and parties that have responsibility and knowledge in specific technical fields. These included the BWS, CWRM, and the DOH.

The GIS based analysis evaluated land parcels on the island of O'ahu including locations within the UIC/No Pass line, federal lands, and sites both greater than 100 acres and between 90 and 100 acres in size. Approximately 464 potential sites were identified as follows:

- 337 parcels of 100+ acres in size inside the UIC/No Pass line (not consistent with City policy)
- 97 parcels of 100+ acres in size outside the UIC/No Pass line
- 17 parcels of 90 to 100 acres in size inside the UIC Line and No Pass line (not consistent with City policy)
- 13 parcels of 90 to 100 acres in size outside the UIC Line and No Pass line

After the application of the screening factors described above, a list of 11 sites remained for further application of the Committee's community-based criteria:

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<sup>3</sup> A desktop study means that basic research will be performed using only existing data sources supplemented by consultation with experts in technical fields as applicable to the nature of the study. Fieldwork including the use of site surveys is not performed.

### List of Sites for Application of Community-Based Criteria

Site Name (Alphabetic Order)	Within UIC/ No Pass Line*	TMK <sup>4</sup>	Parcel Acreage	Land Ownership
Ameron Quarry	No	42015001	382	Private
Kāneʻohe by H-3	No	44012001	158	Private
Kapaʻa Quarry Road	No	44011003	258	Private
Keʻeau	Yes	83001013	634	Private
Upland Hawaiʻi Kai	No	39010047	97	Private
Upland Kahuku 1	Yes	56008002	1,621	Federal
Upland Kahuku 2	Yes	57002001	1,529	Federal
Upland Lāʻie	Yes	55007001	2,231	Private
Upland Nānākuli 1 <sup>5</sup>	Yes	85006011	882	Private
Upland Pupukea 1	Yes	61006001	2,177	Private
Upland Pupukea 2	Yes	61007001	1,672	Private

\*Sites that intersect the UIC/No Pass Line are considered within the UIC/No Pass Line.

#### 1.4 The Process of Applying the Committee’s Community-Based Criteria

The Committee developed landfill siting criteria to supplement those mandated by state and federal government agencies. This enabled the comparison of key community based considerations for a new landfill that were important to the Committee (e.g., proximity to residences, groundwater protection, and travel distances, etc.). A total of 19 community-based criteria were developed:

#### Community-Based Criteria and Weighting

No.	Criterion Name	Weights
1	Landfill Capacity	2.50
2	Location Relative to Educational Institutions, Health Care Facilities, or Parks and Recreation Facilities	9.85
3	Location Relative to Residential Concentrations	10.00
4	Location Relative to Visitor Accommodations	4.00
5	Location Relative to Local or Visitor Commercial Facilities	4.00
6	Effect on Established Public View Planes	2.50
7	Wind Direction Relative to Landfill Site	4.00
8	Effect on Local Roads and Traffic in Residential Neighborhoods	9.55
9	Wear and Tear on Highways and Roadways Caused by Landfill Related Traffic	1.00
10	Location Relative to Identified Community Disamenities	9.25
11	Location Relative to H-POWER	8.65
12	Effect of Precipitation on Landfill Operations	9.25
13	Landfill Development, Operation and Closure Cost	7.00
14	Land Use Displacement Cost	2.50
15	Potential for Solid Waste-Related Land Uses	1.00
16	Location Relative to Wetlands and Natural Area Reserve System Land	4.00
17	Location Relative to Listed Threatened and Endangered Species	2.50
18	Location of Surface Water Resources	8.95
19	Location of Archaeological and Culturally Significant Resources	1.00

<sup>4</sup> The identities of the sites were not disclosed to the Committee members until after the application of the Committee’s community-based criteria weights.

<sup>5</sup> At least one Committee member noted that the location of this site is in Waiʻanae.



The Committee's criteria of specific factors important to communities were applied by the consultant team to each of the sites. The Committee worked with the consultant team and arrived at a consensus as to how each of the community criteria was to be measured and evaluated. The Facilitator worked with the Committee to develop a series of weights whereby the relative importance of each of the 19 criteria were assigned weighting values so it would be clear which criteria were more important than the others from 1 to 19.

A "dual blind" process was followed in which only the Facilitator knew both the location of the potential landfill sites and the results of the Committee's criteria weighting. Specifically:

The consultants only knew (1) the locations of the potential landfill sites under examination and (2) the raw scores that would be assigned to the criteria. The Committee did not.

The Committee only knew the weights they had assigned to the 19 criteria they developed, but did not know the locations of the landfill sites the weights would be applied to.

On Friday, April 20, 2012, the Committee and the consultant team met to disclose the information each of them had known but purposefully had not shared. The intent was to preserve the integrity of the landfill siting analysis by keeping the results from being unduly influenced by issues or concerns regarding a landfill sited in a particular community (i.e., Not In My Back Yard (NIMBY) influences).

During the process of applying the criteria weights, a real time error occurred while performing the exercise and on Wednesday, April 25, the Committee members were notified and a press conference held to present to the news media and public the following:

- (1) On Friday, April 20 during a meeting of the Committee a real time calculation of the ranking of potential landfill sites using the Committee's community criteria weights was performed. The result was a preliminary ranked list of potential landfill sites. As a normal part of Quality Assurance/Quality Control (QA/QC) procedures, the preliminary results underwent data review and evaluation over the course of that weekend.
- (2) On Sunday, April 22, a data error was discovered. The error took place during an approximately 15 - 20 minute break when adjustments to the equations evaluating the data were being performed. Thus, the data error occurred in *real time*.
- (3) On Monday, April 23, the City was informed of the error and advised that steps were being taken to verify the source of the error and that a new ranked list of sites would result. The City asked that a re-verification step be taken and to be notified when this was completed.
- (4) By Tuesday, April 24, the City was informed that the re-verification step was completed and the Committee members and press would be contacted regarding the corrected results.

Emphasized during the press conference of April 25 were two important points:

- (1) The error occurred in real time and during the course of the Committee's meeting. This error was a data error only and does not affect the integrity of the Committee's process which has been carefully followed to date; and

- (2) The work of the Committee is an important first step in evaluating sites using criteria intended to reflect the community’s priorities in the siting of a landfill. The City’s next steps will include the evaluation of sites with technical studies and analyses including the preparation of an EIS.

The final corrected list of ranked sites reflecting the application of the community criteria and weighting factors is discussed in the next section.

### 1.5 Committee Findings and Recommendations

The ranking of potential landfill sites identified through the Committee’s process is listed below. The site locations are provided in the figure on page ES-9.

Final List of Ranked Sites

Rank	Site Name (Ranked Order)	Within UIC/ No Pass Line	TMK	Parcel Acreage	Estimated Capacity (Yrs.)	Land Ownership
1	Upland Kahuku 2	Yes	57002001	1,529	>30	Federal
2	Upland Kahuku 1	Yes	56008002	1,621	25-30	Federal
3	Upland Pupukea 2	Yes	61007001	1,672	25-30	Private
4	Upland Pupukea 1	Yes	61006001	2,177	25-30	Private
5	Ameron Quarry	No	42015001	382	>30	Private
6	Upland Nānākuli 1 <sup>6</sup>	Yes	85006011	882	>30	Private
7	Upland Lā‘ie	Yes	55007001	2,231	20-25	Private
8	Ke‘eau	Yes	83001013	634	25-30	Private
9	Kāne‘ohe by H-3	No	44012001	158	15-20	Private
10	Upland Hawai‘i Kai	No	39010047	97	10-15	Private
11	Kapa‘a Quarry Road	No	44011003	258	15-20	Private

The Committee offers the following preliminary findings and recommendations to its list of ranked sites:

- (1) The sites identified through this process include alternative landfill sites within the UIC line/No Pass line. The Committee recognizes its identification of potential landfill sites does not conform to existing City policy as expressed in Council Resolution 03-09. However, the Committee notes the following points:

It chose to proceed in this manner as a result of careful consideration realizing the acute shortage of remaining land on O‘ahu that is available for landfilling;

A landfill that is properly designed, engineered, and operated in accordance with environmental regulatory controls and safeguards should not adversely affect groundwater. Alternative landfill sites should therefore be investigated in locations not previously considered by the City; and,

The list of original sites the Committee was asked to consider needed to be expanded on the basis that, without a change in how landfill siting is considered, the City would continue to be limited to the same list of alternative locations previously identified.

<sup>6</sup> At least one Committee member noted that the location of this site is in Wai‘anae.

(2) The Committee also believed since land available for a landfill is limited on O‘ahu, that they should direct the Consultant to look at federal lands not known to be in active military use. These sites were added to the analysis.

(3) The Committee’s process involved the identification of alternative landfill sites by the Consultant using a GIS based system supplemented by interviews with regulatory agencies. This desktop level of study was therefore undertaken making every effort to utilize or obtain current information. Accordingly, the ranking of potential landfill sites presented herein and the findings and recommendations of this report should not be misconstrued as the final level of analysis that should be performed. The City must exercise due diligence by verifying the Committee’s work and findings through the conduct of further studies as would customarily be performed in technical studies and analyses, including the preparation of an EIS, for a new landfill site.

### **1.6 Other Recommendations**

The Committee during its deliberations, as previously indicated, decided to expand the list of potential sites to those located within the UIC line/No Pass line as established by the DOH and BWS. The addition of sites resulted in multiple ranked lists and included those that meet City Council Policy and those that do not, and those that meet the 100 acre minimum and those between 90 to 100 acres in size.

The Committee strongly recommends the City move aggressively to develop alternative technologies to landfilling, and continue to strengthen its waste stream diversion and recycling efforts.

In planning, designing and choosing an operator for the next landfill site, the Committee recommends the City adopt a philosophy that everything that goes into the landfill may be of value and could provide a potential revenue stream for the operator and the City in the future. They also strongly recommend this thinking be applied to the existing site with the current operator. This would require the operator to adequately map where things are disposed of such that if value can be derived from items in the future, they can be recovered.

The Committee feels that whatever site is ultimately chosen the City must consider “Host Community Benefits.” The details of a benefits package should be negotiated with the affected community.

### **1.7 Concluding Remark**

With these findings and recommendations, the Committee anticipates the City will move forward with technical studies and analyses, including an EIS, to evaluate in detail the benefits and constraints of each site to determine the preferred alternative for a new landfill capable of serving all the communities of O‘ahu.

**Location of Ranked Sites on O'ahu**  
 Mayor's Advisory Committee on Landfill  
 Site Selection (MACLSS)  
 April 25, 2012

