

Volume 3 of 3

Final Environmental Impact Statement

Prepared in Accordance with Chapter 343, Hawaii Revised Statutes and
Title 11, Chapter 200, Hawaii Administrative Rules

Appendices
Waimānalo Gulch Sanitary
Landfill Lateral Expansion

Waimānalo Gulch, O‘ahu, Hawai‘i
TMKs: (1) 9-2-003: 072 and 073

October 2008

City and County of Honolulu
Department of Environmental Services
1000 Uluohia Street, 3rd Floor
Kapolei, Hawai‘i 96707



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1-21149-00

Volume 3 of 3

Final Environmental Impact Statement

Appendices

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Prepared for:
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Prepared by:
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Table of Contents

Volume 2 of 3

- Appendix A Notice of Violation, January 31, 2006, and Settlement Agreement, December 7, 2007, State Department of Health
- Appendix B Finding and Notice of Violation, Docket No. R6-06-06, Environmental Protection Agency, April 5, 2006
- Appendix C EIS Public Scoping Conducted for the Proposed Expansion of the Waimānalo Gulch Sanitary Landfill, September 2006
- Appendix D Hydrologic Setting and Groundwater Monitoring, Waimānalo Gulch Sanitary Landfill, 2006
- Appendix E Botanical Resources Report for Alternative Municipal Refuse Disposal Sites on the Island of O‘ahu, 2007
- Appendix F Survey of the Avifaunal and Feral Mammals for the Proposed Waimānalo Gulch Landfill Expansion Project, O‘ahu, 2007
- Appendix G Archaeological Inventory Survey, Waimānalo Gulch Landfill Expansion, 2008
- Appendix H Cultural Impact Assessment (Draft), Waimānalo Gulch Landfill Expansion, 2008

Volume 3 of 3

- Appendix I Traffic Impact Report, Waimānalo Gulch Sanitary Landfill Expansion, 2007
- Appendix J Socioeconomic Impact Assessment, Waimānalo Gulch Sanitary Landfill Expansion, 2008 (Including Addenda, Sept. 2008)
- Appendix K Alternatives Analysis, Waimānalo Gulch Sanitary Landfill Expansion, 2008 (Including Addenda, Sept. 2008)
- Appendix L Invertebrate Survey, Waimānalo Gulch Sanitary Landfill Expansion, 2008
- Appendix M Blasting Effects on Rockfalls and Vibrations, Waimānalo Gulch Sanitary Landfill Expansion, 2008

Appendix I

Traffic Impact Report
Waimānalo Gulch Sanitary Landfill Expansion, 2007

TRAFFIC IMPACT REPORT
FOR THE
WAIMANALO GULCH SANITARY LANDFILL EXPANSION

Prepared for:

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WOC Ref# 7618-01

March 2007

TABLE OF CONTENTS

	Page
I. Introduction	1
A. Purpose of Study	1
B. Scope of Study	1
II. Project Description	1
A. Location	1
B. Project Characteristics	1
III. Existing Traffic Conditions.....	3
A. Area Roadway System	3
B. Traffic Volumes and Conditions.....	3
1. General.....	3
a. Field Investigation	3
b. Capacity Analysis Methodology	5
2. Existing Peak Hour of Traffic	5
IV. Projected Traffic Conditions	7
A. Site-Generated Traffic.....	7
1. Trip Generation Methodology	7
2. Trip Distribution	8
B. Traffic Signal Warrant.....	8
C. Total Traffic Volumes With Project.....	10
V. Traffic Impact Analysis	13
VI. Recommendations	13
VII. Conclusion	14

LIST OF EXHIBITS

EXHIBIT 1	Location and Vicinity Map
EXHIBIT 2	Proposed Site Plan
EXHIBIT 3	Existing Peak Hours of Traffic
EXHIBIT 4	Distribution of Site-Generated Traffic
EXHIBIT 5	Traffic Signal Warrant No. 3 Farrington Highway and Waimanalo Gulch Sanitary Landfill Access Road
EXHIBIT 6	Projected Peak Hours of Traffic With Project

LIST OF APPENDICES

APPENDIX A	Existing Traffic Count Data
APPENDIX B	Level of Service Definitions
APPENDIX C	Capacity Analysis Calculations Existing Peak Hour Traffic Analysis
APPENDIX D	Capacity Analysis Calculations Projected Peak Hour Traffic Analysis With Project

I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to identify and assess the traffic impacts resulting from the expansion of the Waimanalo Gulch Sanitary Landfill located near Koolina on the island of Oahu. The project entails the expansion of the existing landfill site to include an additional 92.5 acres.

B. Scope of Study

This report presents the findings and conclusions of the traffic study, the scope of which includes:

1. Description of the proposed project.
2. Evaluation of existing roadway and traffic operations in the vicinity.
3. Analysis of future roadway and traffic conditions without the proposed project.
4. Analysis and development of trip generation characteristics for the proposed project.
5. Superimposing site-generated traffic over future traffic conditions.
6. The identification and analysis of traffic impacts resulting from the proposed project.
7. Recommendations of improvements, if appropriate, that would mitigate the traffic impacts resulting from the proposed project.

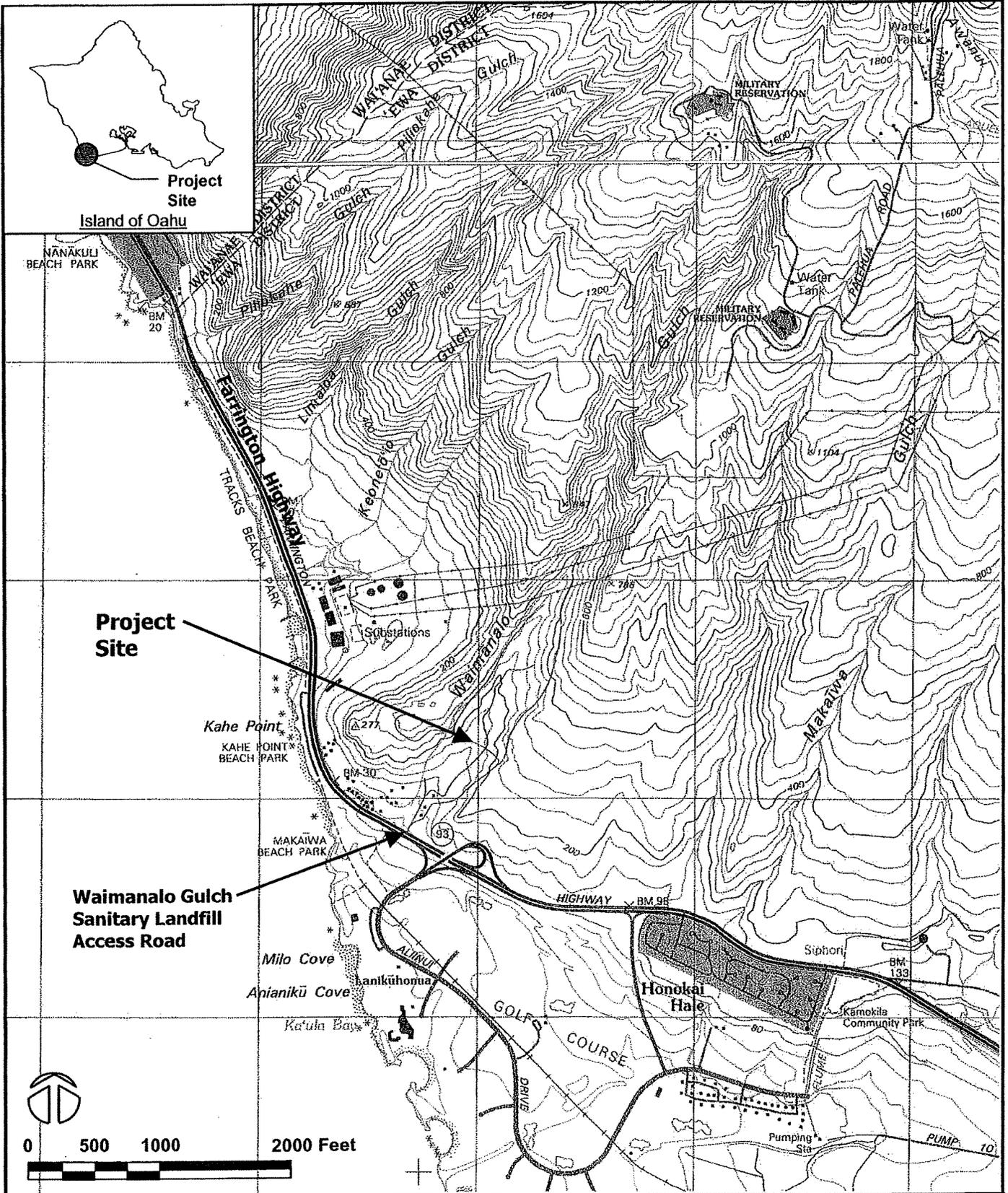
II. PROJECT DESCRIPTION

A. Location

The existing Waimanalo Gulch Sanitary Landfill is located adjacent to Farrington Highway northwest of Ko Olina on the island of Oahu (See Figure 1) and is further identified as Tax Map Keys: 9-2-3: 72 and 73. Access to the landfill is currently provided via an access road off Farrington Highway.

B. Project Characteristics

The existing Waimanalo Gulch Sanitary Landfill is located on an approximately 200-acre site along the north side of Farrington Highway just east of the westbound off-ramp to Ko Olina Resort. Currently, only 107.5 acres of the




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 ENGINEERS - PLANNERS

WAIMANALO GULCH SANITARY LANDFILL EXPANSION

LOCATION MAP AND VICINITY MAP

FIGURE
1

existing site is used for landfill operations. However, 60.5 acres of the existing landfill is scheduled for closure in the near future and, as such, an expansion of the existing facilities is proposed to increase the capacity and lifespan of the landfill. The proposed project would result in a net increase in space used for landfill of 32 acres. Access to the landfill would continue to be provided via the existing access road off Farrington Highway. Figure 2 shows the project site plan.

III. EXISTING TRAFFIC CONDITIONS

A. Area Roadway System

The existing Waimanalo Gulch Sanitary Landfill is located adjacent to Farrington Highway. In the vicinity of the landfill, Farrington Highway is a predominantly four-lane, two-way divided State of Hawaii roadway generally oriented in the east-west direction that serves as the primary access road along the southwest coastline of Oahu. At the unsignalized intersection of the highway with the access road to the landfill, the eastbound approach of Farrington Highway has an exclusive, left-turn lane and two through lanes. There is also an additional lane along the south side of the highway that serves as the eastbound off-ramp to Ko Olina Resort. The westbound approach of the highway has an exclusive right-turn lane and two through lanes. In addition, a median storage lane has been provided along Farrington Highway for vehicles turning left from the landfill access road.

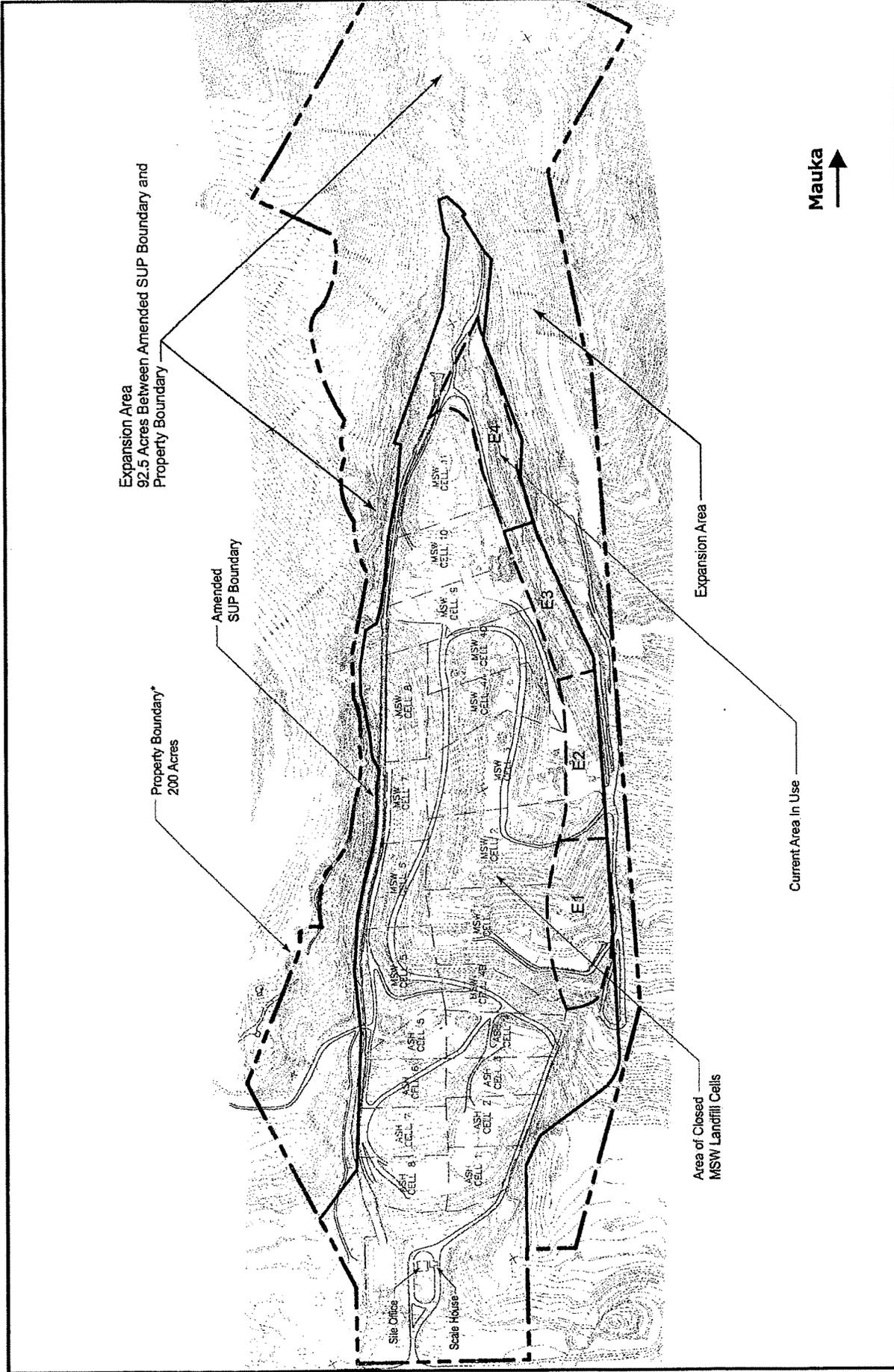
The Waimanalo Gulch Sanitary Landfill access road approach of the intersection has one channelized lane that serves left-turn and right-turn traffic movements. Vehicles turning left from the access road are channelized into the median storage lane along Farrington Highway.

B. Traffic Volumes and Conditions

1. General

a. Field Investigation

The field investigation was conducted on January 17, 2007 and consisted of manual turning movement count surveys and traffic flow assessments at the intersection of Farrington Highway with the access



WAIMANALO GULCH SANITARY LANDFILL EXPANSION

PROPOSED SITE PLAN

FIGURE 2

road to the Waimanalo Gulch Sanitary Landfill. The turning movement count surveys were conducted during the morning commuter traffic peak hours of 6:00 AM and 8:00 AM, and the afternoon commuter traffic peak hours of 3:00 PM and 6:00 PM. Appendix A includes the existing traffic count data.

b. Capacity Analysis Methodology

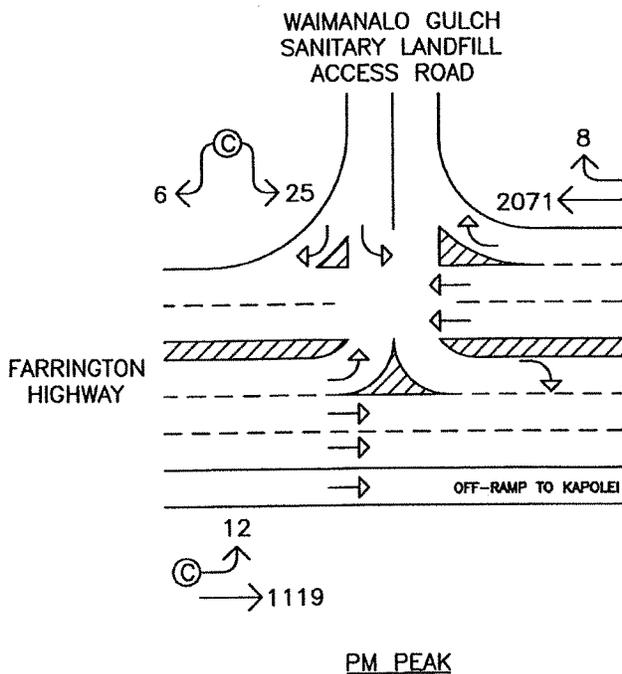
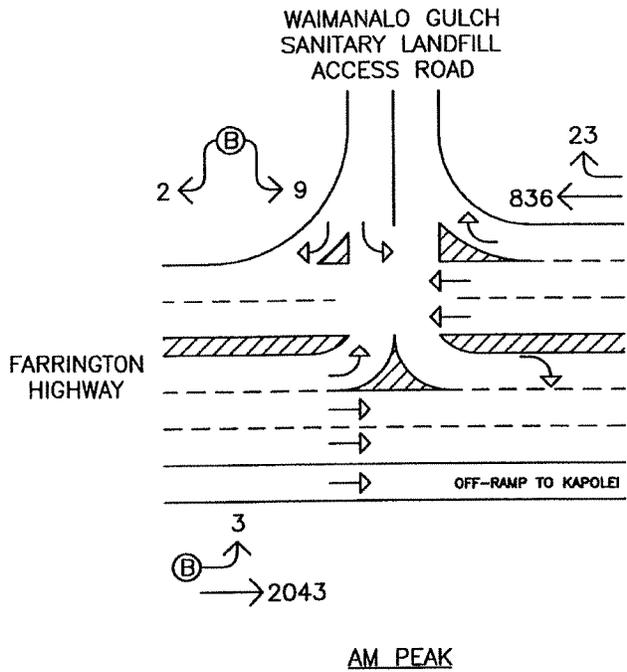
The highway capacity analysis performed in this study is based upon procedures presented in the “Highway Capacity Manual”, Transportation Research Board, 2000, and the “Highway Capacity Software”, developed by the Federal Highway Administration. The analysis is based on the concept of Level of Service (LOS) to identify the traffic impacts associated with traffic demands during the peak hours of traffic.

LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS “A” through “F”; LOS “A” representing ideal or free-flow traffic operating conditions and LOS “F” unacceptable or potentially congested traffic operating conditions.

“Volume-to-Capacity” (v/c) ratio is another measure indicating the relative traffic demand to the road carrying capacity. A v/c ratio of one (1.00) indicates that the roadway is operating at or near capacity. A v/c ratio of greater than 1.00 indicates that the traffic demand exceeds the road’s carrying capacity. The LOS definitions are included in Appendix B.

2. Existing Peak Hour Traffic

Figure 3 shows the existing AM and PM peak hour traffic volumes and operating traffic conditions. The AM peak hour of traffic generally occurs between 6:15 AM and 7:15 AM in the vicinity of the existing landfill. In the afternoon, the PM peak hour of traffic generally occurs between the hours of 3:45 PM and 4:45 PM. The analysis is based on these peak hour time periods



NOT TO SCALE



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WAIMANALO GULCH SANITARY LANDFILL EXPANSION

EXISTING PEAK HOURS OF TRAFFIC

FIGURE
3

to identify the traffic impacts resulting from the proposed project. LOS calculations are included in Appendix C.

At the intersection with the existing landfill access road, Farrington Highway carries 2,046 vehicles eastbound and 859 vehicles westbound during the AM peak period. During the PM peak period, the overall traffic volume is higher with 1,131 vehicles traveling eastbound and 2,079 vehicles traveling westbound. The critical movement on the Farrington Highway approaches of the intersection is the eastbound left-turn traffic movement which operates at LOS "B" during both peak periods.

The Waimanalo Gulch Sanitary Landfill access road approach of the intersection carries 11 vehicles southbound during the AM peak hour of traffic. During the PM peak hour of traffic, the traffic volume is slightly higher with 31 vehicles traveling southbound. The access road approach of the intersection operates at LOS "C" during both peak periods. Traffic queues occasionally formed on this approach of the intersection with average queue lengths of 2-3 vehicles observed during both peak periods.

IV. PROJECTED TRAFFIC CONDITIONS

A. Site-Generated Traffic

1. Trip Generation Methodology

The expansion of the Waimanalo Gulch Sanitary Landfill is being proposed to increase the capacity and extend the current lifespan of the landfill. As such, the expansion itself is not expected to generate additional trips to and from the facility. However, increased development throughout Oahu may result in an increase in site-generated trips to the landfill since additional refuse vehicles may be required to service these areas. As such, additional trips were conservatively assumed to be generated by the proposed landfill expansion.

The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in "Trip Generation, 7th Edition," 2003. The

trip generation rates were developed empirically by correlating the existing vehicle trip generation data with the acres of development. These rates were then utilized to determine the number of additional vehicle trips that would be generated by the expansion of the existing landfill. Table 1 summarizes the trip generation characteristics applied to the AM and PM peak hours of traffic to measure the impact resulting from the proposed Waimanalo Gulch Sanitary Landfill expansion.

Table 1: Peak Hour Trip Generation

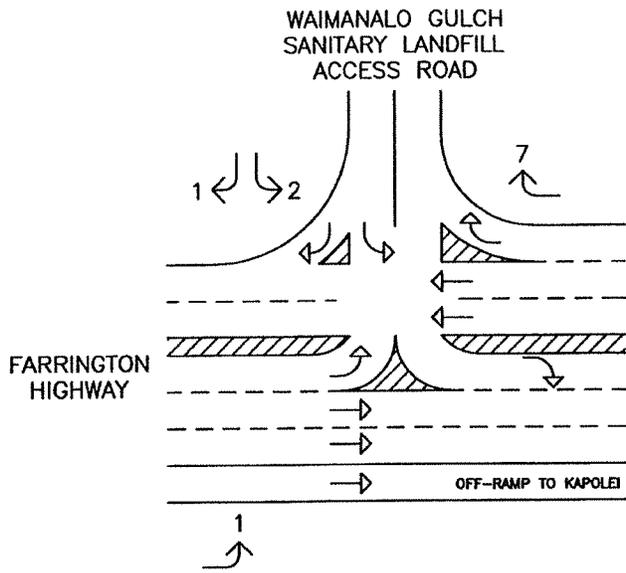
SANITARY LANDFILL			
INDEPENDENT VARIABLE: Net Increase in Acres of Dev = 32			
		RATE	PROJECTED TRIP ENDS
AM PEAK	ENTER	0.242	8
	EXIT	0.102	3
	TOTAL	0.344	11
PM PEAK	ENTER	0.186	6
	EXIT	0.288	9
	TOTAL	0.474	15

2. Trip Distribution

Figure 4 shows the distribution of site-generated traffic during the AM and PM peak hours of traffic. Access to the Waimanalo Gulch Sanitary Landfill will continue to be provided by the existing access road off Farrington Highway. The directional distribution of site-generated traffic at the intersection of Farrington Highway with the access road was assumed to remain similar to existing conditions.

B. Traffic Signal Warrant

As a result of the proposed expansion of the Waimanalo Gulch Sanitary Landfill, a traffic signal system may be warranted at the intersection of Farrington Highway and the Waimanalo Gulch Sanitary Landfill access road. The installation of a traffic signal at an intersection may be justified by one or more of the eight warrants outlined in the “Manual on Uniform Traffic Control Devices for Streets and Highways,” 2003 Edition (MUTCD). These warrants take into account factors such



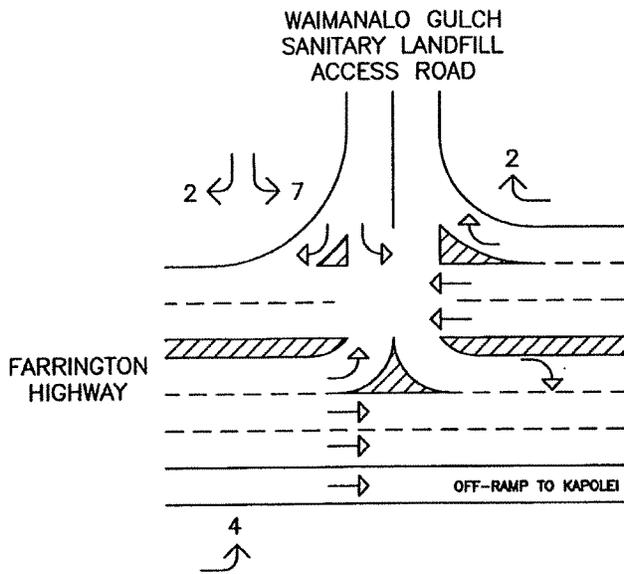
AM PEAK



LEGEND

TRAFFIC MOVEMENT VOLUME (VPH)

LANE USAGE



PM PEAK

NOT TO SCALE



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WAIMANALO GULCH SANITARY LANDFILL EXPANSION

DISTRIBUTION OF ADDITIONAL
SITE-GENERATED VEHICLES

FIGURE
4

as eight-hour vehicular volumes (Warrant 1), four-hour vehicular volumes (Warrant 2), peak hour volumes (Warrant 3), pedestrian volumes (Warrant 4), the presence of a school crossing or coordinated signal system (Warrants 5 and 6), crash experience (Warrant 7), and other characteristics of the roadway network (Warrant 8). Since traffic data was collected at the subject intersection during the peak periods of traffic and the traffic projections do not extend beyond these periods, only Warrant 3 was applied to the intersection to determine whether or not a traffic signal system might be justified.

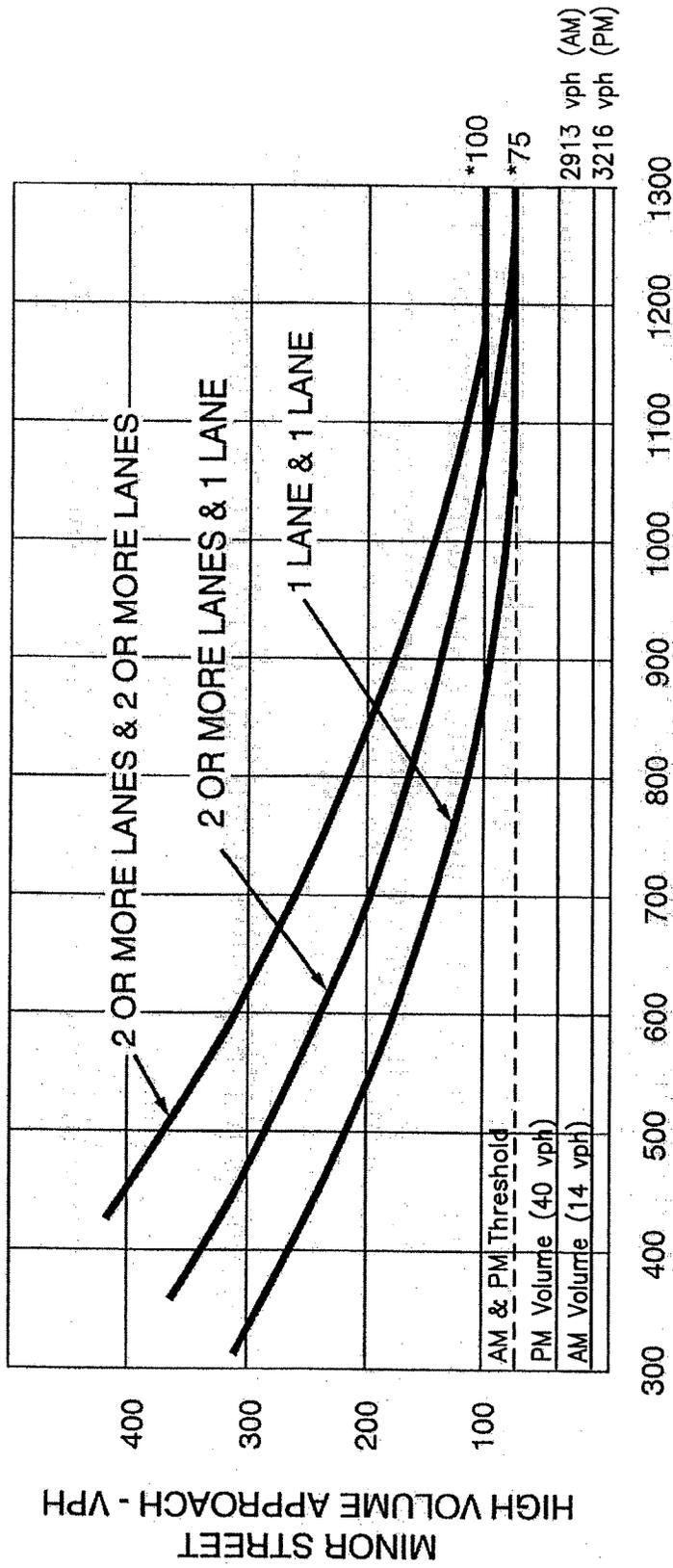
Warrant 3, the “Peak Hour Warrant,” consists of several conditions that may justify the installation of a traffic signal at an intersection where vehicles experience high traffic delay due to large volumes of intersecting traffic during the peak hour periods. One of the conditions is based upon the relationship between the traffic volumes along the major and minor street. If the traffic volumes along the minor street exceed the thresholds shown in the MUTCD, a traffic signal system may be warranted. Since the intersection lies within an isolated community with a population less than 10,000, Figure 4C-4 “Warrant 3, Peak Hour (70% Factor)” was used to determine if a traffic signal system is warranted at this intersection. Under with project conditions, the traffic volumes entering the subject intersection are below the thresholds during both peak hours of traffic and, as such, do not satisfy Warrant 3 for minor street approaches with one lane for high traffic volumes on the major street (see Figure 5). Therefore, the intersection of Farrington Highway and the Waimanalo Gulch Sanitary Landfill access road is assumed to remain unsignalized.

C. Total Traffic Volumes With Project

The projected AM and PM peak period traffic volumes and operating conditions with the proposed expansion of the existing Waimanalo Gulch Sanitary Landfill are shown in Figure 6. The cumulative volumes consist of additional site-generated traffic superimposed over existing traffic demands. The traffic impacts resulting from the proposed expansion are addressed in the following section.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)



**MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)**

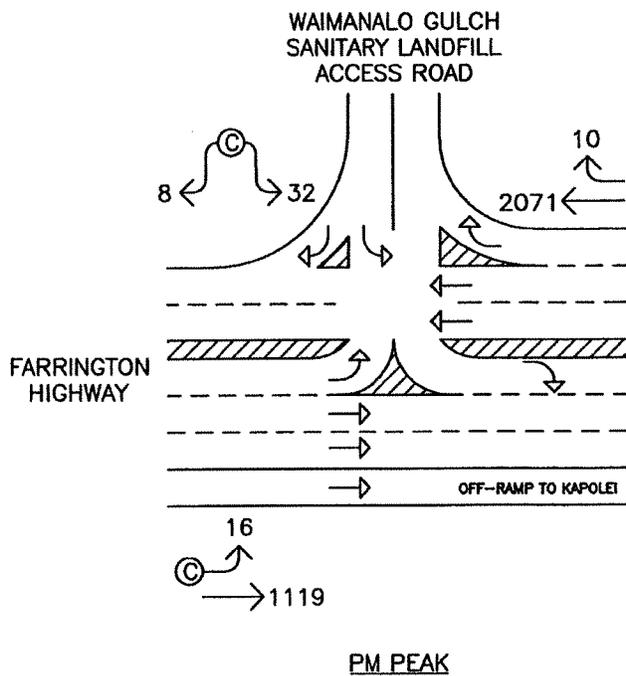
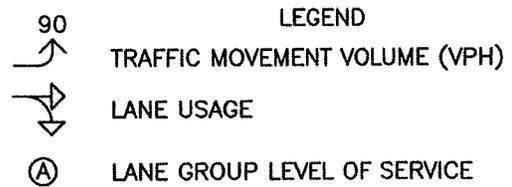
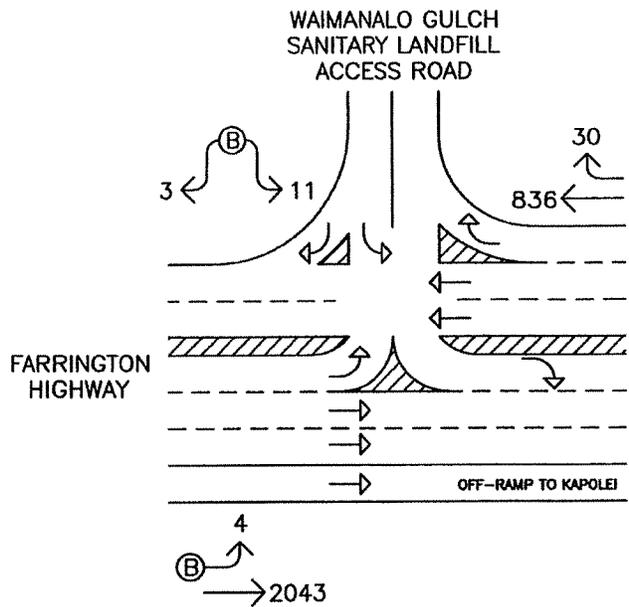
*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: MUTCD



WAIMANALO GULCH SANITARY LANDFILL EXPANSION
TRAFFIC SIGNAL WARRANT NO. 3
FARRINGTON HIGHWAY AND LANDFILL ACCESS ROAD

FIGURE
5



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PROJECTED PEAK HOURS OF TRAFFIC
WITH PROJECT

FIGURE
6

V. TRAFFIC IMPACT ANALYSIS

The cumulative AM and PM peak hour traffic conditions with the proposed expansion of the existing Waimanalo Gulch Sanitary Landfill are summarized in Table 2. The existing operating conditions are provided for comparison purposes. LOS calculations are included in Appendix D.

Table 2: Existing and Projected With Project LOS Traffic Operating Conditions

Intersection	Critical Movement		AM		PM	
			Exist	w/ Proj	Exist	w/ Proj
Farrington Hwy/ Waimanalo Gulch Sanitary Landfill Access Rd	Eastbound	LT	B	B	C	C
	Southbound	LT-RT	B	B	C	C

Traffic operations in the vicinity of the landfill are expected to remain similar to existing conditions during both peak hours of traffic despite the anticipated increases in traffic along Farrington Highway due to the proposed expansion. The critical traffic movements at the intersection of Farrington Highway with the Waimanalo Gulch Sanitary Landfill access road are expected to continue operating at LOS “B” and LOS “C” during the AM and PM peak periods, respectively. The total traffic volumes entering the intersection are expected to increase by less than 1% during both peak hours of traffic with proposed expansion. These increases in the total traffic volumes are in the range of daily volume fluctuations along Farrington Highway and represent a minimal increase in the overall traffic volumes.

VI. RECOMMENDATIONS

Based on the analysis of the traffic data and projected traffic conditions, the following are the recommendations of the study:

1. Maintain sufficient roadway width to accommodate safe vehicle ingress and egress.
2. Maintain adequate turning radii at all project roadways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
3. Maintain adequate sight distances for motorists to safely enter and exit all project roadways.

4. Maintain adequate on-site loading and off-loading service areas to ensure that vehicular queues do not extend onto the highway.

VII. CONCLUSION

The proposed expansion of the existing Waimanalo Gulch Sanitary Landfill is not expected to have a significant impact on traffic operations in the vicinity. Although the expansion of the Waimanalo Gulch Sanitary Landfill is not expected to generate additional trips to and from the facility, additional trips were conservatively assumed to be generated by the proposed expansion to account for additional refuse vehicles generated by on-going development throughout Oahu. However, traffic operations in the vicinity of the landfill are expected to remain similar to existing conditions during both peak hours of traffic despite the anticipated increases in traffic. The critical traffic movements at the intersection of Farrington Highway with the Waimanalo Gulch Sanitary Landfill access road are expected to continue operating at levels of service similar to existing conditions. In addition, the total traffic volumes entering the intersection are expected to increase by less than 1% during both peak hours of traffic with proposed expansion. These increases in the total traffic volumes are in the range of daily volume fluctuations along Farrington Highway and represent a minimal increase in the overall traffic volumes.

APPENDIX A

EXISTING TRAFFIC COUNT DATA

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter: D4-3888/D4-3889

Counted: ZW/ER

Weather: Clear

File Name : farwaia
 Site Code : 00000001
 Start Date : 1/17/2007
 Page No : 1

Groups Printed- Unshifted

Start Time	Waimanalo Gulch Dwy Southbound				Farrington Hwy Westbound				Farrington Hwy Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
06:00 AM	2	0	0	2	0	60	8	68	2	558	0	560	630
06:15 AM	2	0	1	3	0	152	5	157	2	607	0	608	768
06:30 AM	2	0	0	2	0	190	3	193	2	491	0	493	688
06:45 AM	0	0	1	1	0	245	5	250	0	519	0	519	770
Total	6	0	2	8	0	647	21	668	5	2175	0	2180	2856
07:00 AM	5	0	0	5	0	249	10	259	0	426	0	426	690
07:15 AM	5	0	0	5	0	188	5	193	2	415	0	417	615
07:30 AM	8	0	0	8	0	209	9	218	0	394	0	394	620
07:45 AM	9	0	0	9	0	191	3	194	1	382	0	383	586
Total	27	0	0	27	0	837	27	864	3	1617	0	1620	2511
Grand Total	33	0	2	35	0	1484	48	1532	8	3792	0	3800	5367
Approch %	94.3	0	5.7	0.7	0	96.9	3.1	28.5	0.2	99.8	0	70.8	
Total %	0.6	0	0		0	27.7	0.9		0.1	70.7	0		

Start Time	Waimanalo Gulch Dwy Southbound				Farrington Hwy Westbound				Farrington Hwy Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
06:15 AM	2	0	1	3	0	152	5	157	1	607	0	608	768
06:30 AM	2	0	0	2	0	190	3	193	2	491	0	493	688
06:45 AM	0	0	1	1	0	245	5	250	0	519	0	519	770
07:00 AM	5	0	0	5	0	249	10	259	0	426	0	426	690
Total Volume	9	0	2	11	0	836	23	859	3	2043	0	2046	2916
% App. Total	81.8	0	18.2	.550	0	97.3	2.7	.829	0.1	99.9	0	.841	.947
PHF	.450	.000	.500		.000	.839	.575		.375	.841	.000		

Peak Hour Analysis From 06:00 AM to 07:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 06:15 AM

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter: D4-3888/D4-3889
 Counted: ZW/ER
 Weather: Clear

File Name : farwaip
 Site Code : 00000001
 Start Date : 1/17/2007
 Page No : 1

Groups Printed- Unshifted

Start Time	Waimanalo Gulch Dwy Southbound				Farrington Hwy Westbound				Northbound				Farrington Hwy Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:00 PM	14	0	4	18	0	331	8	339	0	321	0	322	1	321	0	322	679
03:15 PM	10	0	2	12	0	409	9	418	0	321	0	322	1	321	0	322	752
03:30 PM	12	0	1	13	0	439	2	441	0	290	0	291	1	290	0	291	745
03:45 PM	8	0	1	9	0	532	3	535	0	351	0	354	3	351	0	354	898
Total	44	0	8	52	0	1711	22	1733	0	1283	0	1289	6	1283	0	1289	3074
04:00 PM	7	0	2	9	0	474	3	477	0	260	0	266	6	260	0	266	752
04:15 PM	5	0	3	8	0	561	1	562	0	257	0	260	3	257	0	260	830
04:30 PM	5	0	0	5	0	504	1	505	0	251	0	251	0	251	0	251	761
04:45 PM	4	0	0	4	0	464	0	464	0	300	0	300	0	300	0	300	768
Total	21	0	5	26	0	2003	5	2008	0	1068	0	1077	9	1068	0	1077	3111
05:00 PM	1	0	0	1	0	433	0	433	0	228	0	228	0	228	0	228	662
05:15 PM	10	0	1	11	0	430	0	430	0	254	0	254	0	254	0	254	695
05:30 PM	1	0	0	1	0	395	0	395	0	234	0	234	0	234	0	234	630
05:45 PM	1	0	0	1	0	266	0	266	0	216	0	216	0	216	0	216	483
Total	13	0	1	14	0	1524	0	1524	0	932	0	932	0	932	0	932	2470
Grand Total	78	0	14	92	0	5238	27	5265	0	3283	0	3298	15	3283	0	3298	8655
Approch %	84.8	0	15.2	0	0	99.5	0.5	0	0	99.5	0	0	0.5	99.5	0	0	
Total %	0.9	0	0.2	1.1	0	60.5	0.3	60.8	0	37.9	0	38.1	0.2	37.9	0	38.1	

Start Time	Waimanalo Gulch Dwy Southbound				Farrington Hwy Westbound				Northbound				Farrington Hwy Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:45 PM	8	0	1	9	0	532	3	535	0	351	0	354	3	351	0	354	898
04:00 PM	7	0	2	9	0	474	3	477	0	260	0	266	6	260	0	266	752
04:15 PM	5	0	3	8	0	561	1	562	0	257	0	260	3	257	0	260	830
04:30 PM	5	0	0	5	0	504	1	505	0	251	0	251	0	251	0	251	761
Total Volume	25	0	6	31	0	2071	8	2079	0	1119	0	1131	12	1119	0	1131	3241
% App. Total	80.6	0	19.4	0	0	99.6	0.4	0	0	98.9	0	0	1.1	98.9	0	0	
PHF	.781	.000	.500	.861	.000	.923	.667	.925	.000	.797	.000	.799	.500	.797	.000	.799	.902

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 03:45 PM

APPENDIX B

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) criteria are given in Table 1. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. If the degree of saturation is greater than about 0.9, average control delay is significantly affected by the length of the analysis period.

**Table 1: Level-of-Service Criteria for
Unsignalized Intersections**

Level of Service	Average Control Delay (Sec/Veh)
A	≤ 10.0
B	>10.0 and ≤ 15.0
C	>15.0 and ≤ 25.0
D	>25.0 and ≤ 35.0
E	>35.0 and ≤ 50.0
F	>50.0

APPENDIX C

**CAPACITY ANALYSIS CALCULATIONS
EXISTING PEAK HOUR TRAFFIC ANALYSIS**

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.:
 Date Performed: 1/19/2007
 Analysis Time Period: PM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID:
 East/West Street: Waimanalo Gulch Dwy
 North/South Street: Farrington Hwy
 Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		12			2071	8	
Peak-Hour Factor, PHF		0.80			0.93	0.93	
Hourly Flow Rate, HFR		14			2226	8	
Percent Heavy Vehicles		15	--	--	--	--	
Median Type/Storage		Raised curb			/ 2		
RT Channelized?						No	
Lanes		1			2	1	
Configuration		L			T	R	
Upstream Signal?			No		No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume					25	6	
Peak Hour Factor, PHF					0.86	0.86	
Hourly Flow Rate, HFR					29	6	
Percent Heavy Vehicles					30	15	
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		Yes /1
Lanes					0	0	
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach Movement Lane Config	EB 1 L	WB 4	Northbound			Southbound		
			7	8	9	10	11	12
v (vph)	14					35		
C(m) (vph)	209					314		
v/c	0.07					0.11		
95% queue length	0.21					0.38		
Control Delay	23.5					19.5		
LOS	C					C		
Approach Delay						19.5		
Approach LOS						C		

APPENDIX D

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED PEAK HOUR TRAFFIC
ANALYSIS WITH PROJECT**

Appendix J

Socioeconomic Impact Assessment and Addenda:
Environmental Injustice Issues and
Impact on Property Values
Waimānalo Gulch Sanitary Landfill Expansion, 2008



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**SOCIO-ECONOMIC IMPACT ASSESSMENT
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CITY AND COUNTY OF HONOLULU**

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Prepared for:

**Environmental Services Department,
City and County of Honolulu**

R.M. Towill Corporation

CONTENT

EXECUTIVE SUMMARY	1
1. INTRODUCTION	4
1.1 PROPOSED ACTIONS AND ALTERNATIVES	4
1.2 PURPOSE AND ORGANIZATION OF THIS REPORT	7
2. SOCIO-ECONOMIC CONTEXT.....	8
2.1 THE STUDY AREAS.....	8
2.1.1 ISLAND OF OAHU.....	8
2.1.2 EWA DEVELOPMENT PLAN AREA.....	13
2.1.2.1 <i>Demographics and Housing</i>	16
2.1.2.2 <i>Economic Characteristics</i>	16
2.1.2.3 <i>Ewa: Emerging and Anticipated Trends</i>	17
2.1.3 WAIANAE DEVELOPMENT PLAN AREA.....	18
2.1.2.3 <i>Waianae: Emerging and Anticipated Trends</i>	18
2.2 LANDFILLS	19
2.2.1 <i>History of Landfills on Oahu</i>	19
2.2.2 <i>History of WGS� Site</i>	19
3. ALTERNATIVE ACTIONS.....	20
3.1 ALTERNATIVES TECHNOLOGIES AND OTHER MEANS OF DISPOSAL	20
3.1.1 <i>H-POWER</i>	20
3.1.2 <i>Conversion of Sludge into Fertilizer</i>	20
3.1.3 <i>Other Alternative Technologies</i>	20
3.1.4 <i>Recycling</i>	21
3.1.5 <i>Transshipment</i>	22
3.2 ALTERNATIVE SITES	22
3.2.1 <i>Makaiwa</i>	23
3.2.2 <i>Maili</i>	23
3.2.3 <i>Nanakuli B</i>	24
3.2.4 <i>Ameron Quarry</i>	25
3.3 TAKE NO ACTION.....	26
4. COMMUNITY ISSUES AND CONCERNS	28
4.1 SOURCES AND METHODOLOGY.....	28
4.2 COMMUNITY ISSUE AND CONCERNS INDEPENDENT OF THE PROPOSED ACTION	28
4.3 COMMUNITY ISSUES WITH REGARDS TO THE WGS�.....	29
4.3.1 <i>Neighborhood Board Topics of Discussion</i>	29
4.3.2 <i>Individual Community Responses</i>	30
5. SOCIAL-ECONOMIC IMPACTS.....	35
5.1 IMPACTS ON PUBLIC FACILITIES AND SERVICES	35
5.1.1 <i>Police Protection</i>	35
5.1.2 <i>Fire Protection</i>	36
5.1.3 <i>Emergency Services</i>	37
5.1.4 <i>Education</i>	38
5.1.5 <i>Library Services</i>	38
5.1.6 <i>Parks and Recreation</i>	38
5.1.7 <i>Medical Services</i>	39

5.2	OTHER SOCIAL IMPACTS OF NOTE	39
5.2.1	<i>Positive Social Impacts</i>	39
5.2.2	<i>Negative Social Impacts</i>	40
5.3	ECONOMIC IMPACT	42
5.3.1	<i>Approach and Terminology</i>	42
5.3.2	<i>Employment And Earnings</i>	43
5.3.3	<i>Fiscal Impacts</i>	46
6.	MITIGATIONS	48
6.1	IMPROVING CURRENT PRACTICES	48
6.1.1	<i>Views</i>	48
6.1.2	<i>Odors</i>	48
6.1.3	<i>Litter</i>	49
6.2	IMPROVING COMMUNITY INVOLVEMENT AND COMMUNICATIONS.....	49
6.2.1	<i>Community Involvement</i>	49
6.2.2	<i>Web-site</i>	50
6.3	COMMITTING TO ALTERNATIVES.....	50
6.3.1	<i>Alternatives to Landfills</i>	50
6.3.2	<i>Alternative Locations</i>	50

Exhibits

Exhibit 1-A: Oahu Solid Waste Flow for FY 05	4
Exhibit 1-B: Waimānalo Gulch Landfill Property Map	5
Exhibit 1-C: Waimanalo Gulch Sanitary Landfill Expansion Site.....	6
Exhibit 2-A: Demographic Changes, Oahu, 1990-2000.....	9
Exhibit 2-A (Cont.): Demographic Changes, Oahu, 1990- 2000	10
Exhibit 2-B: Demographic Characteristics, Island and Selected Areas, 2000	11
Exhibit 2-C: Households, Island and Selected Areas, 2000.....	11
Exhibit 2-D: Household Income, Island and Selected Areas, 1999.....	12
Exhibit 2-E: Labor Force Characteristics, Island and Selected Areas, 2000	13
Exhibit 2-F: Historical Population	14
Exhibit 2-G: 2030 Socioeconomic Projections.....	14
Exhibit 3-A: Makaiwa Site	23
Exhibit 3-B: Maili Site	24
Exhibit 3-C: Nanakuli “B”.....	25
Exhibit 3-D: Ameron Quarry Site.....	26
Exhibit 4-A: Major Public Issues, State of Hawaii, 1999-2006	28
Exhibit 5-A: Honolulu Police District 8	35
Exhibit 5-B: Honolulu Fire Dept. Service Areas	36
Exhibit 5-C: Oahu EMS Locations.....	37
Exhibit 5-D: DOH Notices & Finding of Violations	40
Exhibit 5-E: Economic Impact – Positive Impact on Jobs	43
Exhibit 5-F: Economic Impact – Negative Impact on Jobs.....	44
Exhibit 5-G: Economic Impact – Net Impact on Jobs.....	44
Exhibit 5-H: Economic Impact – Positive Impact on Earnings	45
Exhibit 5-I: Economic Impact – Negative Impact on Earnings	45
Exhibit 5-J: Economic Impact – Net Impact on Earnings	45
Exhibit 5-K: Consumer Spending Patterns by Industry – 2003-2004	46
Exhibit 5-L: Positive Impact on State Tax Revenues	46
Exhibit 5-M: Negative Impact on State Tax Revenues	47
Exhibit 5-N: Net Impact on State Tax Revenues	47

EXECUTIVE SUMMARY

The Proposed Action

The Waimanalo Gulch Sanitary Landfill (WGCL) is the only permitted municipal solid waste (MSW) landfill on Oahu. The City and City of Honolulu (City) proposes to expand the footprint and to extend the permitted use of the WGCL for a minimum period of 15 years.

The proposed project will extend the use of the site beyond November 1, 2009, the date the State Special Use permit calls for the closure of the landfill from the acceptance of MSW. Two main alternatives to the expansion and extension of WGSL have been considered:

1. Develop alternate methods or technologies to the present use of a landfill for the disposal of MSW and ash/residue from the City's H-POWER facility. This alternative includes the use of advanced technology methods as well as transshipment of Honolulu's waste off-island to decrease the need for a landfill.
2. Select an alternative landfill site. This alternative is based on the selection, acquisition and development of another location for a City landfill.

While the City has committed to the investigation and development of alternatives to landfilling, they contend that they have not yet found any technology or method (including the use of waste transshipment) that will themselves completely eliminate the need for a landfill operation. All known processes and methods result in the generation of some waste that cannot be feasibly processed, reused or recycled. For this waste, the City contends that a municipal sanitary landfill must continue to be provided.

The City currently uses the landfill as one of a mix of strategies to deal with MSW; the mix also includes the use of H-POWER, the City's waste-to-energy facility, increasing the island-wide rate of recycling, and technologies that transform MSW to new product materials such as fertilizer pellets. The City proposes that other strategies be employed based on feasibility and demonstrated capacity for the handling of waste on Oahu.

Socio-Economic Context

Oahu is home to approximately three quarters of Hawaii's residents, and is the economic hub of the State. Most of the major industries – tourism, military support, construction, government, and finance – are concentrated on Oahu. Oahu is enjoying a strong economy and, as a result, continues to experience population increases and a significant level of development.

Although officials forecast slower economic growth on the island in the foreseeable future, one of the few areas of exception is the Ewa Development Plan Area, within which the WGSL is located. For the last 30-years the Ewa Development Plan area has nearly tripled its population, making it the fastest growing area of the island. As the second city of Oahu has not yet been fully realized, officials expect that significant growth will continue.

Landfills have been a part of the MSW disposal solution since the 1800's and have always been located on the edge of urban development. When WGSL was established in 1989, it was selected, in part, because of its proximity to the H-POWER plant and its distance from heavy urbanization. Since then, Kapolei has experienced significant growth and the resort community of Ko 'Olina has developed, both within proximity to WGSL.

Community Concerns

For most of Oahu's people, as long as the landfill stays in Ewa, landfills have not been a topic of great concern. Those who have expressed an opinion favoring the extension believe the City has already made an investment in the landfill, that there is room for expansion, and that there is no better site on Oahu.

Residents in areas surrounding WGSL on the other hand are very concerned. Among other issues, community members most often cite the following irritants from current operations as significant impacts on their communities: litter, views of operation, odor, and highway safety. They are concerned that continuation and expansion of the landfill will only exacerbate the problems. They feel they have done their share and other solutions should be found.

These same community members also point out that a promise is not being kept (the previous administration had committed to closing the landfill after the current extension) thereby reducing the trust between the Administration and their communities.

Others along the Leeward coast claim that they are victims of environmental injustice. Residents argue that within a 10-mile stretch along Farrington Highway there are two separate landfills handling construction and municipal waste, as well as an existing electrical plant, a proposed electrical plant, a deep draft harbor and a major industrial park, all of which service the entire Island of Oahu -- all of which adversely impact the environment of their communities.

Impacts of Proposed Action

Expanding use of the WGSL for landfilling on Oahu has few expected impacts beyond those that currently exist.

Economic Impacts Very little change can be expected with the expansion of WGSL. A small number of jobs will be created for ongoing construction of new cells in the Gulch.

Public Services Expansion of WGSL will not have a significant impact on public safety, medical services, education or recreation.

Social Impacts Release of dust, debris, and odors could affect the quality of life for people living near WGSL. Debris from trucks and congestion due to truck traffic could add to regional traffic problems, affecting both regional quality of life and residents' sense of their part of the island as a valuable and safe community.

Implications of Alternative Approaches to Waimanalo Gulch Sanitary Landfill

With a landfill available, the City, its residents, and businesses have assurance that solid waste services can be provided at a known cost for the foreseeable future. This is a guarantee of stability for the island economy.

To date no alternative technology has been found to adequately process the level of MSW that the island's communities generate. Other technologies exist that can complement the current H-POWER/WGSL solution, but there is no technology available that completely negates the need for a landfill on Oahu.

Transshipment is a serious alternative to handling a portion of MSW, but it has externalities that must be considered, including a negative impact on the feasibility of H-POWER and, in turn, a negative impact on the inexpensive production of alternative energy; a heightened sense of uncertainty around the management of MSW; and greater pressure on Oahu's already crowded harbor facilities.

Should a new technology become more viable, or should adjustments to the transshipment solution make it more acceptable, a landfill will still be needed in case of emergencies, in case of disruptions, and to manage material that cannot be handled by the alternative technologies or transshipment.

There does not appear to be an alternative site available to replace WGSL as a landfill. Nothing has significantly changed in the circumstances surrounding the four most viable alternatives since the last review of alternatives; a review in which WGSL was deemed to be the optimal site by the Mayor's Advisory Committee.

Taking no action, thereby allowing WGSL's permit to expire without a viable alternative, will result in serious health and economic challenges to Oahu's communities and its taxpayers.

Mitigation Measures

Suggested mitigations to social-economic impacts can be grouped into three categories: improving the management practices of the current landfill operation; improving community involvement and communications; and committing City resources to finding alternative sites and alternative technologies/management of MSW disposal.

Specific recommendations include the following:

- Improving current operations:
 - Continue to implement on-site landscaping plans that have begun, especially for those areas facing south toward Ko 'Olina.
 - Design and implement landscaping screens along the berm and the access road that is visible from Farrington Highway, fronting Kahe Power Plant.
 - Continue to be vigilant in processing sludge upon delivery and take all means to reduce any odor impacts;
 - Aggressively enforce the anti-littering regulations and fines; and
 - Improve communication between WM, ENV and the Police in response to odor and littering complaints.

- Improving community involvement and communications:
 - Continue to work with the Community Oversight committee and invite any expanded participation, including representatives from the police;
 - Continue to contribute to a community benefits package for as long as the landfill exists;
 - Ensure that all affected communities are represented on the Committee that determines the benefits package; and
 - Use the WM/ENV websites aggressively as education and communication tools.

- Committing City resources to the development of alternatives:
 - Continue to invest in Research and Development into alternative technologies; and
 - Continue to seek an alternative landfill site.

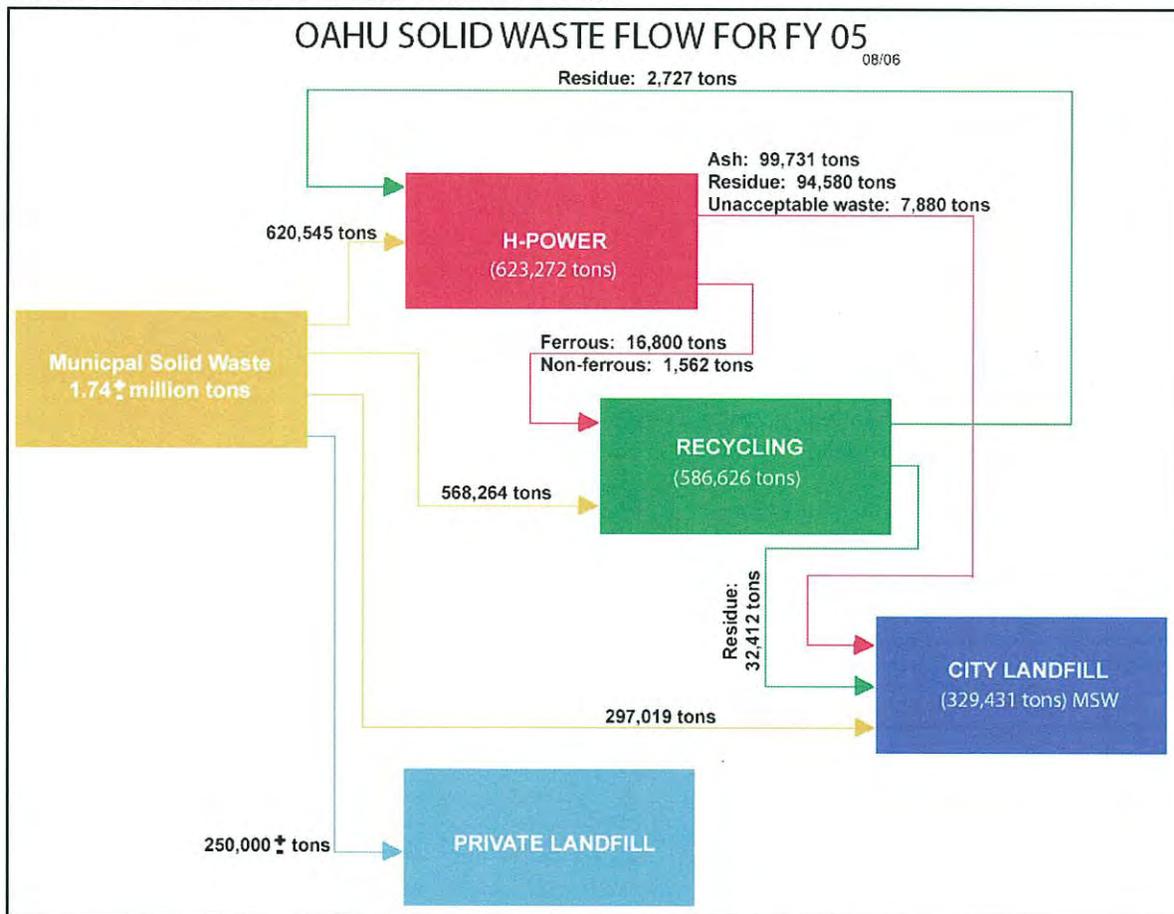
1. INTRODUCTION

1.1 PROPOSED ACTIONS AND ALTERNATIVES

The Waimanalo Gulch Sanitary Landfill is on a site of about 200 acres near the southwest corner of Oahu, owned by the City and operated by Waste Management of Hawaii Inc. The landfill opened in 1989. It is now Oahu's only permitted landfill for municipal solid waste (MSW).¹

In 2005, the landfill received approximately 562,983 tons of waste annually. This includes 329,431 tons of direct MSW, 31,361 tons of recycling residue, and 202,191 tons of ash, residue, and unacceptable waste from H-POWER.

Exhibit 1-A: Oahu Solid Waste Flow for FY 05



Originally intending to close the landfill in 2008, the City has since preliminarily determined that the continuation and expansion of operations at WGSL is a necessary part of the City's solid waste management program. The City is now proposing to expand the landfill footprint by 92.5 acres, which will utilize the total 200 acres available. This is expected to extend the use of the landfill through at least the year 2022. Exhibit 1-B shows the proposed expansion. In order to effectuate that action, the City must prepare an Environmental Impact Statement. This report identifies and analyzes the socio-economic impacts of that decision within the context of the full EIS.

¹ Another landfill in Nanakuli, handles construction and demolition waste.

Exhibit 1-B: Waimānalo Gulch Landfill Property Map

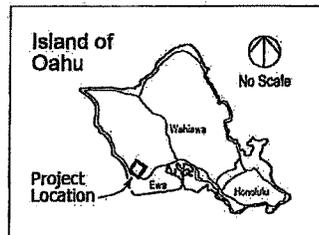
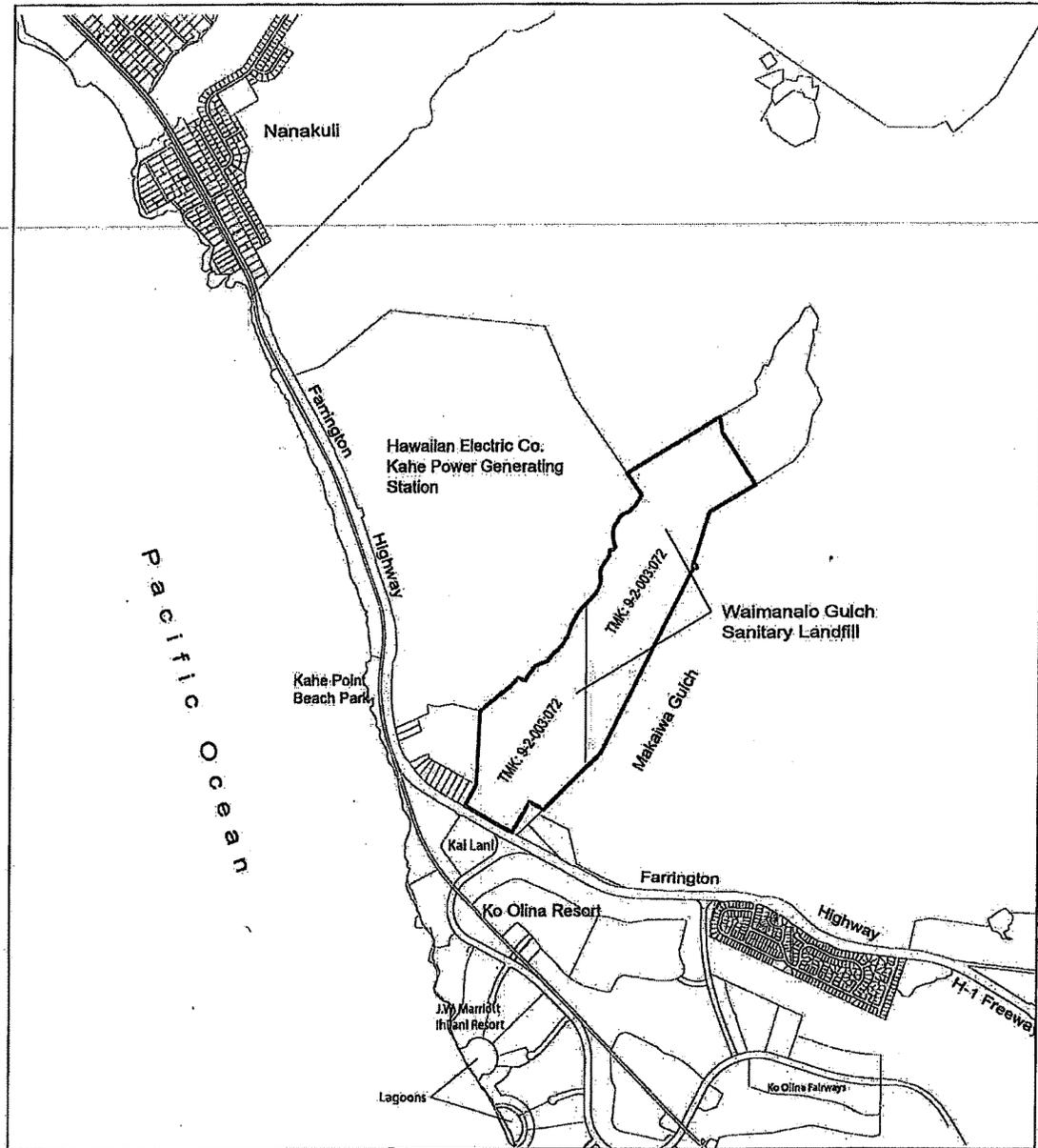
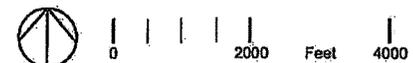
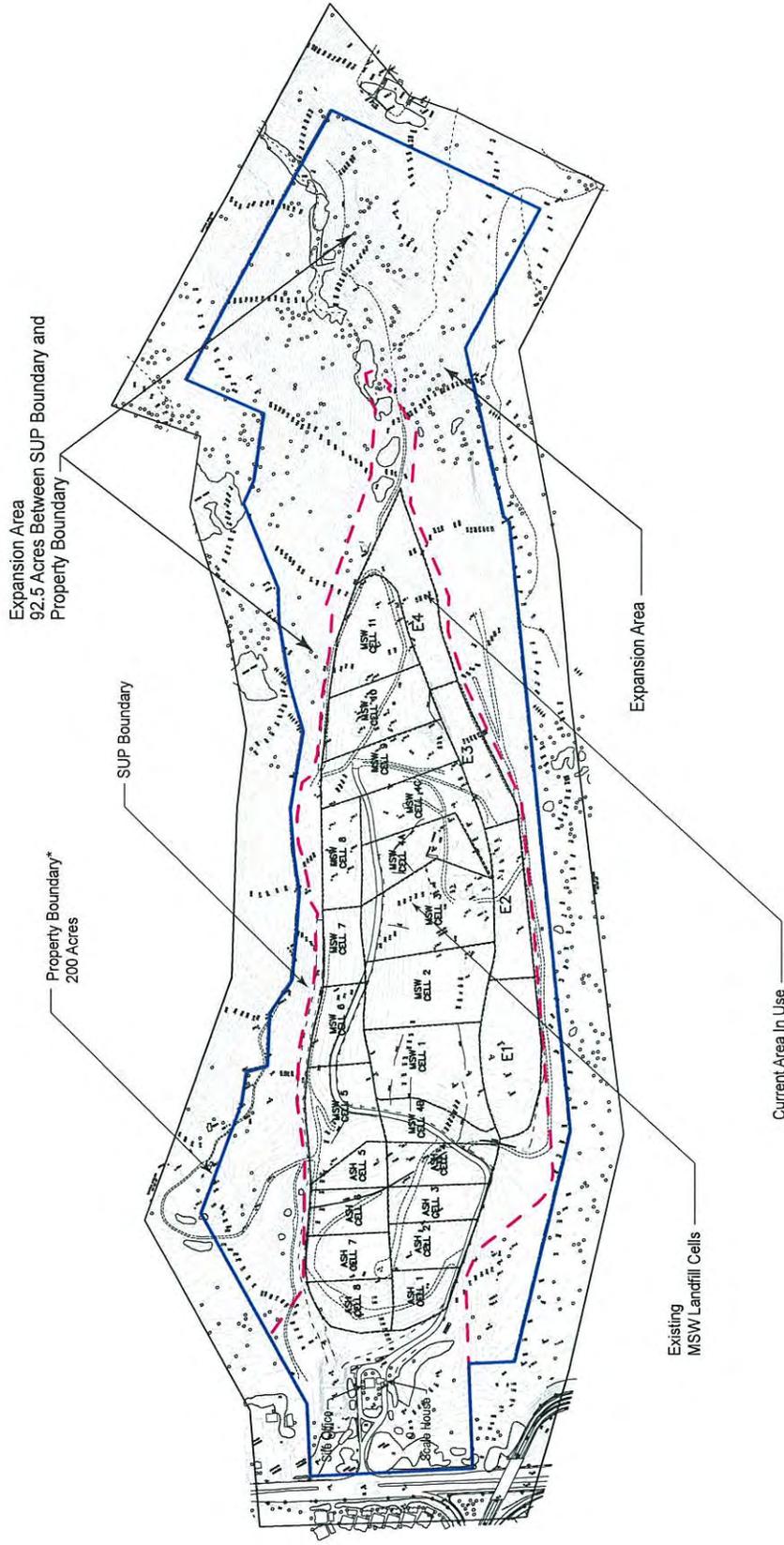


Figure 3-1
Waimanalo Gulch Landfill Property
 Waimanalo Gulch Sanitary Landfill Expansion
 Department of Environmental Services

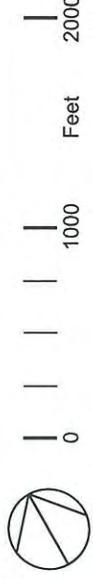


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Exhibit 1-C: Waimanalo Gulch Sanitary Landfill Expansion Site



Waimanalo Gulch Sanitary Landfill Lateral Expansion Site Waimanalo Gulch Sanitary Landfill Expansion Department of Environmental Services



Note: *Proposed expansion project is subject to a 100 foot buffer from the property boundary.

Source: Base Drawing - GeoSyntec Consultants, Site Plan and Topography, Waimanalo Gulch Landfill, Ewa Beach Oahu, Hawaii, April 2007

Landfilling has been a part of the mix of strategies used by the City to deal with MSW since at least as far back as 1905. Official *dumpsites* on Oahu have been located at Ala Moana Dump, present day Ala Moana Park, Waipahu, Kapaa and Kaneohe Bay Drive. Originally used to backfill swampy areas and other low spots intended for development, previous *dumpsites* now also include parks, parking areas, and other low intensity uses.

In 1963, ten years after originally opening as a *dump*, Kawainui Swamp became the first *landfill* on Oahu. *Landfills* differ from *dumps* in that *landfills* are lined, have a variety of engineering features that protect the landfill and the surrounding environment, and their operations significantly reduce exposure of MSW and its resultant externalities. *Landfills* continue to evolve as technology allows for improved operations. Although *landfills* are always expected to be a part of the mix of strategies used to dispose of MSW, the City explains that it is committed to investigating all proven methods or technologies with the potential to reduce the City's dependence on landfills. The City is actively: 1) analyzing the option of adding a third boiler at the H-POWER waste-to-energy plant; 2) researching alternative, new waste reduction technologies; and 3) exploring transshipment as a viable alternative. Where a method or technology can be demonstrated to be feasible, the City contends that it will be proposed and developed.

1.2 PURPOSE AND ORGANIZATION OF THIS REPORT

A socio-economic impact assessment is conducted to establish, for the use of policy-makers and the public at large, information about a proposed project and its socio-economic consequences. The report is used, with other aspects of the EIS, to inform decision-makers, and to ensure that consequences are taken into account. Where appropriate, this report points to other technical studies for more detailed examination of related topics.

This report is presented in six sections:

- Section 1 provides an introductory account of the proposed action;
- Section 2 discusses the socio-economic context of the proposed action;
- Section 3 briefly discusses alternative potential actions;
- Section 4 details the concerns of stakeholders with regard to the proposed action, and places those concerns in relation to more general issues and concerns of Oahu communities;
- Section 5 deals with potential impacts of the proposed action. Economic and demographic impacts are estimated first. Impacts on public facilities are established in relation to existing and planned local facilities. Other social impacts, which are less easily quantified, are then discussed; and
- Section 6 suggests mitigation activities for potentially adverse social/economic impacts, both ongoing processes and individual actions.

2. SOCIO-ECONOMIC CONTEXT

2.1 THE STUDY AREAS

A landfill on Oahu affects the entire island by providing a key element of Honolulu's solid waste system. All of Oahu's people and businesses are affected by the proposed action.

The Ewa Development Plan Area (EDPA), within which the landfill is located, is considered the area most affected by day-to-day operations of WGSL. The Waianae Development Plan Area (WDPA) is also noted as the residents of WDPA are users of major roads on which municipal solid waste is hauled to the WGSL and the only route in and out of WDPA runs by the WGSL.

2.1.1 Island of Oahu

Oahu has been the political and economic center of Hawaii since the time of Kamehameha I. It is the most urbanized and populated of the Hawaiian Islands. After World War II, Hawaii residents moved to Oahu in record numbers. According to the 2000 US Census, Oahu's resident population was 836,231, representing 72% of the State's population. By 2006, that population had risen to approximately 909,900.²

Since Statehood, Hawaii has witnessed rapid growth in tourism, supplanting agriculture and military spending as the major source of jobs and income. Because of their relative smaller economies on the neighbor islands, tourism has had and continues to have a greater impact on the neighbor islands. But even in tourism, Oahu dominates the industry. In 2006, Oahu had nearly twice as many visitors as any neighbor island with 4,606,400.

For the most part, Oahu's tourism has been centered in Waikiki (87% of Oahu's hotel units are located in Waikiki). In recent years, however, Ko Olina in Ewa has begun to shape itself into a visitor destination area, and Kuilima has resurrected plans to dramatically increase its hotel room count on the North Shore of Oahu.

During this same period Oahu also has reinforced its role as the financial and shipping center of the State. Oahu's more diverse economy has also resulted in less economic fluctuation, lower unemployment and higher average income than has been experienced on other islands (See Exhibits 2-A – 2-F).

² State of Hawaii DBED&T, State Data Book 2005 and American Community Survey, US Census Bureau, 2006.

Exhibit 2-A: Demographic Changes, Oahu, 1990-2000

Subject	1990	2000	2006 (ACS)	Change	
				Number	Percent
Total Population	836,231	876,156	909,863	33,707	3.8%
Male	425,994	440,518	455,051	14,533	3.3%
Female	410,237	435,638	454,812	19,174	4.4%
				-	
Under 5 years	61,931	56,849	63,084	6,235	11.0%
5 to 9 years	58,558	60,425	55,969	(4,456)	-7.4%
10 to 14 years	53,191	57,574	55,336	(2,238)	-3.9%
15 to 19 years	54,992	57,176	59,347	2,171	3.8%
20 to 24 years	75,418	65,376	68,052	2,676	4.1%
25 to 34 years	156,619	130,624	125,646	(4,978)	-3.8%
35 to 44 years	130,573	137,278	130,466	(6,812)	-5.0%
45 to 54 years	81,899	117,239	123,278	6,039	5.2%
55 to 59 years	34,560	42,705	52,456	9,751	22.8%
60 to 64 years	36,658	33,173	45,291	12,118	36.5%
65 to 74 years	58,279	62,474	60,962	(1,512)	-2.4%
75 to 84 years	25,939	42,504	51,422	8,918	21.0%
85 years and over	7,614	12,759	18,554	5,795	45.4%
				-	
Median age (years)	32	35.7	36.9	1	3.4%
				-	
18 years and over	631,618	667,398	700,359	32,961	4.9%
21 years and over	592,601	631,039	661,891	30,852	4.9%
62 years and over	113,889	136,945	156,602	19,657	14.4%
65 years and over	91,832	117,737	130,938	13,201	11.2%
				-	
18 years and over	631,618	667,398	700,359	32,961	4.9%
Male	320,656	333,139	346,193	13,054	3.9%
Female	310,962	334,259	354,166	19,907	6.0%
				-	
65 years and over	91,832	117,737	130,938	13,201	11.2%
Male	42,867	51,694	55,577	3,883	7.5%
Female	48,966	66,043	75,361	9,318	14.1%
				-	
				-	
RELATIONSHIP				-	
				-	
Household population	802,338	845,211	877,485	32,274	3.8%
Householder	264,304	286,450	299,217	12,767	4.5%
Spouse	158,438	156,195	157,567	1,372	0.9%
Child	259,193	253,694	257,391	3,697	1.5%
Other relatives	74,876	96,718	114,636	17,918	18.5%
Nonrelatives	44,527	52,199	48,674	(3,525)	-6.8%
Unmarried partner	10,436	14,420	14,245	(175)	-1.2%

Exhibit 2-A (Cont.): Demographic Changes, Oahu, 1990- 2000

Subject	1990	2000	2006 (ACS)	Change	
				Number	Percent
HOUSEHOLDS BY TYPE					
Total households	265,304	286,450	299,217	12,767	4.5%
Family households (families)	197,294	205,672	209,890	4,218	2.1%
With own children under 18 years	92,583	91,022	84,046	(6,976)	-7.7%
Married-couple families	158,438	156,195	157,578	1,383	0.9%
With own children under 18 years	76,217	70,442	64,824	(5,618)	-8.0%
Female householder, no husband present	27,773	35,138	36,659	1,521	4.3%
With own children under 18 years	12,479	15,235	14,187	(1,048)	-6.9%
Nonfamily households	68,010	80,778	89,327	8,549	10.6%
Householder living alone	51,006	61,963	74,425	12,462	20.1%
65 years and over	14,868	20,021	21,955	1,934	9.7%
				-	
Households with one or more people under 18 years	NA	108,247	103,107	(5,140)	-4.7%
Households with one or more people 65 years and over	NA	80,464	87,107	6,643	8.3%
				-	
Average household size	3.02	2.95	2.93	(0.02)	-0.7%
Average family size	3.50	3.46	3.52	0.06	1.7%
				-	
HOUSING OCCUPANCY					
				-	
Total housing units	281,683	315,988	332,718	16,730	5.3%
Occupied housing units	265,304	286,450	299,217	12,767	4.5%
Vacant housing units	16,379	29,538	33,501	3,963	13.4%
				-	
Homeowner vacancy rate	0.6	1.6	0.9	(0.7)	-43.8%
Rental vacancy rate	4.3	8.6	4.7	(3.9)	-45.3%
				-	
HOUSING TENURE					
				-	
Occupied housing units	265,304	286,450	299,217	12,767	4.5%
Owner-occupied	137,910	156,290	173,806	17,516	11.2%
Renter-occupied	127,394	130,160	125,411	(4,749)	-3.6%
				-	
Average household size of owner-occupied unit	3.23	3.13	3.11	(0.02)	-0.6%
Average household size of renter-occupied unit	2.80	2.74	2.69	(0.05)	-1.8%

Exhibit 2-B: Demographic Characteristics, Island and Selected Areas, 2000

	City & County of Honolulu	Ewa DP	Waianae DP	Makakilo CDP	Kapolei	Ko Olina/ Honokai Hale	Nanakuli
Population	876,166	57,265	42,258	13,158	17,441	1,680	10,814
Male	50.3%	50.4%	50.0%	50.3%	50.3%	50.9%	49.8%
Female	49.7%	49.6%	50.0%	49.7%	49.7%	49.1%	50.2%
Age							
Under 5	6.5%	9.2%	8.9%	8.6%	8.4%	6.2%	8.8%
5 to 9	6.9%	10.0%	9.7%	9.2%	10.2%	6.9%	9.9%
10 to 14	8.6%	8.3%	10.0%	8.4%	9.2%	6.8%	10.7%
15 to 19	8.5%	6.6%	9.5%	6.7%	7.1%	5.8%	10.4%
20 to 24	7.5%	6.0%	7.4%	6.0%	5.1%	5.1%	7.5%
25 to 34	14.9%	17.8%	13.0%	15.6%	15.8%	17.6%	12.7%
35 to 44	15.7%	18.0%	14.3%	18.0%	18.8%	16.3%	14.7%
45 to 54	13.4%	10.3%	11.9%	13.2%	11.3%	14.8%	10.9%
55 to 59	4.9%	3.6%	4.2%	4.7%	3.4%	5.9%	4.4%
60 to 64	3.8%	3.0%	3.1%	3.6%	2.8%	5.1%	3.2%
65 to 74	7.1%	4.6%	5.0%	4.3%	4.5%	5.9%	4.4%
75 to 84	4.9%	2.1%	2.4%	1.5%	2.7%	2.9%	2.0%
85 and over	1.5%	0.6%	0.7%	0.3%	0.9%	0.7%	0.4%
Median Age	35.7	30.9	28.5	32.4	31.4	36.8	27.2
Education							
Population 25 years or over	579,998	34,596	23,193	8,097	10,419	1,266	5,541
Less than 9th grade	7.3%	8.2%	6.4%	2.7%	10.4%	6.3%	7.1%
9-12 grade, no diploma	7.9%	9.3%	15.7%	7.2%	8.8%	7.3%	17.5%
High School graduate	27.8%	28.3%	45.3%	27.7%	27.1%	31.7%	49.0%
Some college/Associate degree	29.2%	34.5%	24.4%	36.2%	32.4%	30.2%	19.8%
Bachelor degree	18.9%	15.3%	6.1%	19.5%	16.7%	14.8%	4.9%
Graduate/Professional degree	9.0%	4.5%	2.1%	6.8%	4.6%	9.6%	1.7%
School Enrollment							
Population 3 years or older in:	234,038	17,143	13,283	4,148	5,644	345	2,188
Preschool	5.5%	5.7%	5.3%	7.9%	6.1%	2.6%	4.1%
Grades K through 8	45.7%	54.8%	56.0%	51.4%	55.5%	41.7%	58.8%
Grades 9 through 12	20.6%	20.9%	58.9%	17.8%	20.3%	25.2%	27.3%
College or Graduate School	28.0%	18.6%	11.8%	22.9%	18.2%	28.7%	9.8%

SOURCE: US Census of Population and Housing, 2000. Tables developed by SMS from SF1 and SF3 data available for download from www.census.gov.

Exhibit 2-C: Households, Island and Selected Areas, 2000

	City & County of Honolulu	Ewa DP	Waianae DP	Makakilo CDP	Kapolei	Ko Olina/ Honokai Hale	Nanakuli
Household Type							
Family HH	71.8%	84.9%	83.6%	82.7%	86.1%	78.8%	90.2%
With Own Children Under 18	31.8%	49.3%	43.3%	44.2%	52.5%	26.9%	46.0%
Non-family HH	28.2%	15.1%	16.4%	17.3%	13.9%	21.0%	9.8%
Householder living alone	21.8%	10.6%	11.9%	11.3%	10.8%	15.7%	6.7%
HH with members under 18	37.8%	57.5%	57.6%	51.4%	59.2%	37.1%	64.8%
HH with members 65 years and over	28.1%	18.1%	23.2%	15.1%	21.2%	21.0%	24.0%
Grandparents in HH							
Grandparent(s), grandchildren under 18 in same HH	36,868	3,145	3,182	554	895	77	750
Grandparent(s) responsible for grandchildren	28.1%	26.3%	36.3%	22.0%	24.0%	0.0%	46.5%

NOTE: "HH" = household.

SOURCE: US Census of Population and Housing, 2000. Tables developed by SMS from SF1 and SF3 data available for download from www.census.gov.

Exhibit 2-D: Household Income, Island and Selected Areas, 1999

	City & County of Honolulu	Ewa DP	Waiānā DP	Makakilo CDP	Kapolei	Ko Olina/ Honokai Hale	Nanakuli
Household Income Distribution	286,731	15,498	10,532	3,913	4,823	581	2,249
Less than \$10,000	7.3%	3.0%	11.8%	2.8%	3.9%	2.1%	7.2%
\$10,000 to \$14,999	4.1%	2.4%	6.8%	0.5%	2.6%	3.2%	9.9%
\$15,000 to \$24,999	9.9%	6.9%	12.7%	6.4%	8.2%	5.7%	11.3%
\$25,000 to \$34,999	11.1%	9.8%	10.8%	7.6%	8.7%	2.6%	11.3%
\$35,000 to \$49,999	15.4%	15.0%	15.2%	17.1%	13.6%	10.8%	18.7%
\$50,000 to \$74,999	20.6%	29.5%	22.0%	27.8%	30.8%	27.1%	22.3%
\$75,000 to \$99,999	13.4%	18.9%	10.8%	18.9%	19.7%	25.0%	11.4%
\$100,000 to \$149,999	12.3%	11.6%	7.8%	15.6%	10.7%	18.5%	7.8%
\$150,000 to \$199,999	3.3%	1.7%	1.3%	2.8%	2.4%	1.6%	1.2%
\$200,000 or more	2.5%	1.2%	1.3%	0.8%	1.4%	3.4%	0.8%
Median Income	\$51,914	\$59,583	\$42,451	\$86,515	\$80,585	\$74,083	\$42,388
HH: Selected Income Sources							
Social Security Income	27.5%	18.7%	25.7%	17.9%	21.0%	29.7%	24.5%
Retirement Income	21.8%	18.1%	20.5%	6.5%	6.1%	27.0%	23.5%
Public Assistance Income	6.8%	7.7%	25.5%	22.6%	21.8%	10.1%	23.0%
Individuals Below Poverty Level	83,937	3,103	8,148	663	809	170	2,251
% of Persons under 18	12.9%	7.7%	29.1%	7.3%	7.3%	30.4%	27.0%
Children under 18 ref'd to household hd.	12.4%	9.3%	28.7%	7.1%	4.9%	29.1%	24.5%
Persons ages 18 to 64	9.0%	14.9%	18.1%	4.1%	5.1%	9.3%	18.9%
Persons ages 65 or more	7.4%	8.1%	10.3%	3.6%	24.3%	4.5%	8.7%
Unrelated individuals	23.8%	41.2%	40.5%	12.4%	22.0%	3.7%	45.4%

NOTE: "HH" = household.

SOURCE: US Census of Population and Housing, 2000. Tables developed by SMS from SF1 and SF3 data available for download from www.census.gov.

Exhibit 2-E: Labor Force Characteristics, Island and Selected Areas, 2000

	City & County of Honolulu	Ewa DP	Waiānae DP	Makāhilo CDP	Kapolei	Ko Olina/ Honokāhale	Nanakuli
Labor Force							
Population aged 16 or over	691,015	40,945	29,444	9,523	12,233	1,410	4,752
In Armed Forces	38,682	2,434	216	316	271	27	20
Potential Labor Force	652,333	38,511	29,228	9,207	11,962	1,383	4,732
% Actually in Civilian Labor Force	62.6%	63.1%	58.6%	72.7%	69.1%	66.0%	67.5%
Actual CLF	408,638	24,298	17,137	6,698	8,267	913	4,139
Male CLF	209,959	12,406	9068	3,369	4,296	438	2,154
Female CLF	198,679	11,892	8069	3,309	3,971	475	1,985
Labor Force Participation							
Male CLF	67.5%	68.0%	64.7%	76.2%	67.6%	78.8%	63.4%
Female CLF	58.2%	61.8%	53.1%	70.0%	65.1%	69.6%	51.8%
Unemployed							
Male CLF	6.9%	5.8%	15.2%	5.8%	5.7%	0.0%	18.2%
Female CLF	5.6%	5.5%	14.6%	4.6%	5.1%	2.5%	12.3%
Employed CLF							
<i>By Selected Industry</i>							
Agriculture, forestry, fishing	1.1%	0.5%	2.8%	0.5%	0.4%	0.0%	0.8%
Construction	5.4%	6.5%	8.6%	8.5%	6.2%	16.2%	7.9%
Manufacturing	3.8%	5.2%	4.5%	4.3%	4.9%	3.4%	4.3%
Wholesale Trade	3.4%	3.1%	4.3%	2.8%	3.2%	2.9%	4.0%
Retail Trade	12.2%	13.0%	13.2%	13.7%	12.0%	6.2%	9.6%
Transportation and utilities	6.5%	6.7%	8.9%	8.8%	7.2%	5.3%	13.1%
Information	2.7%	2.1%	1.3%	2.6%	2.2%	0.6%	1.7%
Finance, Insurance, Real Estate	7.5%	7.7%	5.3%	8.8%	9.2%	6.9%	6.1%
Professional, Mgmt, Admin.	9.9%	8.8%	9.1%	9.1%	8.8%	11.0%	8.5%
Education, Health, Social Services	19.9%	19.1%	17.7%	16.9%	16.6%	19.2%	17.3%
Recreation, Lodging, Food Services	13.8%	12.7%	12.3%	8.4%	13.9%	10.1%	10.9%
Other Services	4.5%	4.4%	4.7%	3.2%	4.6%	6.0%	5.5%
Public Administration	9.3%	10.1%	7.2%	12.5%	10.4%	12.5%	9.4%
<i>By Occupation</i>							
Management and Professional	33.8%	26.6%	21.8%	30.5%	28.1%	30.8%	17.5%
Service	19.6%	23.4%	22.0%	15.8%	24.5%	18.9%	20.0%
Sales and Office	29.1%	28.8%	26.7%	30.8%	29.0%	26.6%	29.8%
Farming, Forestry, and Fishing	0.7%	0.3%	1.5%	0.4%	0.1%	0.0%	0.8%
Construction, Mining, Maintenance	8.1%	9.5%	13.0%	12.5%	9.5%	17.0%	9.5%
Production, Transportation	8.8%	11.4%	15.0%	10.0%	8.8%	6.9%	22.5%
Commute to Work	412,250	25782	14,314	6525	7853	928	2,271
Drove Alone or Carpooled	80.6%	86.0%	83.7%	91.6%	86.3%	92.0%	82.4%
Other Transp. (Public, Walked, Other)	16.3%	12.2%	15.2%	6.4%	11.0%	3.4%	14.7%
Worked at Home	2.9%	1.9%	2.1%	2.1%	1.7%	4.6%	2.8%
Travel Time More than 45 Minutes	8.9%	34.2%	45.8%	31.8%	35.1%	24.9%	33.7%
Mean travel time (in minutes)	27.3	36.5	41.9	35.3	39	29.2	35.8

NOTE: "CLF" = Civilian Labor Force.

SOURCE: US Census of Population and Housing, 2000. Tables developed by SMS from SF1 and SF3 data available for download from www.census.gov.

2.1.2 Ewa Development Plan Area

WGSL sits in the region officially known as the "Ewa Development Plan Area" (EDPA). The EDPA stretches from Waipahu to Ko 'Olina, from Ewa Beach to Makāhilo. Without a doubt, the EDPA has been the fastest growing region on the island, nearly tripling its population over the 30-year period 1970 to 2000³. This compares to a 39 percent growth for the island as a whole during that same period (See Exhibit 2-F).

³ Population figures were not available by DPA in the American Communities Surveys, 2006.

Exhibit 2-F: Historical Population

Resident Population						
	1960	1970	1980	1990	2000	
County	500,409	630,528	762,565	836,231	876,156	
Waianae	16,452	24,077	31,487	37,411	42,259	
Ewa		24,235	35,523	42,931	68,696	
Central Oahu			101,685	130,526	148,208	
PUC			417,240	432,023	419,422	
East Honolulu			43,213	45,654	46,735	
North Shore			13,061	15,729	18,380	
Koolauloa			10,983	14,263	14,546	
Koolaupoko	60,238	92,219	109,373	117,694	117,910	
Average Annual Growth Rates						
	Ten-year Intervals					1980-2000
County		2.6%	2.1%	1.0%	0.5%	1.5%
Waianae		4.6%	3.1%	1.9%	1.3%	3.4%
Ewa			4.7%	2.1%	6.0%	9.3%
Central Oahu				2.8%	1.4%	4.6%
PUC				0.4%	-0.3%	0.1%
East Honolulu				0.6%	0.2%	0.8%
North Shore				2.0%	1.7%	4.1%
Koolauloa				3.0%	0.2%	3.2%
Koolaupoko		5.3%	1.9%	0.8%	0.0%	0.8%

Sources: DBEDT (2004a) and earlier years; City of Honolulu website (<http://www.honolulu.gov/Planning/ResearchStats.asp>)

Exhibit 2-G: 2030 Socioeconomic Projections

	2005		2025		2030	
	Population	Share of Island	Population	Share of Island	Population	Share of Island
Waianae	44,004	5%	49,682	5%	50,616	5%
Ewa	84,154	9%	164,136	15%	184,612	17%
Central Oahu	157,250	17%	180,687	17%	189,599	17%
Primary Urban Center	424,183	46%	478,430	44%	489,389	44%
East Honolulu	50,377	6%	51,713	5%	51,059	5%
North Shore	18,703	2%	20,074	2%	19,945	2%
Koolauloa	15,099	2%	16,563	2%	16,725	1%
Koolaupoko	119,132	13%	116,766	11%	115,357	10%
Total	912,902	100%	1,078,051	101%	1,117,302	101%

Source: <http://honolulu.gov/planning/demographics2/Projections/2030byDP.pdf>

Geographically, Ewa consists of what was once an arid and barren plain at the foothills of the Waianae Mountains. With the advent of irrigation, much of the eastern side of the plain was dedicated to sugar until Oahu Sugar Company closed in the mid-1990's, while the western side was ranch lands. The US Navy had land at both Puuloa (Iroquois Point and Puuloa) to the east, and Kalaeloa (Barbers Point Naval Air Station) to the west.

Barbers Point NAS (“Kalaeloa”), with some 3,709 acres, was a major land use for the area until the Naval Air Station closed in 1999. Its airfield is now operated by the State Department of Transportation for general aviation, while the remainder of the Kalaeloa land is parceled among public and private users, including among others, the City, the Hawaii National Guard, the State Department of Hawaiian Home Lands, the US Coast Guard, and the US Navy.

Honolulu has long been Oahu’s commercial and transportation center. Squeezed between the Koolau Mountain Range and the ocean, growth has vertical and sprawled out, southeast toward Koko Head, and northwest toward Central Oahu and the Leeward communities. Concentration of activities in Honolulu has also created the expected problems of traffic congestion, overtaxed infrastructure, and deteriorating urban spaces.

Plans to develop a “Second City” at Kapolei on the Ewa Plain responded in part to these problems. Planning began in 1955, when Harland Bartholomew and Associates prepared the first Ewa region master plan for the Estate of James Campbell, the major landowner. The concept of a separate city emerged in 1974, and was officially sanctioned in 1977 when the City Council approved the new General Plan with a Secondary Urban Center for Oahu centered on the Ewa Plain. In 1986, the Estate proposed a detailed implementation plan for a city center, naming it the City of Kapolei. Since breaking ground in 1990, Kapolei, and for that matter all of the EDPA, has been bustling.

Kapolei land uses include a large industrial complex, with areas for both heavy industry (in the 1,367-acre James Campbell Industrial Park) and light industry plus new technologies (in Kapolei Business Park) and areas for commercial and office development in the City of Kapolei urban center. As Oahu’s largest industrial area, Campbell Industrial Park has been developed over decades, having originally broken ground in 1958. A 2006 inventory showed that 251 businesses were located in the industrial park, with about 4,500 workers. Approximately 85 percent of the parcels in the park are owned in fee by its tenants.⁴

At Campbell Industrial Park’s northern edge, Kalaeloa Harbor was created as a second harbor for Oahu in 1961. To the south of the industrial area, about a mile offshore, are a buoy and pipeline designed to allow oil tankers to off-load their cargo without docking in harbor. Steps are currently being taken by The Campbell Estate to construct a second industrial park at Kalaeloa Harbor. This industrial park would be built on a 332-acre parcel and construction is expected to begin in 2008 or 2009.

Over the years, residential areas developed along Farrington Highway and, as of 1962, uphill in Makakilo. At Kapolei, new residential development has been led by the State, as master developer of the Villages of Kapolei, beginning in the 1980’s with Village One, Kumu Iki. The Villages and adjoining developments have rivaled developments along Fort Weaver Road, to the east, and Mililani in Central Oahu as new residential areas emerged with aggressive growth through the last decade.

While industrial and residential development proceeded over recent years, many of Kapolei’s residents still commute to Honolulu. Growth in the center of Kapolei has been spurred by relocation of banking activities and both State and City offices; and the Campbell Estate stresses Kapolei’s advantages as a wired community, with direct access to satellite and fiber-optic network communications.

⁴ Personal communication, Jeannie Schultz, Kapolei Property Development LLC

Ko Olina is being developed as a resort complementing the rest of Kapolei. Its innovative man-made coves provide recreational areas and frontage for hotels, and a 430-acre privately owned marina offers 330 full service slips for boats. Plans have called for as many as 8,700 housing units. These were planned with vacation markets in mind. Projects to date include a hotel, a time-share resort, and townhouse condominiums. One project, The Fairways at Ko Olina, was sold to the resident market, and newer projects have aimed at both second- and first-time home buyers (The Coconut Plantation, Kai Lani, Ko 'Oliina Kai). The newest project, the Beach Villas at Ko 'Olina, with 247 luxury units in beachside towers is expected to open in the spring of 2008.

When first opened in 1989, WGSL was surrounded by vacant land and agriculture. Although Makakilo had begun to be settled by homes 27 years earlier, it was still a significant distance from the landfill. The resort of Ko Olina was still a dream to its developer's mind and Kapolei's Second City had only just begun. Today, urbanization in the EDPA is creeping up on the landfill, the second City is becoming a reality and the resort of Ko Olina is a growing vacation and residential community.

2.1.2.1 Demographics and Housing

The EDPA has a young population; the median age of its residents is 31.2 vs. Oahu's residents' median age of 35.7. Households are significantly larger than the average (3.69 persons per household, vs. 2.95 persons in the average household for Oahu as a whole). Of the 20,804 units in Ewa in 2000, 63.7 percent are owner occupied.

Within the EDPA, the Ko Olina sub-region (Census Tract 86.09) stands out as having an older median age, a large proportion of vacant homes held for seasonal or recreational use, and, among occupied homes, a low proportion of renters (26.1%).

2.1.2.2 Economic Characteristics

In general, the average per capita income over the entire EDPA is lower than the island's average. In the two census tracts abutting the landfill however, incomes tend to be higher. In the Kahe Census Tract, per capita incomes nearly at the Oahu average level; in Ko Olina Census Tract incomes are much higher.

Workers living in the EDPA area are diverse in occupation, and, despite their long history in sugar cane, a lower percentage of workers are in agriculture than the percentage island wide. Commuting times are long, and a third of the workforce normally drives over 45 minutes to work, characteristic of a suburban community.

Among the EDPA communities, Ko Olina/Honokai Hale⁵ stands out in several ways. In this sub-region, population tends to be older, with a median age of 36.8, slightly higher than the island median. Most households do not have members younger than 18. The median household income level is much higher than in the other communities studied. However, the share of children under 18 living with family who are below the poverty level is comparable to that found in the Waianae Coast, suggesting that those families that do have children in this sub-region face an economic situation very different from that of their older neighbors.

⁵ In the Census tables, "Ko Olina" consists of Census Tracts 86.09 and 86.10, and includes Honokai Hale as well as Ko Olina.

Despite the intention to develop Kapolei into the second major Oahu city, Kapolei is today not much more than a significant suburban community. The same can be said of the neighboring communities along Fort Weaver Road, in Ewa and Makakilo. Outside of Campbell Industrial Park and the Kalaeloa Harbor, the commercial activity of the region is primarily designed to service a suburban community.

2.1.2.3 Ewa: Emerging and Anticipated Trends

Although the business core has not yet emerged, the building blocks being laid today forecast a very strong future growth in the EDPA. As noted in Exhibit 2-G, the EDPA is the **only** Development Plan Area on the island that is expected to increase its share of the City's population between 2005 and 2030.

The suburban residential areas that experienced vigorous growth through the last 15 years continue to fill in with projects by HASEKO, the Department of Hawaiian Home Lands, Gentry and others; and plans for accompanying major retail projects have progressed beyond the talking stages. If anything is missing to complete the City, it is the maturing of an intense, downtown core characteristic of other cities: home to the finance and professional services, upscale restaurants, specialty retail, medical services and other office tenants that make a downtown viable.

On February 9, 2005, ground was broken to begin construction on Ewa's North-South Road. This major roadway will connect H-1 with Kapolei Parkway and extend into Kalaeloa. That project is in full construction today and its completion later in 2008 will signal the start of construction on the new University of Hawaii West Oahu Campus, will provide a primary access to the underdeveloped lands of Kalaeloa and will make available the largely vacant lands of West Kapolei. The confluence of activity along the North-South Road will have significant impact on the shape and development timing of the entire EDPA.

On the industrial front, Campbell Industrial Park is full and employment has remained stable for the past few years. Light industrial space in the City of Kapolei and Kapolei Business Park is likely to attract office and light industry jobs from other parts of Oahu as the region's residential population continues to grow.

Kalaeloa Harbor is currently very busy. Sause Brothers barge operations have been shifted to this port from Honolulu. The harbor also handles several bulk cargo operations and metals recycling. With coral dredged from the harbor now placed on the harbor's land area, space for expansion will remain tight for the next few years.

A key to understanding the future of industrial/commercial uses in the Ewa region may lie with the Barber's Point Naval Air Station, now simply called "Kalaeloa". Because of its sheer size (nearly 3,700 acres) and the undeveloped nature of much of its lands, Kalaeloa offers business, commercial opportunities that no other part of the island can duplicate.

Finally, as noted earlier, Ko Olina continues to grow and to move toward a critical mass sufficient to fully support a resort community.

If anything will slow down the emergence of a true Second City at Kapolei, it is the capacity of the infrastructure. Despite building the North-South Road and widening Fort Weaver Road, the roadways of the Ewa region are significantly under capacity and deficient in connectivity. And the school systems, finished park space, liquid and solid waste disposal, drainage capacity must all be supplemented to accommodate the projected growth.

2.1.3 Waianae Development Plan Area

The Waianae Development Plan Area (WDPA) is the fifth largest of the City Development Plan Areas. A long corridor, the WDPA stretches 18 miles from Nanakuli to Kaena Point, and is confined by the Waianae Mountain Range to the east and the ocean to the west. With ten percent of Oahu's landmass, but less than five percent of the island's population, the WDPA is still rural, though it is becoming increasingly suburban.

The mountain range is a dominant feature and creates distinct valleys that line the corridor, linked by a single roadway and coastal beach parks. Nanakuli, about three miles from WGSL, includes the largest Hawaiian Homes community in the State, and is completely suburban in nature. Lualualei, home to large Navy munitions storage and communication facilities, as well as small residential communities along the highway is next. Maili and Waianae are home to large residential communities, as well as to many small farms. Waianae is also the urban core of the WDPA with shopping and civic services. Makaha has a small resort, but is essentially the last of the suburban housing communities along the coast. Makua is occupied by the US Army for military training, while Kaena is in conservation and nearly inaccessible to vehicular traffic.

The WDPA has experienced modest growth over the last 20 years (3.4%) and this has allowed the communities to retain the "small-town" values of the residents. But the isolation of these communities, and its rural character has had its downside. Average incomes in the WDPA (\$42,451) are significantly below the City averages (\$51,914) and the number of people living in poverty is nearly triple the number living in the EDPA. Unemployment is very high and a host of social concerns threaten the region. Of equal concern, the WDPA is seen by many of its residents as the "dumping" ground for problems that no one on Oahu wants, including two construction and debris landfills, a very large portion of the island's homeless population, a major power plant, and firing ranges and military dumping (over 32% of the region is controlled by the military).

The entire region is at the "end of the road" and there is, except in times of emergencies, only one road in and one road out of the WDPA. It is this road that runs by the WGSL.

2.1.2.3 Waianae: Emerging and Anticipated Trends

In recent years, the official City planning document that guides the growth of this region has migrated from a "development plan" to a "sustainable community plan", reflecting the intention of the City government and of the community to retain the rural nature of the region. The plan's vision and supporting provisions are oriented "to maintaining and enhancing the region's ability to sustain its unique character, current population, growing families, rural lifestyle, and economic livelihood . . ." ⁶

With the exception of significantly upgrading the infrastructure servicing the region, and protecting and enhancing the lifestyle, not much is projected to change. And although there have been on-going discussion for many years about adding a new highway through the Waianae Mountain Range or completing the highway around Kaena Point, plans have not been developed for such a project. Till then, the only access in and out of the WDPA is along H-1/Farrington Highway.

⁶ Waianae Sustainable Communities Plan, City Department of Planning and Permitting, 2000

2.2 LANDFILLS

2.2.1 History of Landfills on Oahu

Since as early as the 1850's, Oahu is documented as providing its residents with some form of Public Service for solid waste disposal; however, locations, collection and disposal processes have varied greatly. The City's waste disposal methods have included "garbage crematoriums", dumps, landfills, swamp filling, incinerators and ocean dumping, just to name a few. Locations have also differed greatly, from downtown (at present Ala Moana Boulevard), to Kaneohe Bay Drive (Aikahi Dump), Kawainui Swamp (Kawainui Dump which became the first landfill on Oahu), Kapaa Quarry and most recently WGSL. Landfills were located in Windward Oahu from 1940 until 1997 when the Kapaa Quarry landfill location was closed.⁷

2.2.2 History of WGSL Site

Site selection for a Leeward Sanitary Landfill began in 1977 with studies of 26 potential sites. In 1978 an EIS was prepared listing three sites, Nanakuli A and B, Makaiwa Gulch and Kaloia as the best possible landfill locations. Community concerns about groundwater protection caused the reexamination of these three options.

In 1984 an REIS declared Waimanalo Gulch and Ohikilolo (below the 200-foot contour) the best locations for Leeward landfills. Acceptance of H-POWER eliminated the need for having two landfills; Ohikilolo was declared unnecessary at that time and Waimanalo Gulch emerged as the preferred location. In the 1984 REIS report, the Department of Public Works stated that their objectives for solid waste disposal on Oahu were to operate landfills on both Windward and Leeward sides of Oahu and to implement H-POWER as quickly as possible.

The landfill in Waimanalo Gulch has been in operation since 1989 and since 1997 has remained the only municipal sanitary landfill on Oahu. Residents were previously assured that WGSL would close in 2004, or when the landfill had reached its full capacity. In 2001 a proposal for a 60.5-acre expansion was submitted. A 14.9-acre expansion was approved with the closure date of 2008. At the time, residents were subsequently assured that the landfill would close in 2008. The City today believes that no feasible or timely alternative to the landfill is currently available and that an extension and expansion of the use of WGSL is again necessary.

⁷ Young, Robert, *Garbage in Paradise*, 2005
http://envhonolulu.org/solid_waste/archive/History%20_Garbage_in_paradise.html

3. ALTERNATIVE ACTIONS

The City's Preferred Action is to expand and continue to use the Waimanalo Gulch Sanitary landfill beyond its intended closure on November 1, 2009. Presented below are the most seriously considered alternatives to the Preferred Action. They include alternative technologies and methods of disposal, and alternative landfill sites.

3.1 ALTERNATIVES TECHNOLOGIES AND OTHER MEANS OF DISPOSAL

3.1.1 H-POWER

H-POWER is a major element in the reduction of MSW requiring landfilling on Oahu. In 2005, H-POWER processed 625,877 tons of waste and recycling residue. The H-POWER process consists of shredding, separating recyclable materials, and waste combustion, all leading to steam generation, which drives a turbine to create electricity for over 45,000 homes on Oahu.

Plans are to add a third boiler to H-POWER, which would significantly reduce the MSW being sent directly to the landfill. A landfill, however, would still be necessary for down periods in the operation of the H-POWER Plant, for processing materials that cannot be handled by H-POWER, and for periods of emergency caused by natural disasters (e.g. hurricanes, tsunami).

3.1.2 Conversion of Sludge into Fertilizer

In 2006, the design-build-operator Synagro-WWT, under contract to the City, completed an In-Vessel Bioconversion facility where it takes sludge from the Sand Island Wastewater Treatment Plant and converts it into commercial, high grade fertilizer pellets, which is planned to be sold on the market to landscapers and others.

Previous to this facility, as much as 26,000 tons of sludge annually was trucked from the Treatment Plant and landfilled at WGSL. Delays in processing would sometimes result in odor problems for surrounding communities, especially for residents in Honokai Hale and Ko Olina.

Although initially slowed by some equipment issues, the facility began full operation in September of 2007. With this diversion, the delivery of sludge to WGSL has dropped over 25 percent from two years ago, from a high of 2,240 tons in January, 2006 to a low of 1,670 tons in December, 2007. ENV is also attempting to expand bio-solid/green waste composting to help recycling and to further divert sludge from WGSL.

WM notes that today it processes the sludge immediately upon delivery. In order to further reduce odors emanating from the landfill, WM also uses a system that emits an odor neutralizing mist every half hour of every day, from early in the morning to early in the evening, along the fence line fronting the landfill.

3.1.3 Other Alternative Technologies

Anaerobic digestion, hydrolysis and gasification are forms of alternative technologies that could reduce the amount of waste processed at WGSL. These forms, however, would not eliminate the need for a landfill as they deal solely with organic materials leaving all other forms of waste for alternate disposal. Equally important, the apparent capacities of these facilities are not sufficient to replace the burden borne by WGSL.

Anaerobic digestion is the naturally occurring bacterial breakdown of organic material in a controlled, oxygen free environment. Anaerobic digestion creates three byproducts, biogas, which in turn can be used for electricity generation, stable organic material that can be used for low grade building products such as fiberboard, and a liquid rich in nutrients, which dependant on the quality of material digested, can be used as fertilizer.

Hydrolysis is the use of water to split chemical bonds of substances.

Gasification is the decomposition of organic waste by exposing it to high temperatures. This process, unlike anaerobic digestion, allows a small amount of oxygen to be present during decomposition. Byproducts include solid ash and slag, liquid spyrolysis oil, and synthesis gas, or syngas. Gasification reduces solid waste by 85% to 92%. The remainder must be disposed of in landfills. Gas created through this process can be used for electricity generation.

For anaerobic digestion and gasification, markets need to be found to use the gas fuel and the fertilizer materials, and proven applications have not been shown on Oahu.

The Plasma Arc technology creates an electrical arc between two electrodes, which in turn produces extremely high temperatures. The heat breaks down the waste into organic molecules leaving gases, including syngas that can be used to generate electricity. Byproducts include materials such as glass and metal, and a lava-like hardened material.

3.1.4 Recycling

In 2006, a total of 542,747 tons of material, including auto bodies and other ferrous material, paper, metals, glass, plastic, tires, auto batteries, electronic scrap, green waste, wood waste/pallets, construction & demolition, food waste, sewage sludge, and other reuse material (Goodwill, Salvation Army, Helping Hands) were recycled on Oahu. Over the course of the last twenty years in which the City has maintained recycle data, the amount of waste recycled by the City has grown from 73,992 tons in 1988 to over 600,000 tons in 2007 (precise 2007 totals are not yet available).

There are currently over 70 recycle bin locations at schools for public use, with plans to expand the program by 40 locations in the coming years. All money acquired from the sales of recycled materials goes directly to the school. The State also maintains over 50 redemption locations on the island that accept HI5 bottles and cans only.

In the fall of 2007, the City began curbside collection of mixed recyclables (e.g. glass, cardboard, newspapers, plastics, green waste) in Hawaii Kai and Mililani. The program has proven very successful and the Mayor has announced plans to expand the program island wide in staged increments, beginning sometime in the fall of 2008. The City is also considering ways to assist high rise complexes, which are not part of the curbside collection program, in collecting their recyclables.

Items that are restricted from recycling centers include business/commercial/agricultural refuse, liquids, oils, grease, wet kitchen garbage, animal carcasses, large auto parts, some of which can be landfilled after processing. (Other items such as explosives and weapons, toxic/poison waste, wet paint and solvents, and medical waste are disposed in more specialized, highly controlled ways). There remains a quantity of nonrecyclable and noncombustible refuse that will require landfill disposal even after recycling efforts and waste-to-energy capacity have been increased significantly.

3.1.5 Transshipment

Transshipment involves packaging Oahu's waste and shipping it off the island. This alternative has been discussed at least as far back as the 2001 EIS and today is a more realistic alternative than ever before. Transshipment would significantly reduce the need for daily landfill capacity. Currently, proposals call for the use of sites in Washington State or Idaho; where landfill capacity is readily available.

Transshipment is a serious alternative to handling a portion of MSW, but it has externalities that must be considered. These include the following:

- The tipping fees received from H-POWER and WGSL provide the resources necessary to run H-POWER and to collect residential solid waste at no additional fee to tax payers. Diverting a significant level of solid waste to the mainland diverts those fees and may force the City to find other revenue to offset the subsidies required to run H-POWER and to collect residential solid waste.
- H-POWER supplies the power for over 45,000 homes on Oahu. Reducing the solid waste input into H-POWER reduces its alternative energy output.
- Transshipment creates a level of uncertainty that is not apparent in today's technology of H-POWER and landfilling. Transshipment is more vulnerable to freight and vendor price increases (e.g. those tied to the price of oil), to shipping disruptions (e.g. strikes, weather, regulations in the receiving states) and to the loss of control at the out-of-state landfill site.
- Because of the amount of fuel needed to process and to ship MSW to its ultimate location and the reduction of alternate energy, it is likely that the carbon footprint of this alternative exceeds the processing of MSW on Oahu.
- Industrial area space and wharf space would be needed to process and to store solid waste to be transshipped off-island. Wharf space is limited.

The City has recently advertised an Invitation for Bid regarding the transshipment of MSW. A pre-bid conference on February 14, 2008 attracted about 10 interested parties. A decision to procure those services will depend on the bids that are received later this year, with the expectation that if successful, transshipment will probably not occur until sometime in 2009.

It should be noted that the City believes that even if transshipment is deemed economically viable and politically acceptable, limited landfill capacity will still be required for material that cannot be processed or shipped (e.g. agricultural waste, bulky waste/white goods, brown waste/furniture), for downtimes at the H-POWER Plant and for emergencies caused by natural disasters.

3.2 ALTERNATIVE SITES

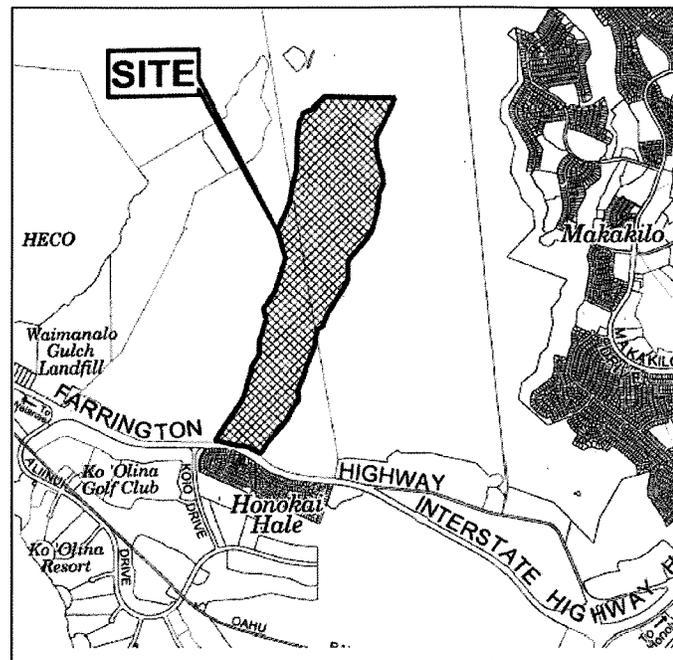
Since 2000, many alternative sites have been analyzed for potential as landfill candidates. After serious study by the City, four sites emerge as possible replacements for the WGSL. These include sites in Makaiwa Gulch, Maili, Nanakuli B, and the Ameron Quarry in Kailua. All four sites are privately owned: two are in active use and one is targeted by its landowner for partial residential development. Like WGSL, three of the four sites are in Leeward Oahu. All four alternative sites have a landfill life expectancy of at least 15 years. In 2001, in 2003 and in reviews since, the City has consistently found WGSL to be the optimal site based on a number of landfill siting criteria.

3.2.1 Makaiwa

The Makaiwa site is a gently sloping valley of more than 1,200 acres. The next valley to the west is Waimanalo Gulch, where the current MSW landfill is in operation. Part of the property has been classified as Urban by the State Land Use Commission, in response to a petition by the owner. Current plans for the property include residential development extending from Makakilo (above the site and to the east). To the south of the site is the residential community of Honokai Hale and, further seaward, Ko Olina.

The Makaiwa Gulch site consists of 338 acres with an anticipated landfill life of 25 years. There is currently only one building located on the site that would be displaced. There are two residences located 118 feet from the property line and the nearest school, Mauka Lani, is a little over a mile away. Although parts of the site are very visible from H-1 Highway, the landfill may not be if carefully located and screened. Traffic issues that affect WGSL may be apparent with Makaiwa as well since both have similar alignments with Farrington Highway.

Exhibit 3-A: Makaiwa Site



Source: Honolulu Department of Permitting and Planning
<http://www.honoluludpp.org/Planning/PublicInfrastructureMap.asp>

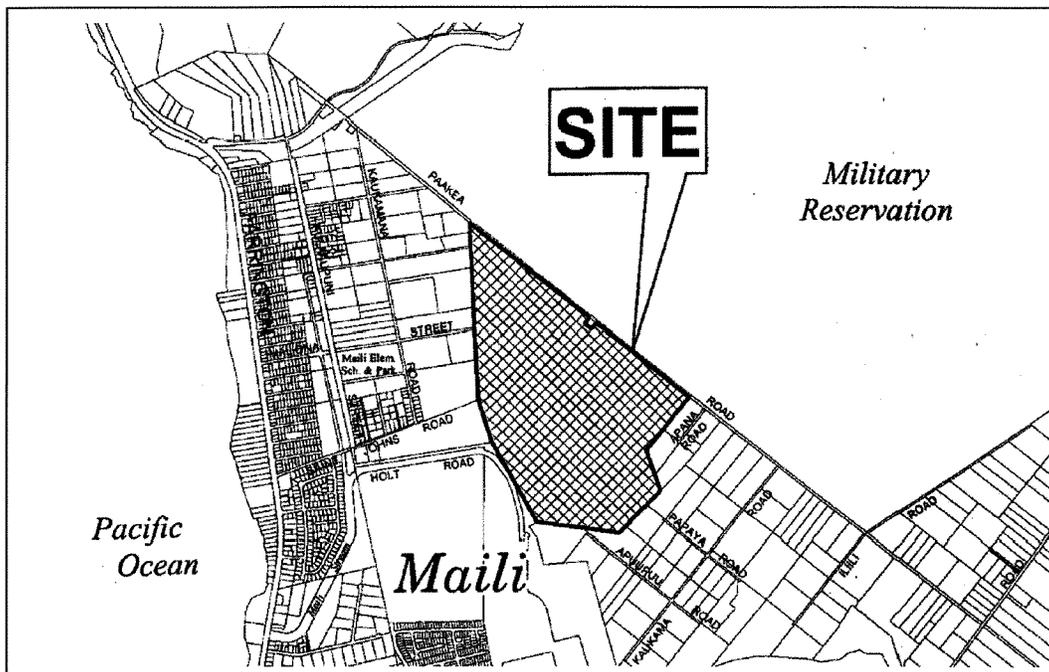
3.2.2 Maili

The Maili site can be reached by Paakea Road, which runs along the boundary between civilian and military areas in the Lualualei region. On the makai side of the road, its immediate neighbors include an egg farm. At slightly greater distance are a school and the Waianae Coast's major health clinic. Operations at the site would likely be visible from the Maili Kai residential area to the south.

The Maili site includes one dwelling and another building on 200 acres of land. The anticipated landfill life of this site is 15.33 years. There is a distance of 875 feet between the property line and the nearest residence and 1/5 of a mile between the property line and the nearest school, Maili Elementary. The site is located in an area that has low visibility from Farrington Highway, the closest general use public road.

The Maili property is currently being used as a coral quarry. Its operators have been mining the site since 1998 and project use of the site for another "40 to 50 years". Sphere LLC is accepting asphalt on site, and has a contract to take ash from AES Hawaii⁸. Sphere LLC applied to the State Land Use Commission for a Special Use Permit to operate a construction and debris landfill; the petition was denied in June 2004 due to insufficient information concerning the planned use of the site. The petition was denied again in March 2006 when the project was met with much more opposition from the community than in 2004.

Exhibit 3-B: Maili Site



Source: Honolulu Department of Permitting and Planning
<http://www.honoluluodpp.org/Planning/PublicInfrastructureMap.asp>

3.2.3 Nanakuli B

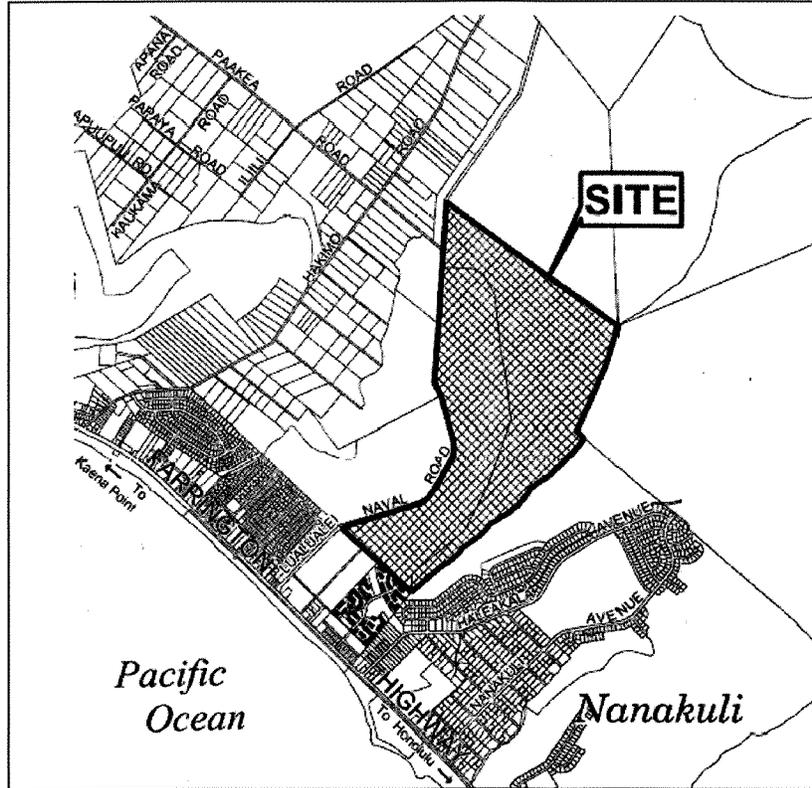
Although labeled as being in Nanakuli, some would argue that this site actually sits in Maili. The site itself nestles between a volcanic ridge and Lualualei Naval Road. The ridge separates the site from the bulk of developed land in Nanakuli Valley. Neighbors on the Naval Road include the existing construction and demolition debris landfill and acreage where the owner once proposed developing a golf course (Hida, Okamoto, 1991). The owners note that the site has plans and permits for the existing construction landfill located across the Naval Road.⁹ An EIS has been in preparation for a municipal solid waste landfill at this site. Also across the road is the old Kaiser Cement plant. Seaward is a commercial area, including a large grocery store.

⁸ Letter, L. Wilderman to W. Namumnart, August 25, 2004

⁹ Letter, S. Joseph to W. Namumnart, August 19, 2004.

The Nanakuli B site is 432.3 acres with an anticipated landfill life of 15.63 years. The nearest residence is adjacent to the property line, while the nearest school, Nanakuli Elementary School is ¼ mile from the property line. There are currently no buildings or dwellings located on the site. The Nanakuli B site is visible from Farrington Highway.

Exhibit 3-C: Nanakuli "B"



Source: Honolulu Department of Permitting and Planning
<http://www.honoluluodpp.org/Planning/PublicInfrastructureMap.asp>

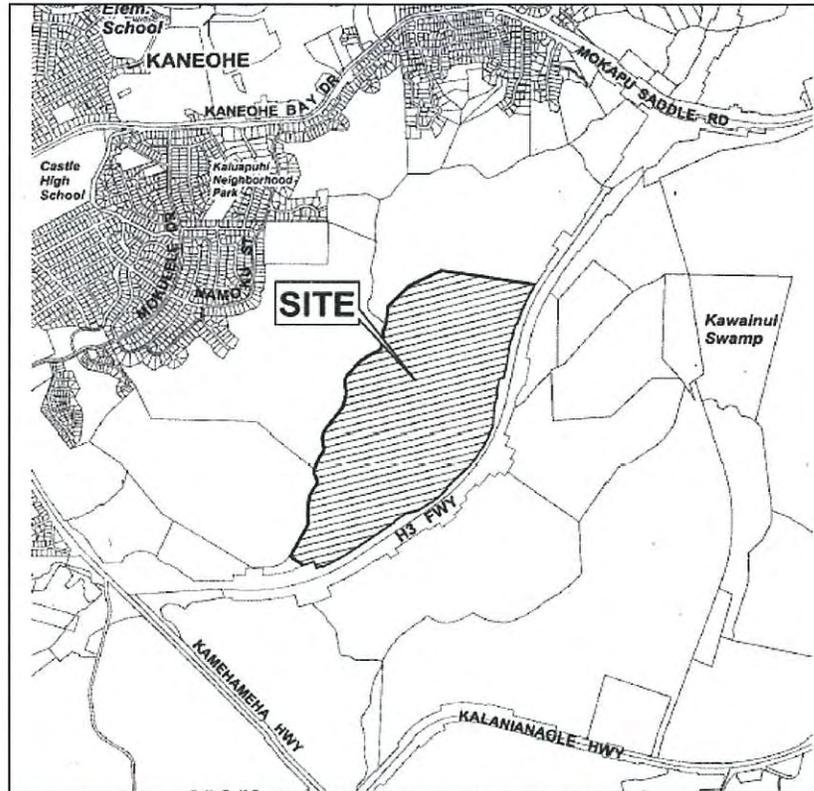
3.2.4 Ameron Quarry

This site is in Kapaa valley on the Kaneohe side of the Koolau's, an unpopulated area through which runs the H-3 Freeway. From the freeway it is possible to see structures in the Ameron site (notably crushers) but not the pits. To the north is the Veterans Cemetery. To the west, Kaneohe neighborhoods extend to the ridge that forms the back wall of the quarry. The nearest neighbor to the south is an industrial area, to which the Ameron supplies water for non-potable use. Further to the south is the Kawainui Marsh, a basin that has been identified as the State's largest wetland.

Current operations on-site include Ameron's rock quarrying and crushing activities and a Grace Pacific plant. The site includes stockpiles and water detention basins. To the east, on the other side of the freeway, Ameron is developing a second phase of its Kapaa operations. Current plans call for use of both sites, and a gradual transition to dependence on phase II. Even when quarrying in the existing pit ends, the owners claim that much of the area will still be needed for stockpiles and water detention.

The Ameron Quarry site consists of 391 acres with an anticipated landfill life of 15 years. There are presently 8 buildings located on site. The nearest residence, Pohai Nani – Elderly Development and the nearest school, Le Jardin Academy, are located 1/5 of a mile and 2/3 of a mile, respectively, from the property line.

Exhibit 3-D: Ameron Quarry Site



Source: Honolulu Department of Permitting and Planning
<http://www.honoluludpp.org/Planning/PublicInfrastructureMap.asp>

3.3 TAKE NO ACTION

Currently nearly 563,000 tons of MSW is sent annually to WGSL. There appears to be no single alternative, nor any combination of alternatives that can viably be expected to process that level of waste. And if there were, with each alternative a landfill is required to handle product that cannot be processed or to serve as a backup in case of downtimes or emergencies.

Closure of WGS� without a viable replacement that meets State and Federal requirements would mean that the City and its residents would be faced with some of the following challenges:

- The incidence of illegal dumping, with serious health and safety impacts and high costs of clean up, would greatly increase.
- An alternative site would have to be quickly activated for landfill requirements. Regulatory, construction and other start-up costs, which have already been incurred at WGS�, would have to be assumed.
- For commercial haulers, transshipment may become a greater reality, significantly cutting into the waste levels needed to operate H-POWER, thereby threatening its economic viability. A reduction in H-POWER usage will also result in a significant reduction of power generated on Oahu from alternate energy sources.
- Ash and residue from H-POWER and any residue from alternative waste disposal technologies may have to be exported elsewhere. If so, ENV will have to ensure proper process (autoclaving) of MSW, sludge, and non-incinerated residue from H-POWER to make sure these meet Federal and State requirements.

4. COMMUNITY ISSUES AND CONCERNS

This section identifies those landfill issues that are of concern to the communities of Oahu. As was echoed through numerous sources, waste disposal and WGS� specifically are of concern to all of Oahu’s residents. This section helps to better understand the underlying causes of concern.

4.1 SOURCES AND METHODOLOGY

Major sources for the account of issues and concerns were:

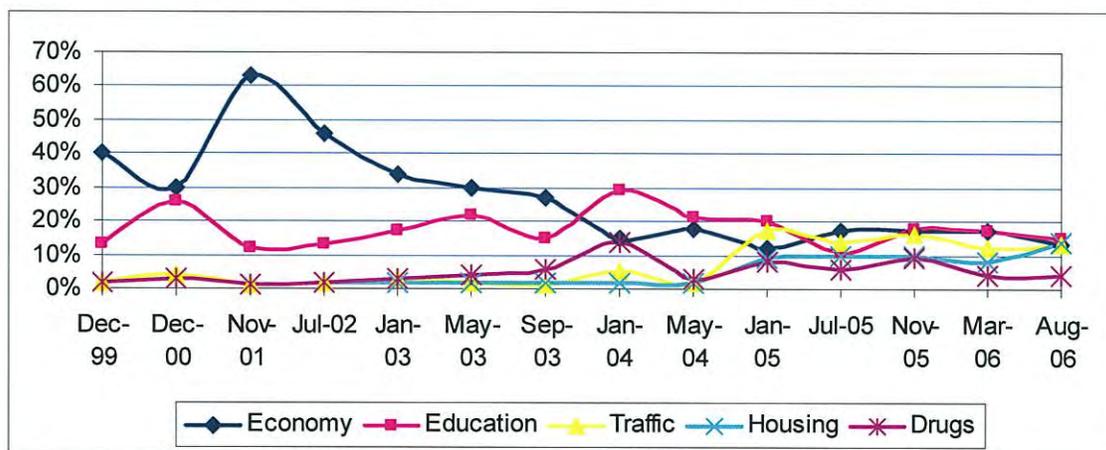
- Interviews with selected persons who SMS knew to be knowledgeable about the affected communities and activities relating to the proposed action;
- Neighborhood Board resolutions and summaries of discussions of the issues during the years 2005, 2006 and 2007; and
- 2005, 2006 and 2007 local newspaper articles.

The objective of data gathering for this section of the report is to understand the range of concerns and some of the linkages among them. The methodology was designed to cover a wide range of opinions, not to assess the relative importance of particular viewpoints.

4.2 COMMUNITY ISSUE AND CONCERNS INDEPENDENT OF THE PROPOSED ACTION

For several years, Hawaii residents have responded to polls on the major issues facing the community by pointing to the economy and education as the most important issues for the state of Hawaii (as shown in Exhibit 3-A). Environmental issues (e.g., environmental protection, recycling) do not achieve the same salience.

Exhibit 4-A: Major Public Issues, State of Hawaii, 1999-2006



Source: "People’s Pulse Poll – OmniTrak Group Inc."

4.3 COMMUNITY ISSUES WITH REGARDS TO THE WGSL

4.3.1 Neighborhood Board Topics of Discussion

On the island of Oahu there are a total of 32 Neighborhood Boards; they meet monthly. Over the course of the last two years, discussions regarding WGSL arose in the Waianae, Makakilo/Kapolei/Honokai Hale, and Kailua neighborhood board meetings.

The Leeward Communities were mostly interested in closing the WGSL and in ensuring that following the 2008 closure of WGSL, the next landfill would not be located in Leeward Oahu. Among their specific concerns were the following:

1. Is the State Department of Health monitoring and conducting its own landfill investigations or are they relying on the operator?
2. What violations are outstanding and what is being done about them?
3. Is anyone, but in particular the military, being allowed to dump hazardous material in the landfill?
4. What is the present situation with transshipment? Is it a viable option to keeping WGSL open and at what cost?
5. What are the specific elements of the community benefits package and who benefits? Why? Who is represented in decision-making? Are there any features that are merely a substitute of City services that should be provided anyway?
6. What assurances are there that if WGSL is closed that another landfill is not opened on the Leeward Coast and what enforcement is available to prevent rogue trash dumping.
7. What is being done about the hazardous dump truck drivers and the dangerous traffic conditions caused by crossing the freeway without a light, by trucks lining up on the side of the highway waiting to enter the landfill area, by the airborne and highway trash left behind by trucks and the landfill operation?
8. What is the situation with the leachates? What is the stability of the landfill walls?
9. How is the landfill affecting the for-profit businesses in the area or the decisions of businesses that would like to locate in the Leeward area?

The Kailua Neighborhood Board, over the course of 2005 and 2006, had numerous mentions of WGSL Sanitary Landfill. A majority of their concerns were around the EIS, when the preparation process would begin, and expected completion date. The board was also notified monthly of any news or decisions surrounding the landfill. More specifically, among their mentions were:

1. Questions were raised numerous times in 2005 and 2006 regarding the status of the EIS. It was believed that there was no movement on this due to a face-off between the City Council and the Mayor's promise to Leeward not to extend the landfill.
2. Concern was expressed that if the EIS process did not begin soon the City would run into similar problems to what Maui was facing with their permit process.
3. Credit was given to the Mayor for vetoing Bill 37 that would have closed WGSL by May 1, 2008. They understood that it was not an easy decision.

4.3.2 Individual Community Responses

Interviews with community leaders, individuals and community groups solicited strong and wide ranging reactions on WGSL. A sampling of the most often mentioned reactions, slightly edited for grammar, without analysis as to their legitimacy, are presented below in italics.¹⁰ Information from ENV and WM are also presented.

4.3.2.1 People Who Favor Closing the WGSL

4.3.2.1.1 *On the City's Commitment to Close the Landfill*

When it opened, the City committed to a short-term usage of WGSL. They extended it under the Harris Administration with a strong commitment that it would close in 2008. If we can't trust the City Administration to stand by the commitments of previous administrations, how can we trust anything they say?

The commitment to close the WGSL is reflected in the deeds of buyers in Ko'Olina. We were told it would close in 2008. I'm not sure people would have bought units without that commitment by the Administration.

It's not like we have NO choices to using WGSL. We can expand H-POWER, we can ship waste to Washington State, we can landfill elsewhere on the island. So, if we have options, how do we justify going back on a commitment given in good faith?

It seems to me that if one reads the last EIS, there was absolutely no intention of keeping the timetable to five years. Remember, Harris started with an extension for 15 years, then cut it to five years after all the protest. There was no plan for what to do after five years. The City doesn't care; it takes the community for granted.

Where's the transparency necessary to deal honorably with the community? It robs the community and the larger Oahu community of the opportunity to make reasoned judgments and it breeds distrust.

Does the Administration pay attention to its citizens; does it feel an obligation to keep its word. This is overwhelmingly the stuff that drives the response to ideas and fuels the energy behind the opposition to WGSL.

Discussions with ENV indicate that the City is continuously seeking ways to find relief for the landfill, but thus far with limited success. They have had or are seeking proposals for alternate technologies, for expanding to a 3rd boiler at H-POWER, and for transshipment. They keep open the option of an alternate site if one can be found. But they contend that despite assurances given by a previous administration, it is not practical to close WGSL at this time.

¹⁰ In the course of the interviews, interviewees were assured anonymity and confidentiality. This allowed for free and frank conversations. As such, the names of interviewees are not presented within this report

4.3.2.1.2 On Management of the Operation

Despite numerous complaints over the years, we continue to have litter on the roads, we continue to have dangerous truck situations where merging into and crossing traffic occurs; we continue to have smells coming from the landfill; and we continue to have deliveries at off-hours. There may have been some improvements, but these issues are not being adequately addressed by Waste Management.

Waste Management is very secretive. They don't answer our questions; they subtly harass people who come to the site; they make the community suspicious.

Discussions with WM indicate that they are trying to be more transparent on their operations. They participate in the Mayor's Oversight Advisory Committee and they give tours of the landfill upon request. In 2006, more than 1,600 individuals toured the landfill. There is a website that posts pertinent information and contact information for questions or complaints.

4.3.2.1.3 On Traffic

It is very dangerous when trucks line up on the highway waiting to turn mauka. It doesn't happen often, but when it does, it's very dangerous.

When trucks merge back onto the highway going toward town, they have to cut across traffic, sometimes very heavy traffic, without the benefit of a light. I'm surprised there haven't been any major accidents caused by these trucks.

The individual household deliveries, in cars and trucks, may be even more problematic than commercial trucks. These aren't professional drivers and they often don't cover the trash. These people are more likely to litter the road and to cause traffic hazards.

WM notes that they are not aware of any major accidents involving trucks entering and exiting the landfill site. They continue to monitor the intersection and to counsel truck drivers on appropriate driving practices.

4.3.2.1.4 On Odors

The State Department of Health has done tests and they tell us that "yes, under certain conditions, odor is a very real problem." It is not our imagination. This is especially a problem for Honokai Hale and Ko'Olina residents and guests.

The odor problem is most noticeable when they deliver sludge material from the Sewage Treatment Plant and it is not immediately buried. It happens often.

Sometimes it gets so bad, you can't come out of your house. I feel sorry for those people in Honokai Hale who may not have air conditioning.

Following numerous complaints a few years ago, WM indicates it instituted a practice to immediately process sludge material upon delivery. WM also improved the operation of their odor neutralizing misting system that functions during landfilling operations. And the successful operation of the Synagro-WWT facility has reduced sludge delivery to the landfill by 25 percent. Taken together WM believes that they are actively addressing this issue. Their records indicate a drop in odor complaints from seven different instances in 2006 to one complaint in 2007.

4.3.2.1.5 On Litter

This is the most visible problem. It was worse before, but the problem has certainly not gone away. Trucks litter because the load is not properly covered on the way to the landfill or because they do not clean the truck out completely before leaving.

Litter occurs sometimes because of the winds blowing over the landfill. Some days one can see paper and plastics hovering over the landfill, kicked up by the wind. And sometimes, that trash is blown down the mountain to the areas around the landfill and out to the ocean. There is a reason that wind farm people have looked seriously at sites above the landfill; the wind is very strong there.

Discussion with WM indicate that it is their current practice to continuously process and cover the trash as it arrives, thereby limiting its exposure to wind. They also cover the trash everyday, as is indicated by photos that are sent to the State Department of Health at the end of each day. WM also employs people to pick up litter along the extremities of the landfill before it can blow off of the property. They appreciate that they are not always successful, but they believe they have greatly reduced the problem.

As to trucks not properly covering their load or not completely emptying their load, WM contends that they monitor the trucks entering and leaving and are very aggressive about employing a system of counseling and fines. It is their position that anyone seeing violations of littering should call them and call the police with information on licenses and time/date of occurrence.

4.3.2.1.6 On Views

The landfill is visible from Ko'Olina and from the highway. It is most visible from Farrington Highway as you drive by the Kahe Power Plant.

If operations are visible now, how much more visible will it be if they expand operations? They are not supposed to excavate, so I don't understand how it will not be more visible?

The visibility of the landfill has a direct impact on the development of Ko'Olina; on the largest single economic engine on the Leeward Coast. Hotel developers are very reluctant to buy parcels because all mauka view units will be looking at an operating landfill. One can say that the current landowners knew it was there when they bought the project, but they believed the City when the City committed to close the landfill in 2003 and then in 2008. The landfill is not the only reason these sites are difficult to sell, but it is a major reason.

People keep saying the view will improve as they plant cover and put in view screens. But it's been a long time and I don't see any trees or view screens.

Discussions and site visits indicate that Norfolk pines and monkey pod trees have been planted along a berm fronting the landfilling operation. These trees have yet to mature to a level to adequately screen views. Most of the finished surfaces have been hydro mulched, but grass has not yet taken hold. Berms have been erected in such a manner that views of the operation from the highway fronting the landfill and from much of Ko 'Olina have been partially obscured. WM contends that if the operation is allowed to expand deeper into the valley, the finished heights of the berms and additional planting will almost totally obscure any views of operation for most of the neighbors.

4.3.2.1.7 On the Safety of the Site

Is the site safe? I worry about the plastic linings since they have had some recent fires.

I worry about the fill coming down the hillside. When the recent earthquakes happened, my first thought was how we would handle the toxic materials if the walls of the landfill breached.

WM contends that the landfill was never unstable and that the site has always been safe. However, to address the small area of ash monofill that had a factor of safety less than permitted by the DOH, a berm was constructed and completed in 2005. The basis for WM's contention are geotechnical studies and analyses that have been performed by third party professional firms whose work has been reviewed by independent, nationally recognized engineering professionals.

4.3.2.1.8 On the Community Benefits Package

If the package is going to have elements that merely replace funds that should have been spent in the community anyway (e.g. park maintenance), then it's a farce.

Leave the decision to the community as to how the money is spent. People who don't have to live with the problem should not control those decisions.

There is absolutely no reason not to include Makakilo as a recipient. They live next to the landfill. How does the WGSL affect the people living Ewa? Yet, they are recipients and the community of Makakilo is not.

If truth be told, the only communities that are directly affected by WGSL are Honokai Hale and Ko 'Olina; the communities indirectly affected are Makakilo, Kapolei, and the residents who pass by going further out Leeward.

I'm not sure I even want to discuss a "better" community package. As soon as we start "negotiating" a community package, we will surely have to keep the landfill. We'll get bought off. There's too much money being made by the City at the landfill.

ENV notes that the benefit package thus far has been \$2.7 million in 2007 and will be \$2.0 million in 2008. They expect that participation and benefits will continue to evolve as they gain experience in working with the community.

4.3.2.2 People Who Favor Extending the WGSL Landfill Operation

4.3.2.2.1 On the City's Decision

We need a landfill on the island, even if we have other successful alternative technologies. WGSL has more room for expansion; the investment is already made there. Honolulu town has had its share of landfills as has Windward Oahu. It's just logical to extend the use of WGSL.

I support the full use of the Waimanalo site before any other site is considered. Anything else would be a terrible waste of money and resources.

Discussions with people opposed to the continuing operation of WGSL indicates that they believe the financial investment is not sufficient to offset the burden placed on the communities of Ewa and the Leeward Coast. They further indicate that this investment might have been more aggressively fought if they did not believe the previous administrations that indicated that the WGSL would be closed.

5. SOCIAL-ECONOMIC IMPACTS

5.1 IMPACTS ON PUBLIC FACILITIES AND SERVICES

In this section, the social impacts expected from the Preferred Alternative are presented for consideration in decision-making. The sources of information were the published annual reports and direct discussions with agency personnel.

5.1.1 Police Protection

5.1.1.1 Existing Conditions

Honolulu Police Department (HPD) District 8 encompasses the Waianae Coast, Makakilo, Ewa Plains, and the City of Kapolei. District 8 has 19 beats, shown in Exhibit 4-B. The district headquarters is in Kapolei, while a substation in Waianae provides a base of operations for officers patrolling the Waianae Coast.

5.1.1.2 Future without Proposed Action

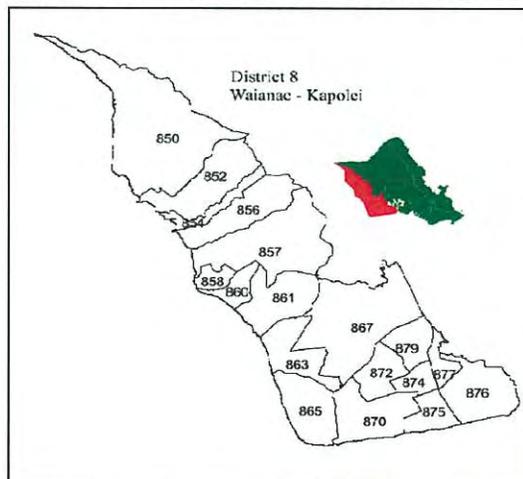
The Honolulu Police Department has found it difficult to fill its ranks in the face of budgetary limits. This situation seems unlikely to change greatly.

5.1.1.3 Future with Project

During a one year time period, April 2006 – April 2007, in the area immediately surrounding WGSL, there were a total of 41 documented nuisance complaints received by HPD, but they could not be specific on what types of complaints nor to whom they were attributable. Since April of 2007, HPD's records show only one complaint in the area. This is consistent with WM complaints logs, which indicate 14 complaints in 2006 and only 4 complaints in 2007. Complaints made to WM may not be made to the police and vice versa.

Extension of the landfill operations should not result in any additional burden to the Honolulu Police Department.

Exhibit 5-A: Honolulu Police District 8



SOURCE: Honolulu Police Department website (www.honolulu.hpd.org/).

5.1.2 Fire Protection

5.1.2.1 Existing Conditions

The Honolulu Fire Department's Fourth Battalion, as shown in Exhibit 5-B, serves leeward Oahu. The Kapolei Fire Station, Station 40, also serves as the headquarters for Battalion 4. The headquarters building houses an engine and a ladder truck. Station 28, in Nanakuli, has an engine and a tanker. Station 26, the Waianae Fire Station, has an engine, a quint truck (with pump and ladder), and tanker. Also housed in this fire station are the Waianae EMS units. The Makakilo Fire Station (No. 35) has a single engine.

The Fire Department has worked successfully with WM in the past supplying equipment to help fight area brush fires outside of the landfill property (no fires have occurred from within the landfill itself).

5.1.2.2 Future without Proposed Action

No change in services is expected over the course of the next few years.

5.1.2.3 Future with Proposed Action

The Honolulu Fire Department has asked that WM maintain adequate access for fire apparatus and indicates that WM is complying. As long as WM continues to provide adequate access, the Fire Department foresees no necessary additions as a result of the WGSL expansion.

Exhibit 5-B: Honolulu Fire Dept. Service Areas



Source: Honolulu Fire Department website
(<http://www.honolulu.gov/hfd/index.htm>)

5.1.3 Emergency Services

5.1.3.1 Existing Conditions

In Leeward Oahu there are currently three EMS locations as well as one of the island's two Rapid Response locations. EMS is found at Waianae Fire Station, in Nanakuli along Farrington Highway, and Makakilo in Kapolei. The island's first rapid response location is at St. Francis West Hospital.

5.1.3.2 Future without Proposed Action

The landfill and its surrounding communities are adequately serviced by EMS services.

5.1.3.3 Future with Proposed Action

Expansion of the WGSL will not add new residents and, according to Waste Management, only 5 – 12 additional contract workers to the site. This will not significantly impact the quality of service currently available for those on the Leeward Coast.

Exhibit 5-C: Oahu EMS Locations



Source: Department of Emergency Services website
(<http://www.honolulu.gov/esd/ems/emsorg.htm>)

5.1.4 Education

5.1.4.1 Existing Conditions

Leeward Oahu has seen growth in school populations and schools in recent years, notably in Kapolei where new middle and high schools have opened. Availability of primary school space remains a problem. Two schools are located in the landfill site vicinity, Makakilo Elementary and Mauka Lani School.

Mauka Lani School having no complaints or staff concerns about WGSL nor do they report any incidences of odor or children feeling ill at school.

5.1.4.2 Future without Proposed Action

Development in the Kapolei area will lead to an increase in population, eventually causing the need for additional school locations.

5.1.4.3 Future with Proposed Action

Expansion of the WGSL Sanitary Landfill will not create a need for additional elementary schools, nor will it affect existing elementary schools differently than they are affected at the present time.

5.1.5 Library Services

5.1.5.1 Existing Conditions

Hawaii's public libraries are operated by the State Department of Education. Libraries are open in Waianae, Ewa Beach and Kapolei.

5.1.5.2 Future without Proposed Action

Due to limited funds, hours at libraries throughout Hawaii have been reduced in recent years. No additional libraries have been announced as planned.

5.1.5.3 Future with Proposed Action

No impact on library services is anticipated.

5.1.6 Parks and Recreation

5.1.6.1 Existing Conditions

There are parks situated in Waianae, Maili, and Nanakuli, and throughout the major residential zones of Ewa. Also, beach parks are located along the Waianae Coast at the tip of Barbers Point (in the Campbell Industrial Park) and in Ewa Beach. Odor issues and occasional airborne trash at nearby beach parks are the only reported issues caused by the current operations of the landfill. In the past, outdoor recreation at Ko Olina has been limited during occasions when odor was a problem.

Long-term WGSL may one day be used as a reclaimed recreational facility much like Ala Moana Park and Honolulu Waterfront Park.

5.1.6.2 Future without Proposed Action

After the closure of Barbers Point, much of the Navy land was conveyed to the City of Honolulu for eventual redevelopment as recreation and sports facility. Funds for significant new developments have not been allocated, so major changes are not likely in the next few years.

5.1.6.3 Future with Proposed Action

An expanded WGSL does not generate any additional demand on area parks. If odor issues and litter issues are adequately addressed, expansion and continued use of WGSL will have no impact on the use of nearby parks.

5.1.7 Medical Services

5.1.7.1 Existing Conditions

Leeward Oahu is served by St. Francis West, a 100-bed hospital with 24 Emergency Service located outside Waipahu, the Waianae Coast Comprehensive Health Clinic between Nkakuli and Waianae and clinics in Kapolei maintained by other health care providers.

5.1.7.2 Future without Proposed Action

SMS knows of no major changes in medical services planned for the study area.

5.1.7.3 Future with Proposed Action

No impact is anticipated.

5.2 OTHER SOCIAL IMPACTS OF NOTE

5.2.1 Positive Social Impacts

5.2.1.1 Reduced Impact on Other Oahu Communities

Unless a package of alternatives can feasibly process MSW and refuse currently handled by the WGSL, a landfill will still be needed. Without it, the health, sanitation and aesthetic issues associated with unprocessed waste or uncontrolled dumping will burden the entire island.

In addition, moving the current landfill operation to another Oahu location, merely shifts the adverse impacts to another community, still requiring that the issues of litter, traffic, odors, and visual pollution be addressed and managed.

5.2.2 Negative Social Impacts

5.2.2.1 Department of Health Issues

In February 2006, the Department of Health proposed one of the largest environmental fines ever against the City: Eighteen violations were identified in DOH's six-month investigation. According to WM, all but two violations were corrected in 2006. The final two, 1) failing to measure leachate levels and to maintain these records and 2) exceeding permitted grades were deemed corrected as of September 26, 2007 and February 20, 2008 respectively. The violations included:

Exhibit 5-D: DOH Notices & Finding of Violations

<i>Count</i>	<i>Alleged Violation</i>	<i>Dates of Last Alleged Violation</i>	<i>Compliance Status</i>
1	Exceeding Permitted Grades	2/20/08*	In compliance
2	Failure to submit Annual Operating Reports in a Timely Manner	2/22/2005	In compliance
3	Failure to Place Daily Cover on the Active Face of MSW Landfill	6/9/2005	In compliance
4	Failure to Place Intermediate cover Material on the Ash Monofil	6/29/2005	In compliance
5	Exceeding Leachate Head on the Liner in Ash Monofill	6/15/2005	In compliance
6	Exceeding Leachate Head on Liner in MSW Cell E-1 Sump	6/22/2005	In compliance
7	Failure to Measure Leachate Levels and to Maintain Records on Leachate Levels in Cell 4B Sump	9/26/07*	In compliance
8	Failure to Measure Leachate Levels and to Maintain Records on Leachate Levels in Ash Monofill Sump	2/9/2005	In compliance
9	Failure to notify DOH of Noncompliance on Equipment Blockage in MSW Cell 4B Leachate Lateral line and inability to Measure Leachate Levels	6/22/2005	In compliance
10	Failure to Notify DOH of Noncompliance in a Timely Manner on the Exceedances of Permitted Grades and submission of the annual Operating Reports (AOR's)	2/22/2005	In compliance
11	Unauthorized Storage of Material on the Ash Monofill	3/2005	In compliance
12	Failure to Manage and Ban the Acceptance of Special Waste	5/19/2005	In compliance
13	Failure to Maintain Records and Record Location of Asbestos Disposal at the Landfill	7/2/2005	In compliance
14	Failure to Cover a Dead Animal	2/17/2005	In compliance
15	Failure to Submit annual Surface Water Management Plan	9/1/2005	In compliance
16	Failure to Control the Generation of Dust from Vehicular Traffic	2/17/2005	In compliance
17	Failure to Minimize Free Litter Generation in the Landfill	6/24/2005	In compliance
18	Failure to Monitor Explosive Gasses and Maintain Monitoring Records	2004	In compliance

* Date that DOH deemed WGS in compliance.

5.2.2.2 Property Values

The 2002 Socio-Economic Impact Assessment of WGS� Sanitary Landfill Expansion presented property value results that were not necessarily in line with what experts and the public at large would have expected.

Research found that single-family homes fit the hypothesis that property values increase with distance from the landfill up to a distance of about three miles. However, the condominium analysis shows a significant correlation of increased value and proximity to the landfill – the opposite result.

Condominium property values are higher near WGS� due to the location of the condominiums, Ko Olina. According to the Ko Olina website, “Ko Olina Resort & Marina’s residential development will be Hawaii premier location for homebuyers across the word and for local residents...Ko Olina will provide a feeling of luxury in a private community...”

5.2.2.3 Diminishing Community Trust

The failure to follow through on commitments from the City to close WGS� may be having an impact in eroding public trust and increasing cynicism toward City government. This is happening in the fastest growing community on the island where private-public partnerships are necessary to ensure sensible and well-managed growth.

The problem is being complicated by a “community-benefits package” proposal with which both proponents and opponents of the landfill who were interviewed expressed some hesitation. There appears to be general agreement among them that there has been insufficient community involvement in questions surrounding “who should benefit?”, “what impacts are being addressed?”, and “what services are appropriate?”

5.2.2.4 Environmental Injustice

“Environmental Injustice: An environmental injustice exists when members of disadvantaged, ethnic, minority or other groups suffer disproportionately at the local, regional (sub-national), or national levels from environmental risks or hazards, and/or suffer disproportionately from violations of fundamental human rights as a result of environmental factors, and/or denied access to environmental investments, benefits, and/or natural resources, and/or are denied access to information; and/or participation in decision making; and/or access to justice in environment-related matters.”¹¹

A number of interviewees point out that Leeward Oahu has been and continues to remain on the receiving end of many of Oahu’s burdens. They argue that within a 10-mile stretch along Farrington Highway there are two separate landfills handling hazardous¹², construction and municipal waste, as well as an two existing electrical plants, a proposed new generator unit at the Campbell plant, a deep draft harbor and a major industrial park, all of which service the entire Island of Oahu -- all of which adversely impact the environment of these communities. Further, Leeward Oahu is now the home of thousands of homeless people, many of whom were driven out of other communities only to be “welcomed” and “tolerated” on the Leeward Coast. They argue that the continued use and expansion of WGS� will only increase the imbalance of those impacts on Leeward Oahu.

¹¹ Wikipedia *Environmental Justice* http://en.wikipedia.org/wiki/Environmental_justice

¹² Note: WGS� does not accept hazardous waste for disposal.

Proponents of keeping the landfill in operation point out that the siting of the landfill occurred long before the siting of the other examples noted above and had nothing to do with the demographics of the people in surrounding communities. Furthermore, the surrounding communities also accommodate one of the most beautiful resort complexes on Oahu, abutting the ever-expanding Second City of Kapolei. This is the fastest growing region on Oahu and WGSL does not appear to have stymied its growth. They believe that this is not indicative of a community suffering from environmental injustice.

Data from Exhibit 2-D would appear to support this position. Although the median household income in the Waianae DPA (\$42,451) is below the island average (\$51,194), the median household income in the Ewa DPA (\$59,583), in which the WGSL is located, exceeds the island average. Additionally, the median household incomes for the two communities immediately surrounding the landfill all significantly exceed the island averages. These are Makakilo (\$88,515) and Ko 'Olina/Honokai Hale (\$74,083).

Finally, Windward Oahu residents note that for the last 40 years most of the active landfills were on the Windward side of the island. It is only recently that WGSL has been the only major landfill for MSW on Oahu.

These arguments are all worth taking into account as decision-making proceeds.

5.3 Economic Impact

5.3.1 Approach and Terminology

This economic impact section reviews the impacts that this project will contribute to the economic environment. Technical terms are used here to distinguish impacts of several sorts. First, in economic analysis, a distinction is made between impacts of the actual construction and operations of a project, and the effects of project-related spending throughout the local economy. In discussions of jobs, earnings, and taxes, three broad types are distinguished:

- *Direct jobs/earnings/taxes* are immediately involved with construction of a project or with its operations. It is important to note that direct jobs are not necessarily on-site: construction supports company personnel in offices and base yards, as well as on-site.
- *Indirect jobs/earnings/taxes* are created as businesses directly involved with a project purchase goods and services in the local economy.
- *Induced jobs/earnings/taxes* are created as workers spend their income for goods and services.

Direct, Indirect and induced economic impacts in Hawaii can be estimated using multipliers from a model of input-output relations developed and refined by State researchers.

It is also important to understand that although construction has a positive impact on the state economy, funds for this expansion will be generated from the tipping fees assessed to haulers for the use of the landfill. These tipping fees are translated to the consumers and business through maintenance fees and collection fees. As a result, financial resources for this construction will come from a reallocation of funds that are already a part of the Hawaii State economy rather than out-of-state investment. The reallocation of state monies results in a negative impact on jobs, earnings and taxes. These positive and negative impacts must be considered, in order to gain a clear picture of the economic impact of the WGSL expansion.

5.3.2 Employment And Earnings

5.3.2.1 Construction

Expansion of WGS� is expected to take 10 years to complete. This expansion will result in an increase in the capacity of the landfill and is expected to increase the life expectancy of the landfill by 15 or more years.

Pending the receipt of final engineering figures, the construction of the expansion has been estimated at \$86,000,000 over ten years, with expenditures spread consistently over those ten years. The construction estimates were determined through discussions with officials from Waste Management of Hawaii Inc., the current operator of WGS�. The expansion is planned in several stages. Each stage and year of construction will result in approximately the same level of construction spending.

5.3.2.2 Employment

Construction spending will create jobs and spending in related industries. Exhibit 5-E shows that the direct jobs created as a result of this project will include some 746 person-years of employment³ over the ten-year construction period. Direct jobs are not necessarily located on-site. As a rule of thumb, about 20% of direct construction jobs are off-site (in base yards, offices, and the like).

Indirect and induced jobs are also created throughout the state. These are likely to be concentrated in commercial and/or industrial centers, rather than near a job site. In addition, this project will support some 328 indirect and 720 induced person-years of employment. In total, approximately 1,795 person-years of employment will be created as a result of the WGS� expansion.

Exhibit 5-E: Economic Impact – Positive Impact on Jobs

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
<i>Infrastructure</i>											
Construction spending ¹	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	86.0
Direct Jobs ²	85	82	79	77	74	72	69	69	69	69	746
Indirect Jobs	37	36	35	34	33	32	31	31	31	31	328
Induced Jobs	82	79	77	74	72	69	67	67	67	67	720
Total Jobs	204	197	191	184	178	172	167	167	167	167	1,795

¹ In millions of 2006 constant \$, ² person-years of employment

Source: DBEDT: State Input – Output Study 2002

³ Person years of employment is the number of full time equivalent positions required to complete the work defined by the estimated cost of construction during the specific period of time.

This, however, is not the net impact of this project. Remember that this project will result in a reallocation of funds that could be otherwise spent in other areas of the economy. The cost of construction is generated by revenue received from tipping fees and these fees are translated to Hawaii consumers; therefore, one must account for the negative impact associated with this project. Since tipping fees are translated to consumers, it can be inferred that this expansion will have a negative impact on personal consumer expenditures. A reduction in personal consumer expenditures results in a negative impact on jobs, earnings, and tax revenues. Exhibit 5-F shows the negative impact on jobs associated with this project.

Exhibit 5-F: Economic Impact – Negative Impact on Jobs

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
Direct Jobs Lost 1	72	72	72	72	72	72	72	72	72	72	721
Indirect Jobs Lost	15	15	15	15	15	15	15	15	15	15	147
Induced Jobs Lost	31	30	29	28	27	27	26	26	26	26	275
Total Jobs Lost	117	117	116	115	114	113	113	113	113	113	1,143

¹ person-years of employment

Source: DBEDT: State Input – Output Study 2002

As shown in Exhibit 5-G, the WGSL expansion will result in a net positive impact. Despite the negative impact associated with the expansion some 651 direct, indirect and induced person-years of employment will be created as a result of this project.

Exhibit 5-G: Economic Impact – Net Impact on Jobs

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
Direct Jobs Net	13	10	7	5	2	(0)	(3)	(3)	(3)	(3)	25
Indirect Jobs Net	23	21	20	19	18	17	16	16	16	16	181
Induced Jobs Net	51	49	48	46	44	43	41	41	41	41	445
Total Jobs Net	87	81	75	70	64	59	54	54	54	54	651

Source: DBEDT: State Input – Output Study 2002

5.3.2.3 Earnings

Positive workforce earnings associated with the project's construction will amount to \$59.6 million in direct earnings and \$40.1 million indirect and induced earnings (as shown in Exhibit 5-H). The total positive impact on direct, indirect, and induced earnings associated with all construction will be about \$99.8 million.

As with employment, this project will also have negative impacts on earnings. As shown in Exhibit 5-I a total negative impact on earnings of approximately \$36.5 million can be expected.

This project will result in an overall positive impact on earnings. In total approximately \$63.3 million in earnings will be generated as a result of this project. See Exhibit 5-J.

Exhibit 5-H: Economic Impact – Positive Impact on Earnings

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
<i>Construction Earnings¹</i>											
Direct earnings	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	59.6
Indirect earnings	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	14.3
Induced earnings	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	25.8
Total	10.0	99.8									

¹ in millions of 2006 constant \$

Source: DBEDT, State Input - Output Study, 2002

Exhibit 5-I: Economic Impact – Negative Impact on Earnings

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
<i>Earnings</i>											
Direct earnings lost	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	19.3
Indirect earnings lost	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	7.7
Induced earnings lost	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	9.4
Total Lost	3.6	36.5									

Source: DBEDT, State Input - Output Study, 2002

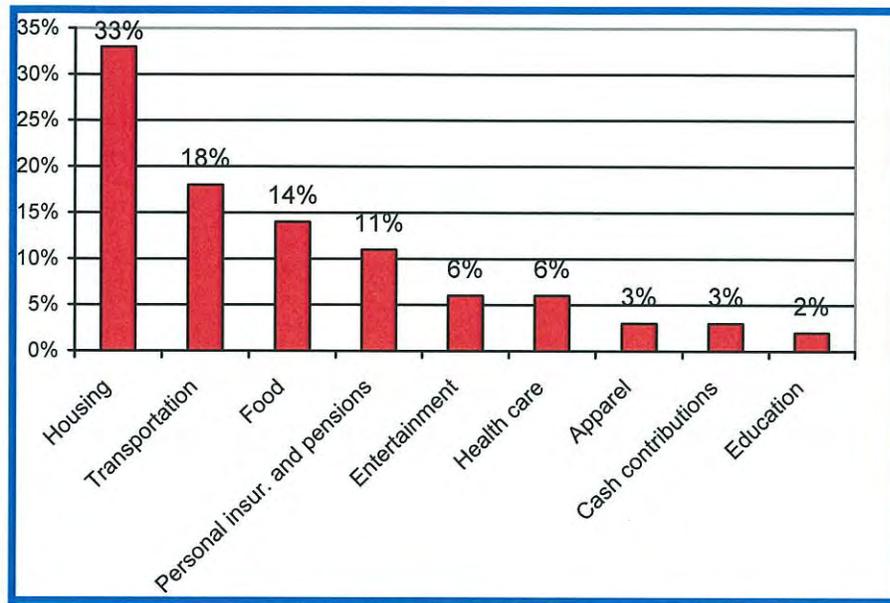
Exhibit 5-J: Economic Impact – Net Impact on Earnings

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
<i>Earnings</i>											
Direct earnings - Net	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	40.3
Indirect earnings - Net	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	6.6
Induced earnings - Net	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	16.4
Total Net	6.3	63.3									

These earnings will boost the local economy, as many of these dollars will be used to purchase goods and services from other industries. Exhibit 5-K shows Honolulu consumer spending patterns to illustrate how earnings may be used.

Housing costs such as shelter payments and utilities account for more than 33 percent of consumer expenditures. Food and transportation also account for a large amount of consumer spending (14 and 18 percent respectively). It can be expected that these patterns will continue in the future creating economic growth in several industries as a result of this project.

Exhibit 5-K: Consumer Spending Patterns by Industry – 2003-2004



Source: US Census 2000, State of Hawaii Data Book 2005

5.3.3 Fiscal Impacts

5.2.3.1 State Of Hawaii

Construction spending has an impact on state tax revenues. Exhibit 5-L displays estimated positive impact on state tax revenues as a result of the WGSL Expansion.

Exhibit 5-L: Positive Impact on State Tax Revenues

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
<i>State Taxes 1</i>											
Direct	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	3.18
Indirect	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	2.34
Induced	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	4.90
Total	1.04	10.42									

¹ in millions of 2006 constant \$

Source: DBEDT, State Input – Output Study, 2002

The expansion cost is estimated at \$86 million and this construction will result in \$3.2 million in direct state tax revenues. The indirect and induced impact of this project will result in \$6.2 million in state tax revenues. In total, this project will result in an estimated positive impact of \$10.4 million in state tax revenues.

As shown in Exhibits 5-M and 5-N, the total impact on state tax revenues will be positive. Approximately \$6.6 million in state tax revenue will be lost as a result of this project. In total, there will be a small **positive** impact in state tax revenues of approximately \$3.8 million during the 10 years of construction.

Exhibit 5-M: Negative Impact on State Tax Revenues

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
<i>State Taxes 1</i>											
Direct lost	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	3.84
Indirect lost	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.98
Induced lost	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	1.79
Total Lost	0.66	6.61									

¹ in millions of 2006 constant \$

Source: DBEDT, State Input – Output Study, 2002

Exhibit 5-N: Net Impact on State Tax Revenues

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
<i>State Taxes 1</i>											
Direct Net	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.67)
Indirect Net	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.36
Induced Net	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	3.11
Total Net	0.38	3.80									

¹ in millions of 2006 constant \$

Source: DBEDT, State Input – Output Study, 2002

In sum, the economic impacts of the expansion appear to be net positive with approximately \$63.3 million net flowing directly and indirectly through the economy and \$3.8 million of net tax revenues being raised. All of the income is a result of the 10-year construction period. Waste Management does not believe the expansion will result in the need for new hires or other increased operating costs.

This socioeconomic analysis did not take into account any indirect or induced economic effects of the landfill operation on surrounding businesses. There was insufficient, verifiable information available at the time of the compilation of the report. As noted, the residential sales program at Ko Olina has been successful. If it could have been more successful without the landfill is speculative.

6. MITIGATIONS

Mitigation measures are normally considered in anticipation of potential impacts. In the case of the WGSF, where there is history, as well as existing practices, one can observe the current impacts, and propose measures that go beyond mitigation measures already practiced by Waste Management, Inc. (WM) and the City.

The measures proposed below can be grouped into three areas: improving the measures currently practiced regarding irritants and safety; improving community involvement and communication; and committing to funding the necessary research and development into alternative solutions.

6.1 IMPROVING CURRENT PRACTICES

6.1.1 Views

- *WM should continue to implement the on-site landscaping plans that have already been developed and begun; especially for those areas facing south toward Ko-Olina.*

Because of its elevation, the most obvious views of the landfill are from a distance. Berms obscure much of the operations, but the face of the berms are exposed dirt (hydro seeding has occurred, but the grass has not yet taken), and aspects of the operation are still visible. Plans have been developed to landscape the exposed areas and to shield the view of operation, and initial plantings have already begun in earnest. These should continue.

- *WM should design and implement landscape screens (e.g. pines, tall hedges) along the berm and the access road that is visible from Farrington Highway, fronting the Kahe Power Plant. As an alternative, WM might also consider entering into a partnership with HECO to plant an effective screen of trees along Farrington Highway, which would have the dual purpose of screening the landfill operations and the power plant from passing vehicles.*

The west-facing stability berm along the upper access road shields some of the operations, but not all of it. Selected plantings, consistent with the areas natural growth (e.g. keawe) could effectively complete the visual buffer. If that is not feasible, consider plantings right along the highway that would serve the dual purpose.

6.1.2 Odors

- *WM and the City should continue to be vigilant in processing the sludge from the sewage treatment plants upon delivery and to take all means to reduce any odor impacts.*

In recent months, the combined impact of immediate processing, diversion of some of the sludge to the Synagro-WTT facility, and the improved operation of the odor neutralizing mist system appear to have had a significant impact. Continued vigilance is required. In addition, any successful expansion of the composting or fertilizer conversion efforts will also reduce the amount of sludge delivered to the landfill, and reduce the possibility of odor problems.

6.1.3 Litter

- *WM must continue to monitor the egress and ingress of vehicles and continue to aggressively enforce the anti-littering regulations and fines.*

WM has instituted inspection practices that monitor commercial trucks upon entering and leaving the landfill area, to ensure that their loads are secured upon entry and that the trucks are free of debris before exiting. WM policy prohibits repeat violators from entry to the landfill. These inspections are beneficial and must continue aggressively.

The greater problem may be with ordinary citizens who are personally delivering their trash, and who are not adequately securing their loads. An aggressive education program by ENV and WM should be implemented to supplement the inspections.

- *ENV and WM should maintain a direct communication link with the HPD; in the case of littering, it will lead to faster, more effective response.*

In a general sense, for all types of complaints, a good communication link between HPD and WM/ENV will only increase the responsiveness to the problem and reduce public anxiety with the operation. This could simply take the form of exchanging key telephone or email contacts. An important first step would be the participation of HPD on the Oversight Advisory Committee.

On the specific problem of littering, before truck drivers enter the landfill and after they leave, WM has no control over the actions of the truck drivers. Although WM educates and informs the drivers that they will enforce the covered load policy, the issue becomes a public one once the truck is on the roadway. If complaints are received by WM or ENV and quickly reported to HPD, the offenders may be more effectively identified and prosecuted.

6.2 IMPROVING COMMUNITY INVOLVEMENT AND COMMUNICATIONS

6.2.1 Community Involvement

- *The City must find a way to effectively use the Oversight Advisory Committee.*

The Oversight Advisory Committee allows for building relationships that are so important in addressing community concerns. But it takes time and a commitment of people to the effort. Websites and telephone communication are important complements, but face-to-face meetings build community bonds. In 2007, the Oversight Advisory Committee went through a period of having difficulty getting a quorum for its meetings. The City must find ways to stimulate attendance and participation; some ideas include rotating membership, more tours and education of the members, and so forth.

- *The City should continue to contribute to a community benefits package for as long as the landfill exists.*

The impacts that lead to a benefit package are evident as long as the WGSL exists. The package can vary in size and content over time as the community and the City determine. The City might also consider using a variety of means to establish the priorities of the benefits package, including open community forums, surveys, and maintaining a suggestion link on the website.

- *Ensure that all directly affected communities are represented on the Committee that determines the benefits package.*

There is a perception that the Committee that determines the benefits package does not include representation from all neighboring communities. If that is already the case, then this needs to be made known. Consider placing the names of the Committee members on the web site.

6.2.2 Web-site

- *WM/ENV should use its web sites aggressively as educational and communication tools..*

Uncertainty is often the cause of increasing community concern; communication is usually the most effective remedy. Many of the people interviewed were unfamiliar with the Waimanalo Gulch location on the WM website and did not know that there was an avenue for electronic communication, a staple in today's world of communication. Slight improvements on what is basically a good web site and greater education as to its availability will help maximize its use as a communication tool.

6.3 COMMITTING TO ALTERNATIVES

6.3.1 Alternatives to Landfills

- *The City should continue to invest in Research and Development, and where feasible, implement alternative technologies that will result in a reduction in the City's dependency on a landfill.*

Although the short term would appear to require a continual dependence on H-POWER and landfills, the long-term future will likely involve a mix of these elements together with transshipment, recycling and other waste processing technologies. The sooner the City brings these alternatives on line, the sooner the dependency on landfills will be reduced.

6.3.2 Alternative Locations

- *The City should continue to seek an alternative site to WGSL as the primary landfill location on Oahu.*

Regardless of the technologies involved, everyone anticipates that a landfill will always be needed. Every viable process that has been proposed to reduce dependency on a landfill has excluded waste that cannot be recycled or further process; additionally, a landfill will always be required for process residue and for emergencies.

The history of landfills on Oahu teaches that landfills have worked best on the edge of urbanization. Urbanization is quickly catching up with WGSJ as the second city grows and Ko' Olina expands.

Prior commitments to close WGSJ will weigh heavily on the relations between the City and the communities of Ewa and the Leeward Coast. The City should make every effort to initiate the plan for selection of Oahu's next landfill site as soon as possible. Participation in this effort should include not only the potentially affected community in which the site is proposed, but all the communities of Oahu. In addition to safety and design issues, details on mitigation to address nuisance concerns like odor, litter, and visual aesthetics should be actively discussed and the solutions offered made a part of the record.

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**Addendum on Environmental Injustice Issues
(Section 5.2.2.4. Environmental Injustice)**

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**SOCIO-ECONOMIC IMPACT ASSESSMENT
WAIMĀNALO GULCH SANITARY
LANDFILL LATERAL EXPANSION,
CITY AND COUNTY OF HONOLULU**

September 2008

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5.2.2.4 Environmental Injustice

On February 11, 1994, President Clinton issued Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” to focus federal agencies’ attention on disadvantaged communities with the goal of achieving Environmental Justice. Over the years, each federal has defined environmental justice or injustice within the context of the Executive Order and in a manner that allows its application to their particular agency’s functions. The EPA defines **Environmental Justice** as “*the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies*”.¹

The US Department of Transportation, like other service agencies, goes slightly further by noting **three pro-active environmental justice principles**: “(1) to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations; (2) to ensure the full and fair participation by all potentially affected communities in the decision-making process; and (3) to prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations”.²

A number of interviewees point out that Leeward Oahu has been and continues to remain on the receiving end of many of Oahu’s burdens. They argue that within a 10-mile stretch along Farrington Highway there are two existing electrical plants, a proposed new generator unit at the Campbell electrical plant, a deep draft harbor and a major industrial park, all of which service the entire Island of Oahu – and all of which adversely impact the environment of these communities. Further, Leeward Oahu is now the home of thousands of homeless people, many of whom were driven out of other communities only to be “welcomed” and “tolerated” on the Leeward Coast. They argue that the continued use and expansion of WGS� will only increase the imbalance of those impacts on Leeward Oahu. They believe that the expansion of WGS� is a case of Environmental Injustice.

Proponents of keeping the landfill in operation point out that when the landfill was sited, the only residential communities in the area were in Makakilo. The communities of Kapolei and Ko’Olina grew up on sugar fields that once abutted the landfill, after the landfill had already been in operation. Furthermore, they note that the surrounding communities also accommodate one of the more important and successfully developing resort complexes on Oahu, Ko ‘Olina, and the ever-expanding Second City of Kapolei. This is the fastest growing region of Oahu and WGS� does not appear to have stymied its growth. They believe that this is not indicative of a community suffering from environmental injustice. Finally, Windward Oahu residents note that for the last 40 years most of the

¹ EPA goes on to define *Fair Treatment* to mean that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal environmental programs and policies. And they define *Meaningful Involvement* to mean that: (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; (2) the public’s contribution can influence the regulatory agency’s decisions; (3) the concerns of all participants involved will be considered in the decision-making process; and (4) the decision-makers seek out and facilitate the involvement of those potentially affected. Toolkit for Assessing Potential Allegations of Environmental Injustice, Office of Environmental Justice, US Environmental Protection Agency, November, 2004.

² An Overview of Transportation and Environmental Justice, Federal Highways Administration, US Department of Transportation, May, 2000.

active landfills were on the Windward side of the island. It is only recently that WGS� has been the only major landfill for MSW on Oahu.

A closer examination of the surrounding communities against the definition of Environmental Justice provides further insight. In 2004, the Oahu Metropolitan Planning Organization and the County Department of Planning and Permitting attempted to identify areas of the island that are vulnerable to Environmental Justice concerns.³ Using definitions and criteria established by FHWA and 2000 US Census block data, OMPO/DPP developed a systematic and comprehensive methodology to identify such communities. In their final analysis, 70 of the 435 blocks that make up Oahu were determined to be environmental justice areas based on race, and 17 blocks were identified as environmental justice areas based on income.

None of the Census blocks in the Ewa Development Plan Area were identified as environmental justice areas **based on income**. One can understand this as the overall average income in the Ewa DPA of \$59,583 far exceeds the island average of \$51,194. Additionally, the median household incomes for the two communities in closest proximity to the landfill all significantly exceed the island averages. These are Makakilo (\$88,515) and Ko 'Olina/Honokai Hale (\$74,083).

On the other hand, two of the Census blocks in proximity to the WGS� are environmental justice areas **based on race**, one in Makakilo and Honokai Hale. Both were selected because they have a Hispanic population that slightly exceeds the average settlement pattern plus an acceptable standard deviation for Hispanics. The acceptable index for Hispanics is 14.3 percent of the population. Hispanics make up 17.3 percent and 16.5 percent of these two communities respectively. No other minority groups exceed their acceptable indices in any block in proximity to WGS�.

Having identified these two communities as EJ areas, one asks whether these two blocks are subject to disproportionately high and adverse health and environmental impacts due to the WGS� and whether they have had meaningful access to decision-making regarding the WGS�.

On the first point, the EIS findings to date would indicate that with the possible exception of views and windblown litter, no one is subject to disproportionately high and adverse health and environmental impacts based on the use of existing and future mitigation measures that have been identified in the subject DEIS document. Further, the significant mix of EJ and non-EJ communities in proximity to the WGS� would indicate that the EJ communities are not suffering disproportionately.

On the second point, it would appear that everyone has had opportunity to make their preferences known. The subject has been presented in numerous Neighborhood Board meetings, and in community meetings with the Mayor and other County officials. Additionally, the County Councilman for this district is very approachable. He is also an articulate and forceful spokesperson in opposition to the lateral expansion of the WGS�, he ably defends that position, and he is one of nine votes on the County Council to whom this question will be presented for approval. For those who support the extension, their position has been expressed by the Mayor and his Administration.

Finally, the EIS process is specifically designed to allow for review and comment by all citizens. There has been significant opportunity for any expression of concern; such expressions become part of the record for review by decision-makers.

³ Environmental Justice in the OMPO Planning Process: Defining Environmental Justice Populations, Oahu Metropolitan Planning Organization and the County Department of Planning and Permitting, March, 2004.



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Impact on Property Values

**ADDENDUM TO THE SOCIO-ECONOMIC
IMPACT ASSESSMENT
WAIMĀNALO GULCH SANITARY LANDFILL LATERAL
EXPANSION, CITY AND COUNTY OF HONOLULU**

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CONTENTS

ADDENDUM TO THE SOCIO-ECONOMIC IMPACT ASSESSMENT WAIMĀNALO GULCH SANITARY LANDFILL LATERAL EXPANSION	1
IMPACT ON PROPERTY VALUES	1
SUMMARY	4
SOURCES.....	4

LIST OF TABLES

Table 1: Regression Results for All Properties, 2008	1
Table 2: Regression Results for Ko'olina Properties, 2008	3

ADDENDUM TO THE SOCIO-ECONOMIC IMPACT ASSESSMENT WAIMĀNALO GULCH SANITARY LANDFILL LATERAL EXPANSION

IMPACT ON PROPERTY VALUES

Disamenities like landfills may reduce residential property values near the site. In the present case, the proposition of interest is that the closer a residential property is to the site of the Waimānalo Gulch Sanitary Landfill, the lower will be the sales price of that unit, other factors held constant. Although much of the literature on the general topic involves unsubstantiated speculation, empirical studies have supported a negative impact on residential property values.

For this study, we adopted the often used hedonic pricing model. The model considers a single family home to be a collection of attributes including physical characteristics (size, number of bedrooms and bathrooms, age, etc.) and location (neighborhood, distance from the landfill, etc.). The sales price of the unit is considered to be a function of all of these attributes. Multiple linear regression or some other appropriate analytical method is used to estimate the impact of each attribute net of the impacts of the other attributes. The impact of distance from the landfill, therefore, can be estimated independent of the other housing unit characteristics.

The data used for the study were a set of 173 property records taken from Multiple Listing Services for properties listed between August 1, 2007 and July 10, 2008. The properties were located in West O’ahu between ‘Ewa and Mā’ili and within six miles of the landfill site. Data extracted for each property included physical attributes (unit type [single or multi-family], number of bedrooms, number of bathrooms, size in square feet, age in years, and date sold), and location (neighborhood name, distance from the Waimānalo Gulch Landfill site in miles). These data were analyzed using multiple linear regression with sales price as the dependent variable. Results for all communities are shown in Table 1.

Table 1: Regression Results for All Properties, 2008

Property Attributes	Coefficients		Significance Test Results		
	Unstandardized Coefficient B	Standardized Coefficient Beta	t-value	Sig.	Std. Error
unit size in square feet	435.17	0.755	9.78	0.000	44.50
distance from landfill in miles	-27,602.06	-0.287	-6.06	0.000	4,552.41
age of unit	-5,543.84	-0.330	-5.47	0.000	1,014.24
number bedrooms	-74,253.62	-0.279	-4.02	0.000	18,488.33
number bathrooms	-26,485.37	-0.082	-1.16	0.249	22,911.94
multi-family	48,240.65	0.046	1.13	0.262	42,864.92
date sold	0.00 ¹	0.021	0.50	0.620	0.00
(Constant)	-5,754,621.47		-0.47	0.636	

Dependent Variable: price

¹ Dates were stored as the number of seconds since October 14, 1582, the start of the Gregorian calendar. The unstandardized regression coefficient will therefore be very small, but can be statistically significant if real differences exist in the model.

Results show that four of the eight property attributes had statistically significant² relationships with property value (price). Based on the unstandardized regression coefficient, the most highly related attribute was size in square feet. It was positively related to price. The age of the unit was negatively related to price. That is, as the age of the unit increased, the price decreased. The number of bedrooms was also negatively related to price, suggesting that the greater the number of bedrooms, the lower the price. And finally, the distance from the Waimānalo Gulch Landfill was negatively related to unit price. That is, the greater the distance from the landfill, the lower the price.

This analysis shows no empirical support for the proposition that the landfill results in lower residential property values for the Waimānalo Gulch Sanitary Landfill. Specifically, that distance from the landfill would be associated with lower property values.

Studies that report a negative relationship between sanitary landfills and residential property values are not unusual in the literature. Negative or statistically insignificant results have been reported by Bleich, Findlay and Philips (1991); Cartee (1989); Reichert, Small, and Mohanty (1992); Thayer, Albers and Rahamatian (1992), Zeiss and Atwater (1989). Furthermore, many reviewers have cautioned that disamenities such as landfills do not necessarily cause nearby residential property values to decrease. They note that several issues have been confounded in the discussion in the recent past. Sanitary landfills generally have much less impact on property values than hazardous materials landfills. Very large landfills have some impact on property values while smaller ones have none or even increase values (Lim and Missios, 2007). Overall, the characteristics of the residential unit (size, configuration, amenities) generally have a greater impact on market prices than distance from a landfill (Chan *et. al.*, 1993; Kung *et. al.*, 1993). In this particular case, two factors are probably more important. First, the sample size for the study is small and the number of variables may be too large for reliable estimates. The adjusted R-squared value for this analysis was .728, suggesting that the model with eight property attributes explained about 73 percent of the variance in the prices measured. That is considered a reasonable level of reliability. Nevertheless, 27 percent of the variance was unexplained.

Second, the results were consistent with known property values in West O‘ahu. Ko‘olina Resort properties are essentially “across the street” from the landfill site. Ko‘olina properties are among the highest in West O‘ahu. As you move away from the site, you encounter communities with increasingly lower property values. We have not discovered a way to analyze this difference because the price of an individual residential property and the average property value in a community are based on the same variable – unit price. This suggests that the hedonic model may present problems when dealing with the impact of disamenities on residential property values.

In order to add some clarity to the situation, we developed a model for properties located in Ko‘olina alone. It was necessary to drop the “unit type” attribute because all Ko‘olina properties in our dataset were multi-family units. The results of this analysis are shown in Table 2.

² The significance of the t-value was less than .050.

Table 2: Regression Results for Ko’olina Properties, 2008

Property Attributes	Coefficients		Significance Test Results		
	Unstandardized Coefficient B	Standardized Coefficient Beta	t-value	Sig.	Std. Error
distance from landfill in miles	267,480.96	0.663	4.32	0.000	61,962.28
age of unit	-5,300.70	-0.116	-1.23	0.227	4,306.57
unit size in square feet	134.12	0.216	1.09	0.281	122.49
date sold	0.00	0.091	1.00	0.323	0.00
number bathrooms	61,273.99	0.142	0.97	0.338	63,107.20
number bedrooms	39,571.27	0.120	0.90	0.374	43,906.19
(Constant)	-24,096,747.51		-1.00	0.325	

Dependent Variable: price

Only one property attribute, distance from the landfill, had a statistically significant relationship with price. And that relationship was positive. That is, within the Ko’olina Resort, the farther from the landfill a property is sited, the higher the unit price.

The adjusted R-square coefficient was .629, somewhat less reliable than the prior analysis. The sample size was 41 property records, much smaller than we would have preferred for reliable estimates. This is particularly problematic because the price of Ko’olina properties has 3.5 times the variance of other properties and is strongly skewed to the higher end of the market. Equally important, the other property attributes in our Ko’olina dataset had only half the variance of the same attributes for other communities. Ko’olina properties were 2- and 3-bedrooms only; others were 1 to 4 bedrooms. Ko’olina unit sizes ranged from 653 to 1,834 square feet; other communities ranged from 407 to 1,766. The age of units varied from 2 to 14 in Ko’olina and from 2 to 35 in other areas. Regression models analyze covariance, the extent to which the dependent variable co-varies along with independent variables. The limited variance associated with property attributes other than price will make it difficult to identify statistically significant relationships with those attributes.

There is another issue with applying the hedonic model and regression analysis to the Ko’olina dataset. In this procedure, the correlations or covariances among the individual property attributes are analyzed to produce unidirectional relationships. The finding that distance from the landfill is related to property value (price) can be interpreted to mean that the distances exist first (in time) and result in the observed price level differences. But the landfill predates the resort development. Therefore we cannot easily eliminate the possibility that the price came before distance from the landfill. That might occur, for instance, if a developer were to locate less valuable units nearer the landfill and more valuable units at greater distances. Regression results for our second model could be produced by either process.

This analysis presents different results from the previous analysis. Once again, mixed results are not uncommon in the literature. Reichert, Small and Mohanty (1992) found all three possibilities – positive, negative and not significant -- within their landfill evaluations. Michaels and Smith found drastically different results for individual communities. Thayer, Albers and Rahamatian (1992) found that even when analysis shows a negative relationship with property value, the function may not be smooth. That is, the loss in value may not be the same for all neighborhoods.

Summary

Given the caveats mentioned above, results for the two analyses reported here are clear. With respect to all properties located within six miles of the Waimānalo Gulch Sanitary Landfill, there is no evidence that the landfill is associated with decreasing property values. In fact, as distance from the landfill decreases, property values increase. Within the Ko'olina Resort area, distance from the landfill is associated with increasing property values.

We caution readers to consider the limitations of the data and the hedonic model. Sample sizes for both analyses were small, and the Ko'olina model is based on only 41 cases. The available data may exclude important variables used by property buyers in making their final decisions. And finally, there may be issues with applying the same hedonic model to both sets of property records.

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Appendix K

Alternatives Analysis and Addenda, September 2008
Waimānalo Gulch Sanitary Landfill Expansion, 2008

Alternatives Analysis for Disposal of Municipal Refuse

*Submitted to the Department of Environmental Services (ENV),
City and County of Honolulu*



Pacific Waste
CONSULTING GROUP

April 2008

Alternatives Analysis for Disposal of Municipal Refuse

**Submitted to the City and County of Honolulu
Department of Environmental Services**

April 2008

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Table of Contents

<i>Alternatives Analysis for Disposal of Municipal Refuse</i>	1
Alternatives Analysis for Disposal of Municipal Refuse	3
Submitted to the City and County of Honolulu	3
City & County of Honolulu.....	3
Table of Contents	ii
List of Tables	xi
List of Figures	xii
Abbreviations & Acronyms	xiii
Executive Summary.....	1
1.1 Alternatives to the Proposed Project	1
1.2 Preferred Alternative.....	3
2 Introduction	5
2.1 City Requirements	6
2.1.1 Transshipment of Waste	6
2.1.2 Alternative Technology.....	6
2.1.3 Landfill Site	7
3 Oahu Refuse Disposal	9
3.1 Composition of Waste Stream.....	9
Table 1, Aggregate Overall Waste Characterization Results - 2006	10
Table 2, Waimanalo Gulch Landfill Waste Characterization Results - 2006	12
Table 3, H-POWER Waste Characterization Results - 2006.....	13
3.2 Collection.....	14

Figure 1, Refuse Collection Yards and Collection Districts..... 15

3.3 Recycling 16

3.4 Disposal..... 17

 3.4.1 Waimanalo Gulch Sanitary Landfill 17

 3.4.2 H-POWER..... 18

 3.4.3 C&D Disposal..... 19

4 Alternatives Considered 21

 4.1 No Action 21

 4.2 Delayed Action 21

 4.3 Transshipment Off-Island 22

 4.4 Alternative Technologies 22

 4.5 Alternative Sites..... 23

5 Transshipment Off-Island 25

 5.1 City Requirements for Transshipment 25

 5.2 How It Works 26

 5.3 Other Jurisdictions Using Transshipment..... 30

 5.4 Physical, Regulatory, and Environmental Requirements..... 30

 5.4.1 Compliance Agreement..... 31

 5.4.2 Transshipment Regulations 31

 5.4.2.1 Receptacles..... 31

 5.4.2.2 Disposal..... 31

 5.5 Potential Issues 32

 5.6 Impact on City Solid Waste Management System..... 33

 5.7 Consistency With City Requirements 34

5.8	Additional Considerations	34
5.9	Global Warming Considerations	34
6	Alternative Technologies	37
6.1	City Requirements for Alternative Technologies	38
6.2	Non-Thermal	40
6.2.1	Anaerobic Digestion	41
6.2.1.1	How It Works	41
6.2.1.2	Other Jurisdictions Using This Technology	42
6.2.1.3	Physical, Regulatory, and Environmental Requirements	42
6.2.1.4	Potential Issues	43
6.2.1.5	Consistency With City Requirements	43
6.2.2	Aerobic Digestion	43
6.2.2.1	How It Works	44
6.2.2.2	Other Jurisdictions Using This Technology	44
6.2.2.3	Physical, Regulatory, and Environmental Requirements	44
6.2.2.4	Potential Issues	44
6.2.2.5	Consistency With City Requirements	45
6.2.3	Hydrolysis	45
6.2.3.1	How It Works	45
6.2.3.2	Other Jurisdictions Using This Technology	46
6.2.3.3	Physical, Regulatory, and Environmental Requirements	46
6.2.3.4	Potential Issues	46
6.2.3.5	Consistency With City Requirements	46
6.3	Thermal	46

6.3.1	Plasma Arc.....	47
6.3.1.1	How It Works	48
6.3.1.2	Other Jurisdictions Using This Technology	48
6.3.1.3	Physical, Regulatory, and Environmental Requirements.....	50
Table 5, Actual Treatment Record in 2005 (Fiscal Year)		50
6.3.1.4	Potential Issues	51
6.3.1.5	Consistency With City Requirements	51
6.3.2	Gasification/Pyrolysis	51
6.3.2.1	How It Works	52
6.3.2.2	Other Jurisdictions Using This Technology	53
6.3.2.3	Physical, Regulatory, and Environmental Requirements.....	54
6.3.2.4	Potential Issues	54
6.3.2.5	Consistency With City Requirements	54
6.4	Waste-To-Energy	55
6.4.1	How It Works.....	55
6.4.2	Jurisdictions Using This Technology.....	55
6.4.3	Physical, Regulatory, and Environmental Requirements	56
6.4.4	Potential Issues.....	56
6.4.5	Consistency With City Requirements.....	56
6.5	Expanded Recycling	56
6.5.1	Improvements to Current Recycling Infrastructure.....	56
6.5.2	Recycling to Energy	57
6.6	Wet Cell Landfill	57
6.6.1	How It Works.....	58

6.6.2	Other Jurisdictions Using This Technology	58
6.6.3	Physical, Regulatory, and Environmental Requirements	59
6.6.4	Issues.....	59
6.6.5	Consistency With City Requirements.....	59
6.7	Co-Disposal	59
6.7.1	How It Works.....	59
6.7.2	Physical, Regulatory, and Environmental Requirements	60
6.7.3	Issues.....	60
6.7.4	Consistency With City Requirements.....	61
6.8	Response To Scoping Questions Regarding Alternative Technology	61
7	Alternative Sites	65
7.1	City Landfill Requirements.....	66
7.2	Report of the Mayor's Advisory Committee on Landfill Site Selection	67
7.2.1	Sites Considered.....	68
	Table 6, Potential Landfill Sites	69
7.2.2	Site Evaluation Process	70
	Table 7, Sites Eliminated at Each Stage in the Evaluation	71
7.2.3	EPA Exclusionary Criteria	72
	Table 8, Site Evaluation with EPA Exclusionary Criteria.....	74
7.2.4	Local Exclusionary — Developed Areas	75
	Table 9, Site Evaluation with Developed Area Criteria	76
7.2.5	Local Exclusionary Criteria — Groundwater	77
	Table 10, Site Evaluation with Groundwater Criteria	80
7.2.6	Landfill Capacity	81

Table 11, Estimate of Landfill Capacity Needs (TPY).....	82
Table 12, Results of Application of Landfill Capacity Criterion	83
7.2.7 Other Considerations.....	84
Table 13, Sites Considered After Capacity Criterion Applied	84
Table 14, Potential Sites to which Advisory Committee Siting Criteria Applied	85
7.2.8 Advisory Committee Siting Criteria	85
7.2.9 Screening Criteria Development.....	86
Table 15, Screening Criteria	88
7.2.10 Site Scoring	89
Table 16, Results of Application of Screening Criteria.....	90
Table 17, Revised Evaluation of Criterion 18, Cost of Site Acquisition.....	92
Table 18, Comparison of Site Scores	92
7.3 Ameron Quarry	94
7.3.1 Description of Site	94
7.3.2 Landfill Infrastructure	94
7.3.2.1 On-Site	94
7.3.2.2 Off-Site	94
7.3.3 Capacity.....	94
7.3.4 Opportunities and Constraints	95
7.4 Maili Quarry	96
7.4.1 Description of Site	96
7.4.2 Landfill Infrastructure	96
7.4.2.1 On-Site	96
7.4.2.2 Off-Site	96



7.4.3	Capacity.....	96
7.4.4	Opportunities and Constraints.....	97
7.5	Makaiwa Gulch	98
7.5.1	Description of Site	98
7.5.2	Landfill Infrastructure	98
7.5.2.1	On-Site	98
7.5.2.2	Off-Site	98
7.5.3	Capacity.....	99
7.5.4	Opportunities and Constraints	99
7.6	Nanakuli B	100
7.6.1	Description of Site	100
7.6.2	Landfill Infrastructure	101
7.6.2.1	On-Site	101
7.6.2.2	Off-Site	101
7.6.3	Capacity.....	101
7.6.4	Opportunities and Constraints.....	101
7.7	Waimanalo Gulch Sanitary Landfill.....	102
7.7.1	Description of Site	102
7.7.2	Landfill Infrastructure	103
7.7.2.1	On-Site	103
7.7.2.2	Off-Site	103
7.7.3	Capacity	103
7.7.4	Opportunities and Constraints	104
7.8	Response to Scoping Questions to Alternative Sites	105

8 Preferred Alternative	109
8.1 Continued Use of Waimanalo Gulch Sanitary Landfill.....	109
8.2 Transshipment Alternative.....	110
8.3 Technology Alternative	112
8.4 Site Alternative	113
Attachment A — August 22, 2006 USDA Decision Regarding Transshipment	115
Attachment B — E-mail from Jim Hodges Regarding Transshipment of Honolulu MSW.	127
Attachment C — Evaluation of CO2 Emissions from Disposal of Waste at Waimanalo Gulch Sanitary Landfill, H-POWER, and Washington State	129
Attachment D — Evaluations of Potential Landfill Sites Prepared as Part of the Report of the Mayor’s Committee on Landfill Site Selection, December 2003	131



List of Tables

Table 1, Aggregate Overall Waste Characterization Results - 2006	10
Table 2, Waimanalo Gulch Landfill Waste Characterization Results - 2006	12
Table 3, H-POWER Waste Characterization Results - 2006.....	13
Table 4, Comparison of GHG Emissions from Transshipment to On-island Disposal...35	
Table 5, Actual Treatment Record in 2005 (Fiscal Year)	50
Table 6, Potential Landfill Sites	69
Table 7, Sites Eliminated at Each Stage in the Evaluation	71
Table 8, Site Evaluation with EPA Exclusionary Criteria.....	74
Table 9, Site Evaluation with Developed Area Criteria	76
Table 10, Site Evaluation with Groundwater Criteria	80
Table 11, Estimate of Landfill Capacity Needs (TPY).....	82
Table 12, Results of Application of Landfill Capacity Criterion	83
Table 13, Sites Considered After Capacity Criterion Applied	84
Table 14, Potential Sites to which Advisory Committee Siting Criteria Applied	85
Table 15, Screening Criteria	88
Table 16, Results of Application of Screening Criteria.....	90
Table 17, Revised Evaluation of Criterion 18, Cost of Site Acquisition.....	92
Table 18, Comparison of Site Scores	92
Table 19, Results of Application of Screening Criteria with Revised Cost of Acquisition	93

List of Figures

Figure 1, Refuse Collection Yards and Collection Districts.....	15
Figure 2, Groundwater Protection Zone and Underground Injection Control (UIC) Zone	77

Abbreviations & Acronyms

APHIS	US Department of Agriculture Animal and Plant Health Inspection Services
BWS	City and County Board of Water Supply
C&C	City and County of Honolulu
DOH	Department of Health
EIS	Environmental Impact Statement
EISPN	Environmental Impact Statement Preparation Notice
ENV	Department of Environmental Services
HIS	Hawaii Information Systems
HI5	Beverage containers subject to State's recycling law
HWS	Hawaii Waste Systems, LLC
IDS	Information Decision Systems
LUC	Land Use Commission
MFD	Multi-family dwelling
MSL	Mean sea level
MSW	Municipal solid waste
OEQC	Office of Environmental Quality Control
OIP	Office of Information Practices
PPQ	Local office of USDA, APHIS
PRER	Pacific Rim Environmental Resources, Inc.
PWED	Public Works & Economic Development Committee



RCRA	Resource Conservation and Recovery Act
RDF	Refuse Derived Fuel
RFP	Request for Proposal
SUP	Special use permit
SWIMP	Solid Waste Integrated Management Plan
TCLP	Toxicity Characteristic Leaching Procedure
TMK	Tax map key
TPD	Tons per day
TPY	Tons per year
UIC	Underground Injection Control
USEPA (or EPA)	United States Environmental Protection Agency
WTE	Waste-to-energy

Executive Summary

This analysis reviews the alternatives for replacing the Waimanalo Gulch Sanitary Landfill before November 1, 2009 when the Special Use Permit (SUP) issued by the State Land Use Commission (LUC) to operate the landfill expires. On January 16, 2008 the Planning Commission extended the date of permit expiration to May 2010 to allow time for processing the permit request supported by this *Waimanalo Gulch Sanitary Landfill Expansion Environmental Impact Statement* (EIS). A request for extension was approved by the LUC on March 7, 2008 to allow operation of the landfill until November 1, 2009.

The “Project,” for EIS purposes, is to “... provide information and evaluation of the potential for environmental impacts on the natural and built environment associated with the planned 92.5-acre expansion of the Waimanalo Gulch Sanitary Landfill....”¹ when the landfill receives the expansion permit.

1.1 Alternatives to the Proposed Project

The alternatives evaluated were:

- No action — Landfilling at the Waimanalo Gulch Sanitary Landfill would cease on November 1, 2009, with no alternative site or technology available.
- Delayed action — The action on the permit would be delayed. Given the time needed to process the permits, the delayed and no action alternatives have the same effect.
- Transshipment — Oahu’s MSW would be baled and transported to a mainland landfill for disposal.

¹ *Environmental Impact Statement Preparation Notice, Waimanalo Gulch Sanitary Landfill Expansion, Waimanalo Gulch, Oahu, Hawaii, TMKs: (1) 9-2-003: 072 and 073, November 2006.*

- Alternative technologies — Technologies other than landfilling that could reduce the amount of material requiring disposal and generate electricity or another beneficial reuse product. Alternative technologies considered here include:
 - Thermal and non-thermal technologies;
 - Enhanced recycling;
 - Addition of a third boiler to H-POWER; and
 - Alternative methods of landfilling, such as co-disposal of ash and MSW and use of a bioreactor landfill.

- Alternative sites — Alternative locations on Oahu for the landfill. The five alternative landfill sites considered in this analysis were:
 - Ameron Quarry;
 - Maili Quarry;
 - Makaiwa Gulch;
 - Nanakuli B; and
 - Waimanalo Gulch Sanitary Landfill.

An analysis is provided for each of the alternatives. With the alternative technologies, some operating examples are used to provide information describing the technologies. Much of the analysis was taken from the December 2003 report of the Mayor's Advisory Committee on Landfill Site Selection. That report provided details of the process to identify a future landfill site to dispose of the waste. Since completion of the report several factors have changed (e.g., updated estimate of the cost of two of the sites, current construction on one site) but the order of the four of the sites with respect to their suitability of the land for use as a landfill did not change. The fifth site, the Makaiwa Gulch site, is under construction for another use and, as a result, it might not be included on a future list of potential landfill site.

All of the alternatives were compared to criteria the City and County of Honolulu (C&C or City) had established for the alternative technologies, the alternative landfill sites, or transshipment. In the case of the alternative sites, the requirements were established by the Mayor's Advisory Committee report in December 2003, which was an independent panel comprised of citizens and legislators from several areas of the island. The requirements for alternative technologies were established in the City's

January 16, 2007 Notice to Bidders.² The transshipment alternative requirements were established in the City's January 22, 2008, Notice to Bidders.³

1.2 Preferred Alternative

The preferred alternative is the Waimanalo Gulch Sanitary Landfill. However, the City is immediately pursuing another alternative, the expansion of H-POWER, by adding another boiler.⁴

"I have said that my administration recognizes the need to reduce the amount of opala that goes to our landfill at Waimanalo Gulch. Adding a third boiler at H-POWER is one of the best ways to help us achieve that goal and is certainly a form of energy recycling," Hannemann said.⁵

2 City and County of Honolulu, Notice to Bidders, Project to Construct and Operate Alternative Energy Facility and/or H-POWER Facility. Competitive Sealed Proposals (CSP) NO. 037, January 16, 2007.

3 City and County of Honolulu, Notice to Bidders, Shipping of City Provided MSW. January 22, 2008.

4 Johnny Brannon, City to Expand H-POWER Capacity, Honolulu Advertiser, January 18, 1008.

5 January 18, 2008 Mayor's press release regarding the City's decision to proceed with the third boiler at H-POWER.

2 Introduction

This Appendix details the analysis of alternative sites and technologies that could be used in lieu of the expansion of the Waimanalo Gulch Sanitary Landfill and is part of the EIS.

This analysis reviews the alternatives for replacing the Waimanalo Gulch Sanitary Landfill before November 1, 2009, when the SUP issued by the LUC to operate the landfill expires. As such, the alternative technologies and sites considered must be in operation by November 2009. It will be difficult to get an alternative in operation in 18 months (except possibly an expansion of H-POWER) given the time needed for environmental review, permitting, contracting, and construction.

At the same time, many of the alternatives discussed in this analysis hold great potential in helping to reduce the existing need for a municipal solid waste (MSW) landfill. However, while it is possible to reduce the use of landfill space through the adoption of alternative technologies or transshipment, there are no alternatives that will completely eliminate the need for an MSW landfill on the Island of Oahu. All waste reduction technologies generate by-products that cannot be further recycled. Even with the alternative of transshipment, there is concern over the need to maintain a self-sufficient facility to protect the public welfare in the event of a shipping strike, natural disaster, or other event not in the control of the City and County of Honolulu (C&C or City).

The “Project,” for EIS purposes, is to “... provide information and evaluation of the potential for environmental impacts on the natural and built environment associated with the planned 92.5-acre expansion of the Waimanalo Gulch Sanitary Landfill...”⁶ when the landfill receives the expansion permit.

The alternatives evaluated were: no action, delayed action, transshipment, alternative technologies, and alternative sites.

⁶ *Environmental Impact Statement Preparation Notice, Waimanalo Gulch Sanitary Landfill Expansion, Waimanalo Gulch, Oahu, Hawaii, TMKs: (1) 9-2-003: 072 and 073, November 2006.*

2.1 City Requirements

This section discusses the City's requirements for a disposal system to manage its MSW. The disposal system needs to meet minimum criteria to be considered before the City will direct waste to it.

Examples of the criteria include; operations at the capacity needed to dispose the amount of MSW the proponents plan to accept, a record of compliance with environmental laws and regulations, and the necessary financial strength.

2.1.1 Transshipment of Waste

Transshipment is the packaging of Oahu's waste for shipment to a disposal site located off-island. The transshipment alternative requirements were established in the City's January 22, 2008, bid documents⁷ and the C&C has received offers from transshipment firms. These firms propose sending Oahu's waste to Washington State to be landfilled at the Roosevelt Landfill (one firm) and to a landfill in Idaho. If the C&C were to begin transshipping Oahu's waste, requirements for the handling and storage may need to be modified if the Compliance Orders established by the federal government with one of the proposers is determined to be inadequate. The C&C would also need to look at the effects of transshipment on the H-POWER facility. With the shipment of Oahu's waste off-island, waste disposed in H-POWER may be reduced and revenue from the energy sold would diminish. Also, the MSW needed to fuel the new boiler could be inadequate.

2.1.2 Alternative Technology

The requirements for alternative technologies are identified in the City's Invitation for Bid issued to vendors of potential technologies on October 2, 2006. The requirements are detailed in Section 5.1 of this document and are summarized below. This Alternatives Analysis also uses these requirements as these are the minimum a vendor must meet for its technology to be considered by the C&C.

- "There is at least one operational facility that has been processing 500 tons per day (TPD) of municipal solid waste (MSW) for the past two years, and the vendor has been substantially involved in its design and operations.
- The facility has been fully operational and has met all performance and environmental compliance requirements 85 percent of the time during the two years of operation.

⁷ City and County of Honolulu, Notice to Bidders, Shipping of City Provided MSW. January 22, 2008.

- The facility would substantially represent the system proposed for Honolulu without major modification or equipment changes, other than those needed for the scale up or scale down.
- The product produced at the facility has been marketed and resulted in the beneficial reuse of processed materials and/or production of energy.
- The vendor must demonstrate that it has power purchase contracts ongoing to be able to claim an ability to contract for sale of electric power to a utility.
- The proposed facility shall be commercially available such that:
 - (1) The design is proven and the proposed facility is not the first of its kind;
 - (2) The equipment has operated successfully at a minimum of 85 percent of rated capacity for at least 85 percent of the time during the past two years;
 - (3) The equipment is regarded as being reliable and is not subject to excessive maintenance or operational problems and does not require major re-designs; and
 - (4) The facility has processed a minimum of 500 TPD of MSW while operating in accordance with all environmental permits.
- Certification that the ash, slag and residue by-products from the proposed facility have met all environmental requirements for either marketing or landfill disposal.”

2.1.3 Landfill Site

The C&C has the following requirements that must be satisfied for an alternative landfill site to be acceptable:

- “The site must provide equal or better environmental protection than the Waimanalo Gulch Sanitary Landfill.
- The site must have the capacity to dispose of at least 15 years of refuse, considering the current disposal tonnage at Waimanalo Gulch Sanitary Landfill as the starting point and an assumed rate of growth in waste generation.

- The site must be convenient to the H-POWER plant to allow for cost-effective disposal of the ash, bypassed materials, and unacceptable waste.
- Development and operating costs must be reasonable when compared to other options.”

These requirements were developed by the Mayor’s Landfill Site Selection Committee in December 2003. The requirements were developed by the Mayor’s Committee based primarily on local considerations and on federal and state criteria.

3 Oahu Refuse Disposal

Information about the system used by the C&C to manage waste and recyclables is needed as general background. Due to the preparation schedule for this EIS and the schedule for the C&C Solid Waste Integrated Management Plan Update (SWIMP), data from the November 2007 draft update was used for this document.

Information about the composition of the disposed waste is needed to analyze some of the programs and provide background to other discussions. The C&C studied the composition of the waste and the results are presented later. The final report was published with the November 2007 Draft SWIMP update.

3.1 Composition of Waste Stream

The composition of the disposed waste is based on hand-sorting randomly selected samples of the waste from garbage trucks. In 2006, the C&C studied the composition of the waste at H-POWER, the Waimanalo Gulch Sanitary Landfill, and the Keehi Transfer Station. Sampling took place at the Landfill on September 11–14, 2006, at Keehi Transfer Station on September 15–16, 2006, and at H-POWER on September 18–21, 2006.

Table 1 shows the composition of Oahu's waste from H-POWER and the Waimanalo Gulch Sanitary Landfill combined.

Table 1, Aggregate Overall Waste Characterization Results - 2006

Material	Mean	+/-	Mean (tons)	+/- (tons)
Total Paper	30.2%	1.8%	284,082	17,040
OCC (Recyclable)/Kraft	5.2%	1.1%	49,166	10,747
Newspaper	4.3%	1.1%	40,757	10,589
High-Grade Paper	2.6%	0.9%	24,420	7,993
Low-Grade Paper	5.1%	0.9%	48,151	8,012
Other Compostable Paper	11.7%	1.8%	110,142	16,582
Other Paper	1.2%	0.2%	11,446	1,896
Total Plastics	12.1%	1.3%	113,821	11,808
PET Bottles/Containers (Deposit)	0.3%	0.1%	2,843	578
PET Bottles/Containers (Non-Deposit)	0.3%	0.1%	2,449	646
HDPE Bottles/Containers	1.0%	0.3%	9,128	2,562
Other Bottles/Containers	1.1%	0.2%	10,142	1,818
Mixed Rigid Plastics	1.1%	0.4%	10,479	3,431
Plastic Film/Wrap	5.1%	0.7%	47,989	6,654
Polystyrene	0.8%	0.1%	7,056	1,371
Other Plastics	2.5%	0.4%	23,734	4,156
Total Metals	4.8%	0.8%	45,448	7,151
Aluminum Cans (Deposit)	0.3%	0.1%	2,626	632
Aluminum Cans (Non-Deposit)	0.3%	0.1%	2,630	1,351
Tin Cans	0.6%	0.2%	5,830	1,467
Other Ferrous	1.5%	0.4%	14,103	4,160
Other Non-Ferrous	0.4%	0.1%	4,148	1,020
Mixed Metals/Other Metals	1.7%	0.5%	16,111	4,660
Total Glass	1.7%	0.4%	16,089	4,039
HI5 Glass Bottles/Containers	0.4%	0.2%	4,158	1,589
Other Glass	1.3%	0.3%	11,930	3,102
Total Other Inorganics	3.1%	1.2%	29,370	11,020
Gypsum Board	0.3%	0.1%	2,760	1,280
Asphalt Roofing	0.5%	0.3%	4,261	2,609
Asphalt Paving	0.0%	0.0%	38	27
Concrete	0.3%	0.2%	3,078	1,535
Sand/Soil/Rock/Dirt	1.3%	0.8%	12,525	7,811
Ceramics	0.4%	0.2%	4,214	1,772
Miscellaneous Inorganics	0.3%	0.2%	2,496	1,445
Total Other Waste	9.8%	1.6%	91,946	15,278
Batteries	0.0%	0.0%	381	156
Furniture	3.4%	1.0%	31,555	9,795
Appliances	1.1%	0.7%	10,728	6,734
E-Waste	2.0%	0.7%	18,820	6,161
Auto Fluff*	3.2%	NA	30,462	NA
Total Green Waste	8.7%	2.8%	82,041	26,182
Total Wood	4.5%	2.3%	42,273	21,884
Untreated Wood	1.4%	0.5%	13,017	5,004
Treated Wood	2.1%	0.6%	19,428	5,371
Pallets	0.3%	0.1%	2,644	1,248
Stumps	0.8%	0.4%	7,185	3,473
Total Other Organics	24.8%	2.1%	232,874	19,621
Food	12.7%	1.9%	119,645	17,575
Textiles	3.1%	1.0%	28,726	9,136
Carpet	0.7%	0.3%	6,650	2,454
Tires	0.2%	0.1%	1,540	1,090
Miscellaneous Organics	3.7%	0.8%	34,569	7,578
Sludge	4.4%	NA	41,744	NA
Total HHW	0.2%	0.1%	2,234	1,399
Pesticides/Herbicides	0.0%	0.0%	0	0
Paints/Adhesives/Solvents	0.0%	0.0%	256	172
Household Cleaners	0.0%	0.0%	0	0
Automotive Products	0.2%	0.1%	1,711	1,221
Other HHW	0.0%	0.0%	277	147
TOTAL	100.00%		940,187	

* There was no auto fluff or sludge in the samples sorted for this study. As such, the standard deviation and the lower and upper bounds of the confidence interval are not applicable. The Waimanalo Gulch Sanitary Landfill is known to accept auto fluff and sludge and therefore the average composition for these materials was obtained from sources outside this study.

Table 2 shows the composition of waste being disposed at the Waimanalo Gulch Sanitary Landfill. The majority of the waste going into the landfill is from commercial and self-haul sources, rather than residential sources. 90 percent of the residential waste goes to H-POWER.

The results in *Table 2* are adjusted because the samples of waste for the waste characterization report were taken when H-POWER was in full operation and not diverting waste to the landfill. Waste from H-POWER is diverted to the landfill when H-POWER is unable to accept waste due to maintenance or capacity limitations. Because no waste was diverted, the composition at the landfill would have overstated the amount of some types of material. For example, if the landfill had 100 tons of material coming in and 50 tons were widgets, the waste would be 50 percent widgets. If an additional 30 tons of material were diverted from H-POWER, the total tonnage would have been 130 tons and the widgets would have been 38 percent. The annual amount of waste received at the landfill was reduced by the amount of the material diverted from H-POWER so the relative proportion of the remaining material was correct.

Table 3 shows the composition of waste being disposed at H-POWER. About half of the waste going into H-POWER is from residential sources and about half is commercial waste. The types and amounts of material shown in this table reflect potential material for recycling programs.

Table 2, Waimanalo Gulch Landfill Waste Characterization Results - 2006

Material	Mean	+/-	Mean (tons)	+/- (tons)
Total Paper	4.3%	1.6%	7,864	3,020
OCC (Recyclable)/Kraft	1.6%	0.6%	2,993	1,110
Newspaper	0.3%	0.2%	504	307
High-Grade Paper	0.1%	0.1%	161	96
Low-Grade Paper	1.0%	0.5%	1,902	963
Other Compostable Paper	0.7%	0.4%	1,347	817
Other Paper	0.6%	0.3%	1,057	627
Total Plastics	4.6%	1.7%	8,463	3,155
PET Bottles/Containers (Deposit)	0.1%	0.1%	166	102
PET Bottles/Containers (Non-Deposit)	0.0%	0.0%	87	55
HDPE Bottles/Containers	0.2%	0.1%	426	248
Other Bottles/Containers	0.1%	0.0%	154	89
Mixed Rigid Plastics	1.5%	0.9%	2,811	1,664
Plastic Film/Wrap	0.7%	0.3%	1,195	632
Polystyrene	0.2%	0.1%	326	197
Other Plastics	1.8%	0.8%	3,298	1,468
Total Metals	10.1%	2.8%	18,654	5,212
Aluminum Cans (Deposit)	0.0%	0.0%	90	54
Aluminum Cans (Non-Deposit)	0.0%	0.0%	2	1
Tin Cans	0.1%	0.1%	152	96
Other Ferrous	4.6%	1.7%	8,377	3,099
Other Non-Ferrous	0.3%	0.2%	570	346
Mixed Metals/Other Metals	5.1%	2.0%	9,463	3,619
Total Glass	0.5%	0.3%	950	547
HI5 Glass Bottles/Containers	0.2%	0.1%	413	261
Other Glass	0.3%	0.2%	537	329
Total Other Inorganics	4.9%	2.4%	8,957	4,452
Gypsum Board	0.8%	0.5%	1,477	933
Asphalt Roofing	2.3%	1.4%	4,166	2,585
Asphalt Paving	0.0%	0.0%	0	0
Concrete	0.5%	0.3%	965	637
Sand/Soil/Rock/Dirt	0.0%	0.0%	0	0
Ceramics	1.2%	0.7%	2,209	1,363
Miscellaneous Inorganics	0.1%	0.1%	141	100
Total Other Waste	33.9%	4.0%	62,267	7,436
Batteries	0.0%	0.0%	62	39
Furniture	12.6%	4.4%	23,194	8,054
Appliances	1.0%	0.6%	1,832	1,164
E-Waste	4.0%	1.9%	7,393	3,582
Auto Fluff*	16.2%	NA	29,786	NA
Total Green Waste	3.4%	1.5%	6,270	2,833
Total Wood	10.7%	3.3%	19,589	6,020
Untreated Wood	2.2%	1.2%	4,053	2,148
Treated Wood	5.9%	2.1%	10,806	3,877
Pallets	0.8%	0.5%	1,381	867
Stumps	1.8%	1.2%	3,349	2,231
Total Other Organics	27.6%	1.8%	50,788	3,243
Food	1.1%	0.7%	2,075	1,206
Textiles	1.6%	0.8%	2,975	1,549
Carpet	1.6%	0.9%	2,908	1,618
Tires	0.0%	0.0%	33	23
Miscellaneous Organics	1.1%	0.6%	1,978	1,149
Sludge	22.2%	NA	40,818	NA
Total HHW	0.0%	0.0%	64	44
Pesticides/Herbicides	0.0%	0.0%	0	0
Paints/Adhesives/Solvents	0.0%	0.0%	0	0
Household Cleaners	0.0%	0.0%	0	0
Automotive Products	0.0%	0.0%	0	0
Other HHW	0.0%	0.0%	64	44
TOTAL	100.00%		183,866	

* There was no auto fluff or sludge in the samples sorted for this study. As such, standard deviation and the lower and upper bounds of the confidence interval are not applicable. The Waimanalo Gulch Sanitary Landfill is known to accept auto fluff and sludge. The average composition for these materials was obtained from sources outside this study.



Table 3, H-POWER Waste Characterization Results - 2006

Material	Mean	+/-	Mean (tons)	+/- (tons)
Total Paper	36.7%	2.3%	277,570	17,082
OCC (Recyclable)/Kraft	6.1%	1.4%	46,463	10,889
Newspaper	5.4%	1.4%	40,465	10,784
High-Grade Paper	3.2%	1.1%	24,390	8,143
Low-Grade Paper	6.1%	1.1%	46,462	8,103
Other Compostable Paper	14.5%	2.2%	109,368	16,874
Other Paper	1.4%	0.2%	10,423	1,821
Total Plastics	14.0%	1.5%	150,749	11,585
PET Bottles/Containers (Deposit)	0.4%	0.1%	2,689	579
PET Bottles/Containers (Non-Deposit)	0.3%	0.1%	2,373	655
HDPE Bottles/Containers	1.2%	0.3%	8,741	2,598
Other Bottles/Containers	1.3%	0.2%	10,039	1,851
Mixed Rigid Plastics	1.0%	0.4%	7,647	3,048
Plastic Film/Wrap	6.2%	0.9%	47,026	6,749
Polystyrene	0.9%	0.2%	6,760	1,382
Other Plastics	2.7%	0.5%	20,474	3,956
Total Metals	3.5%	0.7%	26,517	4,936
Aluminum Cans (Deposit)	0.3%	0.1%	2,548	642
Aluminum Cans (Non-Deposit)	0.3%	0.2%	2,642	1,377
Tin Cans	0.8%	0.2%	5,706	1,491
Other Ferrous	0.7%	0.4%	5,566	2,794
Other Non-Ferrous	0.5%	0.1%	3,585	977
Mixed Metals/Other Metals	0.9%	0.4%	6,470	2,948
Total Glass	2.0%	0.5%	15,201	4,077
HI5 Glass Bottles/Containers	0.5%	0.3%	3,756	1,597
Other Glass	1.5%	0.4%	11,445	3,142
Total Other Inorganics	2.7%	1.4%	20,322	10,251
Gypsum Board	0.2%	0.1%	1,256	884
Asphalt Roofing	0.0%	0.0%	0	0
Asphalt Paving	0.0%	0.0%	38	27
Concrete	0.3%	0.2%	2,103	1,420
Sand/Soil/Rock/Dirt	1.7%	1.1%	12,594	7,959
Ceramics	0.3%	0.2%	1,966	1,138
Miscellaneous Inorganics	0.3%	0.2%	2,365	1,469
Total Other Waste	3.8%	1.8%	28,424	13,558
Batteries	0.0%	0.0%	319	154
Furniture	1.0%	0.7%	7,879	5,568
Appliances	1.2%	0.9%	8,904	6,755
E-Waste	1.5%	0.7%	11,322	5,083
Auto Fluff	0.0%	0.0%	0	0
Total Green Waste	10.1%	3.5%	76,048	26,516
Total Wood	3.0%	1.3%	22,363	9,557
Untreated Wood	1.2%	0.6%	8,921	4,594
Treated Wood	1.1%	0.5%	8,423	3,749
Pallets	0.2%	0.1%	1,238	906
Stumps	0.5%	0.4%	3,781	2,693
Total Other Organics	24.1%	2.6%	181,937	19,711
Food	15.6%	2.4%	118,175	17,863
Textiles	3.4%	1.2%	25,825	9,172
Carpet	0.5%	0.2%	3,696	1,866
Tires	0.2%	1.0%	1,515	1,111
Miscellaneous Organics	4.3%	1.0%	32,726	7,630
Sludge	0.0%	0.0%	0	0
Total HHW	0.3%	0.2%	2,190	1,425
Pesticides/Herbicides	0.0%	0.0%	0	0
Paints/Adhesives/Solvents	0.0%	0.0%	257	176
Household Cleaners	0.0%	0.0%	0	0
Automotive Products	0.2%	0.2%	1,720	1,244
Other HHW	0.0%	0.0%	212	142
TOTAL	100.00%		756,321	

3.2 Collection

Residential waste from single-family dwellings is collected by the Refuse Division. The Refuse Division also collects from some multifamily units and small commercial accounts. Private haulers collect from a majority of the high-rise condominiums, multifamily units, and commercial facilities.

The Refuse Division uses both automated and manual trucks for single-family residential waste collection. Nearly all of the routes are collected by automated trucks. Collection areas not accessible by automated trucks (e.g., one-way, narrow streets, or steep roads) are served by manual collection vehicles.

Most City-serviced multifamily units are collected with front loader trucks.

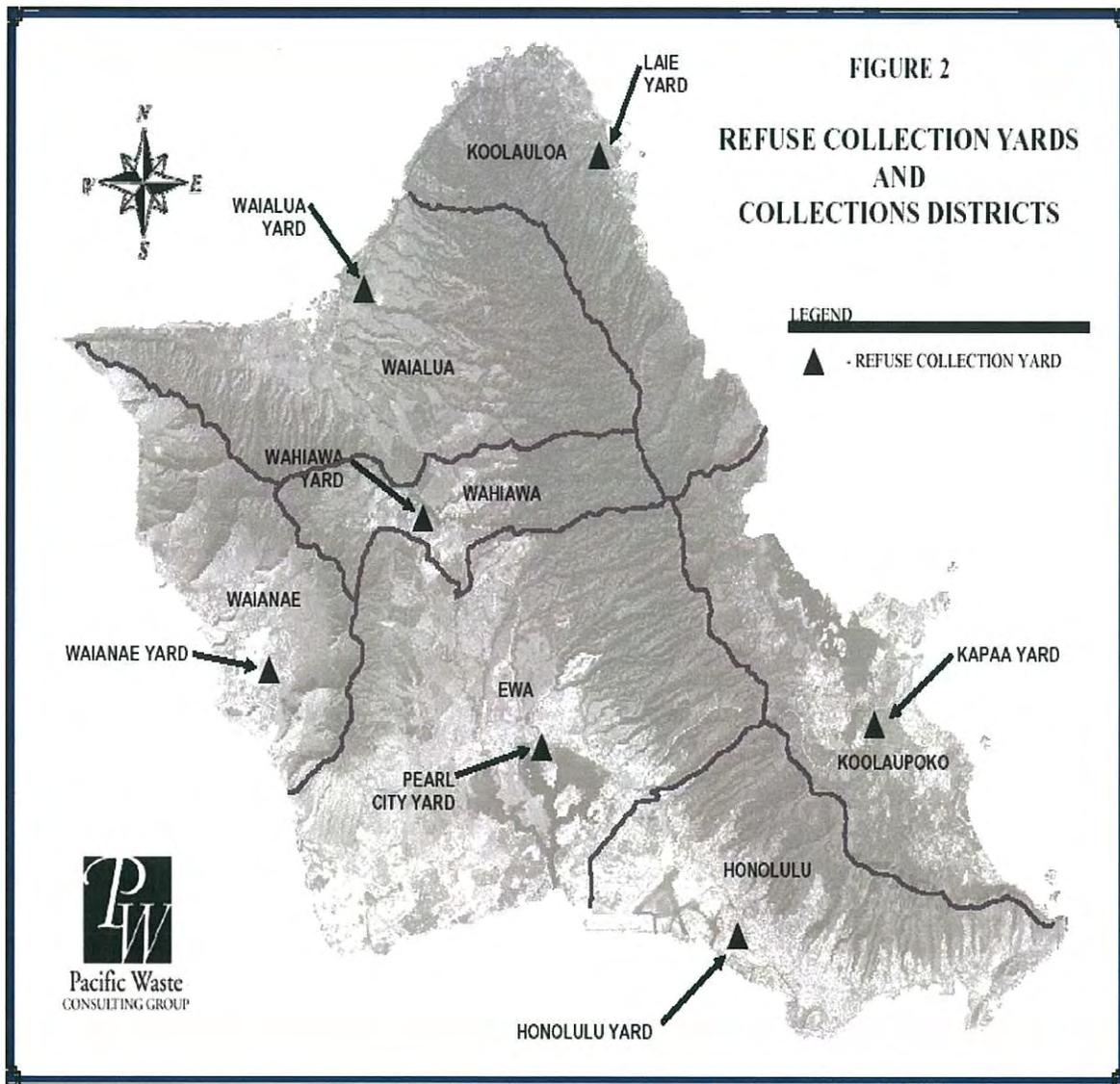
The City has seven collection districts. The dispatch yard for the collection vehicles is located in these districts near the waste generation area, which reduces the cost of collection. *Figure 1, Refuse Collection Yards and Collection Districts*, is a map showing the seven collection districts.

In districts with automated collection services, green waste is collected separately twice per month. In areas with manual collection, green waste is commingled with garbage. Residential garbage is collected twice per week. Collections are a free service to Oahu's communities. The cost of collecting Oahu's green waste and garbage is covered by property tax and tip fees at H-POWER and the landfill.

The C&C has three transfer stations for consolidating waste from small waste collection loads (six to eight tons) into large loads (20 to 22 tons) for transport to the recycling/disposal site. The use of a transfer station allows for less costly and more efficient transportation, since the contents of three collection trucks can be transported for disposal by one transfer trailer. The City owns and operates transfer stations located at Keehi, Kapaa, and Kawaihoa. They service City collection vehicles and private individuals. Commercial collection vehicles; however, are restricted. There are two privately owned and operated transfer stations for commercial collection vehicles.

The City also operates six convenience centers where residents can drop-off garbage, recyclables, and green waste. Depending on the material, waste from convenience centers is recycled, composted, combusted, or disposed in a landfill. Some recyclable materials accepted at convenience centers include white goods (appliances), tires, and auto batteries.

Figure 1, Refuse Collection Yards and Collection Districts



3.3 Recycling

Current recycling infrastructure consists of a pilot program to evaluate weekly MSW collection with weekly curbside recycling and green waste collection, community recycling bins, recycling support for schools, HI5 redemption sites, and curbside green waste recycling. The overall goal is to reduce the amount of waste disposed at the Waimanalo Gulch Sanitary Landfill. The community recycling bin program is supported by participating schools. The program uses a 40 cubic-yard recycling roll-off bin, divided into sections for mixed containers and paper. Students, their family members, community members, and the school employees drop-off their recyclable materials. The host school receives revenues for the recycled materials collected in their bin(s). Since the program began in 1990, more than \$1,000,000 has been paid to the participating schools.

Schools are also receiving additional support through assistance programs, in which the C&C offer 96-gallon wheeled totes labeled for aluminum, glass, plastic, and newspaper. Fundraising materials, such as banners, graphics, lists of recycling companies, collection services, and redemption centers are also provided to help advertise a recycling event. The schools use these events as fundraisers. Currently, there are 75 to 80 schools and 35 non-profit organizations participating in this program. A new contract that began in March 2008 will add 40 additional sites for multi-material recycling.

The C&C also provides, through the contract, 10 HI5 event bins. These 40-cubic-yard bins are used at special school or community events for recyclables. The City's contractor removes the bin after the event and the school or community group receives the redemption value from the materials in the HI5 containers.

Another current effort is the expansion of the number of HI5 redemption sites in the C&C. The HI5 redemption sites are privately-operated for residents to drop-off their recyclable cans, plastic, aluminum, and glass HI5 containers for a 5 cent cash refund. The C&C also provides curbside green waste pick-up to its residents. The City picks up green waste twice a month on the day following garbage collection days. Approximately 10,000 tons of green waste is collected annually from residences. The collected green waste is turned into mulch and offered to residents at no cost.⁸

⁸ Department of Environmental Services www.opala.org, March 11, 2008.

The City established a pilot curbside recycling/green waste collection program in the fall of 2007 to evaluate the efficacy of waste collection once per week (rather than the current twice-per-week schedule) and collect either containers and paper, or green wastes on the second collection day (that is green waste one week and containers and paper the next). That program is to be expanded island-wide starting in the fall of 2008.

Recycling alone does not replace the need for a landfill on Oahu. Recycling is just one step to reducing the amount of waste going to the Waimanalo Gulch Sanitary Landfill.

3.4 Disposal

The disposal facilities used by the C&C are discussed in this section. This discussion was taken from the November 2007 draft SWIMP update.⁹

3.4.1 Waimanalo Gulch Sanitary Landfill

“The Landfill is located in Kapolei on the leeward side of Oahu in Waimanalo Gulch, Kahe Valley. The Landfill property is 200 plus acres. About half of the property is permitted for landfilling and support operations. It is the intent of the City that the Landfill accept two types of MSW: 1) noncombustible MSW and 2) ash and residue from the H-POWER facility. In FY 2006 (July 1, 2005 to June 30, 2006), the Landfill received 337,667 tons of MSW. However, nearly half of this was combustible MSW diverted from H-POWER, as shown in Table 1-7 (Note, this table is not included in this document as the same information is presented in Section 4). Additionally, the Landfill received 88,380 tons of ash and 79,443 tons of residue from the H-POWER waste-to-energy facility. Per the permit renewal issued by the State in April 2003, the peak daily disposal rate can not exceed 3,300 tons per day of MSW and 800 tons per day of ash and residue. In FY 2006, the landfill averaged 930 tons per day of MSW and 460 tons per day of ash and residue.”

⁹ City and County of Honolulu Draft Integrated Solid Waste Management Plan Update, November 2007.

3.4.2 H-POWER

"H-POWER is a waste-to-energy (WTE) facility owned by DFO Partners, Bank of America, Inc., and the Ford Credit Corporation and operated via contract with a full service vendor since 1990. The facility, located in Campbell Industrial Park, uses combustion technology to recycle combustible solid waste materials into energy. The MSW is processed into refuse derived fuel (RDF) that is used as fuel to generate electricity. Approximately 90 percent of the volume and 70 to 75 percent of the weight of the MSW received at H-POWER is diverted from the landfill. The ash and residue from H-POWER is delivered to the Waimanalo Gulch Landfill.

The City has a waste supply contract with the facility operator to deliver 561,600 tons of solid waste per year to H-POWER. The majority of residential and commercial MSW collected on the island is delivered here. In FY 2006, 602,520 tons of waste was recycled for energy at H-POWER. An additional 153,801 tons was characterized as suitable for energy recycling at H-POWER, but was redirected from the H-POWER facility to the Landfill because the facility was closed for maintenance or because of capacity limitations. A total of 71,381 vehicles delivered waste (or would have delivered waste, if not diverted, to the Landfill at facility closure) to H-POWER in 2006. Nearly half of these were Refuse Division vehicles. The other half was private haulers delivering waste from commercial generators. The current tipping fee paid by the private haulers and other commercial vehicles at the H-POWER is \$91 per ton (includes \$0.35 state surcharge and 12 percent City recycling surcharge).

The City has an agreement with Hawaiian Electric Company (HECO) to purchase the electricity generated at H-POWER. Over 320 million kilowatt hours of electricity were generated in FY 2006. The sale of this electricity generated nearly \$35 million in revenues.

H-POWER extracts ferrous metals from the waste using magnets and non-ferrous metals from the ash using an eddy current. Approximately 18,600 tons of ferrous metals and 2,100 tons of non-ferrous metals were recycled in FY 2006 from H-POWER per information reported by the City. The sale of ferrous and non-ferrous metal generated approximately \$1.5 million per year.

As previously discussed, H-POWER is presently operating beyond its design capacity. To attempt to address this situation, the City has issued a Request for Proposals for alternative energy facility to increase overall capacity.”¹⁰

3.4.3 C&D Disposal

“In addition to the Waimanalo Gulch Landfill, a private landfill (PVT) is located in Nanakuli and is permitted to accept C&D waste and petroleum contaminated soils. Information on the exact quantity of material received at this facility was not available, but is estimated at approximately 200,000 tons per year. This estimate is used for planning purposes only.”

¹⁰ Since publication of the draft Solid Waste Integrated Management Plan in November 2007, the City has announced that it will proceed with expansion of H-POWER by adding a third boiler.





4 Alternatives Considered

4.1 No Action

Under this alternative, landfilling at the Waimanalo Gulch Sanitary Landfill would cease on November 1, 2009, with no alternative site or technology available. Several actions would result:

- There would be no landfill to accept the waste currently going to the Waimanalo Gulch Sanitary Landfill, leaving about 800 TPD of MSW requiring disposal.
- Because the garbage could not be disposed, it could not be collected, requiring people to hold it at their homes and residences; resulting in health and safety problems.
- Ash disposal from H-POWER would cease as no other landfill on the island is permitted to accept that material.
- Eliminating ash disposal would stop the operation of H-POWER.
- Businesses would be closed to avoid health issues with improperly managed garbage.

Taken together, these actions can result in a health, safety, and economic catastrophe.

4.2 Delayed Action

The *Delayed Action* and *No Action Alternatives* would have similar results. Given the complexity of the landfill permitting process in Hawaii and the limited time until November 2009, it is possible that delaying action will prevent the C&C from receiving an updated SUP before November 2009, forcing the closure of the Waimanalo Gulch Sanitary Landfill.

Neither the *No Action* or the *Delayed Action* alternatives are changed by the City Planning Commission action on January 16, 2008, or the State LUC action on March 7, 2008, at which point the LUC extended the operation of the landfill until November 2009 to allow time to complete the documents to request an extension of the permits for 15 additional years from 2010.

4.3 Transshipment Off-Island

Transshipment off-island would require a landfill owner/operator on the mainland to accept Oahu's MSW for disposal. Facilities would be needed to process the MSW into shrink-wrapped bales, store the bales while awaiting shipment, and load bales onto barges. Some materials cannot be transshipped. The federal government approval to export precludes more than three percent of the bale being green or agricultural waste. In addition, there are certain materials that must be disposed either in a landfill or by incineration, such as expired food, drugs, and cigarettes. Household hazardous waste is shipped separately and white goods could not be commingled with MSW for transshipment. The lost revenue from transshipment is anticipated to reduce tipping fee revenue that currently helps support the cost of the C&C's refuse management system.

At the time this EIS was prepared, the City had issued a request for proposal to transship waste while a third boiler of H-POWER was being constructed.

4.4 Alternative Technologies

Alternative technologies could reduce the amount of material requiring disposal and generate electricity or another beneficial reuse product. Alternative technology is not expected to eliminate Oahu's need for a landfill as bulky, hard-to-handle items and disaster debris are expected to require landfill disposal. Any technology considered must meet the City's requirements for investing in a new approach to managing MSW.

Alternative technologies considered here include thermal and non-thermal technologies, enhanced recycling, addition of a third unit to H-POWER, and alternative methods of landfilling, such as co-disposal of ash and MSW and use of a bioreactor landfill.

At the time of this EIS, alternative technologies are not viable alternatives to eliminating Oahu's need for a landfill. Further recycling of the by-products produced from these technologies is impossible and requires a landfill for disposal. Alternative technologies do, however, hold great potential in reducing the existing need for MSW landfills in the future.

4.5 Alternative Sites

The five alternative landfill sites considered in this analysis are:

- Ameron Quarry
- Maili Quarry
- Makaiwa Gulch
- Nanakuli B
- Waimanalo Gulch Sanitary Landfill

The preferred alternative is the Waimanalo Gulch Sanitary Landfill.



5 Transshipment Off-Island

On August 23, 2006, the US Department of Agriculture (USDA) through its US Animal and Plant Health Inspection Services (APHIS) announced its decision to allow the transshipment of MSW to the continental United States from Hawaii.¹¹ Transshipment will be allowed only under certain circumstances. Wastes by federal regulation that would be restricted from transshipment are, hard-to-handle wastes, such as white goods, sewage sludge, auto fluff, and precluded materials such as green and agricultural wastes (more than three percent of the bale weight). The announcement is attached as Attachment A.

Three transshipment firms have shown interest in shipping Oahu's waste to the Roosevelt Landfill in Washington State. Two of the three have submitted proposals to the C&C to ship a portion of Oahu's MSW to the mainland for disposal. Both proposals would shrink-wrap the waste prior to shipping.

On January 22, 2008 the City provided a notice to bidders that it would entertain proposals for transshipping waste to the mainland for disposal.³

5.1 City Requirements for Transshipment

In the January 22, 2008 notice to bidders, the C&C established requirements for the transshipment of MSW:

- (1) Permits, compliance letters, certifications, environmental assessments, and other documents, related to services needed to carry out the contract, must be current for the transshipment contractor.
- (2) The proposed methods and measures to fulfill each requirement of the contract must be identified.
- (3) A site plan displaying existing facilities, equipment, traffic conditions, and a description of operations must be provided.
- (4) A back-up plan for equipment maintenance, failure, or other disruption, to minimize landfill disposal must be provided.
- (5) A back-up plan for barge-loading obstruction or other disruptions of exporting operations to minimize landfill disposal must be provided.

¹¹ Federal Register volume 71, number 163, published August 23, 2006.

- (6) A copy of facility agreements between the bidder and facility, barging, or disposal operators must be provided if the bidder is not the director/operator of each.
- (7) The bidder must provide a property easement for the placement of a City-owned scale, scale house, and associated equipment.

5.2 How It Works

Two of three interested transshipment firms have submitted applications to the State for modifications to the transfer stations they currently have permitted to handle MSW. Modifications include adding the equipment needed to transship MSW to the Roosevelt Landfill in Washington State or a landfill in Idaho.

The transshipment vendors would shrink-wrap the waste to avoid shipment of pests and control nuisance impacts. The approach is described in the risk assessment prepared by APHIS for its regulatory action.¹²

The process for handling the waste in Honolulu is specified in the final Compliance Agreement between the USDA and Hawaii Waste Systems, LLC (HWS). The procedures for handling the waste and transporting it to the landfill for disposal are detailed¹³ as follows:

“...Garbage and Regulated (domestic) Garbage collected by refuse trucks shall be delivered to the HWS facility at HWS Transfer Station ... Trucks of agricultural waste shall not be accepted. Waste materials, containers, and bins associated with Foreign Garbage are strictly prohibited and shall not be accepted. The ground surface of the all areas for handling the Garbage and Regulated (domestic) Garbage should be level, solid, and impervious surface of asphalt or cement.

¹² *The Risk of Introduction of Pests to the Continental United States via Plastic-Baled Municipal Solid Waste from Hawaii*, United States Department of Agriculture, Animal and Plant Health Inspection Service, March 2006.

¹³ Final Compliance Agreement between Hawaiian Waste Systems, LLC, and the United States Department of Agriculture relating to the Regulated Article “Garbage and Regulated (domestic) Garbage from Honolulu, Hawaii.” January 19, 2007. Pages 4-7.

The risk assessments for the movement of Garbage and Regulated (domestic) Garbage were conducted based on the specific details provided by HWS. These details included the removal of all hazardous and liquid waste prior to baling. HWS will notify PPQ (USDA, APHIS local office) if the company plans change to include such materials so that the proper risk assessments can be conducted...

The waste transfer station will receive only household and commercial waste acceptable for disposal at Roosevelt Regional Landfill. Collection trucks will deliver waste picked up from existing collection routes. After waste is tipped onto the tipping floor it will be inspected for unacceptable waste including yard waste, (other than incidental amounts not to exceed 3% of the total waste stream pursuant to 7 CFR Part 330), agricultural waste, industrial waste, infections waste, loads of predominantly of [C&D] waste and regulated hazardous waste. Any segregated unacceptable waste will be separated for further processing. Loads consisting predominately of [C&D] waste will be transferred to a C&D handling facility. Other waste will be drummed or otherwise contained and arrangements made for its proper transportation and disposal. Notwithstanding the foregoing, it is acknowledged and agreed that follow-up inspection of the route that was the source of the unacceptable waste will be conducted to try to locate the source and correct the waste handling process that allowed unacceptable waste to be collected.

Each load of waste received at the facility will be weighed and the date, time, company, driver name, truck number (i.e., company fleet number), weight (loaded), weight (empty), and origin of load, will be recorded. Records will be kept for a minimum of three years.

Step-by-step waste receiving and processing description is as follows:

1. Waste is delivered by collection truck to the HWS Transfer Station. The truck is weighed and then proceeds to the baling facility where it tips its waste onto the tipping floor. The collection truck is weighed again as it exits the site and continues on its collection routes. A weigh ticket is generated and kept on file.
2. A loader operator inspects the waste and segregates any non-household or on-commercial waste. Household and commercial waste is pushed onto the in-feed conveyor by the loader. Segregated waste is set aside and handled separately as described previously.

3. Garbage and Regulated (domestic) Garbage moves along the conveyor to the intake feed of the baler. The baler operator introduces waste into the baler where it is compressed using a compactor that produces bale densities of approximately 1000 kg per cubic meter for the most waste materials. The same force compaction will be used regardless of the material in the processing line. Companies will provide documentation of the equipment used and compactor specifications...
4. The compacted bale moves from the baler via conveyor belt to the plastic wrapper. The plastic wrapper automatically wraps the bale with a minimum of 4 layers of pre-stretched, mastic-backed polyethylene plastic, of at least 16 micrometers thickness, and extrudes it onto a roller conveyor. The baler operator or loader operator will inspect each bale for integrity of the plastic wrap. Any bale with unsatisfactory wrapping will be re-sent through the wrapper.
5. The wrapped bale moves down the roller conveyor and is removed by a loader with a special attachment that picks up the bale by squeezing it between two hydraulically operated smooth faced arms, or another piece of equipment designed to handle the bales without tearing or damaging them in any way. The smooth faced arms prevent damage to the plastic wrap.
6. The loader moves the bale onto the bale storage area – which has a solid, impervious (concrete or asphalt) surface that is kept free of soil or other contaminants – or directly onto a flat bed truck, if one is available. The loader then returns to pick up another bale from the roller conveyor.
7. Bales that are placed onto the bale storage area will be loaded onto flat bed trucks as they become available.
8. Flat bed trucks will haul the bales to Barber's Point where they will be unloaded and stacked in the Staging Area. The same type of loader attachment (or equivalent equipment) will be used for unloading to prevent damage to the plastic wrap. The loader operator will inspect each bale for damage to the plastic wrap. If damage is found it will be returned to a wrapping area for rewrapping.

9. Bales cannot be loaded onto the barge until they have been staged for at least five days. After five days, the bales are considered ready for transport and the area will be designated the Transport Area. HWS will maintain a clear separation between those bales ready for transport and those bales in the staging process.

10. Bales at the Barbers Point Harbor facility will be stored until a barge is ready to be loaded. Barge loading will occur approximately monthly. When a barge is ready for loading, the bales in the Transport Area will be transferred onto the barge, again using squeeze-arm hydraulic equipment or other comparable, appropriate lifting equipment to prevent damage to the plastic wrap. The loading supervisor will inspect each bale once the bale is loaded onto the barge. Any damaged bale will be returned to the Transfer Station for rewrapping and restaging or be rewrapped and restaged on site at Barber's Point

11. When the barge is fully loaded it will proceed to its destination at the Roosevelt Regional Landfill in Washington State.

The compression settings on the baler shall be 1,000 kg per cubic meter or more.

Records indicating the size and weigh to each bale shall be maintained.

Garbage and Regulated (domestic) Garbage which has fallen apart from an unwrapped compressed bale, or has been otherwise improperly compressed shall be set aside for a subsequent compression cycle.

The unwrapped, compressed bales shall be bound with plastic or metal clamps, netting, or strapping devices to retain its shape.

Compressed bales that do not hold together shall be rejected and set aside for a subsequent compression cycle. Records of re-compressed bales shall be maintained by HWS and available for monitoring by PPQ..."

5.3 Other Jurisdictions Using Transshipment

Shipment of MSW using shrink-wrap has been used in New Jersey and other areas of the US. It has been used in Europe for as long as 10 years. The Roosevelt Landfill in Washington receives MSW, not only from Washington State, but also from Oregon, Canada, Idaho, and Alaska.¹⁴ Canada has transshipped its MSW to Michigan landfills for many years, while New York is in the process of transshipping its MSW to North Carolina. Most of these operations do not use the shrink-wrap technology.

APHIS determined, with its acceptance of transshipment of MSW stateside from Hawaii, that transshipment could occur from both Oahu and the island of Hawaii once contracts and compliance agreements have been set up in Hawaii.

5.4 Physical, Regulatory, and Environmental Requirements

The limitations on shipping waste from Hawaii to the mainland are established in federal regulations¹⁵ with approval of the specific requirements promulgated in the Federal Register.¹⁶

Garbage subject to these regulations (Regulated Garbage) is defined as waste on—or removed from—a transport that has been in any non-U.S. or Canadian port within the past two years. The garbage is also regulated if that transport has either directly or indirectly moved in the past year between the United States and its territories and non-U.S. territories.

Any garbage commingled with regulated garbage is considered Regulated Garbage and would have to be shrink-wrapped and handled according to the Compliance Agreement.

The primary regulator of transshipment is the U.S. federal government through APHIS.

Regarding flow control of the waste, it has been determined that if the City controls the scale house, it can direct the flow of the waste to the disposal location. The January 22, 2008 Notice to Bidders requires that the successful bidder provide an easement at their site for the City's scale house and supporting equipment.

14 Washington State Department of Ecology, Solid Waste and Financial Assistance Program, "Solid Waste in Washington State Fifteenth Annual Status Report", December 2006.

15 7CFR 330.400 and 9CFR 94.5.

16 Federal Register volume 71, number 163, published August 23, 2006.

5.4.1 Compliance Agreement

Before any waste can be transshipped, all parties involved with the export must enter into a Compliance Agreement with the USDA. All parties must comply with conditions within the Compliance Agreement, as well as, all provisions in 7CFR 330.400–403 and 9CFR 94.5.

5.4.2 Transshipment Regulations

The requirements for shipping the waste are in the Compliance Agreement and in other federal rules and regulations relating to transportation of materials by barge.

5.4.2.1 Receptacles

MSW transported from Hawaii to the mainland must be stored in specified receptacles. If the MSW is to be sent by watercraft, the receptacles must be contained within the guard rails of that watercraft. Receptacles must be tight, leak-proof, and covered while being transported.¹⁵ Removal of receptacles must be under the direction and supervision of an inspector from APHIS and taken to an approved facility.

An approved facility is a facility certified by an appropriate government official as complying with environmental protection laws. The Administrator of APHIS must deem the equipment and procedures adequate to prevent the widespread contamination of plants and livestock.

The shrink-wrap technology used to contain the MSW before it is transshipped uses plastic film wrapping material. The wrapping material is to be impermeable and made of low density polyethylene at least 16 micrometers in thickness. It is to be coated on one side with a non-hardening mastic/adhesive. Bales are mechanically wrapped to achieve airtight seals. The film anoxiates the wrapped MSW to kill the insects and pests entrained in the bale. In a 10-month study, DEKRA Umwelt, an international service provider, determined that the filmed bale environment is made up of 1 percent oxygen and more than 50 percent methane; that within 24 hours, any insects captured during baling of the MSW died from lack of oxygen. The film contracts once it is wound around the MSW. This ensures that during transshipment and disposal no materials or insects are leaked.¹²

5.4.2.2 Disposal

Disposal of MSW must take place at an approved facility. The Roosevelt Landfill has a permit issued pursuant to the federal Subtitle D regulations and would be considered an approved facility.



5.5 Potential Issues

A shipping strike would create potential problems for Oahu should it occur during transshipment of MSW to the continental United States. The plastic film used to bale the MSW in preparation for transshipment is required by the USDA Compliance Order to be re-wrapped if the bale will not be in the landfill within 75 days.¹³ The film has a life of at least 100 days when exposed to sunshine in tropical environments such as that found on Oahu.¹² Assuming a transit time of 14 to 21 days, even a short strike would threaten to cause the shipper to exceed the 75 day time limit from wrapping to disposal as required by the USDA. Oahu would not be able to transship its MSW during a shipping strike. This could potentially result in a health and safety catastrophe, leaving Oahu with no place to dispose of its waste.

According to the Chief Executive Officer of HWS,¹⁷ the bales can be stacked two high. The space they have at the port facility will allow for storage of 30,000 tons of MSW. Assuming that the company handles 100,000 TPY, they can store about four months of shrink-wrapped MSW. In addition, the agreement for barge services allows management of the barge company to operate the equipment needed to transship the waste in a strike due to the health and safety aspects of transporting the waste.

Another issue with transshipment off-island is that green and agricultural wastes, as well as household hazardous wastes, are not permitted to be shipped commingled with the MSW. Incidental amounts, less than three percent of the total amount of MSW shipped, are permitted. Therefore, the source of waste that is transshipped must separate green and agricultural wastes from the MSW.

Assuming that a bale weighs 3.5 tons¹⁷ the total weight in the bale is 7,000 pounds. The limitation of three percent or less of yard wastes¹⁶ allows for 210 pounds of yard waste in the bale. While it is a small percentage of the bale, that amount of green waste should be observed in the inspection prior to baling.

Transshipping Honolulu's MSW makes the C&C dependent upon an outside source rather than maintaining self-sufficiency managing its own refuse. For a state that in recent months has continued to voice its desire for independence, transshipment could be a step backwards.

¹⁷ Meeting on December 14, 2006, with Jim Hodge and Mark White held in Sacramento, California.

Transshipment would also result in the loss of high BTU value waste that would otherwise go to H-POWER. Transferring the disposal of a portion of the City's waste reduces the generating capacity at the H-POWER facility, which provides power to 45,000 homes.¹⁸ It could also require the use of more oil and/or coal to generate power to compensate for the loss of H-POWER generation.

Relying on outside sources for the transshipment of MSW leaves Honolulu vulnerable to shipping strikes and with less negotiating power. The municipality would lose control of cost and possibly lose a source for disposal.

5.6 Impact on City Solid Waste Management System

From an environmental perspective, the impact of transshipment through the HWS system will be consistent with the impact of on-island disposal.

- The transfer, baling, shrink-wrap, and loading will be done at a permitted transfer station.
- The material will be contained within a system that has received approval from the federal government based on the system's ability to prevent the unexpected discharge of waste or plant pests.

From the perspective of how transshipment will impact the City's current system for financing the solid waste collection and disposal activities, the conclusion is not so clear. If transshipment removes 100,000 tons (the total could be more as there are at least three vendors seeking to transship up to 100,000 TPY each), the tip fee and energy revenues from energy production and disposal of that waste will be lost to the city. That revenue helps support the collection system, so the City will have to find other sources of funds to offset the lost revenue.

The transshipment of up to 100,000 TPY would also reduce the amount of energy produced from the H-POWER facility. Currently, H-POWER processes approximately 600,000 TPY of solid waste. With a loss of 100,000 TPY of MSW, the fuel to the H-POWER facility will be reduced, reducing the amount of homes powered by the facility if the C&C were unable to make up the tons shipped off-island. That loss would also increase the cost of power to the residents and businesses on the island because the utility would have to import more oil to generate the necessary power, assuming the utility has the excess generating capacity.

¹⁸ H-POWER. <http://www.honolulupower.com>, March 11, 2008.

The CEO of HWS has provided a summary of their company's suggestions on how to integrate their transshipment program into the City's solid waste management system. The e-mail summarizing his suggestions is in Attachment B.

5.7 Consistency With City Requirements

The C&C guidelines regarding the transshipment of MSW off-island are listed in section 5.1, which were summarized from the Notice to Bidders released on January 22, 2008.

In addition, not all waste can be shipped off-island. Items such as flocked Christmas trees, sewage sludge, auto fluff, out of date medicines, and other hard-to-handle wastes cannot be shipped without special arrangements to dispose of these materials. The shipping alternative only accepts materials from a specific waste stream and does not eliminate the need for a landfill.

5.8 Additional Considerations

The C&C had issued an RFP seeking Alternative Technologies. On January 18, 2008 the Mayor announced that the City had decided to install the third boiler at H-POWER and not proceed with the other alternative technologies. The Mayor also stated that "... the city will invite companies to bid to ship 100,000 tons of Oahu's trash off island." ⁵

5.9 Global Warming Considerations

In addition to these actions, the increasing concern about global warming and climate change caused an evaluation of the greenhouse gas emissions from transshipment. An analysis was conducted (See Attachment C for details) of the emissions of greenhouse gases (GHG) from transshipment compared to landfilling the same amount of waste in the Waimanalo Gulch Sanitary Landfill or burning it in H-POWER. The assumptions and general conditions in the analysis were:

- Commonly accepted emission factors used to calculate the emissions.

- Where actual data was unavailable to define the logistical details of transshipment process necessary to quantify emissions (e.g., physical considerations in port facilities, the time needed to move the wrapped waste onto and off the barge), a report prepared for the C&C to estimate the cost of transshipment was used as a resource.¹⁹
- Manufacturer's data was used to estimate electrical use by a baler and a shrink wrap machine as data was unavailable on the equipment that had been proposed for transshipment.
- Information on the fuel use on a tug and the time required for a load to be moved from Oahu to the mainland was obtained from shipping industry contacts.²⁰

The results of the evaluation are summarized in *Table 4, Comparison of GHG Emissions from Transshipment to On-island Disposal* which shows the emissions in thousands of tons of CO₂ equivalent per year. The emissions at H-POWER are negative because the GHG emissions resulting from the power it generates are more than offset by the reduction in emissions from burning either coal or oil to produce that same amount of energy in other power plants on the island. The emissions from the Waimanalo Gulch Sanitary Landfill are negative because this landfill (as does Roosevelt) sequesters the carbon emissions due to the efficient landfill gas collection system. In addition, the emissions for Roosevelt also reflect the credit for offsetting the electrical generation from other sources in the Northwest. Roosevelt produces power with the gas collected and the Waimanalo Gulch Sanitary Landfill incinerates the gas using a flare.

Table 4, Comparison of GHG Emissions from Transshipment to On-island Disposal

Disposal Location	Emissions (MTCO₂e per year)
H-POWER	(28,711)
Waimanalo Gulch	(3,686)
Roosevelt	3,978

¹⁹ RW Beck, Draft Integrated Solid Waste Management Plan Update, November 2007, Appendix C Trans-shipment of Waste Analyses.

²⁰ Personal communication with a representative of Young Brothers.

6 Alternative Technologies

This section of the Alternatives Analysis discusses the alternative technology approaches that may be able to reduce the demand for landfilling. Currently, there are no alternatives that have been proven to completely eliminate the need for a landfill. Alternative technologies reduce the demand for a landfill, but some residue will need to be disposed in a landfill.

Prior to the evaluation of alternative technologies, there are several factors that are important to the discussion.

The City encourages alternatives methods for waste disposal, such as the H-POWER facility. This facility converts about 40 percent of the MSW produced on Oahu into electricity. By-products are ash, residual, and unprocessable materials that require landfilling.

Prior to the H-POWER facility, the City operated the Waipahu, Kewalo (two plants), and Kapalama Incinerators at different times to reduce the volume of material needing disposal.

Currently, the City has contacted a private vendor to operate a sludge pelletizing facility at the Sand Island Waste Water Treatment Plant. The dryer converts sludge material previously disposed at the Waimanalo Gulch Sanitary Landfill into a fertilizer amendment product. At the current time, the fertilizer product is not being marketed.

These examples share several characteristics:

- All were operated for many years using waste material similar to that produced on Oahu and in amounts in excess of the capacity needed for Honolulu.
- The risk of operational problems was minimized because of the history of operations and the availability of firms to design, build, and operate the plants that had long term operating results.
- The environmental impacts of the technologies were well understood and all had long histories of operating in compliance with regulations.
- The total cost of the technology was well understood.
- H-POWER has resulted in a significant reduction in volume of material disposed in the landfill disposal, with the dried sludge being used as cover.
- The City has continued its search for additional alternatives. Other areas of the

United States and other countries are evaluating landfill alternatives and have observed some progress. Some of the results of those evaluations are used in this section to identify the advantages and disadvantages of the alternatives and compare them to the City's criteria, which are also listed in this section.

The alternatives fall into several categories:

- Thermal processes which use heat to reduce the waste to other reusable products or a fuel. Pyrolysis and hydrolysis are examples of thermal processes.
- Non-thermal processes that produce a material, such as compost, that is sold.
- Enhanced recycling.
- Expansion of H-POWER.

All of these alternatives have the potential for reducing the amount of waste disposed at the Waimanalo Gulch Sanitary Landfill. Each process produces a residue that, at this time, can only be landfilled.

6.1 City Requirements for Alternative Technologies

The consideration of alternative technologies has been ongoing in the C&C for many years. Those efforts have included implementing new recycling programs, bans on disposing certain recyclable materials in the landfill, and issuance of an RFP for Alternative Technologies or another boiler for H-POWER. It has since selected the addition of a third boiler at H-POWER to increase diversion of waste from the landfill.

Where an Alternative Technology is proposed, the C&C identified the following six minimum requirements.²¹

- "There exists at least one (1) operational facility processing municipal solid waste that over the past two (2) years has been operating at a rate of at least five hundred (500) TPD in which the Offeror or its design and operational members have been substantially involved. Names, addresses, and phone numbers of persons that can be contacted at the facility or at the agency responsible for the facility shall be provided.

21 City and County of Honolulu, Notice to Bidders, Project to Construct and Operate Alternative Energy Facility and/or H-POWER Facility. Competitive Sealed Proposals (CSP) NO. 037, January 16, 2007.

- Such facility has been operated successfully for the past two (2) years and has been fully operational eighty five percent (85%) of this time while meeting all performance and environmental compliance requirements.
- The facility without major modification or equipment changes, other than for the acceptable application of good engineering practice for scale up or scale down, would substantially represent the system proposed for Honolulu.
- The product produced at the facility has for the past two (2) years been marketed and resulted in the beneficial reuse of energy. The Offeror shall provide descriptions and documentation of the beneficial reuse such as, operating reports, weight records, names of purchasers, revenues from sales, etc. in sufficient detail to demonstrate fulfillment of this requirement. For example, producing steam for steam sale is not as complex as producing steam for generating electric power. For an Offeror to be able to claim an ability to contract for electric power to a utility, the Offeror must demonstrate that it has power purchase contracts on going and that the utility or energy customer, to which the power is to be sold, provides evidence in writing that it shall enter into a power purchase contract based on its understanding of the proposed facility's ability to produce such power. If energy sales at existing facilities are not comparable to those proposed, anticipated revenues shall not be included in the Offeror's Price Proposal. Research and development projects or similar efforts that have not resulted in a contracted marketed product with actual sales are not acceptable and shall not be included as Revenue in the Offeror's Price Proposal. For the Options proposed, the selected Offerors shall participate with the City in the development and maintenance of the Power Purchase Agreement (PPA) between the City and the Utility similar to the PPA included as Appendix D of the Contract Documents. In order to assure a good understanding of the Hawaiian Electric Co., Inc. service requirements, the Offeror shall complete and submit Sections 1 and 2 of Attachment 'A' as part of its Proposal. In addition, the selected Contractor shall be required to enter into an Interconnection Requirements Study Agreement as provided for in Attachment 'B'. Attachment 'C' Sample Information on Performance Requirements is provided as information for the bidders. The specific values for these performance parameters would be finalized in the course of the PPA negotiations. It is understood that the selected Contractor shall be responsible for the payment of all cost required for the development of and adherence to conditions of the Power Purchase Agreement and those of Attachments 'A', 'B' and 'C' of this Notice to Bidders and for the payment of all penalties for non performance due to Contractors fault associated with these Contract Documents.

- The proposed Facility shall be commercially available such that: (1) The design is proven and the proposed facility is not the first of its kind; (2) The equipment proposed has operated successfully at least eighty-five percent (85%) of rated capacity while at the same time operating for at least eighty-five percent (85%) of the time during the past twenty-four (24) month period; (3) The equipment is regarded as being reliable and not subject to excessive maintenance, operational problems, or requires major re-designs; (4) The facility has processed a minimum of five hundred (500) TPD of municipal solid waste while operating in accordance with all environmental permits.
- Certification that the ash slag and residue by products from the proposed facility have met all environmental requirements for either marketing or landfill disposal including passage of the [Toxicity Characteristic Leaching Procedure (TCLP)] test and classification as non-hazardous materials, or, if deemed hazardous certification from the final disposal site that materials have been properly disposed of and how it would be disposed of for this project.”

In its RFP, the C&C encouraged both thermal and non-thermal technologies. With thermal technologies the by-product is steam or electricity which can be sold. The by-products of non-thermal technologies are materials that require development of a market (i.e., building material, or compost). Technologies that produce a product that must be sold into a market (other than an energy market) will be more difficult in Honolulu. For example, a market does not currently exist for an alternative technology that produces an MSW compost product. The reason is that the market for MSW compost is restricted on the mainland and has faced controversy in Honolulu.²² The proponent of a technology that produces a solid MSW fuel would need to find a fuel user and there are only two solid fuel users, H-POWER and the AES coal fired power plant. The current H-POWER facility is operating at capacity. To handle an MSW fuel at AES would probably require a revision to its permits, a lengthy and expensive process, provided AES wished to pursue it.

6.2 Non-Thermal

Non-thermal or non-combustion technologies are those that do not require and/or produce large quantities of heat. Non-thermal technologies included in this analysis are digestion and hydrolysis.

Digestion is the decomposition of MSW with the use of microorganisms. The process can either be anaerobic or aerobic.

²² Leone, Diana. *Waianae Compost Plan Hits Turbulence*. Star Bulletin. August 17, 2006.

6.2.1 Anaerobic Digestion

Anaerobic digestion is the decomposition of MSW without the introduction of oxygen. End by-products tend to be liquid, gas, and solid materials. The organic fractions of MSW are converted into single-celled proteins, which can be used for compost and fertilizers. Due to the length of time anaerobic digestion takes, more land is required to process the amount of MSW the C&C requires of an alternative technology.

Examples of anaerobic technologies include:

- ArrowBio
- Orgaworld
- Organic Waste Systems' DRANCO Dry Anaerobic Digestion

The discussions in this section are based on information about the ArrowBio process. ArrowBio uses naturally occurring microbes to break down the organic fraction of MSW. Others will have different approaches and equipment, but produce similar products.

Currently, Orgaworld has two operating facilities, each with a capacity of 96 TPD, while Organic Waste Systems' facilities process up to 137 TPD. Both are less than the C&C minimum requirements and the Orgaworld and Organic Waste Systems are not discussed further.

ArrowBio has a 200 TPD plant operating.

6.2.1.1 How It Works

Using a separation-dissolving tank, organic and inorganic materials are separated based on buoyancy. Heavier inorganic materials, such as metal and glass, sink to the bottom of the tank and are taken for further separation and then are recycled or disposed. Plastics, which remain floating, are separated pneumatically, while the remaining organic fraction is shredded and more water is introduced to further the biodegrading process. The remaining organic material is treated in acetogenic and methanogenic reactors producing fertilizer and biogas. The biogas, made up of approximately 75 percent methane, can be sold as clean, green energy for use in transportation and power facilities, or used internally to power the facility. The technology vendor is responsible for the disposal of these residues.

The demonstration facility, located in Hadera, Israel, processed more than 30 TPD of MSW and operated from 1996 to 1999. The facility was designed to process 11 TPD of MSW.

One full scale ArrowBio facility located at the Hiriya transfer station in Tel Aviv, Israel has been in operation since 2002. The facility processes approximately 210 TPD of MSW and generates biogas sufficient to produce three MW.²³

6.2.1.2 Other Jurisdictions Using This Technology

Currently the only ArrowBio facility in operation is at the Hiriya transfer station in Tel Aviv, Israel. ArrowBio technology may soon be added as part of Australia's Macarthur Resource Recovery Park, a proposed integrated waste facility on the current Jacks Gully landfill site.²⁴

6.2.1.3 Physical, Regulatory, and Environmental Requirements

The ArrowBio facility at the Hiriya transfer station in Israel has one 200 TPD module and requires approximately two acres of land, with an additional one-half to one acre for long-term storage of materials. If it were sized up to meet the 500 TPD requirement, an estimated six acres would be needed.

This facility would require 0.05 MW of electricity per ton of MSW processed, which is met with the generation from the biogas. Water consumption data is not readily available; however, ArrowBio claims the consumption is low due to moisture in the MSW. Additional water is required for the separation/dissolving tank.

ArrowBio claims no negative environmental impacts. There is no significant odor potential as the MSW is immediately placed into the separation-dissolving tank. The treatment takes place in enclosed tanks, also reducing potential odors. Water used throughout the process is reused in the separation-dissolving tank, which results in low water consumption. A small amount of wastewater is generated from the process, but is expected to be suitable for release into the sanitary sewer system.

The company provided no information regarding economic benefits associated with the technology.²⁵

23 Arrow Ecology www.arrowecology.com, March 11, 2008.

24 Marshall, A.T. and Morris, J.M., "A Watery Solution," Chartered Institute of Waste Management Journal, August 2006.

25 *Evaluation of New and Emerging Solid Waste Management Technologies*, New York City Economic Development Corporation and New York City Department of Sanitation, September 16, 2004.

6.2.1.4 Potential Issues

- There may be size-up issues unless units of the same size as the existing facility are used.
- A market will need to be developed for the MSW compost, which may be difficult. MSW compost is not currently marketed on Oahu so it may be challenging and time consuming to develop the market.
- A market will be needed for biogas or it will need to be used to generate electricity and sold to HECO.

6.2.1.5 Consistency With City Requirements

The anaerobic digestion facilities do not meet the City's requirements:

- The existing facilities either process less than the City's minimum waste stream (the existing ArrowBio facility 210 TPD of MSW, 300 TPD less than what the C&C requires) or they process source-separated organics.²⁵ ArrowBio could use multiple units to meet the City requirement.
- The facility design for the ArrowBio is the first fullsize facility.
- There is no proven market for the MSW compost product.

6.2.2 Aerobic Digestion

Aerobic digestion is the decomposition of MSW with the introduction of air. Examples of aerobic digestion include Mining Organics, Real Earth Technologies, and Herhof Environmental's MBT Process. Due to the lack of readily available information about both Mining Organics and Real Earth Technologies, a generic explanation of Herhof Environmental's MBT Process is included. Different companies use different approaches and equipment, but produce similar products.

6.2.2.1 How It Works

The aerobic digestion process can be either wet or dry. Dry aerobic digestion is similar to in-vessel aerobic composting.²⁵ Inorganic materials, such as glass, metals, and plastics are removed from the MSW for recycling. The remaining material is shredded, mixed, and put into a vessel with a controlled amount of air and heat. Liquid is removed thereby reducing the volume. The mixture continues to be aerated, mixed, and depending on the reactor used, heated.²⁶

Wet aerobic digestion removes inorganic materials, such as glass, metals, and plastics, and pulps the organic materials from the MSW. The slurry is then mixed, aerated, and heated. Heating dries some of the organic material, reducing the total volume. Microbes are then introduced, which reduce the slurry to solid and liquid soil amendments for use in fertilizers.²⁵ The technology vendor is responsible for the marketing these materials.

6.2.2.2 Other Jurisdictions Using This Technology

Composting of kitchen, food, and green waste scraps is well established in Europe. Germany has more than 500 biochemical treatment facilities processing more than eight million TPY of food and green wastes; the majority of those facilities are aerobic compost facilities. However, these facilities are not processing MSW.²⁷ Vancouver, Canada has a 30 TPD demonstration plant by Herhof in operation processing separated food and other organic wastes.²⁵ There are currently seven commercial MSW Herhof plants in operation in Germany, Belgium, and Italy, with one proposed for the United Kingdom that will use the solid fuel produced by the MBT Process in a combustion plant.

6.2.2.3 Physical, Regulatory, and Environmental Requirements

These requirements are unknown as there are currently no aerobic facilities that meet the requirements of the C&C.

6.2.2.4 Potential Issues

The process results in a compost that would have to be sold, and no markets have been demonstrated in Honolulu. Even with a solid fuel by-product, Honolulu does not have an existing, market for the fuel.

26 Kumar, Surendra, Shashi and Salman Zafar. "Composting Technology." *MSW Management, The Journal for Municipal Solid Waste Professionals*. May/June 2006.

27 Oaktech Environmental, <http://www.oaktech-environmental.com/>, March 11, 2008.

The process requires source-separated organics; it does not process mixed MSW.

6.2.2.5 Consistency With City Requirements

None of the Herhof Environmental plants currently in operation process more than 500 TPD of MSW. However, Herhof Environmental states their MBT Process is capable of processing up approximately 1,095 TPD.²⁸

6.2.3 Hydrolysis

Hydrolysis is a chemical reaction in which water and another substance react, forming two or more new substances. With the hydrolysis of MSW, the reaction is between water and the cellulose fraction of the wastes to produce sugars. To obtain the cellulose fraction of the MSW, glass, metals, and other inorganic materials must first be removed.

Several types of hydrolysis technologies exist. The description by Arkenol Fuels is provided as an example for discussion. Another technology is the Masada Oxynol process.

6.2.3.1 How It Works

Arkenol Fuel technology, also named Concentrated Acid Hydrolysis, uses the source-separated fraction of MSW. The process first sorts out recyclable materials. The remaining material is ground for further processing. Sulfuric acid decrystallizes the material and breaks the organic fraction into its component sugars (cellulose and hemicellulose). The material is then hydrolyzed; the chemical bonds are broken, producing hexose and pentose sugars required for commercial fermentation. Insoluble materials are filtered for processing for other uses. The entire process runs on biomass, including agricultural residues, crops grown specifically for use as biomass, paper, wood, and green waste.²⁵

The pilot facility for Arkenol Fuels is in Orange, California, and processed one TPD of MSW. This facility operated for five years beginning in 1992.²⁹

The only commercialized Arkenol Fuel facility is in Izumi, Japan. It has been in operation since 2002, using waste wood chips as feedstock.³⁰

28 [http:// www.herhof.com/en/](http://www.herhof.com/en/), March 11, 2008.

29 Arkenol Fuels, <http://www.arkenol.com/>, March 11, 2008.

30 California Integrated Waste Management Board, Session Summary: Emerging Technology Forum, Brief summary of presentations by Rick Diederich prepared by CIWMB staff, April 17–18, 2006.

6.2.3.2 Other Jurisdictions Using This Technology

There are no hydrolysis facilities currently in operation that process MSW as feedstock and none of the size the City requires.³¹

6.2.3.3 Physical, Regulatory, and Environmental Requirements

A Masada facility that could process about 600 TPD is expected to require 10-acres. The environmental impacts include emissions from the process, waste water discharges, and other impacts. The facility will need to satisfy the State's regulatory and environmental process for MSW processing plants.

6.2.3.4 Potential Issues

The use of MSW as feedstock has not successfully been demonstrated except at a pilot facility scale, although Masada is developing a commercial facility.²⁵

A market for the ethanol produced is expected to exist in the City, but has not been proven. An uncertain market for ethanol is believed to be one of the reasons an Arkenol Fuel project failed, according to Arnold Klann, President, and Chief Executive Officer for Arkenol, Inc.³⁰

6.2.3.5 Consistency With City Requirements

Hydrolysis is inconsistent with the C&C requirements because there has not yet been a successful facility at the size required by the City operating on MSW.

6.3 Thermal

Thermal or combustion technologies produce a significant amount of heat. During the processes, both organic and non-organic materials are combusted while the non-combustible materials can be recycled either before or after combustion. Common thermal technologies are gasification, plasma arc, pyrolysis, and incineration. Examples of thermal technologies include:

- Covanta Energy — the City's H-POWER facility.
- Rigel Resource Recovery — Westinghouse Plasma Gasification.
- Dynecology — Gasification with Briquetting of Refuse Derived Fuel (RFD)/Coal/Sewage Sludge.

31 Interstate Waste Technologies, <http://www.iwtonline.com/>, March 11, 2008.

- Ebara Corporation — Fluidized Bed Gasification with Ash Vitrification.
- GEM America — GEM Thermal Cracking Technology (Gasification).
- Global Energy Solutions — Thermal Converter Technology (Gasification and Vitrification).
- Interstate Waste Technologies — Thermoselect Gasification.
- Pan American Resources — Destructive Distillation Lantz Converter.
- Pratt Industries/VISY Paper (RDF).
- Comprehensive Resources, Recovery, & Reuse, Inc. (RDF).
- Takuma Mass Burn Renaissance System.
- Resource Recycling, L.L.C. (Mass Burn).

H-POWER technology is discussed in its own section since it is a proven technology that is currently in use by the C&C.

6.3.1 Plasma Arc

This technology uses large carbon rods in a sealed vessel to generate a high temperature arc that converts the materials in the vessel into plasma (ionized air). Heat generated by the arc melts the inorganic fractions into a glass and vaporizes the organic fractions, which become a synthetic fuel gas. The glass can be disposed in a landfill or may be used for beneficial purposes, such as for replacement of imported sand for sand blasting. The synthetic gas is cleaned and burned to produce power.

There are several vendors of plasma systems, including Westinghouse, and other project developers. A four TPD plasma system was operating near the H-POWER plant to process medical waste.

The City Council Public Works and Economic Development Committee heard from some plasma system representatives during its review of potential landfill sites.³² The representatives that addressed the Committee were identified in the report as:

³² November 16, 2004 memorandum from Councilmember Rod Tam to Concerned Citizens of Oahu transmitting the report titled "Committee on Public Works and Economic Development's Summary Report on its Landfill Site Selection Process."

“... the following companies with the plasma gasification technology have made presentations or submitted materials to the Committee on Public Works and Economic Development ...:

- (1) JDI/Geoplasma, LLC;
- (2) Environmental Solutions Corporation representing the Solena Group;
- (3) EnviroDyne;
- (4) Startech Environmental Corporation;
- (5) Scientific Utilization, Inc. /Waste To Energy; and
- (6) Phoenix Consulting Group International, LLC, for Biomass Conversion Technology, LLC”.

6.3.1.1 How It Works

Plasma arc technology gasifies MSW with high pressure air and an electric arc that produces very high temperatures (up to 8,000 ° F). These temperatures virtually vaporize the waste into its elemental components, creating syngas, which can then be used to generate electricity.

6.3.1.2 Other Jurisdictions Using This Technology

Currently, there are two operating plasma arc facilities that process MSW. The longest running one and the only one that is not a demonstration plant is the Eco Valley Utashinai facility located in Utashinai, Japan. The facility processed more than 270 TPD of MSW and 130 TPD of automobile shredder residue and generates approximately 4,700 kWh of salable energy in fiscal year 2005.³³

The City of St. Lucie, Florida has begun the negotiations for a plasma arc facility. The Georgia-based company, Geoplasma, has agreed to build and operate the facility and claims the facility will process 2,000 TPD of MSW and 1,000 TPD of MSW mined from a landfill while producing 120 MW of electricity.³⁴

33 Shigehiro, Michiaki, General Manager of Eco Valley Utashinai.

34 Sladky, Lynne. “Florida county plans to vaporize landfill trash.” USA Today. September 9, 2006 and Margasak, Gabriel. “Trash zipper in St. Lucie County gets shot in arm from Crist”, TCPalm, November 10, 2007.

Geoplasma has agreed to build and operate the facility, estimating that within the next 15 to 18 years the facility will have disposed of all the current waste in the landfill. Ron Roberts, the Assistant Solid Waste Director in St. Lucie, estimates the plant will be finished within 25 to 30 months.³⁵

A second plasma plant operating on MSW started operation in late January 2008 in Ottawa, Canada. It is a demonstration project. The information about the plant was obtained from news sources³⁶, which stated:

“A demonstration waste-to-energy plant in Ottawa has finally turned its first load of trash into power...

... The \$27 million plant uses a process called plasma gasification to decompose waste under high heat and low oxygen into a gas mixture called syngas, and a glass-like material that can be turned into asphalt or concrete....

Once the plant is running at full capacity, it is to divert 85 tonnes of waste a day from the city's landfills while generating enough electricity to run the facility and power 3,600 homes....

Plasco hopes its demonstration plant in Ottawa will persuade other cities to buy the technology....

Construction of the plant started in September 2006. It was to run as a two-year pilot project.”

The PLASCO plant was partially funded by the Canadian government.

35 Miller, Dan. “State-of-the-art plant makes trash vanish into thin air.” County News Online. National Association of Counties, Washington, D.C., October 2, 2006.

36 Information from <http://www.cbc.ca/technology/story/2008/02/07/ot-plasco-080207.html>, March 12, 2008

"This brings to over C\$90 million the equity invested in PlascoEnergy since August 2005. The Company had nominal debt and a modest cash position prior to this issue, and is well funded for development of commercial facilities next year," said Rod Bryden, PlascoEnergy President and CEO. "Commitment of funding from Sustainable Development Technology Canada ('SDTC') to the Ottawa demonstration project was a key factor in bringing the PlascoEnergy technology to reality and to attracting private capital that will fund its future commercial use around the world. SDTC has committed a non-repayable contribution of C\$9.5 million," he said.³⁷

6.3.1.3 Physical, Regulatory, and Environmental Requirements

The Eco-Valley Utashinai facility is the only one of its kind that has been operating. If a similar facility were built on Oahu, it would have to meet the same requirements of both State and Federal regulations as any new alternative technology. *Table 5, Actual Treatment Record in 2005 (Fiscal Year)* was provided by the plant operator to the City staff and shows the operational record for one year. "ASR" refers to Automobile Shredder Residue.

Table 5, Actual Treatment Record in 2005 (Fiscal Year)³⁸

Month	Receipt of Waste (Tons)		Treatment of Waste (Tons)		Slag (Tons)	Electric Power (MWh)			Operating (day) Line1+Line2
	MSW	SR,ASR	MSW	SR,ASR		Generation	Consumption	Sold	
Apr	2,118	850	1,447	238	314	305	1,659	0	25+10
May	2,288	665	2,406	443	372	1,172	2,098	25	25+27
June	2,317	561	2,063	913	651	1,063	2,059	19	22+30
July	2,186	1,083	2,625	743	450	1,053	2,317	0	31+31
Aug	2,391	939	1,527	881	443	637	1,862	0	21+21
Sept	2,169	93	2,302	895	469	840	2,202	0	30+24
Oct	2,206	449	1,773	671	453	548	1,963	0	22+19
Nov	2,067	619	3,364	896	676	1,360	2,397	0	30+30
Dec	1,965	718	1,164	387	308	297	1,388	0	20+1
Jan	1,722	519	2,207	737	451	613	1,881	0	14+22
Feb	1,398	702	1,612	788	345	356	1,510	0	0+28
Mar	1,877	1,353	1,247	741	278	341	1,522	0	0+19
Total	24,704	8,551	23,737	8,333	5,210	8,585	22,858	44	240+262

³⁷ Information from PLASCO new release dated December 12, 2007, http://www.plascoenergygroup.com/?News/23/2007-12-03:First_Reserve_leads_PlascoEnergy_equity_funding, March 12, 2008.

³⁸ Nomura, Akira. Hitachi Metals. Actual Treatment Record for Utashinai Eco Valley. 2005. Correspondence to Wilma Namumnart. August 10, 2006.

6.3.1.4 Potential Issues

The experience with plasma operating on MSW has been limited to one full-scale plant.

The cost of the facility is believed to be \$425,000,000.³⁹ Until a full scale plant is operating on MSW, the actual cost of operations will not be known.

6.3.1.5 Consistency With City Requirements

Currently, plasma arc technology does not meet the C&C requirements:

- One of the two operating facilities has required maintenance for the furnace reflectors and the other started operations this year.³⁵
- The Eco Valley Utashinai facility processes 270 TPD of MSW, 230 TPD short of the C&C requirements. The Ottawa facility at 85 metric TPD is also short of the C&C requirements.
- These facilities are the only ones operating on MSW.

6.3.2 Gasification/Pyrolysis

Gasification is the process of reducing MSW to a synthesis gas. Pyrolysis is similar to gasification and often considered a type of gasification technology. The by-products of gasification are syngas and vitrified material (slag) and pyrolysis by-products are solid carbon and liquid fuel. Pyrolysis generally takes place during the first steps of gasification. Examples of gasification technologies are:

- Dynecology—Gasification with Briquetting of Refuse Derived Fuel (RDF)/Coal/Sewage Sludge.
- Ebara Corporation—Fluidized Bed Gasification with Ash Vitrification.
- GEM America—GEM Thermal Cracking Technology (Gasification).

³⁹ Waste Age Magazine, September 13, 2006. "Florida county to generate energy by vaporizing solid waste". Also their web page at <http://wasteage.com/news/Geoplasma/?cid=most-popular>, March 11, 2008.

- Global Energy Solutions—Thermal Converter Technology (Gasification and Vitrification).
- Interstate Waste Technologies—Thermoselect Gasification.
- Pan American resources—Destructive Distillation Lantz Converter.

6.3.2.1 How It Works

Dynecology's Gasification with Briquetting of RDF/Coal/Sewage Sludge technology processes MSW into RDF and then blends RDF and dewatered sewage sludge together with coal making briquettes. The briquettes are then introduced to the gasifier, or high-pressure, fixed-bed reactors. The inorganic fraction melts and is removed from the bottom of the chamber as slag and the synthesis gas is removed from the top. Dynecology has no facilities currently operating on MSW.

GEM America's GEM Thermal Cracking technology processes unsorted MSW. Recyclable materials, such as metals, glass, and cardboard are separated and the remaining materials are shredded, dried, and granulated. The MSW is then gasified and converted into synthesis gas. The synthesis gas can be used to generate electricity. GEM America has no commercial facilities currently in operation, but has two demonstration plants processing 73 TPD that have been in operation since 2000.

Ebara Corporation's Fluidized Bed Gasification with Ash Vitrification technology introduces shredded MSW into a fluidized bed reactor vessel. Gasification takes place in the reactor at atmospheric pressure. Temperatures range between 1,022–1,166° F, reducing the MSW to ash. The ash and synthesis gas enter into a second chamber where the materials are heated again at higher temperatures (2,372–2,642° F). Fine particles are collected on the walls and become molten slag collected at the bottom of the chamber and cooled to form a vitrified granulate. The synthesis gas is used to produce energy. The largest Ebara plant is its Kawaguchi City reference plant which processes 462 TPD of MSW.

With Global Energy Solutions' Thermal Converter technology (Gasification and Vitrification), unsorted MSW is introduced into the gasification reactor. Preheated air (660–840° F) is then introduced and the MSW is passed to a conversion chamber heated between 2,200–2,500° F and then to a second conversion chamber heated between 3,000–3,100° F. This secondary chamber cleans the gases and vitrifies the residue using a bed of molten material. The synthesis gas produced is used in a boiler to produce steam or to generate electricity.

Interstate Waste Technologies uses a waste treatment process called Thermoselect Gasification. The system compacts unsorted MSW thereby removing most of the air and evenly distributing the moisture content. The compacted waste is then pushed through a high temperature chamber where the inorganic waste turns molten and the organic waste converts into gas. The organic gases enter a lower temperature chamber and are shock cooled to avoid the formation of dioxins or furans. The gases are then shuttled through scrubbers to remove sulfur, heavy metals and other toxins. The resulting synthesis gas can be used for energy production or as a base material for chemical synthesis. The molten inorganic waste is also shock cooled and results in reusable mineral substances and metals. The water condensed during the different phases of the gas treatment is fed into the water treatment chambers where it undergoes a multiple-stage treatment. The processed water is then used for cooling purposes.⁴⁰

6.3.2.2 Other Jurisdictions Using This Technology

Global Energy Solutions has 14 facilities in operation in Japan, Asia, and Europe. Two facilities operating in Japan process solely MSW.

Interstate Waste Technologies has the following facilities:⁴¹.

- Fondotoce, Italy, operated the demonstration Thermoselect facility for six years, with commercialization commencing in 1994, from 1992-1998. The plant was decommissioned in 1999.
- Karlsruhe, Germany, operated a Thermoselect facility from 1999 until 2004, when it was closed due to “general business strategy decisions.” The facility processed 225,000 TPY of waste from surrounding towns and rural districts.
- Currently, seven Thermoselect facilities are operating in Japan. Three of the facilities operate on MSW. Commercialization of the Matsu facility began in 2003 and currently processes 140 TPD. The Nagasaki and Tokushima facilities commenced operations in 2005, with the Nagasaki facility processing 300 TPD and the Tokushima facility processing 120 TPD of MSW.

40 http://www.iwtonline.com/docs/Thermoselect_process_description.pdf, March 12, 2008.

41 http://www.iwtonline.com/docs/Thermoselect_process_description.pdf, March 12, 2008

6.3.2.3 Physical, Regulatory, and Environmental Requirements

Global Energy Solutions states that their Thermal Converter technology exceeds all known emission standards worldwide and that there are no odors due to their storage of MSW inside a building. Global Energy Solutions also states that their technology requires less land than traditional incinerators; however, no documentation of land requirements was found.⁴²

The synthesis gas produced is sufficient to power the Thermoselect facility.

Water consumption is 560 gallons/ton of MSW. Wastewater is treated and reused.⁴²

6.3.2.4 Potential Issues

- Global Energy Solutions' Thermal Converter technology vitrified residual by-product requires a market.
- Interstate Waste Management's Thermoselect technology requires a market for the metal pellet and vitrified granulate by-products.

6.3.2.5 Consistency With City Requirements

Global Energy Solutions' Thermal Converter technology might be consistent with the C&C requirements; there is no information readily available regarding how long either of the two MSW facilities in Japan have been in operation. This by-product residual requires a market that is not proven on Oahu.

Interstate Waste Management's Thermoselect technology is inconsistent with the C&C requirements. Although there are seven Thermoselect facilities in Japan, only three operate on MSW, none at the size the City requires (the Matsu facility processes 140 TPD, the Nagasaki processes 300 TPD, and the Tokushima facility processes 120 TPD.) All those listed here have been in operation for more than two years. The market for the metal pellets and vitrified granulate by-products would have to developed on Oahu.

⁴² Global Energy Solutions. <http://www.teamges.com/>, March 11, 2008.

6.4 Waste-To-Energy

H-POWER is a working example of the waste-to-energy (WTE) alternative technology. It is proven in long-term operation in Honolulu where it converts MSW into energy, with residue of ash, by-passed material, and unacceptable waste. An expansion of H-POWER was approved by the Mayor on January 18, 2008. The expansion is included as an alternative.

6.4.1 How It Works

There are two general approaches to WTE, mass burn and RDF. In a RDF plant (the H-POWER facility is an RDF plant) MSW is processed through shredders and screens, through which dirt, glass, and other recyclable and non-burnable materials are sorted out. The remaining material is incinerated, resulting in the creation of ash (approximately ten percent of the original volume), residue, and steam used to generate electricity. Metals are separated in the pre-combustion processing and from the ash post-combustion and are recycled.

Mass burn plants combust MSW without pre-processing. Waste is introduced into the furnace after being unloaded from the collection vehicle. The waste combustion creates steam, which is used to make electricity. By-products are ash and residual waste. Metals are separated from the ash and are recycled.

The project host and technology vendor are responsible for the disposal of ash and residual waste.

The H-POWER facility in Kapolei is a RDF plant and is capable of processing 2,160 TPD of MSW. It generates seven percent of Oahu's energy, enough electricity to support 45,000 homes. Residual waste and ash are disposed at the Waimanalo Gulch Sanitary Landfill.

6.4.2 Jurisdictions Using This Technology

WTE is a proven technology with facilities found throughout the United States. Covanta, the operator of H-POWER, operates plants in Alabama, California, Connecticut, Florida, Indiana, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, Oregon, Pennsylvania, and Virginia. WTE is used in many other countries where it has been operating for more than 75 years.⁴³

H-POWER itself has been continuously operating since 1989.

⁴³ Covanta Holding, <http://www.covantaholding.com/>, March 11, 2008.

6.4.3 Physical, Regulatory, and Environmental Requirements

The physical, regulatory, and environmental requirements of a third boiler at H-POWER are well understood since the C&C already has one of these plants in operation. Land is available on the H-POWER site for the expansion.

6.4.4 Potential Issues

WTE requires a landfill for the disposal of ash and residual wastes. The market for the electricity is already contracted for with the current facility. The technology is well understood.

6.4.5 Consistency With City Requirements

WTE is consistent with the C&C requirements.

6.5 Expanded Recycling

Expanding current recycling infrastructure within the C&C would not eliminate the need for landfills; however, expanded programs would decrease the amount of materials sent to landfills. The expanded recycling could include expansion of the number of sites that accept materials from the HI5 beverage container program, addition of more sites to the school drop-off program, increasing the frequency of curbside collection of residential green waste, and adding a program to collect other recyclables from residences at the curb.

6.5.1 Improvements to Current Recycling Infrastructure

The C&C has stepped up efforts to increase the recovery of recyclable materials island-wide. The City wants to expand the community recycling bins program by 40, 40-cubic-yard recycling roll-off bins, totaling 120 island-wide. This would not only increase the amount of recyclable materials being diverted, but it would also increase the amount of funding schools receive; the main participant in this program. Further, the City is offering support for schools to establish recycling projects on campus and coordinate HI5 fundraising events.

Additional City sites are being considered to increase the number of HI5 redemption sites, particularly in underserved areas. Kiosk systems with automated reverse vending machines that would be open to the public 24 hours a day, seven days a week, are also being considered.

In March 2006, the City changed its residential curbside green waste recycling program by automating 50,000 homes. The automated program is expected to expand throughout the island in phases. The City expects green waste recycling to increase to between 50,000 and 80,000 tons annually with the new bin system.

The C&C is also evaluating the possibility of implementing a residential curbside recycling program for bottles, cans, and paper. Curbside recycling could capture as much as 40,000 tons of recyclable materials from more than 160,000 homes, according to ENV.

A pilot program is operating in Mililani and Hawaii Kai to test weekly collection with weekly recycling. Waste is collected on the first collection day of each week. Green waste is collected on the second collection day. On the second collection day the next week, the other recyclables are collected.

6.5.2 Recycling to Energy

Recycling materials into products, as is done with the green waste program (made into mulch and compost) and the collection of bottles and paper (made into new bottles and paper products) is one form of recycling. Recycling to energy (conversion of the waste to energy) is another.

WTE, such as H-POWER, is a technology of choice due to the direct benefits of energy production and reduction in disposal. Approximately 90 percent of the residential garbage and 77 percent of the commercial waste collected on Oahu is disposed at the H-POWER facility and is turned into energy that powers approximately 45,000 homes.⁴⁴ Incinerating 90 percent of the garbage that goes through the H-POWER facility means only one-tenth, by volume, remains to be landfilled. Expanding the H-POWER facility would be the most beneficial to the C&C in reducing the amount of waste sent to the landfill.

6.6 Wet Cell Landfill

Wet cell, or bioreactor landfills, use accelerated decomposition to create additional landfill gas to convert to energy and recover landfill space as the waste decomposes. The wet cell would enhance energy recovery from the landfilled waste and extend the life of the landfill.

⁴⁴ City and County of Honolulu Department of Environmental Services. Solid Waste Integrated Management Plan. Updated: November 2007. Table 63a, Table 63b and Table 2-7.

There are three forms of wet cell landfills: aerobic, with the presence of oxygen; anaerobic, without the presence of oxygen; or a combination. Both processes accelerate the decomposition of the waste. Conventional landfills take 30 to 50 years for the waste to decompose, while wet cell landfills take only five to ten years.⁴⁵

6.6.1 How It Works

Aerobic wet cell landfills collect leachate from the bottom layer of the landfill, pump it into a storage unit (water is added if required), and then redistribute the liquid throughout the landfill. Air is then injected to encourage aerobic decomposition and stabilization of the waste.

Anaerobic wet cell landfills add moisture to the landfill through re-circulated leachate and other sources to achieve optimal moisture levels, but do not add air. A biogas is produced comprised mostly of methane, carbon dioxide, and volatile organic compounds. The gas can be used to create electricity.

Hybrid wet cell landfills use both aerobic and anaerobic processes to rapidly accelerate the biodegradation and decomposition of the landfilled waste. Biogas can also be collected from hybrid wet cell landfills; this by-product occurs much earlier than during the anaerobic process.

6.6.2 Other Jurisdictions Using This Technology

Currently the Federal Environmental Protection Agency (EPA) is conducting case studies of bioreactor landfills within its Project XL, which begun in 1995. Project XL provides flexibility to regulated entities to conduct pilot projects demonstrating the ability to “achieve superior environmental performance.” Since September of 2001, 51 pilot experiments have been implemented. Of those 51, four have been approved to operate as wet cell landfills. The landfills are Buncombe County Landfill Project, North Carolina; the Maplewood Landfill and King George County Landfill, both in Virginia; and the Yolo County Bioreactor Landfill, California. The EPA is evaluating the advantages and disadvantages of bioreactor landfills. The studies are expected to be completed between 2006 and 2026.

45 County of Yolo Planning and Public Works Department Division of Integrated Waste Management, EPA Project XL, Final Project Agreement for the Yolo County Accelerated Anaerobic & Aerobic Composting (Bioreactor) Project, September 14, 2000.

6.6.3 Physical, Regulatory, and Environmental Requirements

A wet cell landfill requires a different liner design, leachate collection system, and monitoring system. One concern regarding wet cell landfills is the increased possibility for leachate. Therefore, one of the EPA's requirements for their case study is liner design to address the increased production of leachate.⁴⁶ The Yolo County Module D Bioreactor proposes a liner over five feet thick with earth and clay layers alone, as well as a collection system that would recycle the leachate and reintroduce it to the landfill.⁴⁵ The permitting process for wet cell landfills is also different. Only the EPA through its XL project program grants permits for wet cell landfills. The expansion space at the Waimanalo Gulch Sanitary Landfill could have cells that could be used for wet cell landfilling; however, major changes in site design, and potentially site life, would be required. The benefit to justify such an expense has not been shown with only four test sites in operation.

6.6.4 Issues

The cost of the wet cell and potential environmental effects has not been determined. The wet cell technology must also be demonstrated in relation to current plans for the use of the WGSL expansion area.

6.6.5 Consistency With City Requirements

The wet cell is a variant of traditional landfilling practice and could be consistent with City & County of Honolulu requirements. The cost and environmental implications of using the technology would have to be evaluated by the City and landfill operator.

6.7 Co-Disposal

Co-disposal is the dumping of MSW and ash together in a landfill, where the ash replaces the dirt cover and fills the voids in the MSW. By integrating with the landfilled materials, the ash takes up much less space than if it is disposed in separate cells, as is the current practice. The ash would replace the use of soil for cover.

6.7.1 How It Works

At the end of the operating day, the ash would be used as alternate daily cover to replace the soil cover now used.

46 United States Environmental Protection Agency. <http://www.epa.gov/>

6.7.2 Physical, Regulatory, and Environmental Requirements

The State DOH approved the use of H-POWER ash as ADC at the Waimanalo Gulch Sanitary Landfill provided that a number of requirements are followed:⁴⁷

- A six-month demonstration project to evaluate the performance of ADC in meeting the requirements of daily cover.
- Ash must be used within 24 hours of its creation.
- Ash must contain less than 25% moisture.
- Ash can only be used between 3 and 5 p.m.
- No more than 300 tons of ash can be used per day.
- Equipment must not be used on ash, a two foot depth and 15-foot buffer must be in place to protect the general public.
- Equipment operators must use positive pressure cabs, while spotters must wear personal protective gear.
- Warning signs must be posted to inform the general public.
- A wind shut-down trigger must be in place (to be determined from the six-month demonstration project).
- A rain shut-down trigger must be in place to prevent ash from entering the storm water system.
- Total metals must be tested quarterly.
- An engineering study evaluating the landfill's static and seismic stability is required.
- A lime depletion study is required.

6.7.3 Issues

The operational issues introduced by the DOH requirement may preclude the co-disposal option.

⁴⁷ Hawaii State Department of Health. Response to Comments on the Draft Conditions for the Use of H-POWER MST Ash as Alternative Daily Cover at the Waimanalo Gulch MSW Landfill. April 12, 2001.

6.7.4 Consistency With City Requirements

Co-disposal is consistent with the C&C requirements.

6.8 Response To Scoping Questions Regarding Alternative Technology

The C&C conducted scoping sessions on the following dates at the locations indicated:

- Monday, July 10, 2006, at Nanakuli High School.
- Tuesday, July 11, 2006, at Ben Parker Elementary School.
- Thursday, July 27, 2006, at Mission Memorial Auditorium.
- Thursday, August 10, 2006, at Kapolei Hale.

Several of the audience members offered their comments in response to the information presented by the C&C. This portion of the analysis presents the comments that related to technology. The response to questions relating to siting is later in this document.

Comments will be denoted by a 'C,' questions by a 'Q,' and answers by an 'A.'

Q: What is the status of the ideas presented to Mayor Harris regarding alternatives (i.e. Plasma Arc technology, Gasification)?

A: They are all considered as alternatives (see section 5.3.1). The City requested that vendors of these technologies and others to present information to the City about their technology. That process concluded on January 18, 2008 with the City selecting expansion of H-POWER on the current site.

Q: Was a portion or all of the tipping fees supposed to be earmarked for developing alternatives? If so, how much and was this fund used for other purposes by the Harris administration? If so, what and why?

A: We are unaware of a portion of the tipping fees being earmarked for developing alternatives.

C: The community has said, "No more landfills!" When will the City get the message—No Landfills, Yes JDI Plasma Arc Gasification—stop thinking about the money; think and look at our community, our families' health and safety.

A: Plasma Arc technology was considered as a potential alternative technology. The discussion is located in section 5.3.1.



C: Before any approval of the requested permits are considered, the C&C administration must be required to demonstrate the following: The issuance of an RFP notice and initiation of the review process for the consideration of alternative MSW processing technologies by October 2006 as stated by Director Takamura at the last City Council Public Works committee meeting held July 27, 2006.

A: This was discussed in the City Council Public Works committee meeting, November 2, 2006. A Competitive Sealed Proposal (RFP) was issued on January 16, 2007 and the City's decision announced on January 18, 2008.

C: Before any approval of the requested permits are considered, the C&C administration must be required to demonstrate the following: The presentation of a plan to the Honolulu City Council for the execution of a long overdue comprehensive and mandatory island-wide Recycling program by December 2006.

A: An island-wide mandatory recycling program is currently under review by the City Council members. Mayor Hannemann signed Bill 57 into law requiring an island-wide recycling program be initiated by summer 2007. The City has instituted a pilot program and is testing the cost and effectiveness of the recycling program.

C: Immediately start an easy-to-use, comprehensive recycling program throughout the island. After all, this is an island and our land and resources are even more precious here than on continental places in the world. Glass, plastic, metal, and newspapers should all go into one bin and be picked up and sorted for recycling.

A: Section 2.3 discusses current recycling programs available island-wide, while section 5.5.1 discusses proposed expansions to the current recycling programs. See the earlier discussion of the pilot program.

C: Start innovative programs to encourage us all to use less and re-use what we have. The C&C could and should become a national and international leader in this area.

A: The C&C has an active public outreach program that encourages recycling. That program has expanded each year and continues to reach residents with a message to conserve resources and recycle.

C: With the latest innovative technology in mind, open a new landfill at another site on another part of the island. Start over the right way. We know that this is a political challenge, but done right, it will help to teach us all—on all sides of the island—to be better stewards of the land; educate us in the latest landfill technologies; and say to the people of the Waianae coast that you value this area and do not see it—or its people—as a place of garbage.

A: The recent landfill site selection activities the C&C has had, suggests that the Waimanalo Gulch Sanitary Landfill is the most appropriate site to use until it has reached full capacity. The C&C has encouraged alternative technologies and has used them (for example, H-POWER and the sludge dryer at Sand Island Waste Water Treatment Plant) to reduce the amount of material needing landfill disposal.

Landfills have been used in many locations of Oahu including Ala Moana Park and the Kakaako Waterfront Park. Windward Oahu has served to provide landfills for the island for at least a 40 year period.



7 Alternative Sites

This section reviews potential landfill sites that are feasible for consideration as alternatives to the Waimanalo Gulch Sanitary Landfill. The alternative sites discussed in this document were previously identified in the December 2003 report by the Mayor's Advisory Committee on Landfill Site Selection (Advisory Committee).

Since the Advisory Committee completed its report, several changes have occurred that are mentioned in this report if needed to update the situation with four of the alternative sites. For example, the Makaiwa Gulch site has construction occurring as this document is being completed. Information about the landfill capacity needed has been updated to include consideration of the reduction in landfill disposal expected because of from H-POWER boiler #3. The effect of reducing the landfill capacity needed is to increase the life of alternative landfill sites, but would not change their relative scores.

The process for identifying the sites used by the Advisory Committee is summarized here. That process was useful for this analysis because:

- It used a committee that included professionals and residents, from the areas most likely to be the location of a future landfill, to identify the screening criteria for evaluation of the new landfill site. The Advisory Committee represented a broad range of interests and expertise and relied on the consultant and ENV staff for technical input. The Advisory Committee made all the decisions relative to inclusion or exclusion of the sites.
- The inventory of potential sites that was the starting point for the Advisory Committee analysis was comprehensive, drawn from reports and other work between two and 28 years old (at the time of the Advisory Committee work in 2003). The Advisory Committee members, were asked, but had no additional sites of sufficient capacity that could be added to the list. In fact, the list of potential sites was reduced substantially due to land use development that encroached on some sites.
- The Advisory Committee focused its evaluations on the community perspective and most of their criteria were community-based considerations. While technical issues were considered, the Committee placed most of its emphasis on potential landfill impacts on the community where the sites were located. These potential impacts are also assessed as part of this EIS.
- The Advisory Committee recommendations were submitted to the Honolulu City Council on December 1, 2003.

The work of the Advisory Committee was part of the basis for a review of potential sites conducted by the City Council Committee on Public Works and Economic Development. The Committee Chair, Mr. Rod Tam, reported the results of his Committee's evaluation to the full council on November 16, 2004.⁴⁸ The following statement is taken from Mr. Tam's report:

"...Landfills, in my view, should no longer be considered our primary depository of unwanted waste. We should be making every effort to divert all of our solid waste to recycling and reprocessing into energy or other useful products. Our goal should be to initially process all our solid waste in some form or fashion so that what ends up in our landfills is only the by-products of that initial processing that has no current use. This will reduce significantly the volume of waste going into our landfills thereby extending its useful life...."

The Committee conducted meetings on the Leeward and Windward sides of the island to receive public input. The memorandum reporting the results⁴⁸ made no recommendation regarding a specific site, but provided background for the final site selection. Information gathered in Councilmember Tam's investigation has been used in this analysis.

This section discusses the landfill site selection process, identifies the features of the sites recommended by the Advisory Committee that caused them to have different scores on the evaluation process, and discusses the City's general requirements for a landfill site.

7.1 City Landfill Requirements

The C&C has not published its "requirements" for a potential landfill site but uses the following general precepts:

- Environmental — The site must not have physical features that make it more difficult to minimize environmental impacts. For example, if two sites were otherwise equal, the one with the lesser impact on wetlands would be preferred.

48 November 16, 2004 memorandum from Councilmember Rod Tam to Concerned Citizens of Oahu transmitting the report titled "Committee on Public Works and Economic Development's Summary Report on its Landfill Site Selection Process."

- Landfill capacity or life span — A site needs to accommodate at least 10 years disposal to justify the time and expense of permitting it. A landfill with a long life also minimizes the environmental impacts compared to landfilling at smaller landfill sites. The longer the life of a landfill the more waste it can accept, thus reducing disposal cost.
- Disaster debris — Having the space and equipment to manage and temporarily store disaster debris will be important. A potential landfill site needs to have space for disaster debris storage or disposal to preserve public health, safety, and welfare.
- Reasonable cost — The City provides the lowest cost, environmentally sound disposal to benefit the taxpayer.
- Proximity to the H-POWER facility — The contract with Covanta to operate H-POWER provides for a price increase for ash transportation if the landfill is more than 12 miles from the plant site. In addition, the more miles traveled by trucks transporting ash, the greater the opportunity for accidents.

7.2 Report of the Mayor's Advisory Committee on Landfill Site Selection

The Mayor's Advisory Committee on Landfill Site Selection was formed in response to Condition No. 1, of the approved State Special Use Permit⁴⁹ calling for the formation of a "Blue Ribbon Site Selection Committee". The Committee started with the reports of studies done by the City over the past 30 years to identify potential landfill sites. ENV and the Advisory Committee consultant assembled a list of 45 potential sites for the Advisory Committee to consider from those reports:

- (1) *Inventory of Potential Sanitary and Demolition Landfill Sites*, August 1977.
- (2) *Supplement to Inventory of Potential Sanitary and Demolition Landfill Sites*, November 1979.
- (3) *Revised Environmental Impact Statement for Leeward Sanitary Landfill at Waimanalo Gulch Site and Ohikilolo Site*, 1984.
- (4) *Solid Waste Integrated Management Plan Update, Final Report*, 1995.

49 Decision and Order Approving Amendment to State Special Use Permit, Docket No. SP87-362, Waimānalo Gulch Sanitary Landfill, June 5, 2003.

(5) *Final Supplemental Environmental Impact Statement, Waimanalo Gulch Sanitary Landfill Expansion*, December 2002.

The remainder of this section discusses how the Advisory Committee evaluated the 45 sites, identifies the specific criterion used, and summarizes their recommendations to the City Council.

7.2.1 Sites Considered

The sites that were considered as potential landfill sites are listed in *Table 6, Potential Landfill Sites*. This table shows the site name, the tax map key (TMK), the estimated acreage, the estimated volume, and the landfill life (the number of years the landfill could provide disposal capacity at the estimated disposal needs in the C&C.) The estimated disposal need is calculated in *Table 11, Estimate of Landfill Capacity Needs*

Table 6, Potential Landfill Sites

Site Name	TMK	Size (Acres)	Capacity (MM cy)	Life (Years)
Auloa	4-2-14:por 1	55	2.8	4.7
Ameron Quarry	4-2-15:01	391	9.0	15.0
Barbers Point	9-1-16:18, por 1	15	0.7	1.2
Bellows	4-1-15: por. 01	173	7.5	12.5
Diamond Head Crater	3-1-42:por 6	115	4.3	7.2
Ewa No. 1	9-1-17	-	-	
Ewa No. 2	9-1-10	-	-	
Halawa A	9-9-10:8,9,por 10 & 26	40	1.5	2.5
Halawa B	9-9-10:27, por 10	60	2.2	3.7
Heeia Kai	4-6	-	-	
Heeia Uka	4-6-14:01	163	2.4	4.0
Honouliuli	9-1-17:por 4	22	1.7	2.8
Kaaawa	5-1	150	5.6	9.3
Kaena	6-9-1:por 3, 33 & 34	40	1.5	2.5
Kahaluu	4-7	-	-	
Kahe	9-2-3:por 27	200	7.4	12.3
Kalaheo (landfill reuse)	4-2-15:por 1 & 6	134	4.3	7.2
Kaloi	9-2-02:por 1; 9-2-3:por 2; 9-2-4:por 5	400	24.3	40.5
Kapaa No. 1	4-4-14:por 2	60	3.0	5.1
Kapaa No. 2 & 3 (closed)	4-2-15:por 1, 3, 4, 7	-	-	
Kaukonahua	7-1	34	1.3	2.2
Keekee	6-9-1:por 3 & 4, 6-9-3: por 2	40	1.2	2.0
Koko Crater	3-9-12: por 1	140	5.5	9.2
Kunia A	9-4-4: por 4	150	5.6	9.3
Kunia B	9-4-3: por 19	190	7.0	11.7
Mali	8-7-10:por. 03	200	9.2	15.3
Makaiwa	9-2-3: por. 02	338	15.0	25.0
Makakilo Quarry	9-2-3:82	175	10.0	16.7
Makua	8-1-1, 8-2-1	600	7.4	12.3
Mililani	9-5	34	2.2	3.7
Nanakuli A	8-7-9:1 & 3 and 8-7-21:26	179	4.0	6.7
Nanakuli B	8-7-9: pors. 1 & 7	432	9.4	15.6
Ohikilolo	8-3-1: 13	706	15.6	26.0
Olomana	4-2	-	-	
Poamoho	7-1	5	0.7	1.2
Punaluu	5-3	200	7.4	12.3
Sand Island	1-5-41	150	5.6	9.3
Waiahole	4-8	60	2.3	3.8
Waianae Expansion	8-5-3 and 6	140	6.8	11.3
Waihee	4-7	61	2.3	3.8
Waikane	4-8	200	9.0	15.0
Waimanalo Gulch Exp.	9-2-3: 72 & 73	60	12.0	20.0
Waimanalo North	4-1-8: 13	171	9.6	16.0
Waimanalo South	4-1	355	14.0	23.3
Waipio	9-3-2	60	2.5	4.2

*Million cubic yards (cy)

**Information has been updated since the Mayor's Committee Report by engineering. Current fillable acreage equals 92.5 acres.

Note: The size, capacity, and life shown in this table for the Waimanalo Gulch Sanitary Landfill reflects data available to the Advisory Committee. The current estimate shows increased remaining life because of refined estimates.

7.2.2 Site Evaluation Process

The Advisory Committee first developed siting criteria to use to quantitatively compare the characteristics of one site to another and allow identification of the “best” site. The siting criteria were divided into three groups: exclusionary, evaluation, and Advisory Committee criteria.

The Exclusionary Criteria included:

- EPA siting criteria as promulgated in the Resource and Conservation Recovery Act, Subtitle D (RCRAD).
- Sites located in areas which have since been developed or are closed landfills with no further expansion potential.
- The Honolulu Board of Water Supply (BWS) evaluation governing whether a site should be protected in consideration of its proximity to the Groundwater Protection Zone and Underground Injection Control (UIC) Line zone; and
- The Advisory Committee’s capacity criterion stating that the site must have a minimum life of more than 10 years.

For the qualitative evaluation of the potential sites, the Advisory Committee developed 31 Screening Criteria following extensive discussion and deliberation. After applying the criteria, the Advisory Committee used the numeric scores for the sites, which compared one site to another on the basis of community, economics, land use, and technical considerations.

The Advisory Committee members applied their own insights regarding each site as the final step in the siting evaluation.

After application of all of the criteria, the Advisory Committee deliberated on the remaining sites and arrived at its recommendations for the Mayor and City Council by vote.

Table 7, Sites Eliminated at Each Stage in the Evaluation, shows the number of potential sites eliminated at each step in the evaluation process.

Table 7, Sites Eliminated at Each Stage in the Evaluation

Phase of Evaluation	Number of Sites	
	Before Application of Criteria	After Application of Criteria
Exclusionary Criteria		
RCRA Subtitle D Criteria	45	40
Sites in Developed Areas or Closed Landfills w/No Expansion Potential	40	34
BWS Staff Review and Evaluation	34	16
Committee Evaluation Process		
Landfill Capacity Requirement ⁵⁰	16	8
31 Screening Criteria	8	8
Committee Vote	5	4

An initial list of 45 sites was assembled by ENV and the consultant after review of prior work completed by the City in the siting and evaluation of MSW landfills. The *Exclusionary Criteria*, which included EPA criteria and local exclusionary criteria, were applied to the initial list of 45 potential landfill sites. Sixteen of the 45 sites remained after application of the Exclusionary Criteria. The *Landfill Capacity* criterion was applied to the 16 sites remaining with eight remaining for further evaluation. The Advisory Committee's 31 *Screening Criteria* were applied to the remaining eight reducing the number of sites to five and putting them in order of usefulness as a landfill. Up to this point in the evaluation, the Advisory Committee had acted by consensus. At this point in the process, the Committee voted to remove the Waimanalo Gulch Sanitary Landfill from consideration. ⁵¹

50 The capacity evaluation was completed before the Committee's site evaluations.

51 The capacity evaluation was completed before the Committee's site evaluations.

This section contains a description of each *Exclusionary Criteria*, *Landfill Capacity*, and *Screening Criteria* used by the Advisory Committee to rank the sites and identify the five alternative sites appropriate for landfilling.

7.2.3 EPA Exclusionary Criteria

The EPA Exclusionary Criteria are:⁵²

- **Airport Restriction** – Owners/operators must demonstrate that the landfill site does not constitute a bird hazard if the facility is located within 10,000 feet of the end of any airport runway used by turbojet aircraft, or within 5,000 feet of any airport runway used only by piston driven aircraft.

If the owner/operator proposes construction of a landfill or expansion of an existing landfill within five miles of any airport, the airport and the Federal Aviation Administration must be notified.

- **Floodplains** – Landfills located within a 100-year floodplain cannot restrict storm flows within the floodplain, reduce the temporary water storage capacity of the floodplain, or allow the washout of solid waste.
- **Wetlands** – Owners/operators of a proposed landfill may not build or expand into wetlands. An exception to this rule may be permitted by the EPA-approved permitting programs to construct or expand a landfill only if the following can be demonstrated:
 - No other siting alternative is available.
 - Construction and operation of the landfill will not violate applicable State regulations governing water quality or discharges of toxic or hazardous effluent; jeopardize threatened or endangered species, or critical wildlife habitat; or, violate protection of a marine sanctuary.
 - The landfill will not contribute to the significant deterioration of the wetland.
 - Steps are taken to achieve no net loss of wetlands by avoiding potential for impacts where possible, sufficiently minimizing unavoidable impacts; or, making proper compensation; for example, through the restoration of damaged wetlands or the creation of manmade wetlands.

52 40 CFR 258

- **Fault Areas** – New landfills or landfill expansions are generally prohibited within 200 feet of fault areas that have shifted since the last Ice Age. However, the DOH may permit an alternative setback distance of less than 200 feet if the owner/operator can demonstrate that the landfill will maintain structural integrity in the event of a fault displacement.
- **Seismic Impact Zones** – Landfills located in a seismic impact zone must demonstrate that the facility including, but not limited to, its liners, leachate collection system, surface water control system, and other engineering features have been designed to resist the effects of ground motion due to earthquakes.
- **Unstable Areas** – All owners/operators must demonstrate that the structure of their units will not be compromised during geologically destabilizing events including:
 - Debris flows resulting from heavy rainfall or storm conditions.
 - Fast formation of sinkholes caused by excessive groundwater withdrawal.
 - Rockfalls that are initiated by explosives or sonic booms.
 - The sudden liquefaction of soil after prolonged periods of repeated wetting and drying.

Application of the EPA exclusionary criteria reduced the number of sites under consideration from 45 to 40. *Table 8, Site Evaluation with EPA Exclusionary Criteria* shows the sites that failed the review for these criteria.

Table 8, Site Evaluation with EPA Exclusionary Criteria

Site Name	Sites Failing EPA Criteria					
	Airport Restriction	Flood Plain	Wetlands	Fault Areas	Seismic Impact Zone	Unstable Area
Auloa						
Ameron Quarry						
Barbers Point	X					
Bellows						
Diamond Head Crater			X			
Ewa No. 1						
Ewa No. 2						
Halawa A						
Halawa B						
Heeia Kai						
Heeia Uka						
Honouliuli						
Kaaawa						
Kaena	X					
Kahaluu						
Kahe						
Kalaheo (landfill reuse)						
Kaloi						
Kapaa No. 1						
Kapaa No. 2 & 3 (closed)						
Kaukonahua						
Keekee	X					
Koko Crater						
Kunia A						
Kunia B						
Mali						
Makaiwa						
Makakilo Quarry						
Makua						
Mililani						
Nanakuli A						
Nanakuli B						
Ohikilolo						
Olomana						
Poamoho						
Punaluu						
Sand Island	X	X				
Waiahole						
Waianae Expansion						
Waihee						
Waikane						
Waimanalo Gulch Exp.						
Waimanalo North						
Waimanalo South						
Waipio						

7.2.4 Local Exclusionary — Developed Areas

In the 30 years that elapsed since most of the sites on the list in *Table 6, Potential Landfill Sites* were identified many of the original landfill locations have been developed, primarily with residential housing. Some locations that were previously considered possible landfill sites may either have buildings on-site, or are so close to developed areas that a landfill would now be an incompatible land use. The City therefore determined that it would not propose new landfills within such developed areas.

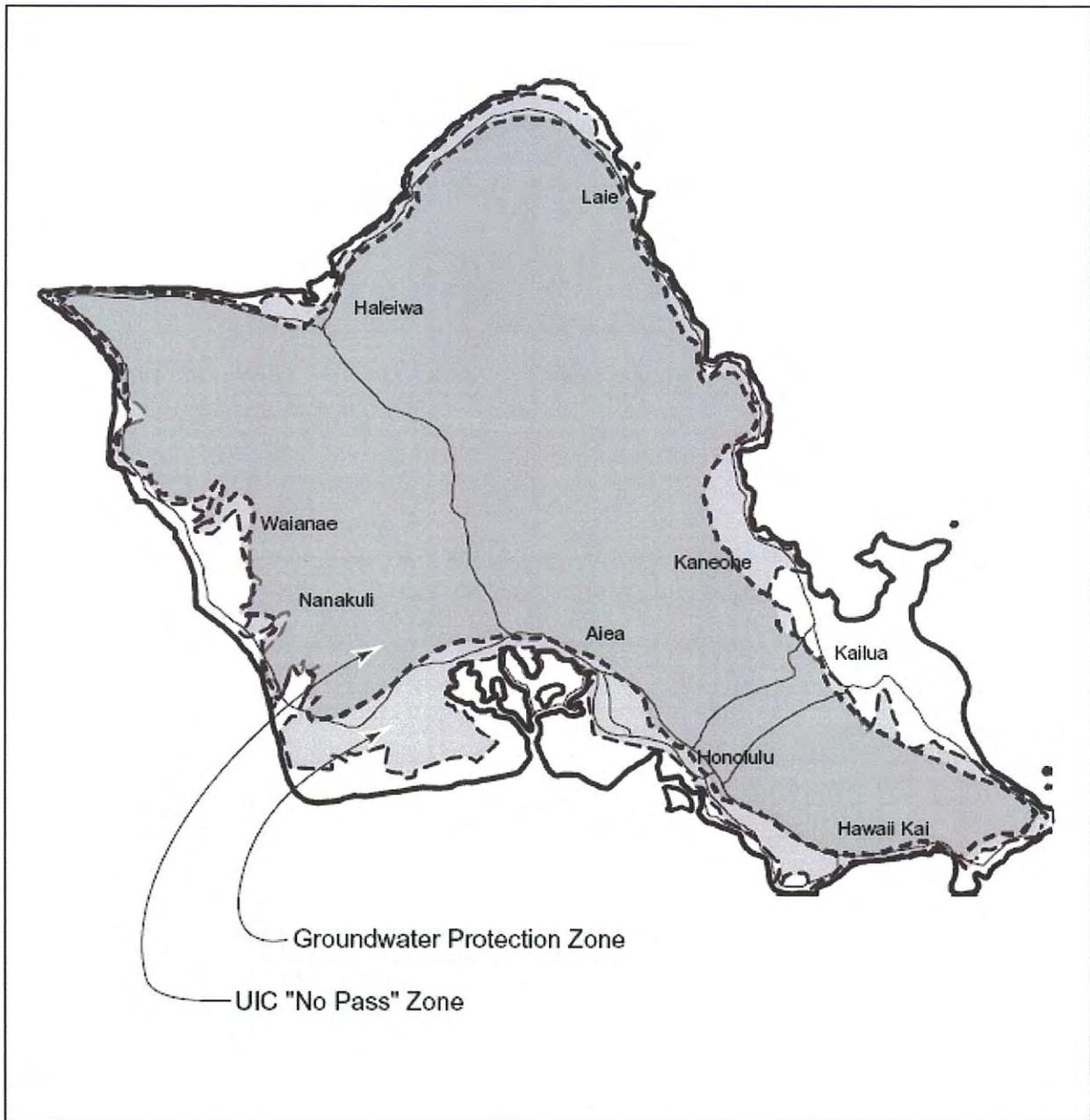
The City also reviewed potential sites that were expansions of closed landfills. Landfills on the original list that have been filled to capacity and closed were removed from further consideration.

This step reduced the potential site list from 40 to 34. *Table 9, Site Evaluation with Developed Area Criteria*, indicates the sites eliminated by application of these local exclusionary criteria.

Table 9, Site Evaluation with Developed Area Criteria

Site Name	Sites Failing Criteria for	
	Developed Area	Closed Landfill
Auloa		
Ameron Quarry		
Bellows		
Ewa No. 1	X	
Ewa No. 2	X	
Halawa A		
Halawa B		
Heeia Kai	X	
Heeia Uka		
Honouliuli		
Kaaawa		
Kahaluu	X	
Kahe		
Kalaheo (landfill reuse)		
Kaloi		
Kapaa No. 1		
Kapaa No. 2 & 3 (closed)		X
Kaukonahua		
Koko Crater		
Kunia A		
Kunia B		
Maili		
Makaiwa		
Makakilo Quarry		
Makua		
Mililani		
Nanakuli A		
Nanakuli B		
Ohikilolo		
Olomana	X	
Poamoho		
Punaluu		
Waiahole		
Waianae Expansion		
Waihee		
Waikane		
Waimanalo Gulch Expansion		
Waimanalo North		
Waimanalo South		
Waipio		

Figure 2, Groundwater Protection Zone and Underground Injection Control (UIC) Zone



7.2.5 Local Exclusionary Criteria — Groundwater

Local exclusionary criteria include groundwater restrictions. Groundwater resources of Oahu are protected through the State DOH, UIC program, and the BWS Groundwater Protection Zones.

The UIC program was established in 1984. The purpose of the program is to protect the State's potable groundwater resources from pollution by subsurface wastewater disposal. The program regulations are accompanied by UIC maps that demarcate a boundary line known as the "UIC Line." Landfills are restricted on lands that are landward of the UIC Line. Lands seaward of this line, however, are not restricted from subsurface wastewater disposal by underground injection (Figure 2). Sanitary landfills and waste disposal facilities may therefore be sited makai of this zone.

Prior to 1987, groundwater recharge areas for the Island of Oahu were identified by BWS. Since 1987, the State DOH has administered the No Pass Program (also shown in Figure 2). The BWS Groundwater Protection Zones identifies areas of groundwater recharge, areas of brackish groundwater supplies, and additional areas that may be acceptable for landfill development. Areas that are considered critical for groundwater recharge have been designated the "No Pass Zone." Within this area sanitary landfill and waste disposal systems are generally not permitted. All other areas are identified as within the "Pass Zone" and have been determined to be areas where landfills and shallow waste disposal systems may be permitted. These facilities are limited to a maximum depth of 30 feet.

Protection of ground and surface water, and air quality, from facilities such as sanitary landfills, is through the existing environmental permit process. Protection of ground and surface waters is delegated by EPA to the State DOH under provisions of the Federal Safe Drinking Water Act and Clean Water Act. These federal regulations enable the State DOH to protect Hawaii's drinking and surface waters from the siting of facilities, such as sanitary landfills, through Hawaii Administrative Rules, Chapter 11-23, UIC; Chapter 11-55, Water Pollution Control, and the National Pollution Discharge Elimination System Permit program. Regulation of air quality standards are similarly delegated from EPA to the State DOH, through the Clean Air Permit.

The State DOH has provided some guidance about what might be needed to establish a landfill outside the UIC line.⁵³ In part that guidance stated:

“Should a solid waste permit applicant propose to site a landfill over drinking water resources, the permittee will be required to demonstrate that the proposed project is protective of our groundwater resource. As seen in other states, the design of this landfill will likely be at a minimum a double composite liner system. In addition, other requirements, such as screening and monitoring, may become more stringent. Needless to say, siting a landfill over drinking water resources will increase our scrutiny over the design and operation of the landfill, as well as significantly increase the cost to design, construct, and operate the landfill.”

After application of the Groundwater Exclusionary Criteria, the potential list of sites decreased from 34 to 16. *Table 10, Site Evaluation with Groundwater Criteria*, shows the sites that were eliminated after review by the BWS staff and their comments on each of the 34 sites they reviewed.

53 Letter dated May 23, 2002, from Dr. Bruce Anderson, Director, State Department of Health, to Mr. Timothy Steinberger, Director, City Department of Environmental Services.

Table 10, Site Evaluation with Groundwater Criteria

Site Name	BWS Evaluation Notes	Sites Failing Review
Auloa	Very little to no groundwater resources. Within a rock complex. BWS does not consider feasible for use.	
Ameron Quarry	Dike type rocks associated with caldera complex. Very little groundwater resources.	
Bellows	No potable resources. Non-potable irrigation developed. BWS does not consider feasible for use.	
Halawa A	Site within BWS groundwater resource.	X
Halawa B	Site within BWS groundwater resource.	X
Heeia Uka	Site outside BWS designed groundwater resource zone.	
Honouliuli	Site just outside BWS designated groundwater resources zone, but within area considered subject to groundwater impact.	X
Kaaawa	Very little to no groundwater resources. BWS does not consider feasible for use.	
Kahe	BWS plans to use site for future desalination facility.	X
Kalaheo (landfill reuse)	Very little to no groundwater resources. BWS does not consider feasible for use.	
Kalo	Groundwater resources present or nearby.	X
Kapaa No. 1	Very little to no groundwater resources. BWS does not consider feasible for use.	
Kaukonahua	Site within BWS groundwater resource.	X
Koko Crater	Very little to no groundwater resources. BWS does not consider feasible for use.	
Kunia A	Groundwater resources present or nearby.	X
Kunia B	Groundwater resources present or nearby.	X
Maili Quarry	Brackish groundwater present but BWS does not consider feasible for use.	
Makaiwa Gulch	No potable resources. BWS does not consider feasible for use.	
Makakilo Quarry	Groundwater resources present or nearby.	X
Makua	Groundwater resources present or nearby.	X
Mililani	Site within BWS groundwater resource.	X
Nanakuli A	Very little to no groundwater resources. BWS does not consider feasible for use.	
Nanakuli B	Very little to no groundwater resources. BWS does not consider feasible for use.	
Ohikilolo	Only half of site available for development where there is very little to no groundwater resources in the lower half of property. BWS does not consider feasible for use.	
Poamoho	Groundwater resources present or nearby.	X
Punaluu	Groundwater resources present or nearby.	X
Waiahole	Groundwater resources present or nearby.	X
Waianae Expansion	Groundwater resources present or nearby.	X
Waihee	Groundwater resources present or nearby.	X
Waikane	Groundwater resources present or nearby.	X
Waimanalo Gulch Expansion	Very little to no groundwater resources. BWS does not consider feasible for use.	
Waimanalo North	Very little to no groundwater resources. BWS does not consider feasible for use.	
Waimanalo South	Groundwater resources present or nearby.	X
Waipio	Very little to no groundwater resources. BWS does not consider feasible for use.	

7.2.6 Landfill Capacity

The C&C and Advisory Committee established 10 years of landfill capacity as the lower limit for a site to be considered. The capacity of each site was determined from the earlier siting reports, which were listed in section 7.2. Those capacity calculations were done with topographic data of varying levels of detail and used requirements for landfill design and operation that preceded RCRAD, which made major changes to earlier landfill practice. As a result, the capacity evaluation would likely be different if recalculated with more detailed topographic information following current landfill practice.

In addition to the comments regarding the capacity calculations made earlier, it should be noted that the Waimanalo Gulch Sanitary Landfill has been designed after extensive evaluations of information such as:

- Civil engineering design supported by geotechnical investigations and soils evaluations so that the landfill will provide environmentally sound containment of the waste and maximize the capacity at the site
- The engineering design calculations that account for slope stability considerations so that the filled areas are stable under normal loading and potential seismic conditions
- Balancing the soil needed for cover with the excavation needed to maximize the landfill capacity is a complex engineering calculation that accounts for sequencing of fill at the landfill and other site specific factors.

These costly analyses can be completed only after a landfill site has been selected and they all impact the amount of capacity, and therefore, the number of years a site can be used as a landfill. The information available for the Waimanalo Gulch Sanitary Landfill reflects these calculations, whereas the information available for the alternative sites does not. As such, one must expect that the estimates of capacity for the alternative sites are subject to much more variability than for the Waimanalo Gulch Sanitary Landfill.

The amount of capacity needed was estimated using 2003 disposal data, and updated with the results of the November 2007 draft Update of the Solid Waste Integrated Management Plan and the City's announcement that the third boiler at H-POWER would be constructed. This data provides realistic information to estimate site life. The estimated volume that would be used for the estimated tonnage disposed is calculated below. The volume estimate includes the waste material as compacted before it is

covered and the amount of dirt used to cover the waste. The key assumptions in estimating the volume are:

- MSW is compacted to a density of approximately 1,600 pounds per cubic yard.
- An additional 20 percent of the MSW and ash volume is added as cover material.
- The H-POWER ash is covered. It has a density of 1 cubic yard per ton.

Table 11, Estimate of Landfill Capacity Needs,⁴⁴ provides the calculation of volume needed. The estimates in this table reflect the estimated capacity of the third boiler at H-POWER provided by the Mayor's press release on January 18, 2008.

Table 11, Estimate of Landfill Capacity Needs (TPY)

Year	Landfill	H-Power	Additional WTE *	Landfill w/e-Additional WTE	Ash/Residue **	Total Landfilled	Total Waste
2009	359,980	610,000		359,980		359,980	969,980
2010	379,070	610,000		379,070		379,070	989,070
2011	400,330	610,000	150,000	250,330	37,500	287,830	1,010,330
2012	403,270	610,000	300,000	103,270	75,000	178,270	1,013,270
2013	425,010	610,000	300,000	125,010	75,000	200,010	1,035,010
2014	447,010	610,000	300,000	147,010	75,000	222,010	1,057,010

* Mass burn facility: See Mayor's Press Release January 18, 2008.

** Assumed that the expansion would be operational at mid-year and 25 percent of Additional WTE becomes ash/residue that is landfilled.

Using the estimates from *Table 11*, the total landfill volume required for 10 years is 6,712,670 cubic yards (10 times the estimated annual requirement).

Of course, this estimate of need will vary with waste flow changes. For example, if a natural disaster occurs there will be an increase in the material entering the landfill and the estimated life of the site will decrease. If the residential curbside recycling program is more successful than expected and the curbside yard waste program expanded to weekly, the material needing disposal will decrease and the site life will increase.

The amount of landfill capacity needed will also vary if new means to process MSW prior to disposal are implemented. This Alternatives Analysis includes several technologies that could reduce the need for a landfill. It also discusses the approved addition of a third boiler to H-POWER to reduce the volume of waste that needs disposal. The use of transshipment could divert 100,000 tons per year to a landfill off the island, reducing the need for a local landfill. Implementation of any of these programs, or economic changes that decrease or increase waste production, will change the estimate of volume needed and change the expected life of the landfill.

The evaluation summarized in Table 12 assumes that the landfill site is used to its capacity, with the necessary excavation and lateral expansion. Excavation is needed to take advantage of the capacity at the site and minimize the cost and environmental impact of landfilling. The changes to the site capacity reported in this EIS assume that the landfill will be excavated.

The application of the capacity criterion is shown in *Table 12, Results of Application of Landfill Capacity Criterion*. The 16 sites evaluated were reduced to eight after the 10-year site life was considered. The capacity of the Waimanalo Gulch Sanitary Landfill was based on calculations that are updated as the design of the expansion is being done. As a result, the capacity of the expansion will be revised during the processing of the EIS.

Table 12, Results of Application of Landfill Capacity Criterion

Site Name	Landfill Life (years)	Capacity Less Than 10 Years
Auloa	4.7	X
Ameron Quarry	15.0	
Bellows	12.5	
Heeia Uka	4.0	X
Kaaawa	9.3	X
Kalaheo (landfill reuse)	7.2	X
Kapaa No. 1	5.1	X
Koko Crater	9.2	X
Mali	15.3	
Makaiwa	25.0	
Nanakuli A	6.7	X
Nanakuli B	15.6	
Ohikilolo	26.0	
Waimanalo Gulch Expansion	15.0	
Waimanalo North	16.0	
Waipio	4.2	X

7.2.7 Other Considerations

Two of the sites shown in *Table 12*, were also disqualified based on input from other governmental bodies that had control of the sites. *Table 13, Sites Considered After Capacity Criterion Applied*, lists the sites for which input from other agencies was sought.

Table 13, Sites Considered After Capacity Criterion Applied

Site Name	TMK	Acreage	Million Tons Capacity	Years of Capacity
Ameron Quarry	4-2-15:01	391	9.0	15.0
Bellows	4-1-15: por. 01	173	7.5	12.5
Maili	8-7-10:por. 03	200	9.2	15.3
Makaiwa	9-2-3: por. 02	338	15.0	25.0
Nanakuli B	8-7-9: pors. 1 & 7	432	9.4	15.6
Ohikilolo	8-3-1: 13	353	7.8	13.0
Waimanalo Gulch Expansion	9-2-3: 72 & 73	60	12.0	20.0
Waimanalo North	4-1-8: 13	171	9.6	16.0

Comments were received from the US Marine Corps regarding the Bellows site and from the State regarding the Waimanalo North site.

- The Bellows Air Force Base site is in federal control and cannot be condemned. A reply from the Marine Corps further indicated that the site is not available.
- The Waimanalo North site was designated as a State Forest Preserve, according to a letter the City received from the State Department of Land and Natural Resources. The State will not support its use for landfill and the City cannot condemn state land.

Several Advisory Committee members had reservations about the Ohikilolo site. The site was removed from further consideration based on these reservations:

- The site had the strong possibility of significant archeological and cultural resources (although studies had not been done to confirm the resources).
- It is remote from where the waste is collected and would require trucks to travel long stretches of road through the Waianae and Leeward Coast communities (where frequent accidents have occurred) to get to the site. This thoroughfare (Farrington Highway) is the only road providing access to the site.

- There were potential Native Hawaiian title issues regarding use of this site.
- It is one of very few remote coastal areas left on Oahu and is considered culturally sensitive by the community.

Eight sites were on the list before the Advisory Committee discussed its *other considerations*. Five remained on the list after the other considerations were reflected and they are shown in *Table 14, Potential Sites to which Advisory Committee Siting Criteria Applied*.

Table 14, Potential Sites to which Advisory Committee Siting Criteria Applied

Site Name	TMK	Acreage	Million Tons Capacity	Years of Capacity
Ameron Quarry	4-2-15:01	391	9	15
Mali	8-7-10:por. 03	200	9	15
Makaiwa	9-2-3: por. 02	338	15	25
Nanakuli B	8-7-9: pors. 1 & 7	432	9	16
Waimanalo Gulch Expansion	9-2-3: 72 & 73	200	9	15

7.2.8 Advisory Committee Siting Criteria

The criteria discussed in the previous sections relate to general limitations on locating landfills. The Advisory Committee considered local community concerns to be highly important and not adequately reflected in the above exclusionary criteria. Therefore, Screening Criteria were established to compare potential sites using factors considered important to the Advisory Committee. The Screening Criteria allow numerical comparisons of the different factors (the Advisory Committee identified 31 of them) for different sites to rank the sites in order of suitability as a landfill.

The site evaluations were done with a “double blind” process. That is, the Advisory Committee assigned one of the factors for numerically judging a site without the City or consultant’s knowledge. The consultants evaluated the sites and assigned numeric value of the other factor without the Advisory Committee’s knowledge of which sites were being evaluated. When the two parts of the evaluation were combined, the resulting site scores were insulated from undue influence or bias from any party.

The Screening Criteria were identified in five categories:

- Community,
- Environmental and Land Use,
- Economic,
- Technical, and
- Other considerations.

7.2.9 Screening Criteria Development

The general approach to developing local Screening Criteria involved identifying the impacts a landfill could have in a region and a method to numerically measure those impacts. These criteria were organized into two parts: *Point Value* and *Weighting Factor*.

- The *Point Value* measured how well a potential site satisfied a criterion.
- The *Weighting Factor* reflected the Advisory Committee's assessment of how important one criterion was compared to the other criteria. The *Weighting Factor* was multiplied by the *Point Value* to calculate the score for each criterion.

The sum of the criterion scores was the site score. The higher the final score for a site, the more appropriate it was for a landfill site.

The *Point Values* ranged from one to three. The higher the *Point Value* the better a site met a criterion. For example, a good landfill should be in an area with low rainfall. A site with annual rainfall of more than 60 inches received one point; a site with 20 to 60 inches of rain received two points; and a site with less than 20 inches of rain received three points.

The *Weighting Factors* also varied from one to three with a *Factor* of three giving the best score.

The *Weighting Factors* were determined by the Committee members. Each member voted on the 10 criteria most important to them. There were 31 criteria. Criteria that received the most votes were assigned a *Weighting Factor* of three. The votes fell into three distinct groupings. Six criteria received the most votes and were assigned a *Weighting Factor* of three; seven had a *Weighting Factor* of two; and 18 had the fewest votes and were assigned a *Weighting Factor* of one. Several criteria received no votes and were also assigned a *Weighting Factor* of one.

The higher the product of the *Weighting Factor* and the *Point Value*, the better the site's characteristics are for use as a landfill.

The Screening Criteria and *Weighting Factor* assigned to each are shown in *Table 15, Screening Criteria*. The type of criteria is shown in the table for convenience. The type of criteria had no influence on the site screening.

Table 15, Screening Criteria

Criterion		Weighting Factor
Community		
1	Displacement of residences and businesses	1
2	Distance to nearest residence, school or business	3
3	Wind direction relative to populated areas	2
4	Population density near the site	3
5	Proximity to parks and recreational facilities	1
Environmental and Land Use		
6	Zoning	1
7	Compatibility with/distance to existing land uses	1
8	Visibility from a general use public road	1
9	Visibility from residences and/or schools.	2
10	Groundwater	3
11	Wetlands	3
12	Flora and fauna habitat	2
13	Site aesthetics	1
14	Residential units along access road	1
15	Schools or hospitals along access road	1
16	Final use of the site when the landfill is closed	1
17	Archeological and/or historical significance	3
Economic		
18	Cost of site acquisition	1
19	Cost of development	1
20	Cost of operations	1
21	Impact of removal of site on tax base	1
22	Haul distance from H-POWER	2
Technical		
23	Landfill capacity or site life	3
24	Annual precipitation	2
25	Adequacy of drainage	1
26	Access to fire protection	1
27	Length of haul	2
28	Geology	1
29	Closure and post-closure cost	1
Other Considerations		
30	Employment	1
31	Access	2

7.2.10 Site Scoring

The five sites listed in *Table 14*, were scored using the Screening Criteria. Each criterion had specific methods to assess the Point Value of the criterion. The information needed to make the assessment was gathered by observation at the site, through review of technical literature, or by calculation from known data. The information for each site was extensive and compiled in several attachments to the Advisory Committee report. A summary of the conditions at each of the five sites is provided in sections 7.3 to 7.7.

The results of the application of the 31 criteria for each of the five sites is shown in *Table 14, Potential Sites to which Advisory Committee Siting Criteria Applied*. That table also summarizes the data included in the site information attached to the Advisory Committee report. The methods to evaluate the *Point Value* of some of the criterion used data specific to the site, where such data was available. For example, the soil data was in soil reports that provided information about soils in the general area of the site. The criterion relating to cost used the best information available at the time.

Table 16, Results of Application of Screening Criteria shows the scores of each site for each of the criteria.

The methodology for site scoring for each of the 31 criteria is in Attachment C. The information in that attachment was taken from the attachments to the Advisory Committee report relating to each of the five alternative sites.

Table 16, Results of Application of Screening Criteria

Criterion	Ameron	Maili	Makaiwa	Nanakuli B	Waimanalo Gulch
Community					
1 Displacement of residences and businesses	3	3	3	3	3
2 Distance to nearest residence, school or business	3	3	3	3	3
3 Wind direction relative to populated areas	6	2	2	2	2
4 Population density near the site	3	3	3	6	6
5 Proximity to parks and recreational facilities	2	2	1	2	2
Environmental and Land Use					
6 Zoning	1	3	3	3	3
7 Compatibility with/distance to existing land uses	2	1	1	1	2
8 Visibility from a general use public road	2	3	2	1	3
9 Visibility from residences and/or schools.	6	2	2	2	2
10 Groundwater	9	9	9	9	9
11 Wetlands	3	3	6	6	3
12 Flora and fauna habitat	6	6	6	2	6
13 Site aesthetics	2	1	1	2	3
14 Residential units along access road	3	1	3	3	3
15 Schools or hospitals along access road	3	2	3	3	3
16 Final use of the site when the landfill is closed	1	1	1	1	1
17 Archeological and/or historical significance	6	6	3	6	6
Economic					
18 Cost of site acquisition	2	2	2	3	3
19 Cost of development	2	2	2	2	3
20 Cost of operations	1	2	3	1	3
21 Impact of removal of site on tax base	1	1	1	1	3
22 Haul distance from H-POWER	4	4	6	6	6
Technical					
23 Landfill capacity or site life	6	6	9	6	6
24 Annual precipitation	2	6	4	4	6
25 Adequacy of drainage	1	2	2	2	1
26 Access to fire protection	1	2	2	3	2
27 Length of haul	4	2	6	4	6
28 Geology	2	2	2	2	3
29 Closure and post-closure cost	3	3	2	1	3
Other Considerations					
30 Employment	1	3	2	3	2
31 Access	6	2	4	4	6
Total Site Score	107	102	113	109	131

Since the Advisory Committee report was completed, additional information has been provided regarding the cost of acquiring the Ameron Quarry and Makaiwa Gulch sites. In the Advisory Committee report, the cost of acquisition was the assessed value for property purposes. Parties representing Ameron Quarry and Makaiwa Gulch provided information to correct that information in letters appended to a letter from City Councilmember Tam to the State LUC⁵⁴.

Mr. Tam's letter reported on a meeting his Committee conducted in which it received testimony from representatives of Ameron Quarry and accepted a letter from the Estate of James Campbell, owner of the Makaiwa Gulch site. Mr. Tam's letter stated that:

"... A presentation was made by Ameron Hawaii, the lessee of the Kapaa Quarry site, and by the Estate of James Campbell, owner of the Makaiwa Gulch site. Ameron Hawaii cited an economic impact of \$109-\$133 million should it have to shut down its operations and relocate (full report attached). The Kaneohe Ranch, owner of the Kapaa Quarry site did not testify but offered written testimony which stated its estimate of land acquisition cost to be \$22-\$46 million as opposed to the City's estimate of \$3.7 million (letter attached). The Estate of James Campbell provided testimony suggesting that the economic impact should the Makaiwa Gulch site is chosen would be in the area of \$121 million cost to the City ..."

The cost evaluations used in the Advisory Committee report have been revised to reflect the added costs stated in Mr. Tam's report to the State LUC. The cost of acquiring the site was assessed by criterion number 18, Cost of Site Acquisition. *Table 17, Revised Evaluation of Criterion 18, Cost of Site Acquisition*, shows the original calculation of the Point Value for this criterion and the revised calculation using the revised site cost for Ameron Quarry and Makaiwa Gulch.

54 August 3, 2004 letter from Mr. Rod Tam, Chair Committee on Public Works & Economic Development, City Council, City and County of Honolulu to Mr. Anthony Ching, Executive Officer of the State Land Use Commission.

Table 17, Revised Evaluation of Criterion 18, Cost of Site Acquisition

Item	Ameron	Mali	Makiawa Gulch	Nanakuli B	Waimanalo Gulch
Cost in Advisory Committee Report	\$3,184,200	\$3,912,500	\$16,516,900	\$545,200	\$0
Years of Life	15	15.33	25	15.7	15
Cost/Year of Life	\$212,280	\$255,219	\$660,676	\$34,726	\$0
Point Value	2	2	2	3	3
Revised Cost	\$46,000,000	\$3,912,500	\$121,000,000	\$545,200	\$0
Years of Life	15	15.33	25	15.7	15
Cost/Year of Life	\$3,066,667	\$255,219	\$4,840,000	\$34,726	\$0
Revised Point Value	1	2	1	3	3

The result of that change is shown in *Table 18, Comparison of Site Scores*. That table shows the total site score with the original acquisition cost and the revised cost. It also shows that there was no change in the numerical order of the site scores with either acquisition cost. The detailed changes resulting from the change in site scoring for criterion number 18 is shown in *Table 19, Results of Application of Screening Criteria with Revised Cost of Acquisition*. The only change in this table is in criterion number 18. The number of points for Ameron Quarry and Makaiwa Gulch changed from six to three when using the increased cost numbers provided in Councilman Tam's report to the State LUC.⁵⁴

Table 18, Comparison of Site Scores

Site	Original Acquisition Cost		Revised Acquisition Cost	
	Score	Rank	Score	Rank
Ameron Quarry	97	4	96	4
Mali	90	5	90	5
Makaiwa Gulch	99	2	98	2
Nanakuli B	97	3	97	3
Waimanalo Gulch	113	1	113	1

Table 19, Results of Application of Screening Criteria with Revised Cost of Acquisition

Criterion	Ameron	Maili	Makaiwa	Nanakuli B	Waimanalo Gulch
Community					
1 Displacement of residences and businesses	3	3	3	3	3
2 Distance to nearest residence, school or business	3	3	3	3	3
3 Wind direction relative to populated areas	6	2	2	2	2
4 Population density near the site	3	3	3	6	6
5 Proximity to parks and recreational facilities	2	2	1	2	2
Environmental and Land Use					
6 Zoning	1	3	3	3	3
7 Compatibility with/distance to existing land uses	2	1	1	1	2
8 Visibility from a general use public road	2	3	2	1	3
9 Visibility from residences and/or schools.	6	2	2	2	2
10 Groundwater	9	9	9	9	9
11 Wetlands	3	3	6	6	3
12 Flora and fauna habitat	6	6	6	2	6
13 Site aesthetics	2	1	1	2	3
14 Residential units along access road	3	1	3	3	3
15 Schools or hospitals along access road	3	2	3	3	3
16 Final use of the site when the landfill is closed	1	1	1	1	1
17 Archeological and/or historical significance	6	6	3	6	6
Economic					
18 Cost of site acquisition	1	2	1	3	3
19 Cost of development	2	2	2	2	3
20 Cost of operations	1	2	3	1	3
21 Impact of removal of site on tax base	1	1	1	1	3
22 Haul distance from H-POWER	4	4	6	6	6
Technical					
23 Landfill capacity or site life	6	6	9	6	6
24 Annual precipitation	2	6	4	4	6
25 Adequacy of drainage	1	2	2	2	1
26 Access to fire protection	1	2	2	3	2
27 Length of haul	4	2	6	4	6
28 Geology	2	2	2	2	3
29 Closure and post-closure cost	3	3	2	1	3
Other Considerations					
30 Employment	1	3	2	3	2
31 Access	6	2	4	4	6
Total Site Score	96	90	98	97	113

7.3 Ameron Quarry

7.3.1 Description of Site

Ameron Quarry is 391-acres located on the windward side of Oahu, within the Kapaa watershed, capable of holding nine million cubic-yards of MSW. The site was once the caldera of an ancient volcano, making the rock almost completely impermeable and of high quality for construction purposes.⁵⁵ Due to the fine grained materials of the quarry, such as Alaeloa and Helemano silty clays, there are no sensitive or endangered flora and fauna habitat found inside and within a half-mile of the quarry. Archaeological and/or historical significance is low due largely to late twentieth century land disturbances. However, thirty-one sites of known archaeological and/or historical importance are located within one mile of the quarry.

7.3.2 Landfill Infrastructure

7.3.2.1 On-Site

Ameron Quarry currently does not have landfilling infrastructure on-site and there is no space on-site for that infrastructure. As the site currently operates as a rock quarry, the existing infrastructure would need to be modified for the quarry to operate as a landfill, but much of the heavy equipment services needed for the quarry could also be used for the landfill.

7.3.2.2 Off-Site

The area within the quarry is used for the necessary infrastructure and for landfilling; space would be needed off-site for offices and other support facilities.

7.3.3 Capacity

Ameron Quarry has an estimated 15-year life span as a landfill. The site life was estimated from existing information (listed in section 7.2) and does not reflect current landfilling practices. The landfill life was estimated based on data available in existing reports. The life should be recalculated to reflect current landfilling practices, allowing for an adequate buffer around the site boundary, and filling to the natural grade.

⁵⁵ KBAC Streamwalks, <http://www.kbac-hi.org/>, March 11, 2008.

7.3.4 Opportunities and Constraints

Ameron Quarry has some major advantages as a landfill:

- It has significant capacity in an area where the City has operated a landfill. It will be closer to the point of waste generation for the windward side waste than the Waimanalo Gulch Sanitary Landfill.
- The site has existing infrastructure for quarry operations that could be used for a landfill, reducing the startup cost.
- Roadways are wide enough and designed to carry heavy trucks.
- The site geology includes Alaeloa and Helemano silty clays that will help protect against leakage. Under State regulations, a landfill liner would be installed.
- The quarry operation has created a hole that may need to be filled.

There are constraints with using Ameron Quarry as a landfill:

- The quarry receives more than 60 inches of precipitation annually, making this site the wettest of the five alternatives. However, landfills operated in wetter areas in the mainland U. S. must do so under stringent EPA Subtitle D regulations.
- The site is the furthest from the H-POWER facility and population centers.
- The cost of acquisition is likely to be significantly more than shown in the Advisory Committee siting report. In addition, the land owner has stated that costs will be associated with moving the operation to another location.^{48 54}
- In its report on its review of potential sites the Council Committee on Public Works and Economic Development (PWED) commented: "The PWED Committee has received testimony in opposition to siting a landfill at the Ameron Quarry site including testimony in opposition from the landowner Kaneohe Ranch, the lessee Ameron Hawaii, the Kailua Neighborhood Board and various city and State elected officials. No testimony has been received in support of a landfill at the Ameron Quarry site."⁴⁸
- The loss of construction material resources would be significant, according to the quarry operator. The operator stated that 10 years of capacity remain at the quarry that would be lost if the site were converted to a landfill, when the Advisory Committee report was issued in December 2003.⁵⁴

7.4 Maili Quarry

7.4.1 Description of Site

Maili Quarry is 200-acres, capable of holding 9.2-million cubic-yards of MSW; located in the Waianae District of Leeward Oahu. The site is 3,500 feet mauka of Farrington Highway, four miles northwest of Nanakuli, and three miles south of Waianae. Elevation of the site averages approximately 40 feet above mean sea level (MSL). Soils are predominantly sand and gravel materials of the quarry, including Lualualei clay and Mamala stony silty clay loam. Sensitive and endangered flora and fauna are not known to exist inside the quarry, nor within a half-mile distance. No archaeological or historical areas of significance have been documented within the Maili Quarry; however, 16 sites do exist within a quarter-mile of the site boundaries, eight sites between a quarter-mile and half-mile, and six sites between a half-mile and mile.

7.4.2 Landfill Infrastructure

7.4.2.1 On-Site

Maili Quarry currently has infrastructure on-site to support the existing quarrying operation. However, there is space available on-site for necessary infrastructure. As the site currently operates as a recycler of concrete, improvements and modifications to the existing concrete recycling infrastructure may be necessary for Maili Quarry to operate **as a landfill**.

7.4.2.2 Off-Site

No facilities are needed off-site as space appears to be available on-site.

7.4.3 Capacity

Maili Quarry has an estimated 15.33 year life span. This equates to an estimated capacity for the disposal of approximately 9.2-million cubic-yards of waste. The landfill life was estimated based on data available in existing reports (listed in section 7.2). The life should be recalculated to reflect current landfilling practices, allowing for an adequate buffer around the site boundary and filling to the natural grade.

7.4.4 Opportunities and Constraints

The advantages of using Maili Quarry as a landfill are:

- On-site cover,
- On-site brackish well for dust control,
- Consistent zoning in the State Agricultural District
- Utilities on-site,
- Low precipitation,
- Close proximity to H-POWER.

Constraints on using Maili Quarry as a landfill are:

- The distance to residents, schools, and businesses. The site is located 1,139 feet from Maili Elementary School and 875 feet from the nearest resident. It is just over 100 feet from single-family residential units, and the Waianae Coast Comprehensive Health Center is located along the access road to the quarry.
- Traffic accidents cause major delays; only one road access.
- Significant pedestrian cross-traffic.
- Access road privately owned.
- Only coral quarry on-island.
- In its report on its review of potential sites the Council Committee on Public Works and Economic Development commented: "The PWED Committee has received testimony in opposition to a landfill at the Maili site and anywhere on the Leeward coast in general. No testimony has been received in support of a landfill at the Maili site."⁴⁸

7.5 Makaiwa Gulch

7.5.1 Description of Site

Makaiwa Gulch is 338-acres, capable of holding 15-million cubic-yards of MSW (25-years capacity). The site is located on West Oahu, 1.5 miles northwest of Puu Palailai, north of Farrington Highway, 1.6 miles south of Puu Manawahua, and 1.3 miles east of Kahe Point. Elevation ranges from approximately 120 feet to over 600 feet MSL. Soils are generally associated with sand and gravelly materials of the gulch and include Stony steep land, Lualualei extremely stony clay, Helemano silty clay, and Mahana-Badland complex soils. Sensitive and endangered flora and fauna are not known to exist within the site, but do exist at distances greater than a half-mile away. Seven sites of archaeological and/or historical significance are located within and on the edge of the site. Twenty-three sites are located within a mile, fourteen within a quarter-mile (although only two have been evaluated as possibly meriting preservation), four between a quarter-mile and half-mile, and five sites are between a half-mile and mile. Makaiwa Hills, LLC has submitted an Environmental Impact Statement Preparation Notice (EISPN) for the development of a residential community on 1,781 acres of undeveloped land in Ewa, Oahu; the same land proposed as an alternative landfill site. The notice was submitted October 2006, and is available on the Office of Environmental Quality Control (OEQC) web page.⁵⁶ Construction is currently underway.

7.5.2 Landfill Infrastructure

7.5.2.1 On-Site

There is space available on-site for the construction of landfill infrastructure.

7.5.2.2 Off-Site

Construction of infrastructure off-site is not anticipated to be required.

⁵⁶ A final environmental impact statement (FEIS) has been filed. Office of Environmental Quality Control, The Environmental Notice. November 8,2007.

7.5.3 Capacity

Makaiwa Gulch has an estimated 25 year life as a landfill, or disposal ability to process 15-million cubic-yards of waste. The landfill life was estimated in data available from existing reports (listed in section 7.2). The life should be recalculated to reflect current landfilling practices, allowing for an adequate buffer around the site boundary, and filling to the natural grade. With evaluations based on current practice, it is likely that significantly more life is available at this site than the estimate included in this report.

7.5.4 Opportunities and Constraints

The Makaiwa Gulch site has several advantages:

- It has a significant amount of capacity – 25 years.
- Access is potentially available off main highway.
- Consistent zoning in the State Agricultural District
- The property is currently not being used, although development for a residential subdivision has been proposed.
- It is the shortest distance of the alternative sites from the H-POWER facility and close to service population (short haul distance).
- Extensive archeological/flora/fauna surveys have been completed.
- The area has low precipitation, which will mean less water from rainfall that must be managed at a landfill.

There are several major constraints:

- The current development under construction at the site precludes its use as a landfill
- Acquisition Costs.⁵⁴
- Upwind from heavily populated residential and resort areas.
- No on-site utilities or access road.
- Rockfall hazards may exist along the highway to Makaiwa Gulch.
- Not consistent with development plan which is planned for residential subdivision development.

- Close to a transition between H-1 and Farrington Highway
- HECO electric power lines (138 KV) cross the site.
- View planes readily seen.
- Perception that a landfill would create a major economic impact that would “close down” residential and resort development, according to developer’s representative⁵⁴
- Close to center of area of major population growth
- In its report on its review of potential sites the Council Committee on Public Works and Economic Development commented: “The PWED Committee has received testimony in opposition to a landfill at the Makaiwa Gulch site including testimony in opposition from the landowner and also testimony was received in opposition to siting a landfill anywhere on the Leeward coast in general. No testimony has been received in support of a landfill at the Makaiwa Gulch site.”⁴⁸

7.6 Nanakuli B

7.6.1 Description of Site

Nanakuli B is 432.3-acres, capable of holding 9.4-million cubic-yards of MSW, on West Oahu, south of Maili Quarry. The site is located 2,000 feet mauka of Farrington Highway and Nanaikapona Beach Park, 4,000 feet west of Puu Helakala, and 4,000 feet east, southeast of Puu O Hulu Uka. Elevation ranges from approximately 40 feet to over 300 feet MSL. Nanakuli B borders a critical habitat area for sensitive and endangered flora and fauna. Although the potential landfill site does not contain any archaeological and/or historical sites within its boundaries, sixty-two archaeological and/or historical sites can be found within one mile of the site boundaries; with the majority of the sites located closer to one mile out. Three of these archaeological and/or historical sites are less than a quarter-mile from site boundaries, nine are located between one-quarter and one-half mile, while fifty are located between one-half and one mile.

Leeward Land LLC has submitted an EISPN for the construction and operation of an MSW landfill and composting facility on an approximate 172-acre site on Nanakuli B. The notice was submitted May 23, 2006, and is located on the State OEQC web page.

7.6.2 Landfill Infrastructure

7.6.2.1 On-Site

Nanakuli B currently does not have landfilling infrastructure on-site; however, there is space available.

7.6.2.2 Off-Site

Off-site space is not needed for infrastructure.

7.6.3 Capacity

Nanakuli B has an estimated 15.6 year life, or capacity of 9.4-million cubic-yards. The landfill life was estimated in data available in existing reports (listed in section 7.2). The life should be recalculated to reflect current landfilling practices, allowing for an adequate buffer around the site boundary, and filling to the most advantageous grade. With evaluations based on current practice, it is likely that more life is available at this site than the estimate included in this report.

7.6.4 Opportunities and Constraints

The Nanakuli B site has several advantages:

- The zoning is consistent.
- The area gets low precipitation.
- The landfill would be close to existing C&D landfill.
- Utilities are readily accessible.
- The site is not currently being used.
- Site acquisition costs relatively low.
- Brackish wells are available on-site for water for dust control.

The disadvantages of this site include:

- Hazardous rockfalls on highway to site.
- Traffic accidents cause major delays on Farrington Highway and could slow access to the site.



- Pedestrian cross traffic on Farrington Highway and the access road.
- The Navy owns the access road, which may necessitate the City paying for access.
- Upwind of Maili Elementary School and residences. It is surrounded by single-family residences less than 300 feet away, on the southern and western boundaries. Nanakuli Elementary is 1,372 feet away, Nanaikapono Elementary is 2,190 feet away, and the Pacific Shopping Mall is 1,335 feet away. Residences are located on the far west side of Lualualei Naval Road.
- Dust could impact nearby homes.
- Trucks would pass schools and medical facilities to get to site.
- In its report on its review of potential sites the Council Committee on Public Works and Economic Development commented: "The PWED Committee has received testimony in opposition to a landfill at the Nanakuli B site and anywhere on the Leeward coast in general. No testimony has been received in support of a landfill at the Nanakuli B site."⁴⁸

7.7 Waimanalo Gulch Sanitary Landfill

7.7.1 Description of Site

Waimanalo Gulch Sanitary Landfill is a 200-acre site, with approximately 92.5-acres remaining for expansion and capable of holding 9-million cubic-yards of MSW, on the Leeward side of Oahu. Waimanalo Gulch is owned by the C&C and operated under contract by Waste Management of Hawai'i, Inc. The site currently receives the H-POWER facility's ash and residual wastes. It is also the landfill site for commercial MSW that exceeds the capacity at H-POWER.⁵⁷ The site adjoins Farrington Highway. To the northwest is the Hawaiian Electric Kahe Power Generating Station. South of the site are the Ko Olina Resort, while southeast of the site is the Honokai Hale residential subdivision.

The on-site soils including Rock land, Stony steep land, Lualualei extremely stony clay, and Mahana-Badland complex, provide an improved barrier between surface and groundwater. Sensitive and endangered flora and fauna habitat are not known to exist within the boundaries or within a half-mile of the site. Archaeological and/or historically significant sites are not found within the majority of the landfill site. An archaeological

⁵⁷ Waste Management, Keeping Hawaii Clean, <http://www.keepinghawaiiiclean.com/waimanalo.htm>, March 11, 2008.

site comprised of three stone uprights was recently discovered. Mitigation to address the find is underway with the State Historic Preservation Division and community informants to identify an appropriate and culturally sensitive means of preserving the stones. No other sites are known within the property. Surrounding the site, 30 sites of potential archaeological and/or historical significance can be found between a quarter-mile and half-mile of the site boundaries.

Construction and operating practices at the Waimanalo Gulch Sanitary Landfill are consistent with state and City & County of Honolulu requirements for site and soils stability and environmental compliance. The operation of the landfill had been the subject of DOH action regarding a notice of violation and fine. The DOH and Waste Management of Hawai'i, Inc., the site operator, have agreed to a settlement. DOH proposed fining the landfill \$2.8 million (DOH and the operator settled for \$1.5 million) for 18 alleged violations of the operating permit that were self-reported by Waste Management.

7.7.2 Landfill Infrastructure

7.7.2.1 On-Site

Waimanalo Gulch currently has landfilling infrastructure on the landfill property, as well as additional space available for the expansion of such infrastructure.

The infrastructure is part of the landfill property, but not part of the area permitted for use as the disposal site. The area permitted for landfilling is 107.5 acres of the total 200 acre site.

7.7.2.2 Off-Site

Facilities are not needed off-site.

7.7.3 Capacity

Waimanalo Gulch Sanitary Landfill has an estimated minimum 15 year life, or ability to dispose of nine million cubic-yards of waste. The capacity is expected to be reevaluated as the EIS is processed.

7.7.4 Opportunities and Constraints

The continued use of the Waimanalo Gulch Sanitary Landfill offers the following opportunities:

- Least costly site to acquire and operate as it is owned by the C&C and the necessary infrastructure is already in place.
- Close to H-POWER.
- The technical information needed to design the landfill is known. With the other sites, a significant amount of technical information will be needed before they can be designed and permitted.
- Road access acceptable.
- Close to the service population centers – shorter haul distance than all alternative sites, except Makaiwa Gulch.
- Low precipitation.
- It is good policy to use a resource, like the Waimanalo Gulch Sanitary Landfill property, until it is no longer capable of providing the service.
- In its report on its review of potential sites the PWED Committee commented: “There was some testimony received in favor of including the Waimanalo Gulch Landfill as one of the sites under consideration by the City Council and some testimony received supporting the continued use of the Waimanalo Gulch Landfill including testimony from the current operator, Waste Management Hawaii.”⁴⁸

There are several disadvantages to the continued use of the Waimanalo Gulch Sanitary Landfill, including:

- It is located upwind and visible from a major resort area.
- Further effort involving landscaping is needed to reduce viewplanes of the landfill facing Farrington Highway and Ko Olina.
- Developers’ representatives have claimed there would be major economic impact on residential development and resort development with continued operation of the Waimanalo Gulch Sanitary Landfill.⁵⁴
- Trucks are visible lined on-site and along Farrington Highway.

- The site is located close to the center of population growth.
- In its report on its review of potential sites the PWED Committee commented:

“The PWED Committee has received testimony in opposition to continued use of the Waimanalo Gulch Landfill and also testimony in opposition to siting a landfill anywhere on the Leeward coast in general.”⁴⁸

7.8 Response to Scoping Questions to Alternative Sites

The C&C conducted scoping sessions on the following dates at the locations indicated:

- Monday, July 10, 2006 at Nanakuli High School.
- Tuesday, July 11, 2006 at Ben Parker Elementary School.
- Thursday, July 27, 2006 at Mission Memorial Auditorium.
- Thursday, August 10, 2006 at Kapolei Hale.

Several of the audience members offered their comments in response to the information presented by the C&C. This portion of the analysis presents the comments that related to alternative sites.

Comments will be denoted by a ‘C’, questions by a ‘Q’, and answers by an ‘A’.

Q: LUC and City Planning Commission said to close Waimanalo Gulch. In light of this, how are you proposing to expand it and keep it open?

A: The City will seek an amendment to the State SUP to allow an expansion at Waimanalo Gulch Sanitary Landfill. The amendment will be submitted to the City Planning Commission for approval and forwarding to the State LUC.

Q: What is the status of other public and private landfill operations and proposed sites?

A: The only State-permitted public operating landfill is Waimanalo Gulch Sanitary Landfill. The only State-permitted private landfill is PVT Landfill. PVT Landfill accepts C&D wastes. The City Department of Planning and Permitting has received an EISPN for Nanakuli B.

Q: Why is the City not honoring its commitment to close the Waimanalo Gulch Sanitary Landfill by May 2008?



A: The City acknowledges that commitments were made to close Waimanalo Gulch Sanitary Landfill with the implied understanding that a new landfill could be located and permitted on the island to accept waste. The issue of selecting a new landfill that would be operational, despite having been reviewed by several parties, could not be accomplished by the May 2008 deadline when the current State SUP Amendment will expire. The parties reviewing this matter included the ENV, the prior administration's Report of the Mayor's Advisory Committee on Landfill Site Selection on Landfill Siting, the current Administration, and the Honolulu City Council.

Q: Why did the previous assessment of landfill sites not include excavation costs for the expansion, as excavation was needed for the current site?

A: The assessment of landfill sites evaluated all sites with similar technical information. All sites would require some amount of excavation; however, precise costs could not be determined with the information available, so excavation costs were not used as part of the evaluation criteria.

C: The community has said, "No more landfills!" When will the City get the message – No Landfills, Yes JDI Plasma Arc Gasification – stop thinking about the money; think and look at our community, our families' health, and safety.

A: The C&C cannot immediately close down all landfills on Oahu. Section 3.1 gives an explanation as to why a sudden cease of landfills is not the best solution, as well as a catastrophe to Oahu residents and visitors' health and safety.

C: Legislation should be passed requiring each council district to be responsible for the trash from their district being buried in their district. If the residents of the Districts will not consent to a landfill in their district it may be buried in the Waimanalo Gulch Sanitary Landfill at an additional tipping charge. These charges must be of sufficient rate as to (A) encourage each district to be responsible for their trash or (B) be adequate enough for the residents of the 1st district to accept the trash from any other districts. These monies would be used for the sole benefit of the legal residents of the 1st district and only them.

A: The general concept that this comment refers to is a Host Benefit Fee. The Community Benefits Package was proposed by the Mayor and \$1,000,000 in grants has been made to Leeward nonprofit groups.

C: With the latest innovative technology in mind, open a new landfill at another site on another part of the island. Start over the right way. We know that this is a political challenge, but done right, it will help to teach us all – on all sides of the island – to be better stewards of the land; educate us in the latest landfill technologies; and say to the people of the Waianae coast that you value this area and do not see it – or its people – as a place of garbage.



A: Past siting efforts can be found in section 6.2. This section discusses the Report of the Mayor's Advisory Committee on Landfill Site Selection and the work accomplished in determining the best site for Oahu's next landfill. The sites chosen are discussed in sections 6.4-6.8.

It should also be noted that the Waimanalo Gulch Sanitary Landfill is only the latest site the City has used. Others have been located at Kapaa and Ala Moana.





8 Preferred Alternative

Several of the alternative technologies and the transshipment alternative show promise to offer the C&C an option to continued use of the Waimanalo Gulch Sanitary Landfill for the MSW that exceeds H-POWER capacity. The time between preparation of this EIS and the date to comply with the State LUC Order, November 1, 2009, is insufficient for the administrative processes to arrange for another alternative for all of the MSW and H-POWER refuse being disposed at the Waimanalo Gulch Sanitary Landfill.

A viable alternative must meet several considerations:

- It needs to provide for the health and safety of Honolulu residents and visitors by properly managing the waste produced on the island.
- Any alternative, whether it is technology, another site, or transshipment, needs to be contracted for, permitted, and made operational by November 1, 2009.
- Because of the complexity of the siting requirements in Hawaii, the high degree of public interest and input into any siting process, the environmental clearance needed, and the permitting process, a significant amount of time (some say up to 10 years for a new landfill site or new alternative technology) may be needed for an alternative to become operational.

The Waimanalo Gulch Sanitary Landfill is the only alternative currently available to dispose of MSW and H-POWER ash and residue. Continued use of the Waimanalo Gulch Sanitary Landfill until it has been filled to its physical capacity to accept waste is the Preferred Alternative.

8.1 Continued Use of Waimanalo Gulch Sanitary Landfill

The Waimanalo Gulch Sanitary Landfill has capacity to handle MSW for at least 15 years. The site is providing that service today.

It was the site selected by the City Council on December 1, 2004, as stated in Resolution 04-348, C.D.1, F.D.1. That resolution includes the following statements:

“...BE IT FURTHER RESOLVED by the council, and in accordance with the conditions set forth by the state land use commission, that the Waimanalo Gulch site is selected as the site for the city’s landfill because:

- (1) The site currently has over 15 years capacity left with further expansion, and this capacity can be further extended should the city be successful in reducing the amount of waste currently entering the landfill through recycling and the use of new technologies;
- (2) The city already owns the property and the infrastructure is already in place, making the site the most economical and least expensive to develop and maintain as a landfill;
- (3) Other sites will require a large capital outlay by the city to acquire the land through condemnation and to develop and construct the site and required supporting infrastructure;
- (4) A landfill management contract is already in place for 15 years;
- (5) This is the only site where the costs and revenues for a landfill are known factors; and
- (6) The current landfill operator is committed to implementing necessary improvements to landfill operations to address community concerns regarding visual impact, odors, airborne waste, litter and dust control; and

BE IT FURTHER RESOLVED that the city administration is requested to immediately contact the planning commission, the state department of health and state land use commission to satisfy any necessary requirements for the use of the selected landfill site; ...”

8.2 Transshipment Alternative

Transshipment of waste transfers the responsibility for stewardship of the land to the mainland landfill that disposes of the transshipped waste. However, operation of transshipment in conjunction with continued use of the Waimanalo Gulch Sanitary Landfill, expansion of recycling alternatives, and addition of a third boiler to H-POWER offers the C&C another alternative for reducing the material being landfill. The C&C has issued a Notice to Bidders to determine if transshipment is advantageous in the time before addition of a third boiler to H-POWER. However, transshipment cannot handle all the waste going to the landfill, so the landfill will continue to be needed.

The regulatory process for transshipment requires considerable time. It involves federal approval of the transshipment of waste materials from Honolulu to the mainland and local approval of the facilities used to prepare the waste for shipment.



There are at least two companies that have expressed interest in transshipping Honolulu's waste: Pacific Rim and Hawaiian Waste Services. At the time this EIS is being prepared, Hawaiian Waste Services has received the federal approvals needed to ship the waste from its point of arrival on the mainland up the Columbia River to the Roosevelt Landfill in Washington State.^{58 59}

Transshipment may offer near term advantages to the C&C to reduce disposal at the Waimanalo Gulch Sanitary Landfill. The C&C may wish to issue a Request for Proposal or other solicitation for transshipment to identify the costs and other considerations.

While transshipment offers an alternative for some of the MSW, there are parts of the waste stream that cannot be shipped due to federal restrictions, some items that cannot be accepted due to the process used, and financial and solid waste management considerations that may limit transshipment to a select portion of the waste stream. The continued use of the Waimanalo Gulch Sanitary Landfill offers a means to handle the prohibited material, offers an essential safety net if transshipment is interrupted, and is an integral part of the C&C waste management system.

In addition to the other disadvantages of transshipment, that activity produces over 200 percent more emissions than disposal at the Waimanalo Gulch Sanitary Landfill. The difference in emissions compared to taking the waste to H-POWER is even more dramatic. H-POWER shows a reduction in island-wide emissions (or negative emissions) of 28,711 metric tons per year of CO₂ equivalent compared to a positive generation from transshipment of 3,978.

The Waimanalo Gulch Sanitary Landfill cannot be replaced by transshipment, although the amount of MSW needing on-island landfill disposal can be reduced.

58 United States Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine. Compliance Agreement with Roosevelt Landfill. January 10, 2007.

59 United States Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine. Compliance Agreement with the State of Hawaii. January 19, 2007.

8.3 Technology Alternative

Technology has progressed since the last EIS was completed for this site. The references used for this evaluation note that alternative technologies have operated in Europe and Japan processing MSW for two or more years. Other alternatives are showing promise and other jurisdictions (e.g., New York City⁶⁰ and Los Angeles County⁶¹) are investing a significant amount of time and money studying technologies and evaluating proposals to provide them with technology solutions. The jurisdictions considering alternative technologies have a landfill within reasonable distance by rail or truck transport to provide backup if the technology does not perform as expected. That is not the case in Honolulu, making the use of an alternative technology and closure of the Waimanalo Gulch Sanitary Landfill a risky concept.

None of the technologies meet all of the City requirements as listed in section 6.1. In addition, none of the alternative technologies can have the environmental, land use, permitting, and administrative contracting completed before the November 1, 2009, State LUC deadline.

Expansion of recycling offers advantages for reducing waste going into the Waimanalo Gulch Sanitary Landfill. It should be pursued, but cannot be relied upon to completely eliminate the need for the Waimanalo Gulch Sanitary Landfill.

Addition of a third boiler to H-POWER will reduce the amount of material needing disposal and generate energy needed on the island. However, landfill capacity is needed for the non-processible materials. In addition, the environmental, land use, permitting and administrative contracting cannot be completed before the November 1, 2009, State LUC deadline.

60 New York City Economic Development Corporation and New York City Department of Sanitation. Evaluation of New and Emerging Solid Waste Management Technologies. September 16, 2004.

61 County of Los Angeles Department of Public Works. Los Angeles County Conversion Technology Evaluation Report, Phase II- Assessment. October 2007.



8.4 Site Alternative

None of the alternative sites offer the advantages that the Waimanalo Gulch Sanitary Landfill site does. Since it is an operating site with remaining capacity, it has many benefits the others do not have. Assuming that the State LUC and DOH both extend the existing permits, there will be no delay in its use.

The four alternative sites have the capacity and other important features that make them reasonable candidates. However, there are considerations with all four sites that make them less attractive.

The representatives of the Ameron Quarry and the James Campbell Estate, owner of the Makaiwa Gulch site, have both provided estimates of significantly increased cost to acquire the sites and have highlighted several additional complicating issues. Using either of these two sites as a landfill will require potentially protracted action to obtain the site in addition to the lengthy time for the environmental, land use, and permitting processes. In addition, the Makaiwa Gulch site is currently being developed for other purposes.

The other two sites, the Maili Quarry and Nanakuli B are both located further into the Waianae area, which would probably result in increased opposition from the community. Also, the Nanakuli B site has been proposed as a landfill by a private developer, so the cost of acquiring the site should be expected to be greater than estimated here.

The only landfill site that can be in use before the November 1, 2009, State LUC deadline is the Waimanalo Gulch Sanitary Landfill.



Attachment A — August 22, 2006 USDA Decision Regarding Transshipment

Rules and Regulations

Federal Register

Vol. 71, No. 163

Wednesday, August 23, 2006

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

DEPARTMENT OF AGRICULTURE

Animal and Plant Health Inspection Service

7 CFR Part 330

9 CFR Part 94

[Docket No. 05-002-4]

RIN 0579-AC12

Interstate Movement of Garbage From Hawaii; Municipal Solid Waste

AGENCY: Animal and Plant Health Inspection Service, USDA.

ACTION: Final rule.

SUMMARY: We are amending the regulations pertaining to certain garbage to provide for the interstate movement of garbage from Hawaii subject to measures designed to protect against the dissemination of plant pests into noninfested areas of the continental United States. We are amending these regulations upon request in order to provide the State of Hawaii with additional waste disposal options, and after determining that the action is highly unlikely to result in the introduction and dissemination of plant or animal pests or diseases into the continental United States from Hawaii. We are also making other amendments to the garbage regulations to clarify their intent and make them easier to understand.

DATES: *Effective Date:* September 22, 2006.

FOR FURTHER INFORMATION CONTACT: Ms. Shannon Hamm, Assistant Deputy Administrator, Policy and Program Development, APHIS, 4700 River Road Unit 20, Riverdale, MD 20737-1231; (301) 734-4957.

SUPPLEMENTARY INFORMATION:

Background

Under 7 CFR 330.400 and 9 CFR 94.5 (referred to elsewhere in this document as the regulations), the Animal and Plant Health Inspection Service (APHIS) regulates the importation and interstate movement of garbage that may pose a risk of introducing or disseminating animal or plant pests or diseases that are new to or not widely distributed within the United States. Not all movements of waste material are regulated by APHIS;¹ only movements of waste that meets APHIS's definition of "garbage" are regulated, and even then, only under certain circumstances. Under the regulations, the term "garbage" is defined as "all waste material derived in whole or in part from fruits, vegetables, meats, or other plant or animal (including poultry) material, and other refuse of any character whatsoever that has been associated with any such material on board any means of conveyance, and including food scraps, table refuse, galley refuse, food wrappers or packaging materials, and other waste material from stores, food preparation areas, passengers' or crews' quarters, dining rooms, or any other areas on means of conveyance." Garbage also means "meals and other food that were available for consumption by passengers and crew on an aircraft but were not consumed."

Waste material that meets the definition of garbage is regulated by APHIS if it is removed from a means of conveyance that:

- Within the last 2 years, has been in any port outside the United States or Canada; or
- Within the last year, has moved from Hawaii or a U.S. territory to another U.S. State.²

However, garbage onboard a conveyance that meets one of the two conditions above may be exempted from regulation if the conveyance is cleared of all regulated garbage, and after cleaning and disinfection, an inspector certifies that the conveyance contains no garbage that poses a risk of pest

¹ The operation of landfills and incinerators and the intrastate and interstate movement of garbage are regulated predominantly by State and local governments. The U.S. Environmental Protection Agency (EPA) regulates the interstate movement of hazardous wastes. See EPA's Web site for additional information: <http://www.epa.gov/epaoswer/osw/index.htm>.

² "State" is defined as any of the 50 States and any U.S. territory or possession.

introduction into the United States. Garbage from Canada is also exempted from regulation.

The regulations were established to address the risk posed by garbage that originates on or is onboard conveyances that have been located in areas where exotic animal or plant pests or diseases are present. Such garbage includes waste generated during the course of commercial and private air travel and commercial or private transit of goods or persons by sea. The regulations were not intended to address risks posed by movements of municipal solid waste (MSW).

Due to a limited availability of landfill space in Hawaii, business interests and public officials are exploring other options for disposal of the State's waste. These persons have requested that APHIS allow the interstate movement of MSW from Hawaii. We believe the regulations require amendment to provide for the movement of garbage generated in Hawaii.

Pest Risk Assessment

As part of our evaluation of the request by business interests and public officials in Hawaii, we prepared a draft pest risk assessment (PRA), titled "The Risk of Introduction of Pests to the Continental United States via Plastic-Baled Municipal Solid Waste from Hawaii" (March 2006) to evaluate the interstate movement of garbage from Hawaii to the mainland of the United States. The objective of the PRA was to evaluate whether a baling technology that would bundle, wrap, and seal the MSW into airtight bales will effectively mitigate potential plant pest risks associated with MSW from Hawaii. The PRA focused on the planned use of the baling technology because airtight enclosure from creation to burial will mitigate the risks of establishment by any plant pests. The PRA addressed the following three issues:

- The ability of the baling technology to provide a strong, airtight barrier;
- The examination of the occurrence of ruptures or punctures; and
- The examination of general pathway procedures to reduce pest incidence in the bales and the chances of escape in the event of accidental ruptures or punctures.

In addition, the PRA provides qualitative risk ratings for different pest types based on the likelihood of introduction. Only those pathway

processes likely to be common to all company proposals to transport baled Hawaiian waste were considered. We will prepare separate assessments for other company proposals which will address factors such as the destination landfill, type of transportation to be used on the mainland, and pest species that may pose particular threats.

The PRA concluded that transporting MSW from Hawaii to the continental United States in airtight bales poses a low risk of pest introduction and dissemination because the baling technology mitigates the risk from all types of plant pests. In addition, the other pathway procedures should adequately protect against accidental ruptures or punctures in bales during the handling and transport process. Pest mitigation processes such as the baling technology itself or features of the proposed pathway, including the waste type, and how bales are staged, handled, transported, and buried, are added safeguards that we conclude will prevent the introduction and dissemination of exotic pests. As a complement to the baling technology, the PRA recommends proper staging of bales and certification that they are mollusk-free to mitigate against contaminating pests. As long as those processes and the procedures proposed by the companies (including diversion of yard and agricultural waste, prompt shipment, monitoring and inspection of bales, and thorough cleanup of any ruptures that do occur) are followed, establishment of Hawaiian plant pests via this pathway is highly unlikely.

On April 19, 2006, we published in the *Federal Register* (71 FR 20030–20041, Docket No. 05–002–2) a proposal³ to amend the regulations in “Subpart—Garbage” (7 CFR 330.100 through 330.400) and 9 CFR 94.5 pertaining to certain garbage to provide for the interstate movement of garbage from Hawaii subject to measures designed to protect against the dissemination of plant pests into noninfested areas of the continental United States.

We solicited comments on the proposed rule for 30 days ending on May 19, 2006. We received five comments by that date, including a request to extend the comment period. In a document published in the *Federal Register* on May 31, 2006 (Docket No. APHIS–2005–0047, 71 FR 30834), we

³ To view the proposed rule and the comments we received, go to <http://www.regulations.gov>, click on the “Advanced Search” tab, and select “Docket Search.” In the Docket ID field, enter APHIS–2005–0047, then click on “Submit.” Clicking on the Docket ID link in the search results page will produce a list of all documents in the docket.

reopened and extended the deadline for comments until June 5, 2006. We received an additional seven comments by that date. The comments came from several municipalities in Hawaii, waste companies, congressional representatives, the State of California, a tribal representative, and members of the general public. Of the 12 comments, 8 fully supported the proposal. The remaining commenters raised several issues, which are discussed below.

Bale Technology

Comment: APHIS must test the bale technology to ensure that the plastic bales will not breach. In addition, APHIS should use its own experts to validate the research data provided by the technology vendors and their consultants regarding the safety of bale technology.

Response: As cited in the PRA, independent researchers have tested the baling technology in a variety of situations and firmly established its utility and effectiveness at creating airtight bales of MSW. Because these studies have been peer reviewed, APHIS believes that it is not necessary to repeat the testing performed in the underlying research.

Pest Risk Assessment

Comment: APHIS should revisit its PRA to clarify the roles played by compaction and shredding because whole fruit containing fruit fly or other insect eggs or larvae will not be affected by the anoxic conditions of the bales.

Response: While insect eggs and larvae, including those of fruit flies and other agricultural pests, could theoretically survive in whole fruit under short-term anoxic conditions, whole fruit would not be present in the bales due to the processing, i.e., pulverizing or shredding followed by compaction, of the MSW prior to being baled. As described in the PRA, bale densities are expected to be in excess of 800 kg/m³, so compaction will likely kill most insects, including fruit flies, regardless of stage, and may also neutralize some weed seeds and nematodes. Moreover, bales that remain airtight from creation until burial completely mitigate the risk from all plant pests because the pests and pest propagules cannot escape. That mitigation is universal, i.e., it does not depend on pest type or taxonomy, and probably applies equally to both current and future pests that establish in Hawaii.

Comment: How will APHIS ensure that noxious weeds would not be included in the bales of MSW?

Response: As we discussed in the PRA, the exclusion of most yard and agricultural waste from the baling process will greatly reduce the likelihood that seeds of regulated pest plants will be present in the baled MSW. In addition, very few regulated species are likely to have viable seeds in the bales, either because they mostly reproduce vegetatively, or because they are not found in yards and gardens in residential areas in Hawaii. Species of concern to particular mainland States will be further evaluated in site-specific PRAs to identify any exceptions and assess their potential risks.

Environmental Impacts

Comment: APHIS should research the consequences of any spill of baled MSW during transport.

Response: APHIS conducted several evaluations, including a PRA and an EA to determine the consequences of any spill involving bales containing MSW during transport from Hawaii to the mainland United States. We have determined that there is a very low likelihood that plant pests or noxious weeds would be introduced and disseminated into the mainland United States as a result of this action. As described in the PRA, there is a series of mitigations that would take place including limiting waste materials that would exist in the bales and ensuring proper staging, handling, transport, and burial of these bales. There will also be specific contingency plans for emergency response to potential spills outlined in compliance agreements with specific sites. In addition, short of a barge capsizing (which would be considered catastrophic events and would be cause to initiate emergency consultation), there is essentially no risk of impact on aquatic life from the transport of baled MSW from Hawaii to the mainland United States. Situations where there is potential for impacts occur wherever bales are moved from one staging area or mode of transportation to another. These transfer points include: The facility in Honolulu where bales are initially loaded onto the barges; the unloading facility on the mainland where bales are unloaded from the barges and loaded onto trucks; and the final destination where bales are unloaded from trucks and placed into the landfill. In some scenarios there could be intermediate steps requiring the handling of bales, e.g., an ocean-going barge may offload its bales onto smaller-sized barges to navigate a river; an ocean-going barge may offload its bales onto railcars; and railcars would then need to transfer their bales onto

trucks for the final leg of the trip to the landfill.

At each of the bale transfer points identified above, there is a small potential for dropping a bale into the water or, more likely, compromising the integrity of one or more bales of MSW which could result in spillage of the contents on the ground or into the water. In most cases the spilled MSW would be retrieved and the bale repackaged. If this were to happen over water, it would be more difficult to retrieve the spilled MSW, particularly if the integrity of the bale was breached. Any spill, in the event of a broken bale, would be handled in accordance with a spill cleanup plan, attached to each compliance agreement, that provides guidance on what detergents and disinfectants to use, how to safely use them, and how to avoid aquatic contamination.

Comment: Shipping MSW to the mainland from Hawaii should only be done if alternative disposal options are not available.

Response: Municipal jurisdictions within the State of Hawaii will be responsible for determining which disposal option to pursue. APHIS will be responsible for ensuring that if the disposal option includes the movement of MSW from Hawaii to the mainland United States, it occurs in accordance with conditions provided in our regulations and compliance agreements.

Comment: Sending barges with MSW through the Columbia and Snake Rivers would negatively impact the number of fish in the area.

Response: We do not believe that there will be a significant increase in barge traffic in this region due to this action. We will have the opportunity to quantify this assertion when we conduct a site specific PRA and EA for the Columbia River Basin. In addition, APHIS does not regulate barge traffic. Under our authority we ensure that safeguards are in place to prevent the introduction and dissemination of plant pests, noxious weeds, and animal diseases.

APHIS did conduct a biological assessment for this action to determine impacts on listed species of fish and wildlife. We found that there are two types of risks that must be considered in such a situation. One is a physical disruption of the environment caused by the broken bales and the physical retrieval of their strewn contents. Compromised bales or spilled MSW that is on land can be retrieved relatively easily. MSW that is spilled into waterways will be more difficult to retrieve, and some may not be retrievable, resulting in an incremental

degradation of the natural aquatic environment. Since hazardous wastes are not permitted, any negative impacts will be restricted to physical ones and no chemical pollution is likely to result from the MSW itself.

The second type of risk that could result from breaking bales and the spilling of MSW could be from detergents and disinfectants that may be used during a cleanup of any spilled MSW that may occur on land. Detergents and disinfectants would not be effective in aquatic situations, and therefore, would not be used if spills were in or over water. If such tools were used during a cleanup effort, care must be taken to prevent them from entering waterways. Their use would be in accordance with a spill cleanup plan, attached to each compliance agreement, that provides guidance on what detergents and disinfectants to use, how to safely use them, and how to avoid aquatic contamination.

As mentioned above, APHIS will develop a site-specific pest risk assessment and environmental assessment which will examine any risks associated with transporting MSW into specific regions. The public will have an opportunity to comment on those documents before they are finalized.

Comment: Has APHIS conducted any studies on the potential to introduce new plant and animal pathogens to the Columbia Basin Region?

Response: This final rule provides a general framework which will allow for the interstate movement of MSW from Hawaii under certain conditions. One condition of that movement will be that shipments will be moved under provisions outlined in a compliance agreement. A compliance agreement will be developed for each individual site on the mainland of the United States into which these shipments would be moved. For each compliance agreement, APHIS will develop a site-specific pest risk assessment and environmental assessment to examine the risks associated with transporting MSW into the specific region, including into the Columbia Basin region.

Requested Change to the Regulations

Comment: APHIS should add the staging requirement and certification of snail free shipments language found in the PRA to the regulatory text.

Response: The regulations state that garbage must be processed, packaged, safeguarded, and disposed of using a methodology that the Administrator has determined is adequate to prevent the introduction and dissemination of plant pests into noninfested areas of the

United States. In addition, specific provisions will be outlined in individual compliance agreements for site-specific shipments. These provisions would be consistent with those in § 318.13-8, which pertain to inspection of articles and persons moved from Hawaii. We believe that the current provisions in the regulations, combined with site-specific compliance agreements, are sufficient to prevent the introduction and dissemination of snails and other hitchhikers.

Tribal Consultation

Comment: APHIS did not consult with Indian Tribes as directed under Executive Order (EO) 13175 and requested government-to-government consultation.

Response: We were petitioned to amend our regulations by the operators of several landfills located in the area of the Columbia River Basin who expressed an interest in receiving MSW from Hawaii. Therefore, our initial contacts were limited to tribes located within that area. To comply with EO 13175, APHIS contacted the tribal chairs of each of the 13 tribes generally considered as Columbia River Basin Tribes (Burn Paiute Tribe, Coeur d'Alene Tribe, Colville Tribe, Kalispel Tribe, Kootenai Tribe, Nez Perce Tribe, Salish Kootenai Tribes, Shoshone Bannock Tribes, Shoshone Paiute Tribe, Spokane Tribe, Umatilla Indian Reservation, Warm Springs Reservation, and Yakama Indian Nation) in early November 2005. Each of these tribes has ties to the land and resources in and near the Columbia River and its drainage. APHIS believes that if there were any effects on tribes resulting from this rule, these are the tribes most likely to be affected. Each tribe was provided information on our proposed rule, environmental assessment, and pest risk analysis and offered an opportunity to request consultation.

At about the same time, APHIS contacted tribal organizations to determine which additional tribes may be affected and should be contacted. The tribal organizations contacted were the Affiliated Tribes of Northwest Indians (ATNI), the National Congress of American Indians, the National Tribal Environmental Council, and the Intertribal Agriculture Council. In addition, APHIS contacted the Columbia Basin Fish and Wildlife Authority.

In mid-February 2006, an Agency official provided a presentation about the proposed rule at the Winter Conference of the ATNI, and invited requests for tribal consultation. ATNI represents over 55 tribes in the Pacific

Northwest. In early March 2006, the Agency sent reminders to tribal chairs stating that APHIS would consider requests for consultation until March 20, 2006. Although we received both oral and written comments from tribes and tribal members, we received no requests for consultation.

In mid-April 2006, upon publication of the proposed rule, copies of the proposed rule, environmental assessment, and pest risk analysis were mailed to the tribal chairs of each of the above-listed tribes and also to the listed tribal organizations. APHIS encouraged tribes and tribal organizations to submit comments. Based on our actions as described above, we believe that we have complied with EO 13175 for the purposes of this rulemaking. We will follow this final rule with risk and environmental assessments as well as compliance agreements with specific waste management sites located on the mainland of the United States that have expressed interest in receiving MSW from Hawaii. At the time that we make the site-specific assessments available to the public, we will also invite potentially affected tribal governments to engage in consultations with APHIS.

Change Regarding Agricultural and Yard Waste

In the proposed rule, the regulations in 7 CFR 330.402(a)(2) and 9 CFR 94.5(d)(1)(ii) provided that “The interstate movement of agricultural wastes and yard waste from Hawaii to the continental United States is prohibited.” After further consideration, we have concluded that this provision, which implies a zero tolerance for agricultural or yard waste, is unrealistic. Despite the presence of yard waste recycling programs in Hawaii and the efforts of waste management companies to separate various types of waste, the presence of an incidental amount of agricultural or yard waste in baled MSW is, in practical terms, unavoidable. This situation was taken into account in the PRA, which recognized that there will likely be some minimal volume of agricultural and yard waste entering the pathway despite efforts to exclude that waste. Therefore, we have modified 7 CFR 330.402(a)(2) and 9 CFR 94.5(d)(1)(ii) in this final rule to read: “The interstate movement from Hawaii to the continental United States of agricultural wastes and yard waste (other than incidental amounts (less than 3 percent) that may be present in municipal solid waste despite reasonable efforts to maintain source

separation) is prohibited.”⁴ We believe this change will establish a more practical standard with respect to agricultural and yard waste while continuing to prohibit the interstate movement of dedicated shipments or large quantities of such waste.

Therefore, for the reasons given in the proposed rule and in this document, we are adopting the proposed rule as a final rule, with the change discussed in this document.

Executive Order 12866 and Regulatory Flexibility Act

This rule has been reviewed under Executive Order 12866. The rule has been determined to be not significant for the purposes of Executive Order 12866 and, therefore, has not been reviewed by the Office of Management and Budget.

We are amending the regulations pertaining to certain garbage to provide for the interstate movement of garbage from Hawaii subject to measures designed to protect against the dissemination of plant pests into noninfested areas of the continental United States. We are amending these regulations upon request in order to provide the State of Hawaii with additional waste disposal options, and after determining that the action will not result in the introduction of plant or animal pests or diseases into the continental United States from Hawaii.

For the purposes of this analysis, we have determined that the Island of Oahu (where Honolulu is located) is expected to be the source of most, if not all, of any MSW that is moved to the continental United States under the regulations. Oahu has only one municipal landfill (Waimanalo Gulch), and there is no alternative landfill on the island at the present time.

Oahu generates approximately 1.6 million tons of MSW per year. That figure is expected to rise an additional 20,000 tons and remain at that level for the next 10 years. Of the current total, 500,000 tons are recycled, 600,000 tons are burned for electricity, and 500,000 tons are landfilled. Of the 500,000 tons that are landfilled, 200,000 tons go to a privately operated construction and demolition landfill and 300,000 tons go to Waimanalo Gulch municipal landfill. Waimanalo Gulch landfill is owned by the City of Honolulu and managed by a private company.

⁴ Based on the mean percentage of yard waste at the Waimanalo Gulch landfill, Oahu (6.0 percent ± 3.4 percent) and on Hawaii (5.4 percent), if companies are only 50 percent effective with additional screening and removal of visible yard waste in transfer stations or on bale processing lines, the fraction of yard waste in baled Hawaiian MSW should be reduced to 3 percent or less.

The Island of Hawaii (where Hilo is located) is another potential source of MSW that would move to the continental United States if the proposal is adopted. The island’s only two landfills are located approximately 75 miles apart, and one (South Hilo Sanitary Landfill) may be nearing capacity. To date, one waste management service company has proposed to bale and move at least some of the island’s MSW to a landfill in Washington State. Approximately 200 tons of garbage per day is landfilled at the South Hilo facility.⁵

This rule will allow for the garbage to be compacted into bales, and then wrapped in plastic for transport to the mainland (the baling and wrapping would take place in the State of Hawaii). Estimates of the annual volume of MSW that would be shipped from Oahu to the continental United States range from 100,000 tons to 350,000 tons.⁶

Need for Rule and Alternatives Considered

These are being amended upon request to provide public officials in Hawaii another option for disposal of the State’s waste. The only other regulatory alternative is to leave the regulations unchanged, but that alternative would unnecessarily limit Hawaiian officials’ disposal options.

Small Entity Impact

The Regulatory Flexibility Act (RFA) requires that agencies consider the economic impact of rules on small entities, *i.e.*, small businesses, organizations, and governmental jurisdictions. The changes to the regulations will allow for the movement of MSW from Hawaii to the continental United States.

These changes will not have a significant economic impact on a substantial number of small entities, because few entities, large or small, are likely to be affected. Only a handful of businesses are potentially affected by the rule—*e.g.*, the company or companies that would secure the contract to move the waste from Hawaii, the barge line or lines that would physically move the waste to the mainland, the trucking company/railroad on the mainland that would physically move the waste to the interior landfill locations, and perhaps a few companies on Hawaii that would be forced to discontinue participation (or play a reduced role) in the State’s waste

⁵ Source: News accounts in the *Honolulu Star-Bulletin*.

⁶ Source: News accounts in the *Honolulu Star-Bulletin* and APHIS staff. Similar estimates for the Island of Hawaii are not available.

disposal process once shipments to the mainland began. Those businesses that will participate in the movement of the waste to the mainland could be expected to benefit, since they will generate additional revenue and, presumably, profits from the increased business activity. Conversely, those businesses that will either no longer participate or will play a reduced role in Hawaii's waste disposal process could be expected to suffer lost revenue.

The revenues generated by the private company that manages the Waimanalo Gulch landfill, for example, are presumably tied to the volume of waste that is landfilled there. If waste is diverted from Waimanalo Gulch to the mainland, that company's revenues are likely to be reduced. The City of Honolulu and the County of Hawaii are also potentially affected by the proposed changes.

The preceding discussion assumes that the rule will not have significant environmentally related economic consequences for small entities. There are several reasons. First, the environmental assessment in this document concludes that the movement of MSW from Hawaii to the continental United States (using the plastic-baled methodology) will not have a significant impact on the environment. Second, site-specific environmental assessments will also be prepared as requests for compliance agreements are made. The site-specific assessments, which will be made available for public comment, will allow APHIS to address any environmental issues that may arise based on precise destination and handling protocols for the proposed movements, which are now unknown.

Although the size of virtually all of the businesses potentially affected by the rule is unknown, it is reasonable to assume that at least some could be small. This assumption is based on composite data for providers of the same and similar services in the United States. As an example, North American Industry Classification System (NAICS) category 562 ("Waste Management and Remediation Services") consists of establishments engaged in the collection, treatment, and disposal of waste materials. Under the U.S. Small Business Administration's (SBA) size standards, the small entity threshold for establishments that fall into most of the activity subcategories under NAICS 562 is annual receipts of \$10.5 million. For all 18,405 U.S. establishments in NAICS 562 in 2002, average per-establishment receipts that year were \$2.8 million, an indication that most waste management

service companies are small entities.⁷ Annual receipt data for three of the four firms that have proposed to move Hawaii's waste to the mainland are not available. Although annual receipt data for the fourth company are also not available, that company is considered large by virtue of it being a subsidiary of a publicly owned firm with receipts (operating revenues) of over \$13 billion in 1999.⁸ The private company that currently manages the Waimanalo Gulch landfill is also a subsidiary of that publicly owned firm.

As another example, there were 677 U.S. entities in NAICS category 483113 in 2002. NAICS 483113 consists of entities primarily engaged in providing deep sea transportation of cargo to and from domestic ports. For all 677 entities, average per-entity employment that year was 36, well below the SBA's small entity threshold of 500 employees for entities in that NAICS category.⁹

Under the RFA, the term "small governmental jurisdiction" generally means cities, counties, townships, etc., with a population of less than 50,000. The City of Honolulu, which owns the Waimanalo Gulch landfill, does not qualify as a small entity because its population exceeds 50,000. The County of Hawaii, where Hilo is located, also has a population that exceeds 50,000.

The changes to the regulations will not, as noted previously, have a significant economic impact on a substantial number of small entities, because few entities, large or small, are likely to be affected. The size of virtually all of the businesses potentially affected by the changes to the regulations is unknown, but it is reasonable to assume that at least some could be small.

Under these circumstances, the Administrator of the Animal and Plant Health Inspection Service has determined that this action will not have a significant economic impact on a substantial number of small entities.

Executive Order 12372

This program/activity is listed in the Catalog of Federal Domestic Assistance under No. 10.025 and is subject to Executive Order 12372, which requires intergovernmental consultation with State and local officials. (See 7 CFR part 3015, subpart V.)

Executive Order 12988

This final rule has been reviewed under Executive Order 12988, Civil

⁷ Source: U.S. Census Bureau (2002 Economic Census) and SBA.

⁸ Source: Various Internet sites.

⁹ Source: U.S. Census Bureau (2002 Economic Census) and SBA.

Justice Reform. This rule: (1) Preempts all State and local laws and regulations that are inconsistent with this rule; (2) has no retroactive effect; and (3) does not require administrative proceedings before parties may file suit in court challenging this rule.

National Environmental Policy Act

An environmental assessment and finding of no significant impact have been prepared for this final rule. The environmental assessment provides a basis for the conclusion that the importation of MSW from Hawaii to the mainland United States will not have a significant impact on the quality of the human environment. Based on the finding of no significant impact, the Administrator of the Animal and Plant Health Inspection Service has determined that an environmental impact statement need not be prepared.

The environmental assessment and finding of no significant impact were prepared in accordance with: (1) The National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 *et seq.*), (2) regulations of the Council on Environmental Quality for implementing the procedural provisions of NEPA (40 CFR parts 1500–1508), (3) USDA regulations implementing NEPA (7 CFR part 1b), and (4) APHIS' NEPA Implementing Procedures (7 CFR part 372).

The environmental assessment and finding of no significant impact may be viewed on the Regulations.gov Web site.¹⁰ Copies of the environmental assessment and finding of no significant impact are also available for public inspection at USDA, room 1141, South Building, 14th Street and Independence Avenue, SW., Washington, DC, between 8 a.m. and 4:30 p.m., Monday through Friday, except holidays. Persons wishing to inspect copies are requested to call ahead on (202) 690–2817 to facilitate entry into the reading room. In addition, copies may be obtained by writing to the individual listed under FOR FURTHER INFORMATION CONTACT.

Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*), the information collection or recordkeeping requirements included in this rule have been approved by the Office of Management and Budget

¹⁰Go to <http://www.regulations.gov>, click on the "Advanced Search" tab and select "Docket Search." In the Docket ID field, enter APHIS–2005–0047, click on "Submit," then click on the Docket ID link in the search results page. The environmental assessment and finding of no significant impact will appear in the resulting list of documents.

(OMB) under OMB control number 0579-0292.

E-Government Act Compliance

The Animal and Plant Health Inspection Service is committed to compliance with the E-Government Act to promote the use of the Internet and other information technologies, to provide increased opportunities for citizen access to Government information and services, and for other purposes. For information pertinent to E-Government Act compliance related to this rule, please contact Mrs. Celeste Sickles, APHIS' Information Collection Coordinator, at (301) 734-7477.

List of Subjects

7 CFR Part 330

Customs duties and inspection, Imports, Plant diseases and pests, Quarantine, Reporting and recordkeeping requirements, Transportation.

9 CFR Part 94

Animal diseases, Imports, Livestock, Meat and meat products, Milk, Poultry and poultry products, Reporting and recordkeeping requirements.

■ Accordingly, we are amending 7 CFR part 330 and 9 CFR part 94 as follows:

Title 7—[Amended]

PART 330—FEDERAL PLANT PEST REGULATIONS; GENERAL; PLANT PESTS; SOIL, STONE, AND QUARRY PRODUCTS; GARBAGE

■ 1. The authority citation for part 330 continues to read as follows:

Authority: 7 U.S.C. 450, 7701-7772, 7781-7786, and 8301-8317; 21 U.S.C. 136 and 136a; 31 U.S.C. 9701; 7 CFR 2.22, 2.80, and 371.3.

■ 2. In § 330.100, a definition for *State* is added and the definition for *United States* is revised to read as follows:

§ 330.100 Definitions.

* * * * *

State. Any of the several States of the United States, the Commonwealth of the Northern Mariana Islands, the Commonwealth of Puerto Rico, the District of Columbia, Guam, the Virgin Islands of the United States, or any other territory or possession of the United States.

* * * * *

United States. All of the States.

* * * * *

■ 3. Subpart—Garbage, § 330.400, is revised to read as follows:

Subpart—Garbage

Sec.

- 330.400 Regulation of certain garbage.
- 330.401 Garbage generated onboard a conveyance.
- 330.402 Garbage generated in Hawaii.
- 330.403 Compliance agreement and cancellation.

Subpart—Garbage

§ 330.400 Regulation of certain garbage.

(a) *Certain interstate movements and imports—(1) Interstate movements of garbage from Hawaii and U.S. territories and possessions to other States.* Hawaii, Puerto Rico, American Samoa, the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia, Guam, the U.S. Virgin Islands, Republic of the Marshall Islands, and the Republic of Palau are hereby quarantined, and the movement of garbage therefrom to any other State is hereby prohibited except as provided in this subpart in order to prevent the introduction and spread of exotic plant pests and diseases.

(2) *Imports of garbage.* In order to protect against the introduction of exotic animal and plant pests and diseases, the importation of garbage from all foreign countries except Canada is prohibited except as provided in § 330.401(b).

(b) *Definitions—Agricultural waste.* Byproducts generated by the rearing of animals and the production and harvest of crops or trees. Animal waste, a large component of agricultural waste, includes waste (e.g., feed waste, bedding and litter, and feedlot and paddock runoff) from livestock, dairy, and other animal-related agricultural and farming practices.

Approved facility. A facility approved by the Administrator, Animal and Plant Health Inspection Service, upon his determination that it has equipment and uses procedures that are adequate to prevent the dissemination of plant pests and livestock or poultry diseases, and that it is certified by an appropriate Government official as currently complying with the applicable laws for environmental protection.

Approved sewage system. A sewage system approved by the Administrator, Animal and Plant Health Inspection Service, upon his determination that the system is designed and operated in such a way as to preclude the discharge of sewage effluents onto land surfaces or into lagoons or other stationary waters, and otherwise is adequate to prevent the dissemination of plant pests and livestock or poultry diseases, and that is certified by an appropriate Government official as currently complying with the applicable laws for environmental protection.

Carrier. The principal operator of a means of conveyance.

Garbage. All waste material that is derived in whole or in part from fruits, vegetables, meats, or other plant or animal (including poultry) material, and other refuse of any character whatsoever that has been associated with any such material.

Incineration. To reduce garbage to ash by burning.

Interstate. From one State into or through any other State.

Sterilization. Cooking garbage at an internal temperature of 212 °F for 30 minutes.

Stores. The food, supplies, and other provisions carried for the day-to-day operation of a conveyance and the care and feeding of its operators.

Yard waste. Solid waste composed predominantly of grass clippings, leaves, twigs, branches, and other garden refuse.

§ 330.401 Garbage generated onboard a conveyance.

(a) *Applicability.* This section applies to garbage generated onboard any means of conveyance during international or interstate movements as provided in this section and includes food scraps, table refuse, galley refuse, food wrappers or packaging materials, and other waste material from stores, food preparation areas, passengers' or crews' quarters, dining rooms, or any other areas on the means of conveyance. This section also applies to meals and other food that were available for consumption by passengers and crew on an aircraft but were not consumed.

(1) Not all garbage generated onboard a means of conveyance is regulated for the purposes of this section. Garbage regulated for the purposes of this section is defined as "regulated garbage" in paragraphs (b) and (c) of this section.

(2) Garbage that is commingled with regulated garbage is also regulated garbage.

(b) *Garbage regulated because of movements outside the United States or Canada.* For purposes of this section, garbage on or removed from a means of conveyance is regulated garbage, if, when the garbage is on or removed from the means of conveyance, the means of conveyance has been in any port outside the United States and Canada within the previous 2-year period. There are, however, two exceptions to this provision. These exceptions are as follows:

(1) *Exception 1: Aircraft.* Garbage on or removed from an aircraft is exempt from requirements under paragraph (d) of this section if the following

conditions are met when the garbage is on or removed from the aircraft:

(i) The aircraft had previously been cleared of all garbage and of all meats and meat products, whatever the country of origin, except meats that are shelf-stable; all fresh and condensed milk and cream from countries designated in 9 CFR 94.1 as those in which foot-and-mouth disease exists; all fresh fruits and vegetables; and all eggs; and the items previously cleared from the aircraft as prescribed by this paragraph have been disposed of according to the procedures for disposing of regulated garbage, as specified in paragraphs (d)(2) and (d)(3) of this section.

(ii) After the garbage and stores referred to in paragraph (b)(1)(i) of this section were removed, the aircraft has not been in a non-Canadian foreign port.

(2) *Exception 2: Other conveyances.* Garbage on or removed in the United States from a means of conveyance other than an aircraft is exempt from requirements under paragraph (d) of this section if the following conditions are met when the garbage is on or removed from the means of conveyance:

(i) The means of conveyance is accompanied by a certificate from an inspector stating the following:

(A) That the means of conveyance had previously been cleared of all garbage and of all meats and meat products, whatever the country of origin, except meats that are shelf-stable; all fresh and condensed milk and cream from countries designated in 9 CFR 94.1 as those in which foot-and-mouth disease exists; all fresh fruits and vegetables; and all eggs; and the items previously cleared from the means of conveyance as prescribed by this paragraph have been disposed of according to the procedures for disposing of regulated garbage, as specified in paragraphs (d)(2) and (d)(3) of this section.

(B) That the means of conveyance had then been cleaned and disinfected in the presence of the inspector; and

(ii) Since being cleaned and disinfected, the means of conveyance has not been in a non-Canadian foreign port.

(c) *Garbage regulated because of certain movements to or from Hawaii, territories, or possessions.* For purposes of this section, garbage on or removed from a means of conveyance is regulated garbage, if at the time the garbage is on or removed from the means of conveyance, the means of conveyance has moved during the previous 1-year period, either directly or indirectly, to the continental United States from any territory or possession or from Hawaii, to any territory or possession from any

other territory or possession or from Hawaii, or to Hawaii from any territory or possession. There are, however, two exceptions to this provision. These exceptions are as follows:

(1) *Exception 1: Aircraft.* Garbage on or removed from an aircraft is exempt from requirements under paragraph (d) of this section if the following two conditions are met when the garbage is on or removed from the aircraft:

(i) The aircraft had been previously cleared of all garbage and all fresh fruits and vegetables, and the items previously cleared from the aircraft as prescribed by this paragraph have been disposed of according to the procedures for disposing of regulated garbage, as specified in paragraphs (d)(2) and (d)(3) of this section.

(ii) After the garbage and stores referred to in paragraph (c)(1)(i) of this section were removed, the aircraft has not moved to the continental United States from any territory or possession or from Hawaii; to any territory or possession from any other territory or possession or from Hawaii; or to Hawaii from any territory or possession.

(2) *Exception 2: Other conveyances.* Garbage on or removed from a means of conveyance other than an aircraft is exempt from requirements under paragraph (d) of this section if the following two conditions are met when the garbage is on or removed from the means of conveyance:

(i) The means of conveyance is accompanied by a certificate from an inspector stating that the means of conveyance had been cleared of all garbage and all fresh fruits and vegetables; and the items previously cleared from the means of conveyance as prescribed by this paragraph have been disposed of according to the procedures for disposing of regulated garbage, as specified in paragraphs (d)(2) and (d)(3) of this section.

(ii) After being cleared of the garbage and stores referred to in paragraph (c)(2)(i) of this section, the means of conveyance has not moved to the continental United States from any territory or possession or from Hawaii; to any territory or possession from any other territory or possession or from Hawaii; or to Hawaii from any territory or possession.

(d) *Restrictions on regulated garbage.*

(1) Regulated garbage may not be disposed of, placed on, or removed from a means of conveyance except in accordance with this section.

(2) Regulated garbage is subject to general surveillance for compliance with this section by inspectors and to disposal measures authorized by the Plant Protection Act and the Animal

Health Protection Act to prevent the introduction and dissemination of pests and diseases of plants and livestock.

(3) All regulated garbage must be contained in tight, covered, leak-proof receptacles during storage on board a means of conveyance while in the territorial waters, or while otherwise within the territory of the United States. All such receptacles shall be contained inside the guard rail if on a watercraft. Such regulated garbage shall not be unloaded from such means of conveyance in the United States unless such regulated garbage is removed in tight, covered, leak-proof receptacles under the direction of an inspector to an approved facility for incineration, sterilization, or grinding into an approved sewage system, under direct supervision by such an inspector, or such regulated garbage is removed for other handling in such manner and under such supervision as may, upon request in specific cases, be approved by the Administrator as adequate to prevent the introduction and dissemination of plant pests and animal diseases and sufficient to ensure compliance with applicable laws for environmental protection. *Provided that*, a cruise ship may dispose of regulated garbage in landfills at Alaskan ports only, if and only if the cruise ship does not have prohibited or restricted meat or animal products on board at the time it enters Alaskan waters for the cruise season, and only if the cruise ship, except for incidental travel through international waters necessary to navigate safely between ports, remains in Canadian and U.S. waters off the west coast of North America, and calls only at continental U.S. and Canadian ports during the entire cruise season.

(i) Application for approval of a facility or sewage system may be made in writing by the authorized representative of any carrier or by the official having jurisdiction over the port or place of arrival of the means of conveyance to the Administrator, Animal and Plant Health Inspection Service, U.S. Department of Agriculture, Washington, DC 20250. The application must be endorsed by the operator of the facility or sewage system.

(ii) Approval will be granted if the Administrator determines that the requirements set forth in this section are met. Approval may be denied or withdrawn at any time, if the Administrator determines that such requirements are not met, after notice of the proposed denial or withdrawal of the approval and the reasons therefor, and an opportunity to demonstrate or achieve compliance with such

requirements, has been afforded to the operator of the facility or sewage system and to the applicant for approval. However, approval may also be withdrawn without such prior procedure in any case in which the public health, interest, or safety requires immediate action, and in such case, the operator of the facility or sewage system and the applicant for approval shall promptly thereafter be given notice of the withdrawal and the reasons therefor and an opportunity to show cause why the approval should be reinstated.

(e) The Plant Protection and Quarantine Programs and Veterinary Services, Animal, and Plant Health Inspection Service, will cooperate with other Federal, State, and local agencies responsible for enforcing other statutes and regulations governing disposal of the regulated garbage to the end that such disposal shall be adequate to prevent the dissemination of plant pests and livestock or poultry diseases and comply with applicable laws for environmental protection. The inspectors, in maintaining surveillance over regulated garbage movements and disposal, shall coordinate their activities with the activities of representatives of the Environmental Protection Agency and other Federal, State, and local agencies also having jurisdiction over such regulated garbage

§ 330.402 Garbage generated in Hawaii.

(a) *Applicability.* This section applies to garbage generated in households, commercial establishments, institutions, and businesses prior to interstate movement from Hawaii, and includes used paper, discarded cans and bottles, and food scraps. Such garbage includes, and is commonly known as, municipal solid waste.

(1) Industrial process wastes, mining wastes, sewage sludge, incinerator ash, or other wastes from Hawaii that the Administrator determines do not pose risks of introducing animal or plant pests or diseases into the continental United States are not regulated under this section.

(2) The interstate movement from Hawaii to the continental United States of agricultural wastes and yard waste (other than incidental amounts (less than 3 percent) that may be present in municipal solid waste despite reasonable efforts to maintain source separation) is prohibited.

(3) Garbage generated onboard any means of conveyance during interstate movement from Hawaii is regulated under § 330.401.

(b) *Restrictions on interstate movement of garbage.* The interstate movement of garbage generated in

Hawaii to the continental United States is regulated as provided in this section.

(1) The garbage must be processed, packaged, safeguarded, and disposed of using a methodology that the Administrator has determined is adequate to prevent the introduction or dissemination of plant pests into noninfested areas of the United States.

(2) The garbage must be moved under a compliance agreement in accordance with § 330.403. APHIS will only enter into a compliance agreement when the Administrator is satisfied that the Agency has first satisfied all its obligations under the National Environmental Policy Act and all applicable Federal and State statutes to fully assess the impacts associated with the movement of garbage under the compliance agreement.

(3) All such garbage moved interstate from Hawaii to any of the continental United States must be moved in compliance with all applicable laws for environmental protection.

§ 330.403 Compliance agreement and cancellation.

(a) Any person engaged in the business of handling or disposing of garbage in accordance with this subpart must first enter into a compliance agreement with the Animal and Plant Health Inspection Service (APHIS). Compliance agreement forms (PPQ Form 519) are available without charge from local USDA/APHIS/Plant Protection and Quarantine offices, which are listed in telephone directories.

(b) A person who enters into a compliance agreement, and employees or agents of that person, must comply with the following conditions and any supplemental conditions which are listed in the compliance agreement, as deemed by the Administrator to be necessary to prevent the dissemination into or within the United States of plant pests and livestock or poultry diseases:

(1) Comply with all applicable provisions of this subpart;

(2) Allow inspectors access to all records maintained by the person regarding handling or disposal of garbage, and to all areas where handling or disposal of garbage occurs;

(3)(i) If the garbage is regulated under § 330.401, remove garbage from a means of conveyance only in tight, covered, leak-proof receptacles;

(ii) If the garbage is regulated under § 330.402, transport garbage interstate in packaging approved by the Administrator;

(4) Move the garbage only to a facility approved by the Administrator; and

(5) At the approved facility, dispose of the garbage in a manner approved by the Administrator and described in the compliance agreement.

(c) Approval for a compliance agreement may be denied at any time if the Administrator determines that the applicant has not met or is unable to meet the requirements set forth in this subpart. Prior to denying any application for a compliance agreement, APHIS will provide notice to the applicant thereof, and will provide the applicant with an opportunity to demonstrate or achieve compliance with requirements.

(d) Any compliance agreement may be canceled, either orally or in writing, by an inspector whenever the inspector finds that the person who has entered into the compliance agreement has failed to comply with this subpart. If the cancellation is oral, the cancellation and the reasons for the cancellation will be confirmed in writing as promptly as circumstances allow. Any person whose compliance agreement has been canceled may appeal the decision, in writing, within 10 days after receiving written notification of the cancellation. The appeal must state all of the facts and reasons upon which the person relies to show that the compliance agreement was wrongfully canceled. As promptly as circumstances allow, the Administrator will grant or deny the appeal, in writing, stating the reasons for the decision. A hearing will be held to resolve any conflict as to any material fact. Rules of practice concerning a hearing will be adopted by the Administrator. This administrative remedy must be exhausted before a person can file suit in court challenging the cancellation of a compliance agreement.

(e) Where a compliance agreement is denied or canceled, the person who entered into or applied for the compliance agreement may be prohibited, at the discretion of the Administrator, from handling or disposing of regulated garbage.

(Approved by the Office of Management and Budget under control numbers 0579-0015, 0579-0054, and 0579-0292)

Title 9—[AMENDED]

PART 94—RINDERPEST, FOOT-AND-MOUTH DISEASE, FOWL PEST (FOWL PLAGUE), EXOTIC NEWCASTLE DISEASE, AFRICAN SWINE FEVER, CLASSICAL SWINE FEVER, AND BOVINE SPONGIFORM ENCEPHALOPATHY: PROHIBITED AND RESTRICTED IMPORTATIONS

■ 4. The authority citation for part 94 continues to read as follows:

Authority: 7 U.S.C. 450, 7701–7772, 7781–7786, and 8301–8317; 21 U.S.C. 136 and 136a; 31 U.S.C. 9701; 7 CFR 2.22, 2.80, and 371.4.

■ 5. In § 94.0, a definition for *State* is added and the definition for *United States* is revised to read as follows:

§ 94.0 Definitions.

* * * * *

State. Any of the several States of the United States, the Commonwealth of the Northern Mariana Islands, the Commonwealth of Puerto Rico, the District of Columbia, Guam, the Virgin Islands of the United States, or any other territory or possession of the United States.

* * * * *

United States. All of the States.

* * * * *

■ 6. Section 94.5 is revised to read as follows:

§ 94.5 Regulation of certain garbage.

(a) *General restrictions*—(1) *Interstate movements of garbage from Hawaii and U.S. territories and possessions to the continental United States.* Hawaii, Puerto Rico, American Samoa, the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia, Guam, the U.S. Virgin Islands, Republic of the Marshall Islands, and the Republic of Palau are hereby quarantined, and the movement of garbage therefrom to any other State is hereby prohibited except as provided in this section in order to prevent the introduction and spread of exotic plant pests and diseases.

(2) *Imports of garbage.* In order to protect against the introduction of exotic animal and plant pests, the importation of garbage from all foreign countries except Canada is prohibited except as provided in paragraph (c)(2) of this section.

(b) *Definitions—Agricultural waste.* Byproducts generated by the rearing of animals and the production and harvest of crops or trees. Animal waste, a large component of agricultural waste, includes waste (e.g., feed waste, bedding and litter, and feedlot and paddock

runoff) from livestock, dairy, and other animal-related agricultural and farming practices.

Approved facility. A facility approved by the Administrator, Animal and Plant Health Inspection Service, upon his determination that it has equipment and uses procedures that are adequate to prevent the dissemination of plant pests and livestock or poultry diseases, and that it is certified by an appropriate Government official as currently complying with the applicable laws for environmental protection.

Approved sewage system. A sewage system approved by the Administrator, Animal and Plant Health Inspection Service, upon his determination that the system is designed and operated in such a way as to preclude the discharge of sewage effluents onto land surfaces or into lagoons or other stationary waters, and otherwise is adequate to prevent the dissemination of plant pests and livestock or poultry diseases, and that is certified by an appropriate Government official as currently complying with the applicable laws for environmental protection.

Carrier. The principal operator of a means of conveyance.

Continental United States. The 49 States located on the continent of North America and the District of Columbia.

Garbage. All waste material that is derived in whole or in part from fruits, vegetables, meats, or other plant or animal (including poultry) material, and other refuse of any character whatsoever that has been associated with any such material.

Incineration. To reduce garbage to ash by burning.

Inspector. A properly identified employee of the U.S. Department of Agriculture or other person authorized by the Department to enforce the provisions of applicable statutes, quarantines, and regulations.

Interstate. From one State into or through any other State.

Person. Any individual, corporation, company, association, firm, partnership, society, or joint stock company.

Shelf-stable. The condition achieved in a product, by application of heat, alone or in combination with other ingredients and/or other treatments, of being rendered free of microorganisms capable of growing in the product under nonrefrigerated conditions (over 50 °F or 10 °C).

Sterilization. Cooking garbage at an internal temperature of 212 °F for 30 minutes.

Stores. The food, supplies, and other provisions carried for the day-to-day operation of a conveyance and the care and feeding of its operators.

Yard waste. Solid waste composed predominantly of grass clippings, leaves, twigs, branches, and other garden refuse.

(c) *Garbage generated onboard a conveyance*—(1) *Applicability.* This section applies to garbage generated onboard any means of conveyance during international or interstate movements as provided in this section and includes food scraps, table refuse, galley refuse, food wrappers or packaging materials, and other waste material from stores, food preparation areas, passengers' or crews' quarters, dining rooms, or any other areas on the means of conveyance. This section also applies to meals and other food that were available for consumption by passengers and crew on an aircraft but were not consumed.

(i) Not all garbage generated onboard a means of conveyance is regulated for the purposes of this section. Garbage regulated for the purposes of this section is defined as "regulated garbage" in paragraphs (c)(2) and (c)(3) of this section.

(ii) Garbage that is commingled with regulated garbage is also regulated garbage.

(2) *Garbage regulated because of movements outside the United States or Canada.* For purposes of this section, garbage on or removed from a means of conveyance is regulated garbage, if, when the garbage is on or removed from the means of conveyance, the means of conveyance has been in any port outside the United States and Canada within the previous 2-year period. There are, however, two exceptions to this provision. These exceptions are as follows:

(i) *Exception 1: Aircraft.* Garbage on or removed from an aircraft is exempt from requirements under paragraph (c)(4) of this section if the following conditions are met when the garbage is on or removed from the aircraft:

(A) The aircraft had previously been cleared of all garbage and of all meats and meat products, whatever the country of origin, except meats that are shelf-stable; all fresh and condensed milk and cream from countries designated in § 94.1 as those in which foot-and-mouth disease exists; all fresh fruits and vegetables; and all eggs; and the items previously cleared from the aircraft as prescribed by this paragraph have been disposed of according to the procedures for disposing of regulated garbage, as specified in paragraphs (c)(4)(ii) and (c)(4)(iii) of this section.

(B) After the garbage and stores referred to in paragraph (c)(2)(i)(A) of this section were removed, the aircraft

has not been in a non-Canadian foreign port.

(ii) *Exception 2: Other conveyances.* Garbage on or removed in the United States from a means of conveyance other than an aircraft is exempt from requirements under paragraph (c)(4) of this section if the following conditions are met when the garbage is on or removed from the means of conveyance:

(A) The means of conveyance is accompanied by a certificate from an inspector stating the following:

(1) That the means of conveyance had previously been cleared of all garbage and of all meats and meat products, whatever the country of origin, except meats that are shelf-stable; all fresh and condensed milk and cream from countries designated in § 94.1 as those in which foot-and-mouth disease exists; all fresh fruits and vegetables; and all eggs; and the items previously cleared from the means of conveyance as prescribed by this paragraph have been disposed of according to the procedures for disposing of regulated garbage, as specified in paragraphs (c)(4)(ii) and (c)(4)(iii) of this section.

(2) That the means of conveyance had then been cleaned and disinfected in the presence of the inspector; and

(B) Since being cleaned and disinfected, the means of conveyance has not been in a non-Canadian foreign port.

(3) *Garbage regulated because of certain movements to or from Hawaii, territories, or possessions.* For purposes of this section, garbage on or removed from a means of conveyance is regulated garbage, if at the time the garbage is on or removed from the means of conveyance, the means of conveyance has moved during the previous 1-year period, either directly or indirectly, to the continental United States from any territory or possession or from Hawaii, to any territory or possession from any other territory or possession or from Hawaii, or to Hawaii from any territory or possession. There are, however, two exceptions to this provision. These exceptions are as follows:

(i) *Exception 1: Aircraft.* Garbage on or removed from an aircraft is exempt from requirements under paragraph (c)(4) of this section if the following two conditions are met when the garbage is on or removed from the aircraft:

(A) The aircraft had been previously cleared of all garbage and all fresh fruits and vegetables, and the items previously cleared from the aircraft as prescribed by this paragraph have been disposed of according to the procedures for disposing of regulated garbage, as specified in paragraphs (c)(4)(ii) and (c)(4)(iii) of this section.

(B) After the garbage and stores referred to in paragraph (c)(3)(i)(A) of this section were removed, the aircraft has not moved to the continental United States from any territory or possession or from Hawaii, to any territory or possession from any other territory or possession or from Hawaii, or to Hawaii from any territory or possession.

(ii) *Exception 2: Other conveyances.* Garbage on or removed from a means of conveyance other than an aircraft is exempt from requirements under paragraph (c)(4) of this section if the following two conditions are met when the garbage is on or removed from the means of conveyance:

(A) The means of conveyance is accompanied by a certificate from an inspector stating that the means of conveyance had been cleared of all garbage and all fresh fruits and vegetables, and the items previously cleared from the means of conveyance as prescribed by this paragraph have been disposed of according to the procedures for disposing of regulated garbage, as specified in paragraphs (c)(4)(ii) and (c)(4)(iii) of this section.

(B) After being cleared of the garbage and stores referred to in paragraph (c)(3)(i)(A) of this section, the means of conveyance has not moved to the continental United States from any territory or possession or from Hawaii; to any territory or possession from any other territory or possession or from Hawaii; or to Hawaii from any territory or possession.

(4) *Restrictions on regulated garbage.*

(i) Regulated garbage may not be disposed of, placed on, or removed from a means of conveyance except in accordance with this section.

(ii) Regulated garbage is subject to general surveillance for compliance with this section by inspectors and to disposal measures authorized by the Plant Protection Act and the Animal Health Protection Act to prevent the introduction and dissemination of pests and diseases of plants and livestock.

(iii) All regulated garbage must be contained in tight, covered, leak-proof receptacles during storage on board a means of conveyance while in the territorial waters, or while otherwise within the territory of the United States. All such receptacles shall be contained inside the guard rail if on a watercraft. Such regulated garbage shall not be unloaded from such means of conveyance in the United States unless such regulated garbage is removed in tight, covered, leak-proof receptacles under the direction of an inspector to an approved facility for incineration, sterilization, or grinding into an approved sewage system, under direct

supervision by such an inspector, or such regulated garbage is removed for other handling in such manner and under such supervision as may, upon request in specific cases, be approved by the Administrator as adequate to prevent the introduction and dissemination of plant pests and animal diseases and sufficient to ensure compliance with applicable laws for environmental protection. *Provided that,* a cruise ship may dispose of regulated garbage in landfills at Alaskan ports only, if and only if the cruise ship does not have prohibited or restricted meat or animal products on board at the time it enters Alaskan waters for the cruise season, and only if the cruise ship, except for incidental travel through international waters necessary to navigate safely between ports, remains in Canadian and U.S. waters off the west coast of North America, and calls only at continental U.S. and Canadian ports during the entire cruise season.

(A) Application for approval of a facility or sewage system may be made in writing by the authorized representative of any carrier or by the official having jurisdiction over the port or place of arrival of the means of conveyance to the Administrator, Animal and Plant Health Inspection Service, U.S. Department of Agriculture, Washington, DC 20250. The application must be endorsed by the operator of the facility or sewage system.

(B) Approval will be granted if the Administrator determines that the requirements set forth in this section are met. Approval may be denied or withdrawn at any time, if the Administrator determines that such requirements are not met, after notice of the proposed denial or withdrawal of the approval and the reasons therefor, and an opportunity to demonstrate or achieve compliance with such requirements, has been afforded to the operator of the facility or sewage system and to the applicant for approval. However, approval may also be withdrawn without such prior procedure in any case in which the public health, interest, or safety requires immediate action, and in such case, the operator of the facility or sewage system and the applicant for approval shall promptly thereafter be given notice of the withdrawal and the reasons therefore and an opportunity to show cause why the approval should be reinstated.

(iv) The Plant Protection and Quarantine Programs and Veterinary Services, Animal, and Plant Health Inspection Service, will cooperate with other Federal, State, and local agencies

responsible for enforcing other statutes and regulations governing disposal of the regulated garbage to the end that such disposal shall be adequate to prevent the dissemination of plant pests and livestock or poultry diseases and comply with applicable laws for environmental protection. The inspectors, in maintaining surveillance over regulated garbage movements and disposal, shall coordinate their activities with the activities of representatives of the U.S. Environmental Protection Agency and other Federal, State, and local agencies also having jurisdiction over such regulated garbage.

(d) *Garbage generated in Hawaii*—(1) *Applicability.* This section applies to garbage generated in households, commercial establishments, institutions, and businesses prior to interstate movement from Hawaii, and includes used paper, discarded cans and bottles, and food scraps. Such garbage includes, and is commonly known as, municipal solid waste.

(i) Industrial process wastes, mining wastes, sewage sludge, incinerator ash, or other wastes from Hawaii that the Administrator determines do not pose risks of introducing animal or plant pests or diseases into the continental United States are not regulated under this section.

(ii) The interstate movement from Hawaii to the continental United States of agricultural wastes and yard waste (other than incidental amounts (less than 3 percent) that may be present in municipal solid waste despite reasonable efforts to maintain source separation) is prohibited.

(iii) Garbage generated onboard any means of conveyance during interstate movement from Hawaii is regulated under paragraph (c) of this section.

(2) *Restrictions on interstate movement of garbage.* The interstate movement of garbage generated in Hawaii to the continental United States is regulated as provided in this section.

(i) The garbage must be processed, packaged, safeguarded, and disposed of using a methodology that the Administrator has determined is adequate to prevent the introduction and dissemination of plant pests into noninfested areas of the United States.

(ii) The garbage must be moved under a compliance agreement in accordance with paragraph (e) of this section. APHIS will only enter into a compliance agreement when the Administrator is satisfied that the Agency has first satisfied all its obligations under the National Environmental Policy Act and all applicable Federal and State statutes to fully assess the impacts associated

with the movement of garbage under the compliance agreement.

(iii) All such garbage moved interstate from Hawaii to any of the continental United States must be moved in compliance with all applicable laws for environmental protection.

(e) *Compliance agreement and cancellation*—(1) Any person engaged in the business of handling or disposing of garbage in accordance with this section must first enter into a compliance agreement with the Animal and Plant Health Inspection Service (APHIS). Compliance agreement forms (PPQ Form 519) are available without charge from local USDA/APHIS/Plant Protection and Quarantine offices, which are listed in telephone directories.

(2) A person who enters into a compliance agreement, and employees or agents of that person, must comply with the following conditions and any supplemental conditions which are listed in the compliance agreement, as deemed by the Administrator to be necessary to prevent the introduction and dissemination into or within the United States of plant pests and livestock or poultry diseases:

(i) Comply with all applicable provisions of this section;

(ii) Allow inspectors access to all records maintained by the person regarding handling or disposal of garbage, and to all areas where handling or disposal of garbage occurs;

(iii)(A) If the garbage is regulated under paragraph (c) of this section, remove garbage from a means of conveyance only in tight, covered, leak-proof receptacles;

(B) If the garbage is regulated under paragraph (d) of this section, transport garbage interstate in sealed, leak-proof packaging approved by the Administrator;

(iv) Move the garbage only to a facility approved by the Administrator; and

(v) At the approved facility, dispose of the garbage in a manner approved by the Administrator and described in the compliance agreement.

(3) Approval for a compliance agreement may be denied at any time if the Administrator determines that the applicant has not met or is unable to meet the requirements set forth in this section. Prior to denying any application for a compliance agreement, APHIS will provide notice to the applicant thereof, and will provide the applicant with an opportunity to demonstrate or achieve compliance with requirements.

(4) Any compliance agreement may be canceled, either orally or in writing, by an inspector whenever the inspector

finds that the person who has entered into the compliance agreement has failed to comply with this section. If the cancellation is oral, the cancellation and the reasons for the cancellation will be confirmed in writing as promptly as circumstances allow. Any person whose compliance agreement has been canceled may appeal the decision, in writing, within 10 days after receiving written notification of the cancellation. The appeal must state all of the facts and reasons upon which the person relies to show that the compliance agreement was wrongfully canceled. As promptly as circumstances allow, the Administrator will grant or deny the appeal, in writing, stating the reasons for the decision. A hearing will be held to resolve any conflict as to any material fact. Rules of practice concerning a hearing will be adopted by the Administrator. This administrative remedy must be exhausted before a person can file suit in court challenging the cancellation of a compliance agreement.

(5) Where a compliance agreement is denied or canceled, the person who entered into or applied for the compliance agreement may be prohibited, at the discretion of the Administrator, from handling or disposing of regulated garbage.

(Approved by the Office of Management and Budget under control numbers 0579-0015, 0579-0054, and 0579-0292)

Done in Washington, DC, this 17th day of August 2006.

Kevin Shea,

Acting Administrator, Animal and Plant Health Inspection Service.

[FR Doc. E6-13968 Filed 8-22-06; 8:45 am] BILLING CODE 3410-34-P

DEPARTMENT OF AGRICULTURE

Animal and Plant Health Inspection Service

7 CFR Part 352

[Docket No. 00-086-2]

Untreated Oranges, Tangerines, and Grapefruit From Mexico Transiting the United States to Foreign Countries

AGENCY: Animal and Plant Health Inspection Service, USDA.

ACTION: Final rule.

SUMMARY: We are amending the regulations to allow untreated oranges, tangerines, and grapefruit from Mexico to be moved overland by truck or rail to Corpus Christi and Houston, TX, for export to another country by water. We

Attachment B — E-mail from Jim Hodges Regarding Transshipment of Honolulu MSW.

E-mail sent 12/14/2006 at 3:21 pm from Jim Hodges to Mark White, Subject: Summary

Mark,

In summary of our conversation, a potential interim disposal alternative for the City of Honolulu is our export model to Roosevelt Landfill in Washington State with the following core/essential stipulations:

- HWS would be willing to limit our export to 100,000 – 150,000 tons per year
- the cost would be approximately \$80/ton escalated annually by 80% of the CPI
- a five-year minimum commitment at the above stated volumes
- HWS would cooperate with the City on integrating our facility into the City's solid waste system. The mechanism for this integration would have to be determined with the City and HWS, but certainly could result in the City's managing the gate at HWS' processing facility

We feel that this could be, at the very least, an excellent interim measure for the City's solid waste system. Let me know if there is additional information that you need or further questions about anything we have discussed.

Thanks, Jim



Attachment C — Evaluation of CO₂ Emissions from Disposal of Waste at Waimanalo Gulch Sanitary Landfill, H-POWER, and Washington State



**Attachment D — Evaluations of Potential Landfill Sites
Prepared as Part of the Report of the Mayor's
Committee on Landfill Site Selection, December 2003**

*Evaluation of CO₂ Emissions from Disposal
of Waste at Waimanalo Gulch Sanitary Landfill,
H-POWER, and Washington State*



Pacific Waste
CONSULTING GROUP

April 2008

*Evaluation of CO₂ Emissions from Disposal of
Waste at Waimanalo Gulch Sanitary Landfill, H-
POWER, and Washington State*

April 2008

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Prepared for:

Waste Management of Hawaii, Inc.





Table of Contents

1	Introduction.....	1
2	Calculation Envelope.....	1
2.1	Steps in Transporting Waste to Roosevelt.....	2
3	Basis for Emissions Calculations	2
3.1	Emission Factors	3
3.1.1	Incinerator Emissions.....	3
3.1.2	Indirect Emissions from Electrical Use.....	4
3.1.3	Direct Emissions from Mobile Combustion.....	4
3.1.4	Landfill Emissions.....	4
3.2	Emission Calculations.....	5
3.2.1	Port Operations Information.....	6
3.2.2	Emissions Occurring before Shipment from Honolulu.....	7
3.2.3	Emissions Generated During Shipment from Honolulu to Portland.....	8
3.2.4	Emissions from Transporting from Portland to Roosevelt.....	9
3.2.5	Emissions from Decomposition at Roosevelt.....	9
4	Summary of Results	9
4.1.1	H-POWER Emissions.....	9
4.1.2	Waimanalo Gulch.....	10
4.1.3	Roosevelt	10
4.1.4	Conclusion.....	11

List of Figures and Tables

Table 1, Emission Factors.....	3
Table 2, Unit Quantities Associated with Disposal at Roosevelt.....	6
Table 3, Total Emissions from Three Alternatives	9
Table 4, Total Emissions from Transporting and Disposing at H-POWER.....	10
Table 5, Total Emissions from Transporting and Disposing at Waimanalo Gulch.....	10
Figure 1, Relative Emissions at Each Location	12
Table 6, Total Emissions from Transporting and Disposing at Roosevelt	11

1 Introduction

This report is an evaluation of the greenhouse gas (GHG) emissions that would be produced by disposing of 100,000 tons per year (TPY) of municipal solid waste (MSW) in three different locations. The three disposal locations evaluated are:

1. Roosevelt Landfill at 500 Roosevelt Grade Road, Roosevelt, Washington (Roosevelt).
2. Waimanalo Gulch landfill at Waimanalo Gulch, Kahe Valley, Hawaii (Waimanalo Gulch).
3. H-POWER incinerator at 91-174 Hanua Street, Kapolei, Hawaii (H-POWER).

The transfer to Roosevelt would begin at the Hawaiian Waste Systems (HWS), LLC Transfer Station at 91-165 Kalaeloa Boulevard, Kapolei, Hawaii. HWS is one of the proponents of transshipment of the waste. Data in documents filed by HWS was used in this analysis because more information was available about its plans than the other options for transshipment.

The calculated emissions include indirect emissions from electricity use and direct emissions from mobile combustion (truck transportation, tugboat barging, and forklift operation), incineration of waste, and landfilling waste.

This summary is based on an evaluation of the emissions from readily available published sources or direct contact with representatives of firms that provide the services used (e.g., barging companies). The summary is not intended, nor is it appropriate to use, as an assessment of emissions that will satisfy the requirements for a verifiable greenhouse gas emissions inventory.

There are six primary GHGs. This review is concerned only with CO₂.

2 Calculation Envelope

The envelope for evaluating emissions at each of the three disposal sites starts at a base point, the intersection of H-1 and Kalaeloa Boulevard. This location is the point at which a decision is made to take the waste to Waimanalo Gulch, to H-POWER, or to the HWS Transfer Station for transshipment to Roosevelt. It provides a common point to start the evaluation.

The path for calculating the emissions was:

- Transporting the waste from the base point to the HWS Transfer Station, processing it there, transporting it to Roosevelt, and disposal at Roosevelt.
- Transporting the waste from the base point to Waimanalo Gulch and landfill disposal.
- Transporting the waste from the base point to H-POWER and incineration.

The emissions associated with collecting and transporting the waste to the base point would have occurred regardless of the disposal point and are not included in this evaluation.

2.1 Steps in Transporting Waste to Roosevelt

The emission sources associated with processing the waste at HWS and moving it to disposal at Roosevelt are summarized below.

1. Transport waste from base to HWS Transfer Station
2. Bale the waste
3. Plastic wrap the bales
4. Load flatbed trailers
5. Transport bales to Barbers Point port facility
6. Unload flatbed trailers
7. Load barge
8. Barge to the Port of Portland
9. Unload barge
10. Reposition bales
11. Load flatbed trailers for transport to Roosevelt
12. Unload flatbed trailers
13. Landfill waste

3 Basis for Emissions Calculations

This section discusses the information needed to quantify the source of emissions and the CO₂ emission factors. The emissions are calculated based on the quantity of resource consumed (diesel fuel for transportation and electricity for the equipment) and the emissions resulting from landfilling or incineration. The emissions are dependent on the amount of activity that results in the emissions being produced. For example, every mile a truck is driven carrying waste for disposal generates GHG emissions.

3.1 Emission Factors

The emission factors used are summarized in *Table 1, Emission Factors*. The source from which the factor was taken is also shown. The factors that are indicated as being taken from the California Climate Action Registry (CCAR)¹ are from that organization's *General Reporting Protocol*, Version 3.0, March 2008, the latest CCAR general guidance available. The *Protocol* is used to calculate greenhouse gas emissions from a wide variety of sources.

Table 1, Emission Factors

Emission Source	Emission Factor	Source
Indirect emissions from electricity use	1,728.12 lb CO ₂ /MWh	CCAR Table C.2*
Direct emissions from mobile combustion using diesel fuel	10.15 kg CO ₂ /gallon	CCAR Table C.4 (Diesel)*
Direct emissions from mobile combustion using gasoline	8.81 kg CO ₂ /gallon	CCAR Table C.4 (Motor Gasoline)*
Waimanalo Gulch Landfill		EPA WARM model
Roosevelt Landfill		EPA WARM model
H-POWER	0.12 tonne/MWh	CCAR Registry
H-POWER Reduction	1,728.12 lb CO ₂ /MWh	CCAR Table C.2*

*CCAR is California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008

3.1.1 Incinerator Emissions

Covanta has chosen to register its emissions with CCAR. The blended emission factor for all of the Covanta plants was used to estimate the emissions for the H-POWER facility. The emission factor includes all six GHGs. As a result, the emissions indicated for incineration at H-POWER are higher than they would have been if only CO₂ was included. The emission factor used for Covanta was an average of all the plants they operate. It was not possible to disaggregate the CO₂ factor for H-POWER from the other plants and other five GHGs.

¹ The CCAR registers emissions from companies and provide guidance for calculating the emissions.

By selling electricity produced from the incineration of waste to the grid, Covanta displaces CO₂ emissions that would otherwise have been generated using oil and coal. The blended emission factor for electricity on Oahu (from CCAR) was used to calculate the emissions reduction due to the generation by H-POWER.

3.1.2 Indirect Emissions from Electrical Use

The emissions from use of electricity shown by CCAR were calculated for utilities in different areas of the country. The emission factor for the electricity use at the HWS Transfer Station was the CCAR factor specifically for Oahu.

3.1.3 Direct Emissions from Mobile Combustion

The emission factor for diesel use was the CCAR value for diesel fuel and the factor for gasoline use was taken from CCAR for motor gasoline.

3.1.4 Landfill Emissions

The emissions from landfill disposal are assumed to be for a landfill compliant with Subtitle D, the federal regulations on landfill design and operations, and other federal regulations related to the capture and control of landfill gas. Both Roosevelt and Waimanalo Gulch are consistent with those assumptions.

Landfill emissions were calculated using the U.S. Environmental Protection Agency (EPA) Waste Reduction Model (WARM), which is used to calculate comparative emissions from a variety of solid waste management practices. The factors in the model were developed following a life-cycle assessment methodology using estimation techniques developed for national inventories of GHG emissions². The model automatically applies emission factors to the quantity of MSW input. 100,000 TPY were input into the model to calculate landfill emissions. Both landfills have gas recovery systems.

- We calculated the emission factor for 100,000 tons of MSW at Waimanalo Gulch assuming a landfill gas control efficiency of 90 percent and a gas flare.
- We calculated the emission factor for 100,000 ton of MSW at Roosevelt assuming a landfill gas control efficiency of 79 percent³ and the recovered gas being used to produce electricity.

² EPA's report "Solid Waste Management and Greenhouse Gases: A Life-Cycle Assessment of Emissions and Sinks" describes their methodology in detail.

³ Washington State Department of Ecology, Central Regional Air Quality Section. Roosevelt Regional Landfill, Regional Disposal Company Statement of Basis for Final Air Operating Permit No. 03AQ-C005 Second Revision. November 2005.

The emission factor includes all six GHGs. As a result, the emissions indicated for decomposition in the landfills are higher than they would have been if only CO₂ was included. It was not possible to disaggregate the CO₂ factor.

The emissions from the plastic wrapped waste in Roosevelt are assumed to be the same as the emissions from the non-wrapped waste at Waimanalo Gulch. The baled waste in Roosevelt will decompose and release GHG emissions at a slower rate than waste disposed in Waimanalo Gulch. The amount of delay in emissions occurring is unknown.⁴ Two summary points from the reference report illustrate this situation:

- “The baling-wrapping system assures that emissions are highly reduced in the short term and half-term. This refers to both the emission of gases and the production of leachates, once the plastic wrapped bales have been deposited in a landfill where the current concepts of design and control are applied, or stored for their subsequent incineration.”
- “Long term impacts of baling-wrapping remain uncertain.”

3.2 Emission Calculations

The activities associated with disposal at H-POWER and Waimanalo Gulch involve two steps: transportation from the base point and disposal. In both cases, the amount of disposal was 100,000 TPY. For H-POWER, the disposal emissions were reduced by the estimated energy production from incinerating the waste. The amount of fuel used for transportation depends on the distance from the base point to the disposal point and was determined using Googlemaps[®]. The distance from HWS Transfer Station to the port was taken from the compliance agreement.

- From the base point to H-POWER — 2.4 miles one-way and 4.8 miles roundtrip.
- From the base point to Waimanalo Gulch — 2.5 miles one-way and 5.0 miles roundtrip.

The emissions resulting from disposal at Roosevelt involved several more steps, as listed in *Table 2, Unit Quantities Associated with Disposal at Roosevelt*, which shows the level of activity for each operation.

⁴ Baldasano, J.M., S. Gasso and C. Perez. “Environmental Performance Review and Cost Analysis of MSW Landfilling by Baling-Wrapping Technology Versus Conventional System.” *Waste Management* 23.9 (2003): 795-806.

Table 2, Unit Quantities Associated with Disposal at Roosevelt

Activity	Quantity	Source
Transport raw waste from base to HWS (roundtrip)	4.40 miles	Googlemaps©
Baling waste	4.73 kWh/bale	Calculated
Plastic wrapping bales	9.75 kWh/bale	Estimates for Sierra International Macpresse wrapping machine
Loading flatbed trailer	0.94 gallons/flatbed	Beck Report*
Transport bales to Barbers Point (roundtrip)	5.00 miles	HWS Compliance Agreement, page 4
Unloading flatbed trailer	0.94 gallons/flatbed	Beck Report*
Loading barge	262.56 gallons	Beck Report*
Barging Port of Portland	14 days	Beck Report: confirmed with personal communication
Unloading barge	262.56 gallons	Beck Report*
Repositioning bales	262.56 gallons	Beck Report*
Loading flatbed trailer	1.22 gallons/flatbed	Beck Report*
Transport bales to Roosevelt (roundtrip)	282.00 miles	Beck Report*
Unload flatbed at landfill	1.22 gallons/flatbed	Beck Report*
Decomposition of waste	100,000 TPY	EPA WARM model

* Estimated from data provided in the Beck Report.

The calculation of the data in Table 2 is detailed in tables that follow.

3.2.1 Port Operations Information

Much of the information for the operations associated with disposal at Roosevelt was taken from the report *Draft Integrated Solid Waste Management Plan Update*, November 2007 by RW Beck that was prepared for the City and County of Honolulu. Appendix C in that report titled *Trans-shipment of Waste Analyses* (Beck Report) was prepared with assistance from Transportation-Logistics Consulting and Mainline Management, Inc. (referred to in the Beck Report as TLC and MLM). We used portions of Appendix C as the source for details of the activities necessary to move the waste between the points of loading the barge at Barbers Point and unloading the trucks after transport to Roosevelt.

We relied on the Beck Report to identify the steps necessary to transport the waste after it was baled (particularly the steps in handling at the ports) because it seemed to be directed at identifying the reasonable cost to dispose of the bales at Roosevelt, given the physical constraints and cargo management practices at each port. The report indicated that:

- “The receiving parameters outlined by the Roosevelt Regional Landfill management that required that the bales be received on flatbed truck so “special handling procedures” were employed in compliance with USDA, Animal Health Inspection Regulatory guidelines.”
- “Economics for intermodal rail line haul proved too costly, given minimal distance (150 miles one way) and equipment repositioning costs.”

The Beck Report identified the amount of time and type of equipment required for each step in the transfer at the ports for 600,000 TPY of waste. This evaluation is for 100,000 TPY. The assumptions used from the Beck Report were:

- The amount of time used by forklifts to load and unload flatbeds, load barges, and reposition bales at Portland.
- The weight a barge can accommodate — 7,000 tons
- The time to barge the bales from Barbers Point to Portland — 14 days
- The acceptable load on a flatbed truck in Hawaii — 55,000 pounds
- The acceptable load on a flatbed truck in Oregon and Washington — 65,000 pounds

3.2.2 Emissions Occurring before Shipment from Honolulu

The pre-shipment emissions are created during the transportation of waste from the base point to the HWS Transfer Station, baling and shrink wrapping the waste, transport to Barbers Point, and moving the bales to the barge at Barbers Point.

Transportation estimates used a collection truck carrying 8 tons and fuel economy of 7 miles per gallon.⁵

⁵ CCAR General Reporting Protocol, v2.2, page 37.

The estimates of energy required to bale and shrink wrap the waste at HWS Transfer Station was taken from data provided by suppliers of that type of equipment (since we are not aware of the specific make and model of equipment that HWS proposes to use). The assumed baler was an American Baler Company RAM II-1124 series- 200 T9(B) that can process 53 TPH and the shrink wrapping machine was a Sierra Industries Macpresse model that can wrap 35 bales per hour⁶.

The amount of fuel used to move the bales from the HWS Transfer Station to Barbers Point assumed use of a heavy truck with 50,000 pound load capacity and fuel economy of 7 miles per gallon.

3.2.3 Emissions Generated During Shipment from Honolulu to Portland

The barging emissions are dependent on the number of barge trips needed and the time required for each trip. The number of trips is dependent on the capacity of the barge. As noted earlier, the Beck Report stated that a barge can accommodate 7,000 tons and the trip takes 14 days.

The amount of fuel required to transport from Barbers Point to the Port of Portland was estimated from the following information provided by a barging company representative⁷:

- Two types of tugs are used to move cargo: an open wheel tug and a tug with an upgraded propulsion system. The upgraded tug uses less horsepower than an open wheel and can move the same load. For this evaluation, we used the tug with upgraded propulsion because they are widely used now because of their efficiency over a standard open wheel tug.
- The fuel usage ranges from 2,800 to 3,300 gallons per day, depending on the barge loading plan, the draft of the barge and other factors. We used an average value of 3,048 gallons per day.

The haul from Barbers Point to Portland can benefit from a backhaul of a second cargo, reducing the total trip distance associated with this operation by half. We assumed that backhaul was used and the trip would be one way at 14, not 28 days⁸.

⁶ Data received from distributors of the equipment.

⁷ Personal communication between PWCG staff member and expert staff member at Young Brothers, Ltd on February 28, 2008.

⁸ Meeting on December 14, 2006, with Jim Hodge and Mark White held in Sacramento, California.

3.2.4 Emissions from Transporting from Portland to Roosevelt

The ground transportation emissions are created during the transportation of bales from the barge at the Port of Portland to a temporary dockside location, relocating the bales, loading the bales onto a flatbed for transport to Roosevelt, transporting to Roosevelt, unloading the bales at Roosevelt, and disposal. The load capacity of the flatbed truck was stated in the Beck Report as 65,000 pounds and that was the value we used to calculate emissions.

3.2.5 Emissions from Decomposition at Roosevelt

This analysis assumes that over the long term, the GHG emissions from waste decomposition are the same at Roosevelt and Waimanalo Gulch.

4 Summary of Results

Transshipping and disposing of waste at Roosevelt produced the most emissions of the three disposal locations evaluated. *Table 3, Total Emissions from Three Alternatives* shows the total emissions for each alternative. Emission details for each alternative are described in the sections that follow.

Table 3, Total Emissions from Three Alternatives

Disposal Location	Emissions (MTCO ₂ e per year)
H-POWER	(28,711)
Waimanalo Gulch	(3,686)
Roosevelt	3,978

4.1.1 H-POWER Emissions

The emissions resulting from the transport of 100,000 TPY of waste to H-POWER and incineration were 3,978 metric tons of carbon dioxide equivalent (MTCO₂e) per year. Approximately 41,631 MTCO₂e per year would have been emitted if the energy created by H-POWER was produced by the local power generation resources (HECO and AES). H-POWER reduces 37,653 MTCO₂e per year. The H-POWER alternative shows the lowest emissions (including and excluding the reduction) compared to the two landfill alternatives.

As described in Section 3.1.1, the emissions from the incineration are higher than they would have been if only CO₂ was included. Covanta reported its emissions of all six primary GHGs. We were unable to disaggregate the CO₂ emissions from other gases in the emission factor we used to calculate the emissions. *Table 4, Total Emissions from Transporting and Disposing at H-POWER*, details the emissions produced.

Table 4, Total Emissions from Transporting and Disposing at H-POWER

Activity	Quantity	Emission Factor	Emissions (MTCO ₂ e per year)
Transport collected waste from base to H-POWER	8,571 gallons	10.15 kg CO ₂ /gallon	87
Incineration of waste	100,000 tons	0.12 tonne/MWh	6,373
Energy reduction	53,110 MWh	1,728.12 lb CO ₂ /MWh	(35,171)
Total Emissions			(28,711)

4.1.2 Waimanalo Gulch

The emissions resulting from the transport and disposal at Waimanalo Gulch of 100,000 TPY of waste is -3,686 MTCO₂e per year. Most of the emissions are a result of decomposition of the waste in the landfill, but the 90 percent efficiency gas collection system reduces overall emissions significantly. As described in Section 3.1.4, the emissions from the landfill are higher than they would have been if only CO₂ was included. We were unable to disaggregate the gases from the emission factor we calculated using the WARM model. *Table 5, Total Emissions from Transporting and Disposing at Waimanalo Gulch* summarizes the emissions produced.

Table 5, Total Emissions from Transporting and Disposing at Waimanalo Gulch

Activity	Quantity	Emission Factor	Emissions (MTCO ₂ e per year)
Transport collected waste from base to Waimanalo Gulch	8,929 gallons	10.15 kg CO ₂ /gallon	91
Decomposition of waste	100,000 tons		(3,777)
Total Emissions			(3,686)

4.1.3 Roosevelt

The emissions resulting from transshipping the waste and disposing it at Roosevelt were 3,978 MTCO₂e per year and represents the greatest quantity of emissions of the three disposal locations evaluated. The emissions were significantly higher than disposal at Waimanalo Gulch due to processing and transportation..

The largest emissions from the Roosevelt alternative were from barging the waste from Honolulu to the Port of Portland. Barging the waste from Honolulu to Portland alone represented 72 percent of the mobile emissions. Transportation of bales from the Port of Portland to Roosevelt alone represented 15 percent of the mobile emissions. The emissions from *Table 6, Total Emissions from Transporting and Disposing at Roosevelt* details the emissions produced.

As described in Section 3.1.4, the emissions from the landfill are higher than they would have been if only CO₂ was included. We were unable to disaggregate the gases from the emission factor we calculated using the WARM model.

Table 6, Total Emissions from Transporting and Disposing at Roosevelt

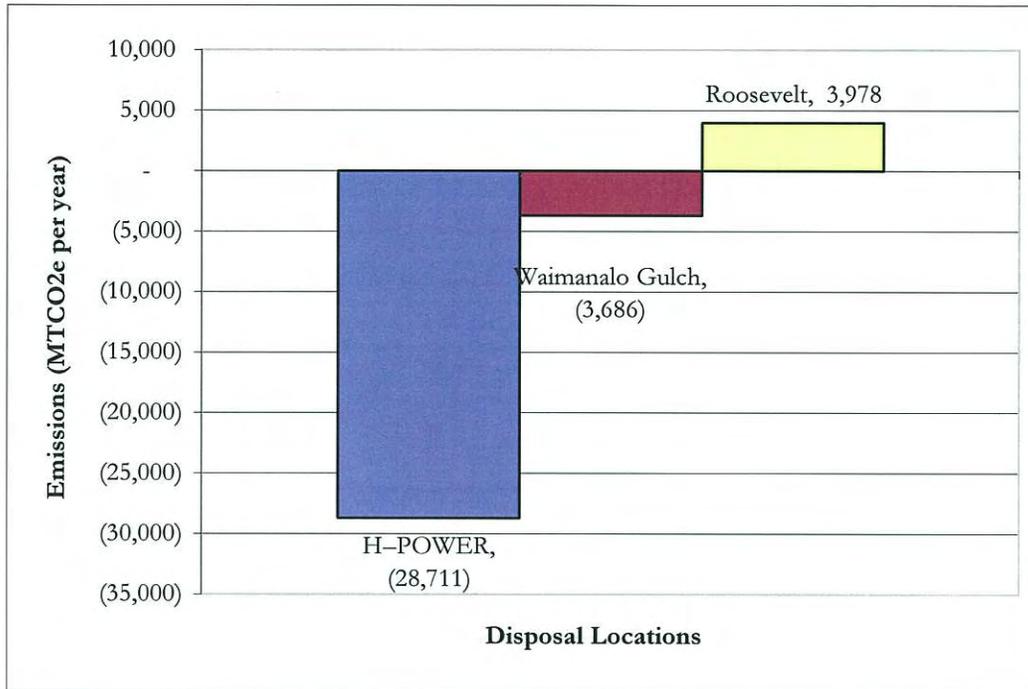
Activity	Quantity	Emission Factor	Emissions (MTCO ₂ e per year)
Transport collected waste from base to HWS Transfer Station	7,857 gallons	10.15 kg CO ₂ /gallon	80
Baling waste	337,736 kWh	1,728.12 lbs/MWh	265
Plastic wrapping bales	666,279 kWh	1,728.12 lbs/MWh	522
Loading flatbed trailers	3,751 gallons	8.81 kg CO ₂ /gallon	33
Transport bales to Barbers Point	2,857 gallons	10.15 kg CO ₂ /gallon	29
Unloading flatbed trailers	3,751 gallons	8.81 kg CO ₂ /gallon	33
Loading barge	3,751 gallons	8.81 kg CO ₂ /gallon	33
Barging to Port of Portland	609,600 gallons	10.15 kg CO ₂ /gallon	6,189
Unloading barge	3,751 gallons	8.81 kg CO ₂ /gallon	33
Repositioning bales	3,751 gallons	8.81 kg CO ₂ /gallon	33
Loading flatbed trailers	3,751 gallons	8.81 kg CO ₂ /gallon	33
Transport bales to Roosevelt	123,956 gallons	10.15 kg CO ₂ /gallon	1,258
Unload bales at landfill	3,751 gallons	8.81 kg CO ₂ /gallon	33
Decomposition of waste (including gas recovery for energy)	100,000 tons		(4,596)
Total Emissions			3,978

4.1.4 Conclusion

The CO₂ emissions from transshipment to Roosevelt for disposal are significantly higher than either of the two on-island alternatives. The relative CO₂ emissions from landfill disposal are much higher, given the reduced emissions of avoiding generating energy without using fossil fuels with H-POWER.

The relative emissions at each disposal site are shown in the figure below *Figure 1, Relative Emissions at Each Location*.

Figure 1, Relative Emissions at Each Location



Report of the
Mayor's Advisory Committee

(Blue Ribbon Committee)

on

Landfill Site Selection

December 1, 2003

**Report of the
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Final**

December 1, 2003

**Prepared by
The Committee's Report Subcommittee
R.M. Towill Corporation
Pacific Waste Consulting Group**

Table of Contents

1	Executive Summary	1
1.1	Need for a New Landfill.....	1
1.2	Mayor's Landfill Site Selection Committee	1
1.3	The Process.....	1
1.4	Process Changes.....	2
1.5	Committee Recommendations.....	4
1.6	Other Considerations of the Entire Committee.....	5
2	Introduction.....	7
2.1	Background and Purpose of Committee	7
2.2	Work Plan	9
2.3	Considerations Regarding the Waimanalo Gulch Landfill and This Process	10
3	Consultant's Application of Preliminary Siting Criteria	13
3.1	Environmental Protection Agency (USEPA) Exclusionary Criteria.....	13
3.2	Developed Areas	14
3.3	Ground Water Restrictions.....	14
3.4	Committee Decision on Minimum Capacity	14
4	Committee Siting Criteria	16
4.1	Methodology.....	16
4.2	Development of Siting Criteria	17
4.3	Weighting Factors	17
4.4	Committee Siting Criteria Application.....	19
4.5	Results of Committee's Application of Siting Criteria	19
5	Committee Evaluation and Analysis	21
5.1	Committee's Brainstorming Positive and Negative Features of Sites	21

5.2	Final List of Sites.....	26
6	Committee Recommendations.....	28
6.1	List of Sites Recommended.....	28
6.2	Other Recommendations of the Entire Committee.....	28
6.2.1	Host Community Benefits.....	28
6.2.2	Land Banking Sites.....	29
6.2.3	Underground Injection Control Line and Groundwater Protection Zone.....	29
6.3	Continued Gathering of Information.....	30
7	Other Entire Committee Considerations.....	31
7.1	Landfill Costs.....	31
7.2	Alternative Technologies.....	31
7.3	Multiple Sites.....	31

Attachments

- Attachment A – Planning Commission Recommendation and Land Use Commission Decision for State Special Use Permit for Waimanalo Gulch Sanitary Landfill Expansion
- Attachment B – Mayor’s Letter to Committee Members; List of Committee Members and Meeting Schedule; Meeting Sign-In Sheets; and Group Memory from the Meetings
- Attachment C – Application of Preliminary Siting Criteria
- Attachment D – Individual Site Evaluations (Provided on CD)
- Attachment E – Correspondence
- Attachment F – Host Community Benefit Summary

List of Tables

Table ES – 1, Sites Recommended to the Mayor	4
Table 1, Attrition of Sites During the Evaluation Process	10
Table 2, Siting Criteria.....	18
Table 3, Sites for Committee Consideration	19
Table 4, Site Scores.....	20
Table 5, Sites Recommended to the Mayor.....	28

List of Figures

Figure ES-1, Location of Four Recommended Sites	6
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1 EXECUTIVE SUMMARY

This report summarizes the efforts of the Mayor's Advisory Committee on Landfill Selection (Committee) to identify potential landfill site(s) for consideration by the Mayor and City Council when it prepares an Environmental Impact Statement for a new landfill site.

1.1 Need for a New Landfill

The Committee was convened by the Mayor pursuant to a proposal by the City and in response to a decision by the State Land Use Commission (LUC) which extended the use of the Waimanalo Gulch Sanitary Landfill until 2008 (**Attachment A**). A major condition of the LUC, as part of the amendment to the City's State Special Use Permit, required that the City identify a new landfill site prior to closure of the existing site. Several Committee members noted that representatives of the current City Administration speaking at public meetings for the Waimanalo Gulch Sanitary Landfill Expansion committed to closure and to identify a new site by then.

The provision of municipal solid waste landfill capacity is a critical infrastructure element provided by the City to its citizens. A landfill is necessary for the disposal of non-combustible municipal solid waste and bulky items that cannot be recycled or reused. Further, a landfill provides for the disposal of municipal solid waste in a secure and economic manner. There are limited areas of Oahu where a landfill will have a *lesser* overall impact. Finding these locations and recommending *sites* was the task of the Committee.

1.2 Mayor's Landfill Site Selection Committee

The Mayor appointed a 15-member committee composed of citizens representing various communities on Oahu. Committee members provided experience and expertise from a broad range of backgrounds that included: public and community interests; state and City officials; environmental and health sciences; legal, financial, business, and education professions; and, corporate administration. The Committee was directed by the Mayor to recommend one or more landfill sites. (See **Attachment B** for a list of members and a copy of the Mayor's letter.) The Committee deliberated between June and December 1, 2003, identified four potential sites, and developed recommendations.

1.3 The Process

The process began with an inventory of 45 potential landfill sites identified by the Department of Environmental Services (ENV) and consultant from the City's previous studies and investigations (See Section 2.2 for a list of them). The Committee was also asked for nominations of new potential

sites. No additional viable sites were recommended.

Landfill Siting Criteria to supplement those mandated by state and federal government agencies were developed to enable comparison of key considerations for a new landfill that were important to the Committee (e.g., proximity to residences, groundwater protection, and travel distances).

Various methods and criteria were applied to reduce the number of sites at each step. The methods and criteria included: application of the U.S. Environmental Protection Agency (USEPA) siting criteria; consideration of whether residential or other incompatible land uses had become developed near the proposed site; consideration of the location of the site in relation to potable groundwater resources; the minimum capacity criteria developed by the Committee; and finally, the 31 criteria developed by the Committee (which included the capacity criteria). The Committee evaluation was to review the site-specific factors that were important with respect to each of the site finalists. In this process, the Committee started with a list of eight sites distilled from the list of 45 sites after application of the criteria noted above and the minimum capacity criterion. The Committee reduced the list of eight sites to five as consensus could not be reached to remove any of the five sites from consideration. The five sites were at the last meeting reduced to four through a vote which prompted the resignation of four Committee members. The remaining Committee members are recommending four sites to the Mayor for forwarding to the City Council for further consideration.

The Committee in evaluating the remaining eight sites went through a process called a double blind evaluation. First, the Committee did not know the names of the sites to be evaluated until the criteria were developed and weighting was assigned. Second, the consultant did not know the weighting assigned by the Committee to the 31 criteria until they had finished their analysis and scoring of the sites using the 31 criteria. See Table 2 for a list of the criteria and their weighting factors.

Attachment C, provides the name, tax map key (TMK), and location of each of the 45 potential landfill sites.

1.4 Process Changes

The Committee removed one site from consideration at its December 1, 2003 meeting as a result of a vote, which was a change from the consensus process the Committee had employed up until this meeting. As a result of a successful motion to further limit the number of recommended sites through voting Bruce Anderson, Kathy Bryant-Hunter, Eric Guinther, and Representative Cynthia Thielen resigned from the Committee stating that they did not want to be part of a vote that would remove one or more sites from consideration. They felt that the Committee had done an excellent job and that the original five sites should go forward for the following reasons:

- That this Committee was not constituted to represent the interests of all the residents of the island of Oahu. Indeed, it was heavily weighted with members representing Leeward Oahu communities. Thus, it is inappropriate for the Committee to pretend that they represent these interests by voting to eliminate any site that, based on criteria developed by the

Committee, should be included just as it would be inappropriate to add sites based on a vote. The City Council, the duly elected legislative body representing the interest of all residents of Oahu, should make a final decision based on the best information that is available on all the alternatives.

- The Committee went as far as it could in reducing the list from eight sites to five sites with the limited information that was available to the Committee on each site. Unsolicited comments and information was received from developers and individuals who owned land adjacent to only three of the five sites. Further information is required on environmental, social and economic impacts associated with establishing a landfill at all five sites before a decision should be made to drop any of the sites from consideration. When the Land Use Commission made their decision only to extend the permit at Waimanalo Gulch landfill until 2008, they did not consider alternatives or the impacts at alternative sites. They need this information to make a good decision. Likewise, the City Council should be provided the best available information on all the alternatives to make a decision that best serves residents of the island of Oahu. Therefore, some members of the committee felt it was inappropriate and premature to eliminate any of the sites from further consideration by a vote.
- Waimanalo Gulch got the highest score in the Committee's double blind process
- It is an irresponsible land use decision to walk away from an operating landfill with 20 years of life left
- Some of the members felt that a letter sent by Ko Olina negated the integrity of the Committee's deliberations because it was perceived by some as threatening a lawsuit against individual Committee members (the letter can be found in Attachment E)
- The LUC made its order on the Waimanalo Gulch Landfill without the benefit of all the information the Committee had and without input as to the potential economic and other impacts that might result should a new site be chosen
- Although the City Administration had made a commitment to the Community, this commitment does not bind the City Council and the LUC has a process for revisiting its decision should the Waimanalo Gulch Landfill become the preferred site.

Members of the Committee requesting a vote to remove Waimanalo Gulch felt that the City had not made its commitment to the community lightly as implied by others. They felt strongly that the City had to honor that commitment and therefore the site should not be recommended by the Committee. They noted that the commitment to leave Waimanalo Gulch Landfill resulted from two years of study which occurred during the process to extend the Landfill for 15 years.

Todd Apo moved and Shad Kane seconded the motion to change the process from consensus to voting; the motion carried. Those voting for the motion were: Todd Apo, Shad Kane, Gary Slovin, Michael Chun, Gary Tomita, George Yamamoto, Cynthia Rezentes, Ted Jung, and Robert Tong.

Those opposed to the motion were: Cynthia Thielen, Kathy Bryant-Hunter, Eric Guinther, and Bruce Anderson.

Todd Apo then moved and Shad Kane seconded the motion to remove the Waimanalo Gulch Landfill from the list of sites. Prior to consideration of the motion, several of the members resigned, as noted above. Those voting for the motion were: Todd Apo, Shad Kane, Gary Slovin, Gary Tomita, Ted Jung, Cynthia Rezendes, George Yamamoto, Robert Tong, and Michael Chun. There were no votes in opposition.

1.5 Committee Recommendations

The four sites recommend by the remaining Committee members are listed in **Table ES-1, Recommended Sites**. The location of those sites is shown in **Figure ES-1, Location of Four Recommended Sites**. The sites are listed in alphabetical order and no prioritization of the sites was done by the Committee. The intent was that the sites would be evaluated through an Environmental Impact Statement (EIS) process.

Table ES – 1, Recommended Sites

Site Name	TMK	Acreage	Million Tons Capacity	Years of Capacity
Ameron Quarry	4-2-15:01	391	9	15
Maili	8-7-10:por. 03	200	9	15
Makaiwa	9-2-3: por. 02	338	15	25
Nanakuli B	8-7-9: pots. 1 & 7	432	9	16

The Committee evaluated the sites using a two-step process. The first step was to apply the criteria and weighting factor to come out with a numerical scoring of sites based on the data available to the Committee. The second step was to discuss the various positive and negative attributes of each site to arrive at a list of recommended sites. The summary of the pros and cons is presented in Section 5, Committee Evaluation and Analysis. The pros and cons were not arrived at by consensus but were a compilation of Committee members' individual thoughts and concerns.

The Committee's recommended list of sites started with five, including the existing Waimanalo Gulch Landfill. As part of its deliberations, the Committee considered whether to remove Waimanalo Gulch Landfill. Prior to this time, the Committee had made its determinations by consensus. In coming to a recommendation regarding the Waimanalo Gulch Landfill, the Committee decided to vote as noted in Section 1.4.

Other important recommendations of the entire Committee included: (1) the City Administration and City Council should not zone or permit any site unless a Host Community Benefits package is negotiated with the affected community where a landfill is sited; and, (2) the City is encouraged to Land Bank sites to reduce the potential for future land use conflicts when another landfill is needed.

1.6 Other Considerations of the Entire Committee

The entire Committee during its deliberations spent considerable time discussing costs and benefits of various options. This included discussion on the role of and need for the City to move quickly to develop alternative technologies to landfilling, the impact such technologies could have on the necessary size of the sites, and whether or not it would be appropriate to develop several smaller sites. The Committee strongly feels that whatever site is selected that the City maximize the life of the site through aggressive actions to remove and reduce waste from being disposed in a landfill. Further discussion on these issues can be found in Section 6, Committee Recommendations, and the meeting notes found in **Attachment B**.

With these considerations, the Committee anticipates that the City will prepare an Environmental Impact Statement to evaluate in detail the benefits and constraints of each site and determine which site should be the preferred alternative for a new landfill.

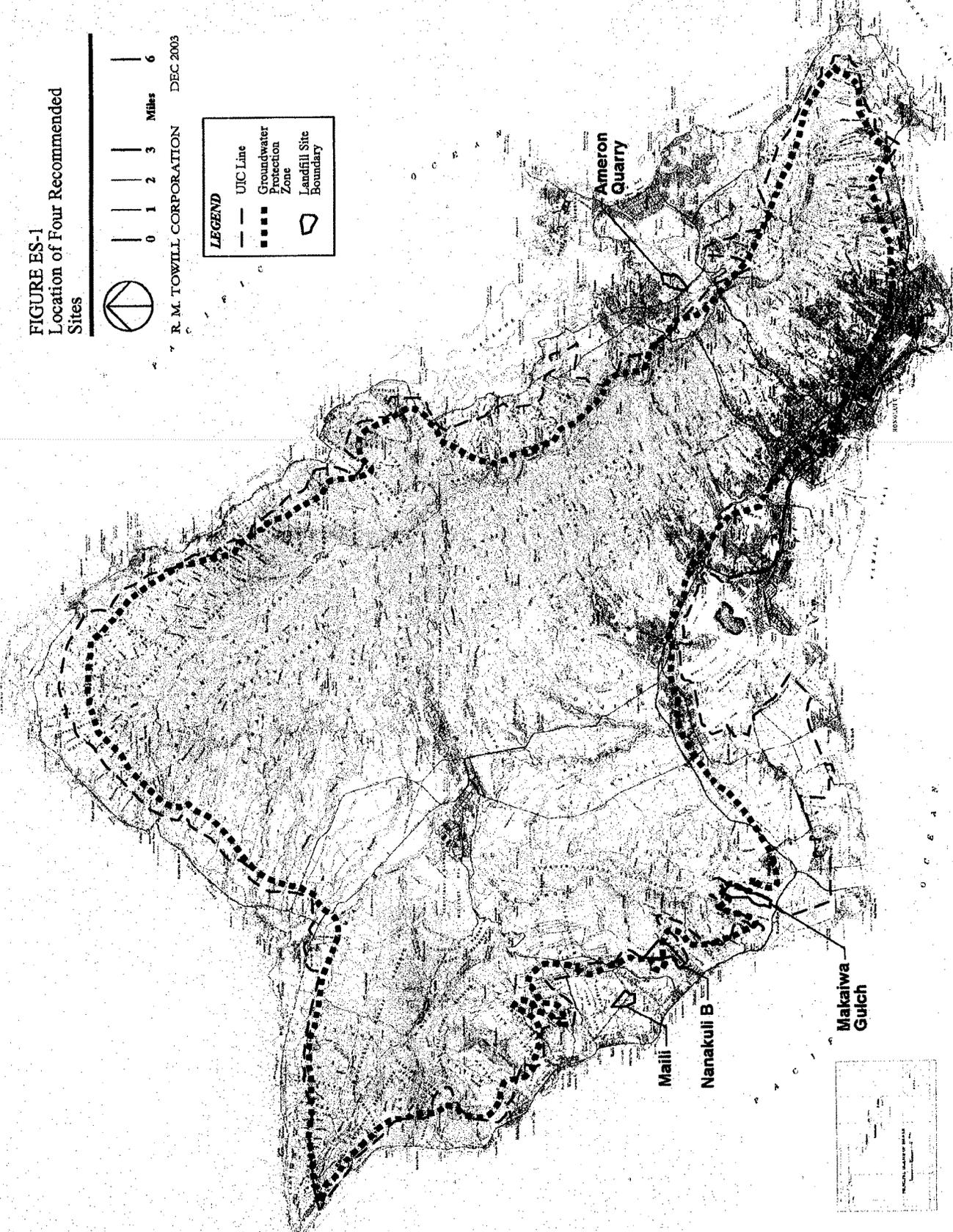
FIGURE ES-1
Location of Four Recommended
Sites



R. M. TOWILL CORPORATION DEC 2003

LEGEND

- UIC Line
- Groundwater Protection Zone
- Landfill Site Boundary



0 1 2 3 4 5 6

2 INTRODUCTION

2.1 Background and Purpose of Committee

On June 5, 2003, the State Land Use Commission (LUC) approved an amendment to the Special Use Permit for the Waimanalo Gulch Sanitary Landfill Expansion, the only municipal solid waste landfill disposal site on Oahu. According to those attending, the City made a promise to close the Waimanalo Gulch Landfill within that timeframe. Based on this and community input, the LUC decision allows landfilling at the site for a period of five years, which will expire on May 1, 2008. The LUC decision also directed the City to achieve certain milestones in siting a new landfill. The LUC and Planning Commission decisions are in **Attachment A**.

The provision of disposal is one of the City's health and safety responsibilities. While H-POWER provides disposal capacity for the majority of the waste produced (generating electricity in the process), landfill disposal capacity is needed for municipal solid waste that cannot be further recycled or reused. The Mayor convened the Advisory Committee on Landfill Selection (Committee) in June 2003 to forward a recommendation for one or more potential sites to the Mayor before December 1, 2003. The Mayor's letter to the Committee is in **Attachment B**.

The Committee was made up of 15 appointed members. Participation was excellent from a majority of the members, with very few exceptions. The Committee consisted of representation from each geographic area of the Island with a possible municipal solid waste landfill site (see **Attachment B** for a list of members). The Committee worked by consensus until the December 1, 2003, meeting, at which point they voted to reduce the number of recommended sites resulting in the resignation of four Committee members. The Committee was assisted by the Department of Environmental Services (ENV), R.M. Towill Corporation as consultant, and a neutral facilitator. The group memories from each of the meetings, the meeting schedule, and the attendance lists are also in **Attachment B**.

An initial list of 45 sites was identified from a previous City EIS and other reports and processes completed between 1977 and 2002. The Committee was asked to nominate other sites that should be considered. No additional viable sites were suggested.

From the beginning the Committee had three concerns about the process. First, they recognized that no ideal site would be found and that any site would have community impacts. The Committee agreed that any site that was ultimately chosen would have to include a Host Community Benefits package (see **Attachment F**), and that the package should be negotiated with the affected community prior to the permitting of the site.

Second, the LUC decision created several problems. Some read the decision as requiring the Committee to forward only one site, while others felt that the decision allowed the Committee to

forward more than one site for further analysis through an Environmental Impact Statement process. The City verbally requested that the Committee select from three to five sites as the basis for further evaluation. The City also agreed that if it was determined that the Committee was required to forward no more than one site, the Committee would be reconvened to identify that site.

Third, the LUC decision raised the question of whether or not the Committee could consider a new or second expansion of the Waimanalo Gulch Sanitary Landfill as a potential site. Some felt it was clear that they could not, and others felt that it was a viable or the best site under the criteria developed by the Committee, and that it should be considered. Some Committee members went so far as to say it would be irresponsible to not consider it. The Committee chose to keep a possible second expansion on the list of sites it reviewed, because consensus could not be reached to remove it or any of the other sites on the list. At the last Committee meeting, the Waimanalo Gulch Landfill was removed from the recommended list by vote. Four Committee members resigned because they did not wish to participate in a process (voting) which was not consensus based. The section on recommendations discusses the positive and negative features of the final sites and provides the reader a more complete analysis regarding the five consensus sites including the four recommended sites.

The Committee chose to work by consensus through some very difficult and potentially polarizing issues. It chose a two-step process. In the first step, the Committee developed and applied 31 siting criteria to sites remaining after EPA, developed areas, groundwater, and the Committee's capacity criteria were applied. The second step determined the recommended sites after a discussion of the positive and negative aspects of each of the finalist sites. This process is described in further detail within this document.

It is important to recognize that the Committee focused on evaluating the potential sites from the perspective of the community. Therefore, many of the criteria developed reflect community-based considerations. Technical issues were also considered, but the Committee placed most of its emphasis on those impacts of a landfill that have the greatest effect on the community in which the site is located.

As the Committee progressed to the most difficult part of their charge (i.e., determining the final recommended sites), there was agreement that the time spent by the Committee and the objectivity with which they developed the criteria and applied the site analyses provided a high degree of confidence in the Committee's recommendations. It also recognized that its final recommendations would be based more importantly on its deliberations and not solely on the application of the siting criteria. The Committee's decision to forward four sites is the result of careful deliberation and a final vote to reduce the number of recommended sites to four. This vote led to polarization among some Committee members. Four members resigned from the Committee preferring to send a consensus report forward rather than a report that used voting to narrow the sites.

With this report the Committee concludes its charge.

2.2 Work Plan

The identification of sites selected for evaluation started with a review of prior work completed by the City in the siting and evaluation of municipal solid waste landfills. ENV and the consultant assembled a list of 45 sites from the following City sources:

1. *Inventory of Potential Sanitary and Demolition Landfill Sites*, August 1977.
2. *Supplement to Inventory of Potential Sanitary and Demolition Landfill Sites*, November 1979.
3. *Revised Environmental Impact Statement for Leeward Sanitary Landfill at Waimanalo Gulch Site and Obikilolo Site*, 1984.
4. *Solid Waste Integrated Management Plan Update, Final Report*, 1995.
5. *Final Supplemental Environmental Impact Statement, Waimanalo Gulch Sanitary Landfill Expansion*, December 2002.

The Committee was next asked to nominate additional sites. Since no additional viable sites were nominated, the sites initially evaluated were the 45 identified from the sources indicated. The names and location of sites are provided in **Attachment C**.

After identification of the list of sites to evaluate, ENV and the consultant reviewed the sites against the most restrictive siting criteria. These criteria included: Environmental Protection Agency (USEPA) siting criteria as promulgated in the rules of the Resource and Conservation Recovery Act Subtitle D (RCRAD); sites located in areas which have since been developed or are closed landfills with no further expansion potential; Honolulu Board of Water Supply evaluation governing whether a site should be protected in consideration of proximity to the Groundwater Protection Zone and Underground Injection Control Line (UIC) zone; and, the Committee's capacity criterion that the site have a minimum life of more than 10 years.

During the preliminary evaluation by ENV and the consultant, the Committee undertook extensive discussion and deliberation to develop 31 Siting Criteria and Weighting Factors to be applied following the ENV and consultant evaluation of remaining sites (Section 3 provides more detail about the process). After applying the criteria, the Committee used the numerically weighted scores for the sites that enabled comparison of one site to another on the basis of community, economic, land use, and technical considerations. Finally, the Committee applied its own insights regarding each site to develop the list recommended to the Mayor. The reduction in the number of sites at each step is shown in **Table 1, Attrition of Sites During the Evaluation Process**.

Table 1, Attrition of Sites During the Evaluation Process

Phase of Evaluation	Number of Sites	
	Before Application of Criteria	After Application of Criteria
ENV/Consultant Evaluation Process		
RCRA Subtitle D Criteria	45	40
Sites in Developed Areas or Closed Landfills w/No Expansion Potential	40	34
Board of Water Supply Staff Review and Evaluation	34	16
Committee Evaluation Process		
Landfill Capacity Requirement 1	16	8
31 Criteria	8	8
Committee Consensus Deliberations	8	5
Committee Vote (four members resigned in protest over voting)	5	4

2.3 Considerations Regarding the Waimanalo Gulch Landfill and This Process

Some of the Committee members recognized that the City committed to no further expansion of the Waimanalo Gulch Sanitary Landfill and that the LUC decision required the City to close the landfill by 2008. Other members felt: the landfill had significant remaining capacity (20 years); the landfill was a known usable resource; the landfill should be used to its fullest capacity to conserve Oahu's precious and finite land resources; and, that it would be irresponsible to not continue with further examination of the site.

The Committee removed one site from consideration at its December 1, 2003 meeting as a result of a vote, which was a change from the consensus process the Committee had employed up until this meeting. As a result of a successful motion to further limit the number of recommended sites through voting Bruce Anderson, Kathy Bryant-Hunter, Eric Guinther, and Representative Cynthia Thielen resigned from the Committee stating that they did not want to be part of a vote that would remove one or more sites from consideration. They felt that the Committee had done an excellent job and that the original five sites should go forward for the following reasons:

¹ The capacity evaluation was completed before the Committee's site evaluations.

- That this Committee was not constituted to represent the interests of all the residents of the island of Oahu should be a consideration. Indeed, it was heavily weighted with members representing Leeward Oahu communities. Thus, it is inappropriate for the Committee to pretend that they represent these interests by voting to eliminate any site that, based on criteria developed by the Committee, should be included just as it would be inappropriate to add sites based on a vote. The City Council, the duly elected legislative body representing the interest of all residents of Oahu, should make a final decision based on the best information that is available on all the alternatives.
- The Committee went as far as it could in reducing the list from eight sites to five sites with the limited information that was available to the Committee on each site. Unsolicited comments and information was received from developers and individuals who owned land adjacent to only three of the five sites. Further information is required on environmental, social and economic impacts associated with establishing a landfill at all five sites before a decision should be made to drop any of the sites from consideration. When the Land Use Commission made their decision only to extend the permit at Waimanalo Gulch landfill until 2008, they did not consider alternatives or the impacts at alternative sites. They need this information to make a good decision. Likewise, the City Council should be provided the best available information on all the alternatives to make a decision that best serves residents of the island of Oahu. Therefore, some members of the committee felt it was inappropriate and premature to eliminate any of the sites from further consideration by a vote.
- Waimanalo Gulch got the highest score in the Committee's double blind process
- It is an irresponsible land use decision to walk away from an operating landfill with 20 years of life left
- Some of these members felt that a letter sent by Ko Olina negated the integrity of the Committee's deliberations because it was perceived by some members as threatening a lawsuit against individual Committee members (the letter can be found in **Attachment E**)
- That the LUC made its order on the Waimanalo Gulch Landfill without the benefit of all the information the Committee had and without input as to the potential economic and other impacts that might result should a new site be chosen
- That although the City Administration had made a commitment to the Community, this commitment does not bind the City Council and that the LUC has a process for revisiting its decision should the Waimanalo Gulch Landfill become the preferred site.

Members of the Committee requesting a vote to remove the Waimanalo Gulch landfill felt that the City had not made its commitment to the community lightly as implied by others. They felt strongly that the City had to honor that commitment and therefore the site should not go forward. They noted that the commitment to leave the Waimanalo Gulch Landfill resulted from two years of study that occurred during the process to extend the Landfill for 15 years.

Todd Apo moved and Shad Kane seconded to change the process from consensus to voting the motion carried. Those voting for the motion were: Todd Apo, Shad Kane, Gary Slovin, Michael Chun, Gary Tomita, George Yamamoto, Cynthia Rezendes, Ted Jung, and Robert Tong. Those opposed to the motion were: Cynthia Thielen, Kathy Bryant-Hunter, Eric Guinther, and Bruce Anderson.

Todd Apo then moved and Shad Kane seconded the motion to remove the Waimanalo Gulch landfill from the list of sites. Several of the members resigned from the Committee, prior to the vote, as noted above. Those voting for the motion were: Todd Apo, Shad Kane, Gary Slovin, Gary Tomita, Ted Jung, Cynthia Rezendes, George Yamamoto, Robert Tong, and Michael Chun. No votes were cast opposing the motion.

3 CONSULTANT'S APPLICATION OF PRELIMINARY SITING CRITERIA

This section includes a description of preliminary siting criteria. The preliminary siting criteria were applied by ENV and the consultant to the initial list of 45 potential landfill sites. The results of application of these criteria are provided in Attachment C.

The preliminary siting criteria includes: Environmental Protection Agency (USEPA) exclusionary criteria; restrictions on developed areas where a new landfill cannot be sited (included in these criteria are closed landfills with no further capacity); ground water restrictions as identified by the Board of Water Supply (BWS); and, the Committee's minimum capacity requirement of more than 10 years for a new landfill.

3.1 Environmental Protection Agency (USEPA) Exclusionary Criteria

The USEPA enforces six siting criteria that were adopted as part of the Resource Conservation and Recovery Act, subpart D (RCRAD). The six criteria are:

- 1. Airport Restriction** — If a proposed landfill is located within 10,000 feet of the end of any airport runway used by turbojet aircraft, or within 5,000 feet of any airport runway used only by piston driven aircraft, the proponent must demonstrate that the landfill will not constitute a bird hazard and must notify the Federal Aviation Administration.
- 2. Floodplains** — Potential landfill sites located within a 100-year floodplain cannot restrict storm flows within the floodplain, reduce the temporary water storage capacity of the floodplain, or allow the washout of solid waste.
- 3. Wetlands** — Proposed landfills may not be built or expanded into wetlands; exceptions are allowed.
- 4. Fault Areas** — New landfills or landfill expansions are generally prohibited within 200 feet of fault areas that have shifted since the last Ice Age; exceptions are allowed.
- 5. Seismic Impact Zones** — If a landfill is to be located in a seismic impact zone, the proponent must demonstrate that the facility and its environmental and engineering features have been designed to resist the effects of ground motion due to earthquakes.
- 6. Unstable Areas** — All owners/operators must demonstrate that the structure of their units will not be compromised during geologically destabilizing events.

A total of five sites were eliminated by application of the RCRAD criteria, which brought the potential site list from 45 to 40.

3.2 Developed Areas

In the 30 years that have elapsed since most of the sites on the list were identified, many of original landfill locations have been developed, primarily with residential housing. Some locations that were previously considered possible landfill sites may either have buildings on-site, or are so close to developed areas that a landfill would now be an incompatible land use. The City therefore determined in these instances that it would not propose new landfills within developed areas.

The City also reviewed potential sites that were expansions of closed landfills. Landfills on the original list that have been filled to capacity and closed were removed from further consideration.

This step brought the potential site list from 40 to 34.

3.3 Ground Water Restrictions

The State Department of Health has established an Underground Injection Control (UIC) Line and the BWS established a Ground Water Protection Zone (No Pass Line) around the island of Oahu that preclude the siting of certain types of facilities mauka of these areas. The lines were developed to identify inappropriate locations for injection wells and septic or cesspool development. The City Council in 2003 by Resolution 03-09, applied these criteria to protect Oahu's groundwater, by precluding the siting of landfills in these areas. However, the delineation of lines shown on a map is not as useful as having input from the BWS on the water development potential of these locations.

ENV and the consultant chose a less conservative, but more accurate approach to determining whether a potential site was appropriate by interviewing BWS staff responsible for ensuring future safety and sufficiency of Oahu's water supply. BWS staff identified sites, which they believe are important for future potable water supply or which are critical to protection of the groundwater resource. Sites, which did not meet BWS review, were eliminated from further consideration.

This step brought the site list from 34 to 16 sites remaining for further evaluation.

3.4 Committee Decision on Minimum Capacity

The Committee decided to limit its consideration to sites that had more than 10 years of capacity based on: the assumption that demand projections from the City remain unchanged; the City's experience with the length of time needed to implement new and feasible waste reduction technologies; and the cost and time required to identify and permit a new landfill site. The annual capacity demand was determined based on the amount of municipal solid waste disposed at the Waimanalo Gulch Landfill in fiscal year 2002/2003, adding the amount of cover material needed,

and including an allowance for growth in municipal solid waste disposal demand.² The capacity needed was divided into the expected disposal volume at the site, as determined in earlier studies. The result was the number of years of landfilling capacity available at the site.

Of the 16 sites at the beginning of the minimum capacity analysis, 8 remained for further evaluation.

² The capacity calculation did not assume the addition of another unit to H-POWER, implementation of alternative technologies, or implementation of additional recycling programs.

4 COMMITTEE SITING CRITERIA

The criteria discussed in Section 3 related to general limitations on locating landfills. The Committee recognized that there are local community concerns that may not be adequately reflected in the criteria in Section 3. The Committee Siting Criteria were employed to numerically compare potential sites using factors considered important to the Committee. The evaluation of the Criteria had two parts and the Criteria themselves were in five categories. This Section summarizes the Committee Siting Criteria to measure community, environmental, engineering, and cost considerations related to a landfill site. The Committee developed these criteria and weighting factors independent of knowledge of the identity of the sites. During this time, the remaining eight sites were only identified by number. The purpose was to avoid influencing the evaluation of any specific sites.

4.1 Methodology

The general approach to developing local Siting Criteria involved identifying the impacts a landfill could have on a region and then developing measures to enable the Committee to compare the magnitude of local impacts for each of the potential landfill sites. The Siting Criteria also included operational and economic considerations.

The site evaluations were done with a “double blind” process. That is, the Committee assigned the Weighting Factors without the City or consultant’s knowledge and the consultants evaluated the sites and assigned point values without the Committee’s knowledge of which sites were being evaluated. When the two parts of the evaluation were combined, the resulting site scores were insulated from undue influence or bias from any party.

The Committee recognized that the data needed to evaluate all factors thoroughly was not readily available and that the time schedule precluded additional data collection and analysis. As a result, the Siting Criteria used existing data. All potential sites were evaluated with data of the same age and extent although some of the data used were not as recent as the Committee would have preferred. The evaluations were all fairly and evenly done.

No site was subjected to a different level of analysis or evaluated with a different quality of data than another.

The Committee also recognized that further detailed evaluation would be done on the sites recommended in the Environmental Impact Statement (EIS) that is to be prepared. The EIS has specific requirements for assessing the environmental and social impacts of sites, and those evaluations are subjected to extensive public scrutiny.

It is important to restate that the Committee Siting Criteria were developed by the Committee independent of the consultant’s site elimination process outlined in Section 3.

4.2 Development of Siting Criteria

The Committee's Siting Criteria were organized in two parts:

- The measure of how well a potential site satisfied the criterion. This measure was the Point Value assigned to a site for a criterion.
- The Committee's assessment of how important one criterion was compared to the others. This measure was the Weighting Factor, which was multiplied by the Point Value to arrive at the score for each site and each criterion.

Each criterion included Point Values between one and three. The point values assigned were completed after the range of possible conditions across each of the sites were determined. The higher the number of points the better a site met the needs for a municipal solid waste landfill. For example, a good landfill should be in an area with low rainfall. A site with annual rainfall of more than 60 inches received one point; a site with 20 to 60 inches of rain received two points; and a site with less than 20 inches of rain received three points. For the criteria that measured physical parameters such as rainfall, the measure used was the range found on the island for the criterion; the values used were specific to this situation.

The Point Value was multiplied by a Weighting Factor to obtain a final score for a criterion. The higher the final scores received for a site, the more appropriate it was for a landfill site.

4.3 Weighting Factors

All Siting Criteria are not equally important. The difference in importance is reflected in the Weighting Factor, which varied from one to three.

The Weighting Factors were determined by the Committee members. Each member had ten votes to assign to the criteria they felt were most important. There were 31 criteria. Criteria that received the most votes were assigned a Weighting Factor of three. The votes fell into three distinct groupings. Six criteria received the most votes and were assigned a Weighting Factor of three; seven had a Weighting Factor of two; and 18 had the fewest votes and a Weighting Factor of one. Several criteria received no votes and were assigned a Weighting Factor of one. The higher the product of the Weighting Factor and the Point Value, the better the site's characteristics are for use as a landfill.

It is also important to acknowledge that the Committee requested that the City and the consultant team that supported the evaluation be excused while the Weighting Factors were developed. The Committee did not want more analytical effort to be devoted to a criterion with a greater Weighting Factor than to one that had a lesser Factor.

The final Siting Criteria with the Weighting Factors are listed in **Table 2, Siting Criteria**. The Siting Criteria were divided into categories as a convenience to the Committee. The number of criteria in any category was not selected, but the number of criteria within categories does indicate the Committee's general focus in this process. The higher the value of the site score, which is the

Weighting Factor multiplied by the Point Value, the better a site is for use as a landfill.

Table 2, Siting Criteria

Criterion	Weighting Factor
Community	
1 Displacement of residences and businesses	1
2 Distance to nearest residence, school or business	3
3 Wind direction relative to populated areas	2
4 Population density near the site	3
5 Proximity to parks and recreational facilities	1
Environmental and Land Use	
6 Zoning	1
7 Compatibility with/distance to existing land uses	1
8 Visibility from a general use public road	1
9 Visibility from residences and/or schools.	2
10 Groundwater	3
11 Wetlands	3
12 Flora and fauna habitat	2
13 Site aesthetics	1
14 Residential units along access road	1
15 Schools or hospitals along access road	1
16 Final use of the site when the landfill is closed	1
17 Archeological and/or historical significance	3
Economic	
18 Cost of site acquisition	3
19 Cost of development	3
20 Cost of operations	3
21 Impact of removal of site on tax base	1
22 Haul distance from H-POWER	2
Technical	
23 Landfill capacity or site life	3
24 Annual precipitation	2
25 Adequacy of drainage	1
26 Access to fire protection	1
27 Length of haul	2
28 Geology	1
29 Closure and post-closure cost	1
Other Considerations	
30 Employment	1
31 Access	2

4.4 Committee Siting Criteria Application

The Committee Siting Criteria was applied to the list of remaining sites following application of the Preliminary Siting Criteria. At this point in the evaluation, the Committee did not know the name of the sites.

The evaluation of the eight sites required extensive time to review the factors relevant to each criterion and to assemble the results. A compendium of data was prepared for each site detailing the evaluation for each criterion and, in many cases, included the back-up information used to determine the point value for the criterion. The individual site compendia with the details of the evaluations are in Attachment D.

4.5 Results of Committee's Application of Siting Criteria

Table 3, Sites for Committee Consideration, lists the sites to which the Siting Criteria were applied. The scores for each of the criteria and for each of the sites are shown in Table 4, Site Scores. These scores are the result of multiplying the Weighting Factors (shown in Table 2) and the point values for the criterion. The possible values for one site for one criterion ranged from one to nine, depending on the point value assigned (ranging from one to three) and the Weighting Factor (ranging from one to three). As noted, the higher the site's score, the better the site characteristics are for a municipal solid waste sanitary landfill.

Table 3, Sites for Committee Consideration

Site Name	TMK	Acceage	Million Tons Capacity	Years of Capacity
Ameron Quarry	4-2-15:01	391	9	15
Bellows	4-1-15: por. 01	173	8	12
Mali	8-7-10:por. 03	200	9	15
Makaiwa	9-2-3: por. 02	338	15	25
Nanakuli B	8-7-9: pors. 1 & 7	432	9	15
Ohikilolo	8-3-1: 13	353	8	13
Waimanalo Gulch New Exp.	9-2-3: 72 & 73	60	12	20
Waimanalo North	4-1-8: 13	171	10	16

5 COMMITTEE EVALUATION AND ANALYSIS

5.1 Committee's Brainstorming Positive and Negative Features of Sites

After evaluating the eight sites using the Committee Siting Criteria, the Committee reviewed each to identify features that may or may not have been measured by the criteria and to reflect other local concerns and considerations relative to the sites.

A summary of positive and negative site attributes listed by the individual Committee members is provided below. It is important to note that the comments are not the consensus of the Committee, but a compilation of the brainstorming efforts of the various individual Committee member's thoughts and concerns. There was no discussion or evaluation of the listed site attributes. Further information regarding these comments is in **Attachment B** (see Group Memory of November 7, 2003).

AMERON QUARRY

Positives

- Pretty good access
- Has existing ground cover
- Proximity to former landfill
- The quarry operation has created a hole in the ground that will need to be filled
- Potentially compatible for co-existence of landfill and quarry

Negatives

- Site not viable given its importance as rock quarry, cost of acquisition, and relatively limited capacity
- Increased operational cost if it coexists with landfill
- Economic impacts
 - 59 years lost lease revenue to landowner
 - Phase 1 – active for next 10-20 years
 - Loss of income and excise taxes paid to State and County, plus income taxes paid to

Federal government

- Environmental consequences – existing permits and stormwater retention lost
- Difficult to resite quarry
- Impacts construction industry/other businesses/government projects including roads and government building
- Distance from population centers / H-POWER
- Proximity to Kawainui Marsh; federal protection issues
- Highest level of precipitation of any sites on the list
- Access road substandard; private owners
- Visibility from Kailua town

BELLOWS AFB

Positives

- Federal land – use of government land is cheap if the government entity cooperates
- High unemployment area
- Two access routes to landfill
- Not super environmentally sensitive area – no wetlands

Negatives

- Federal land – cannot be condemned
- Bellows is an environmentally protected area
- Relatively small capacity – 12 ½ years
- Two access routes poor – two lane road
- Coastal area; probably was wetland

MAILI

Positives

- Approximately 20 years life
- Onsite cover
- Onsite brackish well for dust control
- Consistent zoning

- Utilities onsite
- Low precipitation

Negatives

- Traffic
- Hazardous rockfalls on highway to site (#11 out of 117 potential rockfall sites studied by DOT)
- Planned highway/drainage projects
- Traffic accidents cause major delays; one road
- Significant pedestrian cross-traffic
- Access road privately owned – Lonestar- use by farmers only
- Upwind of Maili Elementary School and major subdivision
- Schools and medical facilities along the route
- Only coral quarry on island
- Loss of taxes – income and excise

MAKAIWA GULCH

Positives

- Potential access available off main highway
- Large capacity – 25 years
- Zoning consistent
- Property currently not being used
- Shortest distance from H-POWER and close to service population (short haul distance)
- Extensive archeological/flora/fauna surveys completed
- Low precipitation

Negatives

- Acquisition Costs (see letter in **Attachment E**)
- Upwind from heavily populated residential and resort area
- No onsite utilities or access road
- Not consistent with development plan, planned for upscale residential development
- Close to transition between H-1 and Farrington Highway

- Power lines (138 KV) transit site
- View planes readily seen
- Major economic impact that would close down residential and resort development according to developer's representative
- Close to center of population growth
- Archeological information (i.e., Hawaiian cultural sites)

NANAKULI B

Positives

- Zoning Consistent
- Low precipitation
- Proximity to existing C&D landfill
- Utilities readily accessible
- Currently not being used
- Site acquisition costs relatively low
- Brackish wells for dust control
- 22.3 year life span

Negatives

- Traffic, planned highway and drainage projects
- Bad access
- Hazardous rockfalls on highway to site (#11 out of 117 potential rockfall sites studied by DOT)
- Traffic accidents cause major delays
- Pedestrian cross traffic
- Ownership of NAV-MAG road may necessitate the City paying for access
- Upwind of Maili Elementary School and residences behind Pacific Mall – potential odors could wipe out businesses

- Dust problems
- Pass schools, medical facilities to get there

OHIKILOLO

Positives

- Low precipitation
- Far removed from most residences
- Large acreage
- Access road already onsite
- Utilities onsite
- Zoning consistent
- Acquisition cost low

Negatives

- Most remote – one of the last remote coastal areas on Oahu
- Access will be bad; numerous churches, schools, medical facilities along the route
- Hazardous rockfalls on highway to site
- Numerous known archeological sites
- Traffic
- Pedestrian cross traffic
- Construction and planned future highway improvements
- 13-year lifespan – smaller capacity site
- Operation cost high
- Potential Native Hawaiian land title issue

WAIMANALO GULCH

Positives

- Least cost site to acquire and operate
- Lifespan of 20+ years
- Proximity to existing landfill; H-POWER
- All factors of site are known

- Road access reasonably good
- Close to the service population centers – short haul distance
- Low precipitation

Negatives

- Land Use Commission, Planning Commission and current City Administration are on record as not supporting continued use of the site (see **Attachment A**)
- Upwind and visible from major resort area
- Control of operations/management improved, but need further improvement (escaping waste)
- Based on past experience and slope makes site hard to hide
- Major economic impact that would close down residential development at resort and resort development, according to developer's representative
- Truck visibility – lineups onsite and along Farrington Highway
- Traffic – projected increase in traffic
- Road access problem
- Close to center of population growth

WAIMANALO NORTH

Positives

- Life capacity higher than other sites
- Moderate precipitation

Negatives

- City can not condemn state land (See **Attachment E**, DLNR letter)
- Traffic problems
- Long haul distance

5.2 Final List of Sites

The Committee decided that the following four sites should be eliminated from further consideration; three were eliminated by consensus and one by voting. The letters and other correspondence related to the sites are in **Attachment E**. The Committee decided by consensus to remove the following sites.

- The Bellows AFB site is in federal control and cannot be condemned. A reply from the Marine Corps further indicated that the site is not available.
- The Ohikilolo site has the strong possibility of significant archeological and cultural resources (although the studies have not yet been done to confirm the resources), is remote, and would require trucks to pass through a long stretches of road through the Leeward Coast Communities (where frequent accidents have occurred) to get to the site. The potential for Native Hawaiian title issues regarding use of this site was also a reason for its removal. It is also one of very few remote coastal areas left on Oahu.
- The Waimanalo North site has been designated as a State Forest Preserve, according to a letter the City received from the State Department of Natural Resources. The State will not support its use for landfill and the City cannot condemn state land.

The Committee voted to eliminate the Waimanalo Gulch Landfill from the list of recommended sites. As a result of the voting on the final site list (other than voting on procedural matters, all other Committee decisions were made by consensus), four of the 15 Committee members resigned (prior to the vote).

6 COMMITTEE RECOMMENDATIONS

6.1 List of Sites Recommended

The Committee evaluated the remaining five sites to determine if any of them should be removed from the list recommended to the Mayor for forwarding to the City Council. The final determination was made at the last Committee meeting. The members of the Committee present at the last meeting were Anderson, Apo, Bryant-Hunter, Chun, Guinther, Jung, Kane, Rezentes, Slovin, Thielen, Tomita, Tong, and Yamamoto. Holmes and Paty were not present. The Committee's earlier determinations had all been arrived at by consensus. A motion was made by Todd Apo and seconded by Kane to move the process from consensus to voting. The motion passed with Todd Apo, Chun, Jung, Kane, Rezentes, Slovin, Tomita, Tong, and Yamamoto voting in favor. Anderson, Bryant-Hunter, Guinther, and Thielen voted against.

Another motion was made by Todd Apo and seconded by Kane to remove the Waimanalo Gulch Landfill from the list of recommended sites. Prior to a vote, four Committee members (Anderson, Bryant-Hunter, Guinther, and Thielen) resigned because they did not want to be part of a recommendation that was decided by voting rather than by consensus. There were nine votes in favor of removing the Waimanalo Gulch Landfill from the list of recommended sites (Todd Apo, Chun, Jung, Kane, Rezentes, Slovin, Tomita, Tong, and Yamamoto). There were no votes against the motion.

Table 5, *Sites Recommended to the Mayor*, lists the four sites forwarded by the Committee to the Mayor.

Table 5, Sites Recommended to the Mayor

Site Name	TMK	Acreage	Million Tons Capacity	Years of Capacity
Ameron Quarry	4-2-15:01	391	9	15
Mali	8-7-10:por. 03	200	9	15
Makaiwa	9-2-3: por. 02	338	15	25
Nanakuli B	8-7-9: pors. 1 & 7	432	9	16

6.2 Other Recommendations of the Entire Committee

6.2.1 Host Community Benefits

Host Community Benefits (HCB) is a benefits package designed to address local impacts to the siting of landfills, which are essential to meet the City and County's future infrastructure needs. This section discusses the concept and summarizes the Committee's feelings regarding the use of such

benefits in siting a new landfill for Oahu. **Attachment F** provides more information about the use of HCB in other jurisdictions on the mainland. These points include:

- HCB can generate a significant amount of revenue to help meet local needs.
- HCB can be used for any type of project, in addition to landfill impact mitigation projects.
- HCB are not unusual. States that have them include New Jersey, Pennsylvania, Illinois, Iowa, Georgia, Michigan, West Virginia, Tennessee, California, and North Carolina.

The Committee recommends that the City Administration and City Council should not zone or permit any site unless a Host Community Benefits package is negotiated with the affected community where a landfill is sited. These benefits should be an integral part of the mitigation measures included in the EIS for the site.

The Committee further notes that HCB should not be mistaken for basic improvements that must be completed prior to operating a landfill, e.g., necessary highway or infrastructure improvements.

6.2.2 Land Banking Sites

The Committee agreed that the selection of the next landfill site will serve a critical public purpose. At the same time, the effort needed to select and develop a landfill site is high, and the list of potential sites so short, that future landfill sites should be land-banked well in advance of their need. Land banking has the potential to reduce land use conflicts and minimize siting difficulties.

The Committee recommends that the City Council take steps to identify sites that address future landfill needs taking into consideration: the development of new technologies; the reduction in the waste stream that may result from such technologies and from current technologies; and the demand for landfill space. The Committee further recommends that land banking should be part of a process separate from the work of this Committee, and not limit the sites considered to those identified in this report.

6.2.3 Underground Injection Control Line and Groundwater Protection Zone

The evaluation done for the criterion related to groundwater illustrates a potential concern with the application of the UIC line and the Groundwater Protection Zone to the siting of landfills. These delineations are not precise enough to clearly identify areas that are appropriate or inappropriate for siting a landfill, nor were they intended to be used for this purpose when introduced. As previously noted, the City Council in 2003 by Resolution 03-09, applied these criteria to protect Oahu's groundwater, by precluding the siting of landfills in these areas. In this site evaluation, the Committee consultants relied on BWS staff expertise to accurately determine whether a potential site might be a problem with respect to current or future groundwater considerations.

The Committee expressed that there may be a need for the State and the City to revisit the protection that the UIC line and the Groundwater Protection Zone provide.

6.3 Continued Gathering of Information

The Committee recognized that the time allowed for gathering information was limited and that more information is needed for each site before a final decision is made. The Committee suggested direct contact with the landowners or facility operators. Those parties will have important information that needs to be considered in locating the landfill that will serve the City in the future. The Committee recommends that these parties be contacted and their input be considered.

7 OTHER ENTIRE COMMITTEE CONSIDERATIONS

The entire Committee spent considerable time and effort in its deliberations discussing the following issues.

7.1 Landfill Costs

The Committee noted that while landfill associated costs were a very important issue, and should be given significant attention in the siting process, the Committee focused on community related criteria. The Committee also noted that host community impacts were important. They recognized that the siting and EIS processes both involve a cost/benefit analysis. However, these processes do not always apply the same importance and depth of consideration to host community impacts.

After reviewing the Siting Criteria, the Committee noted that the economic costs had been weighted low compared to other factors. While the committee eventually agreed not to make any changes to the weighting factors, the Committee agreed that costs are a very significant factor and have a larger impact on the taxpayer. The Committee considered these issues in the brainstorming deliberations on the strengths and weaknesses of each site.

7.2 Alternative Technologies

The Committee strongly feels that the City Administration must pursue all viable alternative technologies, existing technologies, and landfill reduction strategies as expeditiously as possible to reduce the volume of material requiring landfill disposal. The Committee adds that as alternative technologies are identified and brought on-line, some of the factors that were considered key in the current landfill siting process might change. These factors included the anticipated annual volume of waste generated and its relationship to the amount of landfill space that will be needed in the future. The Committee urges the City Administration to regularly and diligently examine the need for municipal sanitary landfills in this light and to identify viable sites to preserve for future use.

7.3 Multiple Sites

Although the Committee's focus was on locating a single municipal solid waste landfill site, it is noted that advances in technology and reductions in the waste stream could have the potential for making smaller landfill sites economically viable. This could allow for the development of more than one site to handle the municipal waste disposal needs of the many communities on Oahu.

The Committee also notes that locating and permitting two municipal solid waste landfills is likely to result in significantly more controversy, require significantly more time, and cost more than following the process for just one landfill. Having two landfills, where one is adequate, would be counter to good stewardship of the land.

**Attachment A – Planning Commission Recommendation and
Land Use Commission Decision for State Special Use Permit
for Waimanalo Gulch Sanitary Landfill Expansion**

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In The Matter Of The Application Of The)	DOCKET NO. SP87-362
)	
DEPARTMENT OF ENVIRONMENTAL)	DECISION AND ORDER
SERVICES, CITY AND COUNTY OF)	APPROVING AMENDMENT
HONOLULU (FKA DEPARTMENT OF)	TO SPECIAL USE PERMIT
PUBLIC WORKS, CITY AND COUNTY OF)	
HONOLULU)	
)	
For An Amendment To The Special Use)	
Permit Which Established A Sanitary Landfill)	
On Approximately 86.5 Acres Of Land Within)	
The State Land Use Agricultural District At)	
Waimanalo Gulch, Honouliuli, 'Ewa, O'ahu,)	
Hawai'i, TMK No: 9-2-03: Portion 72 and)	
Portion 73 (fka TMK No: 9-2-03: Portion 2 and)	
Portion 13))	
)	

DECISION AND ORDER APPROVING AMENDMENT TO SPECIAL USE PERMIT

On January 17, 2003, the Department of Environmental Services, City and County of Honolulu ("Applicant"), formerly known as the Department of Public Works, City and County of Honolulu, filed an application to amend an existing special use permit ("Amendment") with the Department of Planning and Permitting, City and County of Honolulu ("DPP"), pursuant to section 205-6, Hawai'i Revised Statutes ("HRS"), and sections 15-15-95 and 15-15-96, Hawai'i Administrative Rules ("HAR").

The Applicant proposes to expand the existing Waimanalo Gulch Sanitary Landfill on approximately 21 acres of land within the State Land Use Agricultural District at

Waimanalo Gulch, Honouliuli, 'Ewa, O'ahu, Hawai'i, identified as TMK No: 9-2-03: portion 72 and portion 73 ("Property").¹ The Property is owned by the City and County of Honolulu and is under the jurisdiction of the Applicant.

On January 22, 2003, the DPP accepted the Amendment.

On March 5, 2003, the Planning Commission, City and County of Honolulu ("Planning Commission"), conducted a hearing on the Amendment, pursuant to a public notice published on January 31, 2003. After due deliberation, the Planning Commission recommended approval of the Amendment to the Land Use Commission ("LUC"), subject to the existing nine conditions and two additional conditions.

On March 13, 2003, the LUC received a copy of the decision and record of the Planning Commission's proceedings on the Amendment.

The LUC has jurisdiction over the Amendment. Section 205-6, HRS, and sections 15-15-95 and 15-15-96, HAR, authorize the LUC to approve special use permits and amendments thereto for areas greater than 15 acres where application for LUC approval is made within 60 days after the decision is rendered on the request to the Planning Commission.

On March 27, 2003, the LUC met in Waipahu, O'ahu, to consider the Amendment.² Frank Doyle and Maile R. Chun, Esq., appeared on behalf of the

¹ The actual landfill expansion is planned on approximately 14.9 acres. Accessory structures and uses, including, but not limited to berms and detention basins, are planned on the remaining acreage.

Applicant. David K. Tanoue, Esq.; Eric G. Crispin; Barbara Kim-Stanton; and Raymond Young appeared on behalf of the DPP. Russell Y. Tsuji, Esq., and Abe Mitsuda were also present on behalf of the Office of Planning. At the meeting, the Applicant presented a chart entitled "Mayor's Blue Ribbon Landfill Site Selection Committee, New Landfill Timeline, March 27, 2003," which the LUC accepted as Exhibit Number 33 to the record in this proceeding. The Applicant represented, among other things, that it would continue to seek alternate disposal sites and other technologies and waste recovery programs to reduce the amount of waste that is disposed of in landfills.

Conformance With Special Use Permit Criteria

Following discussion by the Commissioners, a motion was made and seconded to grant the Amendment, subject to the conditions as reflected in the minutes of the meeting, including, among other requirements, that if a new landfill site is not selected by December 31, 2003, the special use permit would immediately expire. An amendment clarifying this motion was then made and seconded to amend the date to December 1, 2003, by which the Blue Ribbon Landfill Site Selection Committee is to recommend a new landfill site and to further specify that if the City Council fails to select the new site by June 1, 2004, the special use permit would immediately expire. The LUC found that i) By Order dated April 20, 1987, the LUC approved a special use

² Pursuant to section 92-3, HRS, Ernest Adaniya, Greg Perry, Darrell Bussell, Paul B. Kekina, Lieutenant Commander Chuck Lewis, Richard Payne, Gail Butchart, Todd Apo, Cynthia K.L. Rezentes, and Kevin Mizuno presented oral testimony, and State Senator Brian Kanno and Councilmember Nestor Garcia submitted written testimony.

permit to establish the Waimanalo Gulch Sanitary Landfill on approximately 60.5 acres. By Order dated October 31, 1989, the LUC approved an amendment to the special use permit to expand the landfill by approximately 26 acres; ii) The current expansion is consistent with the solid waste handling and disposal policies of the 'Ewa Development Plan and will serve all of O`ahu's residents and visitors; iii) The Property is currently in open space and is located adjacent to the existing landfill; iv) No agricultural production occurs on the Property; v) There are no historic sites on the Property and there are no traditional cultural practices that have been identified that are specific to the Property; vi) There are no threatened or endangered species of flora and fauna nor are there any species of concern on the Property; vii) The expansion of the landfill will not adversely affect surrounding properties provided mitigation measures and all applicable government rules and requirements are followed; viii) The Applicant will comply with Federal and State regulations governing siting, design standards, operating requirements, groundwater monitoring and corrective action, closure, post-closure care, and financial assistance; ix) The Property will be restricted from handling or treating toxic hazardous waste material; x) Permanent and temporary fencing will be utilized to control litter in the expansion cells; xi) Vacuum equipment will be employed to clean the litter from the fences, and cleanup crews will be deployed when notice is received that litter has drifted offsite; xii) The Applicant will implement odor and gas emission control measures including a gas recovery and monitoring system, regular use

of odor misters, regular use of cover material, early onsite queuing of waste haulers, and diversion of sewage sludge offsite for drying and processing at the Sand Island Wastewater Treatment Plant; xiii) The expansion is not expected to result in noise levels greater than produced from current activities; xiv) Most of the short-term noise generated will be during operation and mobilization of heavy construction equipment; xv) The Applicant will comply with State noise regulations to mitigate short-term impacts; xvi) Longer term measures to ensure noise abatement include properly muffling equipment with noise attenuation devices, scheduling rock crushing during normal landfill operation hours, and landscaping with vegetation; xvii) Upon closure of the landfill, the Applicant and Waste Management of Hawaii, Inc., the operator of the landfill, will be responsible for capping the entire landfill, monitoring groundwater, methane gas, and leachates for 30 years; xviii) Exposed areas will be seeded or hydromulched, as appropriate, using plants similar to those found around the landfill; xix) Fabric to mimic rock outcrops will also be strategically placed to break up the homogenous appearance of the filled areas relative to the surrounding hillside; xx) The impact of the landfill on `Ewa and Nanakuli residential values was studied; xxi) Proximity to the landfill is not a consistent contributor to property values and does not adversely affect property values; xxii) The existing landfill has been in operation since 1989 and the relevant support infrastructure and services for the proposed expansion are adequate; xxiii) The approved capacity of the landfill is rapidly approaching its

maximum; xxiv) The landfill receives on a daily basis 600 tons of ash residue from the Honolulu Program on Waste Energy Recovery and 800 tons of municipal solid waste for a total of 1,400 tons per day; xxv) The Applicant evaluated alternative sites and technologies for the disposal of municipal solid waste; xxvi) The expansion of the landfill is the only feasible alternative that can be implemented in time to dispose of municipal solid waste after the approved landfill capacity is exhausted; and xxvii) The Property has extremely rocky soils and is not conducive to crop production, and the steep terrain is not appropriate for pasture use.

Following discussion by the Commissioners, a vote was taken on the amendment to the motion. There being a vote tally of 7 ayes, 1 nay, and 1 absent, the amendment carried. A vote was then taken on the main motion, as amended. There being a vote tally of 7 ayes, 1 nay, and 1 absent, the motion carried.

ORDER

Having duly considered the complete record of the Amendment and the oral arguments presented by the parties in the proceeding, and a motion and amendment thereto having been made at a meeting conducted on March 27, 2003, in Waipahu, O'ahu, and the motion and amendment having received the affirmative votes required by section 15-15-13, HAR, and there being good cause for the motion and amendment, the Commission hereby APPROVES the Amendment granted by the Planning Commission to expand the existing Waimanalo Gulch Sanitary Landfill on

approximately 21 acres of land within the State Land Use Agricultural District at Waimanalo Gulch, Honouliuli, 'Ewa, O'ahu, Hawai'i, identified as TMK No: 9-2-03: portion 72 and portion 73, and approximately identified on Exhibit "A," attached hereto and incorporated by reference herein, subject to the following conditions:

1. The Blue Ribbon Site Selection Committee shall make its recommendation for a new landfill site to the City Council by December 1, 2003. The City Council shall select a new site by June 1, 2004. If a new site is not selected by June 1, 2004, this Special Use Permit shall immediately expire.

2. In the event that Condition No. 1 is satisfied, Condition No. 14 shall become effective.

3. That an earth berm shall be installed prior to the commencement of any waste disposal operations.

4. The landscaping plans which would include plant names, sizes, quantities and location shall be submitted to the Department of Planning and Permitting for approval and shall be implemented within 90 days of completion of the berm work.

5. The facility shall be operational between the hours of 7:00 a.m. and 4:30 p.m. daily.

6. The Applicant shall obtain all necessary approvals from the State Department of Health, Department of Transportation, Commission on Water Resource Management, and Board of Water Supply for all on-site and off-site improvements

involving access, storm drainage, leachate control, water, well construction, and wastewater disposal.

7. The Planning Commission or Director of the Department of Planning and Permitting may at any time impose additional conditions when it becomes apparent that a modification is necessary and appropriate.

8. The Applicant shall notify the Planning Commission of termination of use for appropriate Planning Commission action or disposition of the permit.

9. In accordance with Chapter 11-60, "Air Pollution Control," Hawai'i Administrative Rules, the Applicant shall be responsible for ensuring that effective dust control measures during all phases of development, construction, and operation of the landfill expansion are provided to minimize or prevent any visible dust emission from impacting surrounding areas. The Applicant shall develop a dust control management plan that identifies and addresses all activities that have a potential to generate fugitive dust.

10. That the City and County of Honolulu shall indemnify and hold harmless the State of Hawai'i and all of its agencies and/or employees for any lawsuit or legal action relating to any groundwater contamination and noise and odor pollution relative to the operation of the landfill.

11. The Applicant shall coordinate construction and operation of the landfill with the Hawaiian Electric Company.

12. Within 5 years from the date of this Special Use Permit Amendment approval or date of the Solid Waste Management Permit approval for this expansion, whichever occurs later but not beyond May 1, 2008, the 200-acre property shall be restricted from accepting any additional waste material and be closed in accordance with an approved closure plan.

13. Prior to commencing land filling in the 21-acre expansion area, the Applicant shall submit to the Director of the Department of Planning and Permitting for review and approval, a metes and bounds description and map of the approved landfill area as permitted by this Special Use Permit and amendments thereto. Any minor modifications to allow reasonable adjustments of the approved area due to engineering and/or health and safety requirements may be approved by the Director of the Department of Planning and Permitting; provided that there is no net increase to the approved area of 107.5 acres. A copy of the metes and bounds description and map shall be provided to the Land Use Commission.

14. The Applicant shall promptly provide, without any prior notice, annual reports to the Department of Planning and Permitting and the Land Use Commission in connection with the status of the landfill expansion and the Applicant's progress in complying with the conditions imposed herein. The annual report shall be submitted in a form prescribed by the Executive Officer of the Commission.

15. The City and County of Honolulu shall select a new landfill site. The recommendation for a new site shall be forwarded to the Planning Commission and City Council no later than December 1, 2003.

16. The City and County of Honolulu shall ensure that funding for design and planning is included in the FY05 budget to demonstrate the City's commitment to the new site and to ensure that no further extensions are necessary.

17. The City and County of Honolulu shall initiate the public comment and environmental review process for the new site no later than December 31, 2004.

18. The City and County of Honolulu shall, to the extent feasible, use alternative technologies to provide a comprehensive waste stream management program that includes H-Power, plasma arc, plasma gasification, and recycling technologies.

19. The City and County of Honolulu shall appropriately implement by executive order or ordinance the seven bullet points identified in the Applicant's Exhibit 3, Appendix H, page 1-3, regarding the third boiler at H-Power, wood recovery, metal recovery, gypsum recovery, enhanced enforcement of landfill bans, implementation of the bottle bill, and establishment of user fees.

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In The Matter Of The Application Of The)
)
DEPARTMENT OF ENVIRONMENTAL)
SERVICES, CITY AND COUNTY OF)
HONOLULU (FKA DEPARTMENT OF)
PUBLIC WORKS, CITY AND COUNTY OF)
HONOLULU)
)
For An Amendment To The Special Use)
Permit Which Established A Sanitary Landfill)
On Approximately 86.5 Acres Of Land Within)
The State Land Use Agricultural District At)
Waimanalo Gulch, Honouliuli, 'Ewa, O'ahu,)
Hawai'i, TMK No: 9-2-03: Portion 72 and)
Portion 73 (fka TMK No: 9-2-03: Portion 2 and)
Portion 13))
_____)

DOCKET NO. SP87-362
DECISION AND ORDER
APPROVING AMENDMENT
TO SPECIAL USE PERMIT

This is to certify that this is a true and correct
copy of the document on file in the office of the
State Land Use Commission, Honolulu, Hawaii.

6/9/03 by *Anthony J. Kelly*
Date Executive Officer

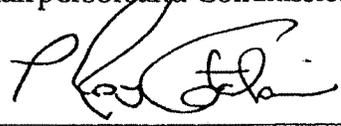
DECISION AND ORDER APPROVING AMENDMENT TO SPECIAL USE PERMIT

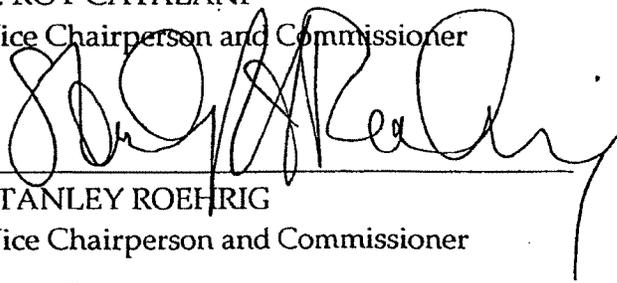
ADOPTION OF ORDER

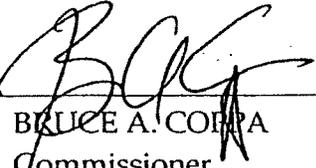
The undersigned Commissioners, being familiar with the record and the proceedings, hereby adopt and approve the foregoing ORDER this 5th day of June, 2003 The ORDER and its ADOPTION shall take effect upon the date this ORDER is certified and filed by this Commission.

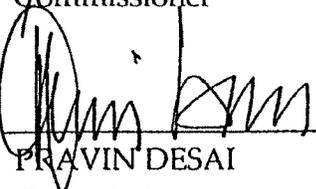
LAND USE COMMISSION
STATE OF HAWAII

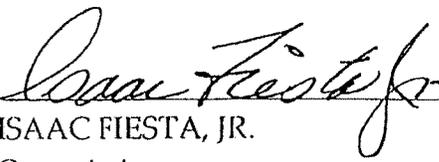
By 
LAWRENCE N. C. ONG
Chairperson and Commissioner

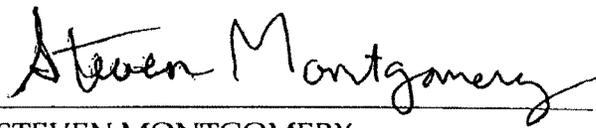
By 
P. ROY CATALANI
Vice Chairperson and Commissioner

By 
STANLEY ROEHRIG
Vice Chairperson and Commissioner

By 
BRUCE A. CORRA
Commissioner

By 
PRAVIN DESAI
Commissioner

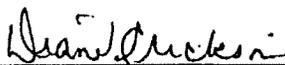
By 
ISAAC FIESTA, JR.
Commissioner

By 
STEVEN MONTGOMERY
Commissioner

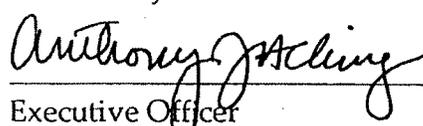
By 
RANDALL SAKUMOTO
Commissioner

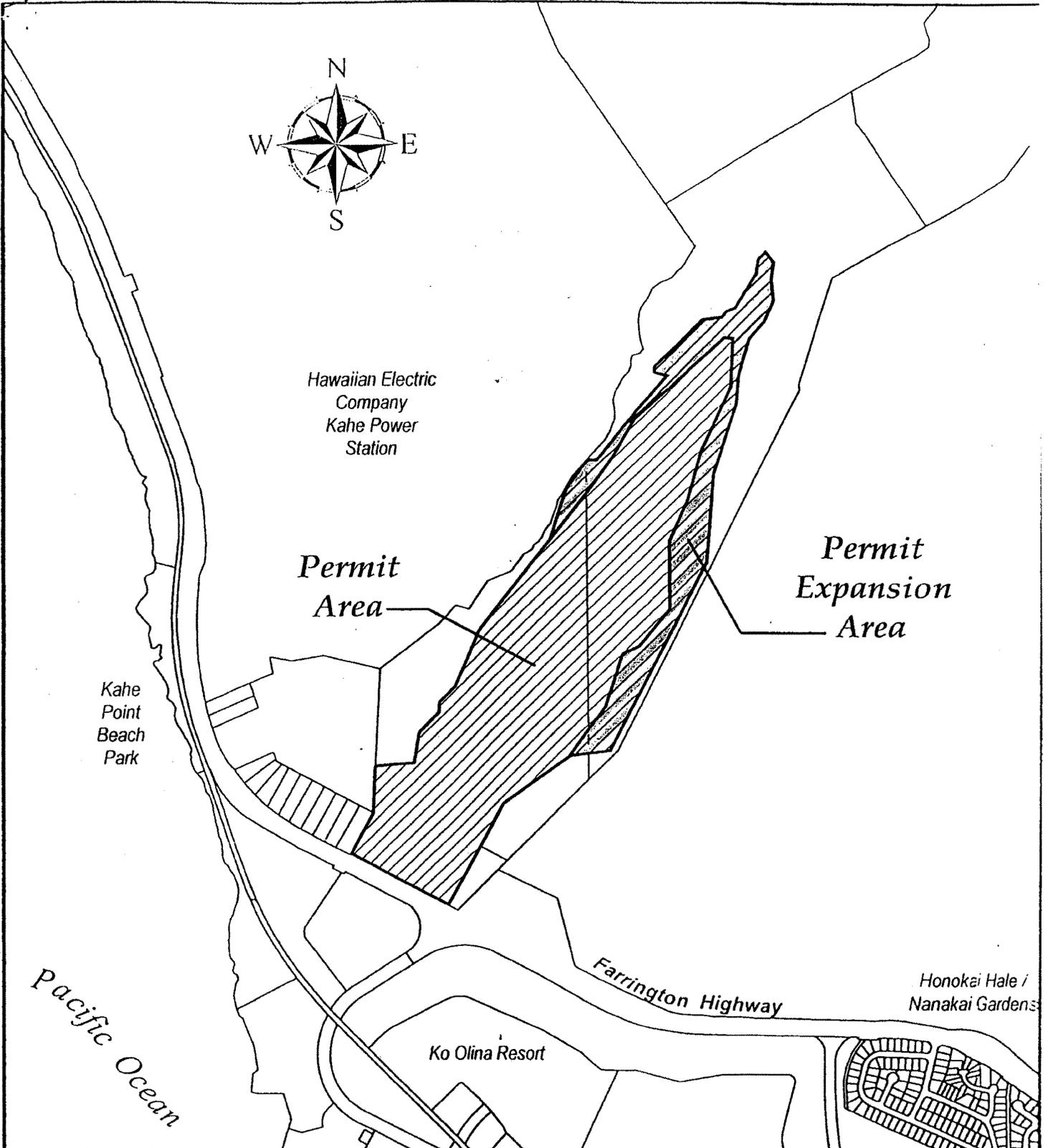
By OPPOSED
PETER YUKIMURA
Commissioner

APPROVED AS TO FORM:


Deputy Attorney General

Filed and effective on
June 9, 2003

Certified by:

Executive Officer

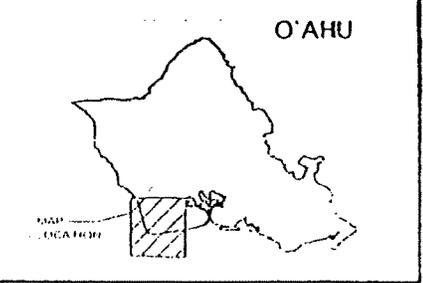


SP87-362 DEPARTMENT OF ENVIRONMENTAL SERVICES,
 CITY AND COUNTY OF HONOLULU
 (fka Department of Public Works, City and County of Honolulu)

LOCATION MAP

TMK No.: 9-2-3: portion 72 and portion 73
 Waimanalo Gulch, Honouliuli, 'Ewa, O'ahu, Hawai'i
 Scale: 1: 1,000 ft.

EXHIBIT "A"



BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In The Matter Of The Application Of The) DOCKET NO. SP87-362
)
DEPARTMENT OF ENVIRONMENTAL) CERTIFICATE OF SERVICE
SERVICES, CITY AND COUNTY OF)
HONOLULU (FKA DEPARTMENT OF)
PUBLIC WORKS, CITY AND COUNTY OF)
HONOLULU)
)
For An Amendment To The Special Use)
Permit Which Established A Sanitary Landfill)
On Approximately 86.5 Acres Of Land Within)
The State Land Use Agricultural District At)
Waimanalo Gulch, Honouliuli, `Ewa, O`ahu,)
Hawaii`i, TMK No: 9-2-03: Portion 72 and)
Portion 73 (fka TMK No: 9-2-03: Portion 2 and)
Portion 13))
_____)

CERTIFICATE OF SERVICE

I hereby certify that a copy of the Decision and Order Approving Amendment to Special Use Permit was served upon the following by either hand delivery or depositing the same in the U.S. Postal Service by regular or certified mail as noted:

DEL. MARY LOU KOBAYASHI
Office of Planning
P.O. Box 2359
Honolulu, Hawaii 96804

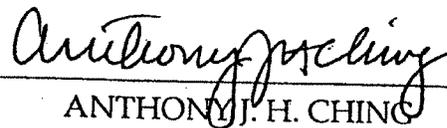
CERT. JOHN CHANG, ESQ.
Deputy Attorney General
Hale Auhau
425 Queen Street
Honolulu, Hawaii 96813

CERT. ERIC G. CRISPIN, DIRECTOR
Department of Planning and Permitting
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

CERT. FRANK DOYLE, DIRECTOR
Department of Environmental Services
1000 Uluohia Street, Suite 308
Kapolei, Hawaii 96707

CERT. DAVID ARAKAWA, ESQ.
Corporation Counsel
City & County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

DATED: Honolulu, Hawaii, this 9th day of June, 2003.



ANTHONY J. H. CHING
Executive Officer

PLANNING COMMISSION OF THE CITY AND COUNTY OF HONOLULU

STATE OF HAWAII

IN THE MATTER OF THE APPLICATION)

OF)

DEPARTMENT OF)
ENVIRONMENTAL SERVICES)

2002/SUP-6

FOR AN AMENDMENT TO A)
STATE SPECIAL USE PERMIT)

FINDINGS OF FACT, CONCLUSIONS, AND DECISION

I. PROPOSAL

The Planning Commission, at its public hearing held on March 5, 2003, pursuant to Section 205-6, Hawaii Revised Statutes and Subchapter 4, Rules of the Planning Commission, City and County of Honolulu, considered the application of Department of Environmental Services to amend Special Use Permit (SUP) File No. 86/SUP-5. The applicant proposes a 21-acre, 5-year capacity expansion to the existing 86.5-acre landfill to allow continued disposal of municipal solid waste (MSW). The proposed expansion includes 4 cells (E1 through E4) for disposing MSW, berms, detention and stilling basins, drainage channels, and access routes located within the State Land Use Agricultural District in Waimanalo Gulch, Honouliuli, Ewa, Oahu. The project area is identified by Tax Map Key 9-2-3: portion of 72 and portion of 73.

II. FINDINGS OF FACT

On the basis of the evidence presented, the Commission hereby finds that:

1. The subject expansion area is identified by Tax Map Key 9-2-3: portion of Parcel 72 and portion of Parcel 73 and is owned by the City & County of Honolulu.
2. The site is located in Waimanalo Gulch, Honouliuli, Ewa, Oahu.
3. The site is within the State Land Use Agricultural District, is partially within the Urban Growth Boundary of the Ewa Development Plan, and is zoned AG-2 General Agricultural District.
4. The landfill is not classified by the State Agricultural Lands of Importance to the State of Hawaii classification system. The University of Hawaii Land Study Bureau overall master productivity rating for the property is "E" which indicates very poor crop productivity potential.
5. The site is adjacent to Hawaiian Electric Company's Kahe Power Plant and Kahe Point Homes on its northwestern boundary; to the proposed Makaiwa Hills residential and commercial community on its southeastern boundary; and to Farrington Highway on its southwestern boundary. Across Farrington Highway from the site is the Ko Olina Resort, which contains resort and residential units, a golf course and marina. Honokai Hale and Nanakai Gardens residential subdivisions are located about 4,000 feet to the southeast of the site.
6. The Waianae Coast Neighborhood Board No. 24 recommended that Cell E1 be relocated to minimize litter, odor, and visual impacts; that the 5-year deadline to terminate landfill

operations be clarified, and that community members be on the landfill siting team. The Honokai Hale/Makakilo/Kapolei Neighborhood Board No. 34 opposed the placement of refuse towards the front of the landfill.

7. The Department of Planning and Permitting (DPP) accepted the Final Supplemental Environmental Impact Statement (FSEIS) on January 10, 2003. Notice of the DPP's acceptance of the FSEIS was published in the January 23, 2003 issue of the Environmental Notice, in accordance with the Environmental Impact Law, Chapter 343, Hawaii Revised Statutes.
8. The Planning Commission received a Report and Recommendation dated February 28, 2003 from the Director of Planning and Permitting providing an analysis of the Special Use Permit amendment request and its recommendation for approval with 2 additional conditions.
9. At the public hearing of March 5, 2003, 3 persons testified and one written testimony was received. Councilmember Mike Gabbard, representing Council District 1, supported the request with conditions relating to closure of the landfill and to inclusion of community members on a proposed alternative site selection committee. Councilmember Nestor Garcia, representing Council District 9, supported the expansion with conditions relating to closure, alternative site selection, inclusion of community members in the site selection committee, and encouragement of use of alternative technologies and waste recovery programs. State Senator Brian Kanno opposed the expansion request. A member of the Waianae community indicated that there are concerns on impacts to the neighborhood and the environment and opposed the expansion request.

10. The Planning Commission considered the public testimony and recommended that:

- a. The applicant submit to the City Council, an alternative landfill site(s) by December 31, 2003, and
- b. Community members be included on the alternate site selection committee.

Items 10a and 10b are recommendations to the applicant and are not included as conditions of approval of the SUP amendment.

III. CONCLUSIONS OF LAW

The Planning Commission hereby concludes that:

1. The proposed use would not be contrary to the objectives of the State Land Use Law.
The landfill and proposed expansion are located on soils that have very poor potential for crop production.
2. The proposed expansion would not adversely affect surrounding property if operated in accordance with relevant governmental approvals and requirements, including conditions of the Special Use Permit. Concerns relating to impacts on the surrounding community and the environment have been adequately disclosed in the FSEIS. Mitigation measures should be implemented in accordance with the applicant's representations as documented in the FSEIS.
2. The proposal will not unreasonably burden public agencies to provide roads and streets, sewers, water, drainage, school improvements, and police and fire protection.
Government agencies did not object to the proposed SUP amendment.
3. Unusual conditions, trends and needs have arisen since the Agricultural District boundaries and regulations were established. The landfill is quickly approaching its

maximum capacity, and there is no feasible alternative that can be implemented in time to dispose MSW after the approved landfill capacity is exhausted. At the time the original SUP was granted, the Planning Commission and the Land Use Commission found that the proposal met all 5 guidelines for issuing an SUP. Also at that time, plans for the development of Kapolei as the Second City and development of support housing, Ko Olina Resort, industrial, and support infrastructure in proximity to the landfill were being implemented.

4. The site's soil quality is not conducive crop production and the steep terrain does not lend itself to pasture use. Prior SUP approvals have allowed the removal of the property from agricultural use. Circumstances relating to use of the property for agriculture have not changed since the original SUP was granted. The State Department of Agriculture has not objections to the proposal.

IV. DECISION AND ORDER

Pursuant to the foregoing Findings of Fact, Conclusions and attachment, it was the decision of the Planning Commission, at its meeting of March 5, 2003, to approve Special Use Permit No. 2002/SUP-6, subject to the following additional conditions:

10. Within 5 years from the date of this Special Use Permit Amendment approval or date of the Solid Waste Management Permit approval for this expansion, whichever occurs later but not beyond May 1, 2008, the 200-acre property shall be restricted from accepting any additional waste material and be closed in accordance with an approved closure plan.
11. Prior to commencing land filling in the 21-acre expansion area, the applicant shall submit to the Director of Planning and Permitting for review and approval, a metes and bounds

description and map of the approved landfill area as permitted by this Special Use Permit and amendments thereto. Any minor modifications to allow reasonable adjustments of the approved area due to engineering and/or health and safety requirements may be approved by the Director of Planning and Permitting, providing there is no net increase to the approved area of 107.5 acre.

Dated at Honolulu, Hawaii this 13th day of March, 2003.

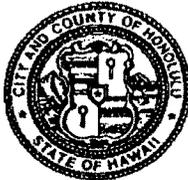
PLANNING COMMISSION
CITY AND COUNTY OF HONOLULU

By Brian Yabata for
CHARLIE RODGERS, Chair

Doc 207619

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 523-4414 • Fax: (808) 527-6743
Web site: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR



ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

86/SUP-5(RY)

March 13, 2003

Mr. Lawrence N. C. Ing, Chairperson
State Land Use Commission
P. O. Box 2359
Honolulu, Hawaii 96804-2359

Dear Chairperson Ing:

Subject: Amendment of Special Use Permit File No. 86/SUP-5 for an Expansion to
Waimanalo Gulch Sanitary Landfill
Department of Environmental Services
Tax Map Key 9-2-3: Portion 72 and Portion 73

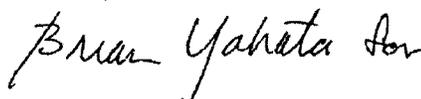
On March 5, 2003, the City and County of Honolulu Planning Commission approved the application of the Department of Environmental Service, City and County of Honolulu, for an amendment to State Special Use Permit (SUP) File No. 86/SUP-5 to allow a 21-acre expansion to the existing 86.5-acre Waimanalo Gulch Sanitary Landfill for a total area of 107.5 acres. The approval was subject to 2 additional conditions to the existing 9 conditions, which relates to a 5-year deadline to close the landfill and the submittal of a metes and bounds survey showing the approved SUP area.

Because the expansion is in excess of 15 acres, the Planning Commission's Findings of Fact, Conclusions, and Decision and Order, and one original and 15 copies of the entire record of the proceedings, are attached for the State Land Use Commission's review and decision.

Mr. Lawrence N. C. Ing, Chairperson
State Land Use Commission
March 13, 2003
Page 2

If you have any questions, please contact Raymond Young of the Department of Planning and Permitting at 527-5839.

Sincerely,



CHARLIE RODGERS, Chair
Planning Commission

FORWARDED:



ERIC G. CRISPIN, AIA
Director of Planning and Permitting

CR:ry

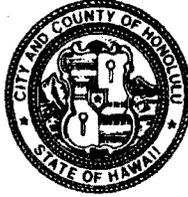
Attachments

Doc 208182

Attachment B – Mayor’s Letter to Committee Members; List of Committee Members and Meeting Schedule; Meeting Sign-in Sheets; Group Memory from the Meetings

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

REFUSE DIVISION
1000 ULUOHIA STREET, SUITE 212, KAPOLEI, HAWAII 96707
Phone: (808) 692-5358 Fax: (808) 692-5404



JEREMY HARRIS
MAYOR

FRANK J. DOYLE, P.E.
DIRECTOR

JOHN C.T. LEE, P.E.
ACTING CHIEF

IN REPLY REFER TO:
RE 03-092 ✓

July 3, 2003

«FirstName»
«Address1»
«Address2»

Dear «FirstName»:

Subject: Landfill Selection Committee

Thank you for agreeing to serve on the Mayor's Landfill Selection Committee. This advisory group will help the City establish site selection criteria and recommend one or more sites to the City Council for approval of the location of the next municipal solid waste landfill. Your training, experience, and leadership make you imminently qualified to deliberate the complex, interrelated issues that bear upon landfill siting, and we expect committee discussions to be well-considered and productive.

The next meeting will be on July 11, 2003, at 10:00 a.m. in the Mayor's conference room on the third floor of City Hall. Enclosed are the meeting agenda and a list of committee members.

There will be much information to assimilate, and committee members may wish to discuss issues with their constituencies to identify and add sites that meet minimum criteria to the list of potential landfill sites. For these reasons, the subsequent meeting is scheduled for August 8, same time and place.

Should there be any questions, please call Wilma Namumnart at 692-5378.

Sincerely,

A handwritten signature in black ink that reads "John C.T. Lee".

JOHN C.T. LEE, P.E.

Enclosures

cc: Brian Takeda, R.M. Towill
DeeDee Letts, Resolutions Hawaii

Mayor's Advisory Committee on Landfill Selection
Committee Members and Meeting Schedule

The following members served on the Mayor's Advisory Committee:

- Anderson, Bruce
- Apo, Peter
- Apo, Todd
- Bryant Hunter, Kathy
- Chun, Michael
- Guinther, Eric
- Holmes, Steve
- Jung, Ted
- Kane, Shad
- Paty, William
- Rezentes, Cynthia
- Slovin, Gary
- Thielen, Cynthia
- Tomita, Gary
- Tong, Robert
- Yamamoto, George

The Committee worked between June and November, 2003. Meetings held during this period were on the following dates:

- July 25, 2003
- August 8, 2003
- August 23, 2003
- August 29, 2003
- October 3, 2003
- October 10, 2003
- October 24, 2003
- November 7, 2003
- November 21, 2003

MAYOR'S ADVISORY COMMITTEE ON LANDFILL SITING 2003

Name	12/1	8/8	8/22	8/29	10/3 9/26	10/10	10/24	11/7	11/21
Anderson, Bruce	AAA	AAA		AAA	AAA		AAA		AAA
Apo, Peter		PKA	RESIGNED						
Apo, Todd	dea		dea	dea		Joa	dea	dea	dea
Bryant Hunter, Kathy	KB	KB	UB	UB	KB	KB	KB	KB	KB
Chun, Michael	MC	mpk		MC					MYC
Guinther, Eric	EB	EB	EB	EB	EB	EB	EB	EB	EB
Holmes, Steve		SH	SH				SH	SH	SH
Jung, Ted	TH								
Kane, Shad	SK								
Paty, William									
Rezentes, Cynthia	CR	CR	CR	CR	CR	CR	CR	CR	CR
Slovin, Gary	SL	SL	SL	SL	SL	SL	SL	SL	SL
Thielen, Cynthia	CT	CT	CT	CT	CT	CT	CT	CT	CT
Tomita, Gary	TR	TR	TR	TR	TR	TR	TR	TR	TR
Tong, Robert	TR	TR	TR	TR	TR	TR	TR	TR	TR
Yamamoto, George	YW		Y			Y	Y	Y	Y

LANDFILL SITING COMMITTEE

10:00 A.M., FRIDAY, JULY 11, 2003

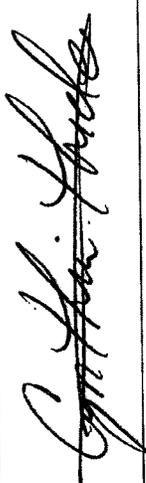
MAYOR'S OFFICE CONFERENCE ROOM

NAME	MAILING ADDRESS	TELEPHONE FAX	E-MAIL
ROBERT L. P. TONG	90-616 MAKAHULO DR KAPOLU, HI 96707	670-3354	rtong@o2kawaii.com
Rep. Cynthia Hulea	State Capitol Rm 443 415 So. Beretani St.	586-6480 X 6481	rep@hulea.com hawaii.gov
Steve Holmes	530 S. King St. #306 Honolulu, HI 96813	523-7774 550-6199	sholmes@co.hawaii.hi.us
TED JUNG	1825 LAUKAHI PL. HONO 96881	883-8461-C 521-3423	jungt@o2kawaii.com
Bruce S. Anderson	3452 Kapaemohetu Dr. Honolulu HI 96817 VASSON 1960 East-West Rd., Honolulu, HI 96817	956-5776	bsa@kawaii.edu
Gary Slovin	1099 Alakea St. #1800 96813	547-5776, 5880	gslovin@goodwill.com
Brian Takeda	RUTR.	842-1133 / 842-1437	

LANDFILL SITING COMMITTEE

10:00 A.M., FRIDAY, JULY 11, 2003

MAYOR'S OFFICE CONFERENCE ROOM

NAME	MAILING ADDRESS	TELEPHONE FAX	E-MAIL
MARK WHITE	5714 FOLSON BLVD #240 SACRAMENTO, 95805	916/387-9777 916/387-9802	MARK@PWCC.NET
Wilms Monument			
Eric Guinther	45-309 AKIMELA PL. Kaneohe HI 96744	808-247-4906	
GARY K. TOMITA	94-1117 HUKA 1 ST. WADAWU HI 96797-3726	808-677-4546 (cell) 808-677-4546 *51	igtwink@aol.com
SHAD KANE	92-1309 LANANA I KAPOLEI, HI 96707	808-672-4765	KINA@HAWAII.RR.COM
George Yamamoto	92-1539 Allison Dr. #H Kapolei, HI 96707	622 6790414 692-4253	Georges.Yamamoto@alumni.usc.edu
			

LANDFILL SITING COMMITTEE

5:30 P.M., FRIDAY, JUNE 13, 2003

MAYOR'S OFFICE CONFERENCE ROOM

NAME	MAILING ADDRESS	TELEPHONE FAX	E-MAIL
SHAD AANE	90-1309 Waihanani ST.	672-4765	KINA@hawaii.rr.com
Cynthia K.L. Rezendes	87-149 Maipela St. Waianae 96797	696-0131	rezendes@aol.com
Gary K. Tomita	94-1117 Huanani St. Waiapapa, HI 96797	677-4546 (unit 7) 535-8538 (c/c)	igtwink@aol.com
George Yamamoto	92-1539 Aliiini Dr. #H Kapaolei, HI 96707	679 0414	George.S.Yamamoto@alumni.hsc.edu
Teo Jungo	1825 WAIKAKAI PL 96821	383-2461	thendore.f.jungo Jungo@hawaii.rr.com T.K.com.
Eric Guinther	45-309 Akimela Pl Kāneohe 96744	247-3426 236-1782 (cell)	guinther@hawaii.rr.com
Steve Holmes	530 S. King St. #306 Honolulu, HI 96813	523-4714	sholmes@hawaii.rr.com

LANDFILL SITING COMMITTEE

5:30 P.M., FRIDAY, JUNE 13, 2003

MAYOR'S OFFICE CONFERENCE ROOM

NAME	MAILING ADDRESS	TELEPHONE FAX	E-MAIL
Barbara Marshall	530 S. King Honolulu 96913	547-7003	bmarshall@ co.honolulu.hi.us
Bruce Anderson	John A. Burns School of Hawaii 1960 East-West Road Honolulu HI 96822	956-5775	bsa@hawaii.edu
KAREN ONISHI	R.M. Towhee Corp. 480 WAIKAMU Honolulu 96819	842-1130	
Kathy Bryant Hunter	248 Vilama St Kailua 96734	262 6012	Kathybryant@ dprHadr.com
Gary Slovin	1099 Alakea St. Suite 1800 Honolulu 96813	547-5746 547-5880	gslovin@godsill.com

Group memory
Mayor's Advisory Committee on Landfill Siting
Friday, July 11, 2003
10:00AM to 11:30AM
Mayor's Conference Room

Attendance

Present:

Bruce Anderson
Todd Apo
Ted Jung
Eric Guinther
Steve Holmes
Shad Kane
Cynthia Rezendes
Gary Slovin
Cynthia Thielen
Gary Tomita
Robert Tong
George Yamamoto

Wilma Namumnart (Refuse Division, Dept. of Environmental Services)

Brian Takeda (RM Towill)
Mark White (Pacific Waste Consulting Group)
Roy Tsutsui (RM Towill)

Puni Chee (Representative for Council member Nestor Garcia)
Nancy Crittenden (Representative for Council member Barbara Marshall)
Roc Riggs (Representative for Council member Michael Gabbard)
Dee Dee Letts (Facilitator)
Karen Takahashi (Recorder)

Absent:

Michael Chun, Bill Paty, Kathy Bryant-Hunter

Introductions, Overview, Purpose and Guideline Adoption

Facilitator Dee Dee Letts welcomed and thanked members of the Mayor's Advisory Committee on Landfill Siting for attending and asked them to introduce themselves. Wilma Namumnart then asked members to fill out parking request form and send her an e-mail with missing information.

An overview of the meeting agenda was posted and reviewed by Dee Dee Letts. Agenda items for the meeting included the following:

- Introductions, Overview, Purpose, and Guideline Adoption
- Purpose
- Outcome
- Site Overview
- Criteria Overview
- Additional Criteria Discussion
- Additional Sites Identification Discussion
- Next Steps

The following meeting guidelines were explained by Dee Dee Letts:

- Be respectful of people's time. Meetings will start and end on time.
- Meetings are 90 minutes unless otherwise agreed to by the group.
- Each member is responsible for the success of the group.
- All meetings will have a clear objective and agenda.
- Members will be responsible for getting caught up on missed meetings.
- Issues not people are criticized. Courtesy shall prevail.
- It's okay to disagree.
- Members will do agreed upon homework in a timely manner.
- All members are equal and will participate in a manner that does not monopolize the process.

Group memories that include items as recorded on the newsprint will be provided to group members for each meeting. Committee members will be responsible for the accuracy of what is on the newsprint and were asked to offer corrections during the meeting to insure the accuracy of the group memory. Committee members agreed to the meeting guidelines.

Purpose

It was explained that the purpose of the Mayor's Advisory Committee on Landfill Siting is to provide feedback and recommendations to the administration, consultant and others involved in the process from a committee perspective about the various issues involved in siting a landfill and proposed sites.

Outcome

It was also explained that the desired outcome is to develop an optimum list of community issues and concerns regarding siting that need to be addressed and to recommend several sites to be examined in the EIS process.

Site Overview (Brian Takeda)

Consultant Brian Takeda provided an overview of the landfill siting process. He explained that the consultants are seeking guidance from the Committee in identifying 3-5 landfill sites by the December 2003 timeframe. He noted the following:

July 2003 -	Develop criteria and conduct site review LUC notification
August through October 2003 -	Research and Analysis
November 2003 -	Recommend sites
December 2003 -	Report to Land Use Commission
January 2004 -	Additional sub-consultant studies on sites (e.g., hydrology, flora/fauna, etc.) Analysis of sub-consultant studies

The following information was identified as useful in helping Committee members understand the process and will be provided to Committee members:

- Copy of the original LUC order (Wilma Namumnart)
- The internet site to obtain a copy of the EIS alternatives (Mark White)
- Copy of Oahu Landfill Selection Committee, Informational Materials (Brian Takeda)

Criteria Overview (Wilma Namumnart)

Wilma explained that in 1977, a report was issued relating to an investigative study conducted on alternative potential landfill sites for Oahu. Land to be considered was non-prime land that no one wanted (e.g., large, deep, able to be filled). In the informational materials provided to Committee members, reference was made to potential landfill sites in Section 5, Table of Landfill Sites and Projected Capacity. It was noted that numbers 16 (Kalaheo) and 19 (Kapaa No. 2 and 3) were closed while numbers 6 (Ewa No. 2), 9 (Heeia Kai), 31 (Olomana), and 34 (Sand Island) were lost to housing developments and a state park. It was also noted that there were development plans for number 4 (Diamond Head Crater) and that number 22 (Koko Crater) had endangered and endemic species which needed to be considered.

Other factors that should be considered include:

- City wants 15 year landfill life.
 - It takes about 7 years to go through the permitting and construction process before the first load can be accepted at the landfill.
-

- Sites should have at least a 5 year capacity. A site with at least 10 years capacity is desirable and more realistic and as noted above the city would prefer a 15 year life.
- An estimated rate of 500 tons per day was used to develop the capacity for the original list.
- Landfill life may be decreased or increased. Through operations/other means, there may be an opportunity to expand the capacity of any particular site for landfill expansion.
- In order to determine the total capacity, further research needs to be done.

Questions raised included the following:

- Should sites with less than 5 years capacity be taken off the list? It was suggested that the Committee should determine whether to do this.
- What is the remaining capacity at the Waimanalo Gulch? Based on the area permitted, there is enough capacity for only 5 more years. However, the area available could allow a longer period of use. There is more potential to expand, but a better number of what it could be expanded to needs to be determined. The actual landfill footprint is 84 acres; better numbers are needed. **(Subsequent to the meeting the city provided the information that beyond the 5 year permitted area, the site could accept waste for another twenty (20) years to completely fill the valley)**
- Is there potential for other sites to be expanded? Yes, there is more potential. More research would need to be conducted.

Additional Criteria Discussion

Brian Takeda referenced the following criteria which is used to guide the landfill siting process:

- ***Code of Federal Regulations (CFR), Part 258***, governs the development, operation and closure of landfills. This Federal regulation is administered by the Environmental Protection Agency (EPA), and is delegated to the State of Hawaii, Department of Health (DOH). The State's implementation of 40 CFR 258 is through the DOH Solid Waste Permit Program.

There are six location restrictions applicable to the siting of landfills (See Informational Materials, Section 6, Identification of New Landfill Sites Worksheet, Worksheet Instructions #1-6):

- Airport restriction
- Floodplains
- Wetlands
- Fault areas
- Seismic impact zones

- Unstable areas
- **Capacity Requirement** - The City has identified a benchmark regarding capacity. The desired landfill capacity requirement is 10 years and is based on projected and current rates of waste generation. The total airspace requirement will be 8 million cubic yards.
- **Technical and Resource Criteria** - There are a total of seven criteria for the siting of a landfill which have been previously considered by the City. They include the following:
 - *Protection of Natural Resources*
 - City Council Resolution 03-09 establishes a policy that municipal solid waste landfills should not be located anywhere above the Department of Health's Underground Injection Control line, within the Board of Water Supply's groundwater protection zone, or over any of the City's drinking water sources.
 - *Compatibility with Area Land Use*
 - Discussion and dialogue with the affected area population to incorporate community concerns and address issues associated with landfill developments.
 - *Protection of Natural Habitat*
 - Landfills should not be sited in locations which serve as habitat for Federal or State listed threatened or endangered species.
 - *Protection of Cultural Resources*
 - Landfills should not be located in places with known significant archaeological or historic cultural sites (e.g., archaeological items, burial sites, sites used for cultural and religious practices, etc.).
 - *Technical viability*
 - Technical viability includes site evaluation of engineering feasibility, cover availability, site access, and availability of utilities.
 - *Economic Development Costs*
 - This refers to what it costs to develop the site, analysis of haul distances, and material import costs. It also includes costs associated with construction of administrative and operational facilities.
 - The Committee needs to determine if it will add ash to the proposed landfill site; if so, it should look at ash monofill at the

same time that it looks for a site for municipal solid waste.

- Land Acquisition Issues
 - Ownership issue: is it privately or publicly owned land? If land is privately owned, acquisition issues such as purchase cost, condemnation costs need to be considered.
 - Other factors: community issues, public use issues, location of the landfill in relation to existing or proposed future development.

The following questions were raised relating to this criteria:

- Are the criteria for an ash monofill significantly different than that for a municipal solid waste landfill?
- What is the proximity to H-POWER for hauling purposes? Wilma will provide this information to Committee members at the next meeting.
- What community issues need to be arranged: characteristics of landfill operations, effects/impacts?
- Is the haul distance to H-power: significant economic and environmental criteria?
- How much material (ash and other materials) leaves H-Power to be landfilled?
- What are our assumptions regarding what is going into the landfills?
- Should C&D (construction debris) continue to be accepted at landfills? Wilma Namumart will provide list of banned materials to Committee members.

Wilma explained that the City is looking at alternatives to reduce the wastestream and also decrease its dependency on landfills (e.g., Plasma Request-for-Proposals, recycling, expansion of H-POWER, organics composting, etc.).

The following questions and comments were provided by Committee members:

- Is the Advisory Committee wasting its time if the City Council has already taken a position via Resolution 03-9? Due to this resolution, only 7 sites are available for the Committee to consider. Shouldn't the Committee start with the strictest criteria first and eliminate those sites which are behind the red/green lines?
- Does the Committee want to look at other sites?
- The Committee will still need to narrow down the choices to 2-3 sites.
- Rather than focus on all technical issues, should the effort start with sites that meet Resolution 03-9 criteria? The Committee needs to know if there is a hard restriction by the City Council, Department of Health, Board of Water Supply,

and community groups.

- Resolution reflects the Council's desire/intent. Believe that the sites should not be eliminated and that the review process should proceed.
- Another item for review by the Committee: Overview of landfill operations, economics of running a landfill, what it costs – should be provided to Committee members.

Additional criteria discussion:

Brian Takeda asked Committee members to review the informational materials provided along with the criteria listed and to identify any additional sites using the worksheets provided in the informational materials provided. He asked that Committee members return their worksheets by faxing them to Wilma no later than Friday, 7/25/03. Upon receipt, a compilation will be created and provided to Committee members at the next meeting.

Additional sites identification worksheets

Committee members were asked to identify additional sites that could be considered for landfill. It was noted that if a site were suggested for consideration and that based on federal criteria that it could not be permitted as a municipal landfill, that the site would have to be eliminated from further consideration. We expect this may be an exception to the rule since in most cases we would need to do the research first and then confirm whether or not the site should be further evaluated.

Next Steps

The following items will be provided to Committee members:

- Executive Summary for the Alternatives expansion report (website address; hard copy upon request)
- Where C&D wastes are going
- Overview of landfill operations – economics of running landfill, what it costs
- List of banned materials

Other issues to be discussed at the next meeting include:

- Expanding criteria
 - Should C&D continue to be accepted at landfills? % to be provided by Wilma.
 - Are criteria monitoring significantly different for ash as solid waste?
-

Next Meeting

The next meeting of the Mayor's Advisory Committee on Landfill Siting is scheduled for Friday, August 8, 2003 from 10:00 AM to 11:30 AM in the Mayor's Conference Room.

Mayor's Advisory Committee on Landfill Siting
Friday, August 8, 2003
10:00AM to 11:45AM
Mayor's Conference Room

Attendance

Present:

Bruce Anderson
Kathy Bryant-Hunter
Michael Chun
Eric Guinther
Steve Holmes
Shad Kane
Cynthia Rezendes
Gary Slovin
Cynthia Thielen
Gary Tomita
Robert Tong

Wilma Namumnart (Refuse Division, Dept. of Environmental Services)

Brian Takeda (RM Towill)
Roy Tsutsui (RM Towill)

Nancy Crittenden (Representative for Council member Barbara Marshall)

Roc Riggs (Representative for Council member Michael Gabbard)
Dee Dee Letts (Facilitator)
Karen Takahashi (Recorder)

Absent:

Todd Apo, Ted Jung, Bill Paty, George Yamamoto

Agenda Overview

Facilitator Dee Dee Letts welcomed members of the Mayor's Advisory Committee on Landfill Siting and asked them to introduce themselves. Dee Dee then provided an overview of the meeting agenda which included the following items:

- Distribute Group Memory for 7/11/03 meeting
- Homework
- Description of Landfill Operations
- Economics of Operating Waimanalo Gulch
- Landfill Selection Criteria
- Next Steps

Committee members were provided with a meeting timetable which outlined the schedule of meetings, including optional meetings, if needed. Advisory Committee members were reminded that the focus of the schedule is to have a list of three sites by December 2003. The meeting timetable is as follows:

8/8/03	Discuss Draft Criteria
8/22/03	Discuss Final Criteria / Sites Discussion
8/29/03	(Optional) Discuss Final Criteria / Sites Discussion
9/26/03	Analysis of Viable Sites
10/10/03	Discuss Analysis of Viable Sites and Select Short Listed Sites
10/24/03	(Optional) Discuss Analysis of Viable Sites and Select Short Listed Sites
11/7/03	(Optional) Discuss Analysis of Viable Sites and Select Short Listed Sites

Distribute Group Memory

Copies of the group memory from the July 11, 2003 meeting were distributed and members were asked to note the discussion printed in bold on page 4 relating to capacity at the Waimanalo Gulch which reads as follows:

“(Subsequent to the meeting the city provided the information that beyond the 5 year permitted area, the site could accept waste for another twenty (20) years to completely fill the valley.)”

Homework

The following responses were provided as follow-up to the last meeting:

- Copies of the Executive Summary for the Alternatives expansion report were provided to Task Force members.
- Where are C&D wastes going? C&D wastes are going to the Nanakuli landfill (PVT Land Company).
- A list of banned materials was provided to Advisory Committee members.
- Should C&D continue to be accepted at landfills? Per Wilma Namumnart, less than 5% is being accepted.
- Are criteria monitoring significantly different for ash as compared to solid waste? Per Wilma Namumnart, if ash is from municipal solid waste, the criteria for monitoring is the same.

- An overview of landfill operations was provided by Joe Hernandez.

Description of Landfill Operations

Joe Hernandez, Environmental Manager, Waste Management of Hawaii, provided a description of landfill operations to Advisory Committee members.

- At Waimanalo Gulch, the Environmental Manager monitors compliance with regulations.
- Operations directs trucks to City and County Scalemaster.
- Waste is screened to ensure banned waste not going into landfill.
- Waste goes to active phase (commercial and residential wastes) where it is backed-up into landfill. Equipment pushes/compacts waste.
- Landfill operators are trained to identify hazardous waste.
- Special waste program is a multi-tiered system. Program seeks to ensure that wastes are dumped properly, after being screened, and tested to determine if it is hazardous or non-hazardous waste.
- Process includes compaction.
- At end of the day, operator is required to cover with a minimum of 6 inches of soil.
- Samples of liners used for landfill were distributed to Task Force members to give them an idea of the type of material used.
- On average, 3-4 acres are lined with liner, covered with gravel, then a fabric material cover, and 18-24 inches of protective layer of soil.
- Question: Aside from cost, are there are state-of-the-art things that can be done? Cover the landfill, set up portable fencing to prevent litter from blowing. When the site is finished, landscape the most visible areas.
- Question: Is the landfill covered every day? Yes; landfill is covered with soil that has been screened. Some contaminated soil is used. Contaminated soil falls under a special waste criteria but a test is done to make sure that it is not classified as hazardous according to RCRA, Subtitle D.
- Question: Does monitoring require an assessment of impacts to the surrounding area and are monitoring reports required? Monitoring reports look at gas, leaking

of the liner, leaching, etc. and are provided semi-annually to the Department of Health. Waste Management samples the wells and submits result to an outside laboratory for testing.

- Question: Is the City aware of the Navy's efforts at Kalaeloa where they have moved lead and other heavy metals which breakdown and require redoing liners? Monitoring has determined that migration of heavy metals is not occurring at Waimanalo Gulch.
- Question: Have there been any impact studies regarding impact to the ocean? HECO does chemical analysis at Kahe Point in addition to long-term studies of outfall to the ocean.
- Question: How do other places handle their waste? In some places, big berms are put up to shield landfills visually. Berms in Hawaii are small and visible. Big berms could act as a visual shield, help contain or catch litter, and also control odor. Berms will also help to minimize the view of landfill operations. In some places, large berms are used as active parks by the public, traffic is not visible, and also do not back up on the roads. The aesthetics/visibility issues can also be addressed by changing the color of the liner (e.g., green). It was recommended that instead of little berms for each cell, that a large berm be constructed to shield the entire area.
- Need to know the state-of-the-art, what could be done to make it more aesthetically pleasing (e.g., hydromulching will lead to green areas.)
- Question: How do you deal with materials above/outside of the liner that goes downhill? Example given of ash-like waste found outside of the liner. Waste Management and the City were unaware of this situation. Ash is filled behind the berm and Waste Management is required to be sure that the ash does not runoff.
- Joe will look at the ash onsite from Waimanalo to the ocean to follow through on the above-mentioned situation.
- Joe will also check to see if the liner material is available in green.

Economics of Operating Waimanalo Gulch

A handout on the Economics of Operating Waimanalo Gulch were provided to Task Force members from Wilma Namumnart.

- Disposal fee per ton multiplied by the total MSW tons provides the potential revenue. For Fiscal Year 2003, this amount was \$18,321,346.
- There are two types of tonnage: non-revenue tonnage and revenue tonnage.

- Actual revenue tonnage has two different rates: (1) other city agencies @\$16.50 per ton; (2) Commercial entities @\$72.25 per ton.
- Recyclers get an 80% discount and pay only 20% of the commercial rate.
- Transfer Stations collect from other city agencies @\$50 per ton and commercial entities @\$98.75 per ton.
- Fee paid to Waste Management for MSW operations (i.e., excavation, lining, tonnage) reduces that actual revenue for landfill and transfer stations.
- Total amount collected less than potential revenue.

Landfill Selection Criteria

Advisory Committee members were provided copies of letters from the United States Environmental Protection Agency Landfill Selection Criteria(US EPA) and Department of Health relating to landfills located above the Underground Injection Control Line. Members were also provided with copies of a “Draft Technical Siting Criteria and Evaluation Approach for the City and County of Honolulu Blue Ribbon Landfill Siting Committee” prepared by Pacific Waste Consulting Group. The siting criteria provide a basis for judging one potential landfill site relative to all the others.

Consultant Brian Takeda explained that the six criteria that the US EPA identifies as landfill siting requirements are applied before the siting criteria. Of the six US EPA requirements (i.e., airports, floodplains, wetlands, fault areas, seismic impact zones, unstable areas), the last three do not always apply to Hawaii.

The siting criteria are organized into five categories and each category has criteria that are assigned a point value, ranging from zero to five. The five categories are as follows: (1) Community; (2) Environmental and Land Use; (3) Administrative; (4) Economic; and (5) Technical. On page 19 of the draft, an example of application of weighting criteria is provided. Advisory Committee members will advise what kind of weight is needed for the various criteria. Advisory Committee members were asked to look at the criteria closely, determine whether they like the criteria and the point values associated with the criteria, and advise of changes that will need to be made. Once the criteria is finalized, it can then be applied to the various landfill sites. The Consultant will collect the data, give its best judgment, and then bring it back to the Committee.

The following questions were asked regarding the criteria:

- Will the criteria require massive amounts of data for each site? The process is composed of two parts. The first phase will be to look at all possible sites and narrow it down to three to five sites over the next few months. Data will be

provided by the Consultant.

- Is it possible to look at past criteria that was used? (e.g., Waimanalo Gulch) Per Wilma Namumnart, the EIS report from the past study is available.
- Was this done with the siting of Waimanalo Gulch and its placement? Can it be made available for use as a guide in this process? Concern was raised that we should not go back since laws have changed and that this criteria should suffice.
- A suggestion was made that a criteria be added to minimize the proximity of landfills to nearshore waters. **(Subsequent to the meeting, the Consultant provided the information that Criteria No. 36 addresses distance from surface water bodies.)**
- What would be the increased economic costs of developing a landfill more than the 12 mile radius from H-POWER if ash had to be hauled there for disposal? The City was unable to answer the question because this would become part of the contract negotiations.

Concerns were raised about the need to go back to their respective constituency or community to review the draft siting criteria and to determine if it is the right criteria, with the right weighting for each of the criteria. There was also some discussion about possible moving of the August 29th meeting into September to allow for appropriate input. A suggestion was made that a community briefing could be held to provide information and solicit input. This issue will be revisited at the August 22nd meeting.

The Group Memory will be posted on the City and County of Honolulu Refuse Division's website located at www.opala.org.

Next Steps

For those who are interested, a landfill tour has been arranged for Thursday, August 14, 2003 from 8:30 a.m to 11:30 a.m. Those interested in attending were asked to meet Wilma Namumnart at Kapolei Hale. Transportation will be provided.

It was suggested that at the next meeting, the following items be discussed:

- Feedback from Joe regarding ash wastes near Waimanalo Gulch landfill and whether green liners are available.
- Regulator's perspective regarding landfills (i.e., DOH, US EPA) when permitting a landfill. To accommodate this discussion, Advisory Committee members agreed to a half-hour extension of the next meeting.
- Discuss and finalize siting criteria.

- Discuss and finalize criteria weighting system.

Next Meeting

The next meeting of the Mayor's Advisory Committee on Landfill Siting is scheduled for Friday, August 22, 2003 from 10:00 AM to 12:00 PM in the Mayor's Conference Room.

**Mayor's Advisory Committee on Landfill Siting
Friday, August 21, 2003
10:00AM to 11:45AM
Mayor's Conference Room**

Attendance

Present: Todd Apo
Kathy Bryant-Hunter
Eric Guinther
Steve Holmes
Ted Jung
Shad Kane
Cynthia Rezendes
Cynthia Thielen
Gary Tomita
Robert Tong
George Yamamoto

Wilma Namumart (Refuse Division, Dept. of Environmental Services)

Brian Takeda (RM Towill)

Roy Tsutsui (RM Towill)

Mark White (Pacific Waste Consulting Group)

Nancy Crittenden (Representative for Council member Barbara Marshall)

Dee Dee Letts (Facilitator)

Absent: Bruce Anderson, Peter Apo, Michael Chun, Bill Paty, Gary Solvin

Guests: Gary Siu, State Department of Health, Office of Solid Waste
Lene Ichinotsubo, State Department of Health, Office of Solid Waste
Joe Hernandez, Waste Management of Hawaii
David Fuiawa, Waste Management of Hawaii

Agenda Overview

- Requested presentation by State Department of Health, Gary Siu
- Response to questions from previous meeting by Joe Hernandez, Waste Management of Hawaii

- Criteria Discussion
- Weighting of Criteria

State Department of Health

Gary Siu from DOH went over the key concerns about siting from a DOH perspective. He noted that the group had already gone over the federal criteria which DOH would also have to see satisfied. He noted that one of DOH's key concerns would be that the chosen site does not impact ground water resources. Other concerns or things they might look at:

- The shortness of the haul from HPOWER to minimize the accidental spilling of ash
- Buffers to shield the activity from other land uses

He also noted that permitting would take at least one year.

C: Should address the safety of ash transport now and require the safest transport method instead of worrying about distance.

Q: If you increase haul distance don't you increase deadhead time and wouldn't that create a higher economic cost?

A: Probably but we are looking at safety issues

Joe Hernandez

Per the questions the committee asked last time the liner does come in green but regulations require us to cover it with black felt material so nothing would be gained visually by buying green. Joe also shared pictures on how water flow is handled on site to minimize any mix between landfill byproducts and water flowing to the ocean.

Q: My concern is windblown ash getting into the ocean and control of this.

A: The ash is damp when delivered and solidifies like cement so that we have to use a dozer to move it around – it is not a substance subject to being blown by the wind.

Q: Did you ever test for ash in water?

A: Yes. The only elevated levels found in the water were iron and this is probably because of the red iron rich soil.

Landfill Selection Criteria

The committee asked if the score will be the highest or lowest to be the most suitable landfill site. The highest score will denote the more preferred landfill site. The consultant will review the criteria for consistency throughout as far as the ratings alternative. The group requested that where measurements were changes criteria with

similar measurement features also be changed so that measurements would be consistent. The consultant agreed to do this.

The group next went through the criteria and measurements one at a time the following comments were received. Criteria needing continued discussion at the next meeting are noted in **bold**.

Criteria 1: OK

Criteria 2: distance is measured from the property line to the property line. The group suggested that the measure be less the $\frac{1}{4}$ mile a $\frac{1}{4}$ to $\frac{1}{2}$ mile and over $\frac{1}{2}$ mile

Criteria 3: there was some discussion on including wind direction toward the ocean but the group decided to take this up later

Criteria 4: This will be revisited at the next meeting – need more discussion and definition how density will be determined and what boundaries will be used.

Criteria 5: Make measures consistent with 2

Criteria 6: Reflect that the zoning on the majority of the site should be consistent

Criteria 7: Make consistent

Criteria 8: Tinker with it to make it consistent and possible remove it and add to 6.

Criteria 9: Define high use road as a road with a state route number

Criteria 10: Change it to residences and schools and revisit the question of businesses.

Criteria 11: OK fist measurement replace or with and and clean up language in the rest of the measurements.

Criteria 12: add “or adjacent to” and define wetlands with the Fish and Wildlife definition

Criteria 13: add “or adjacent to”

Criteria 14: OK

Criteria 15: Needs discussion

Criteria 16: OK

Criteria 17: Add schools

Criteria 18: The group wants to see a list of optional uses for closed land fills

Criteria 19 & 20: Combine and add “or adjacent to” – use SHPO definition of significance

Criteria 21 & 22: Delete

Criteria 23 & 24: Combine and again check consistency – use annual amortized cost

Criteria 25 & 26 & 27: Check for consistency

Criteria 28: Change distance to less the 12 miles and 12.1 and above

Criteria 29: Look at standard versus substandard road conditions as defined by county standards and also look at the road ownership issue some are private.

Criteria 30: Check consistency

Criteria 31: OK

Criteria 32: Change to soil available or soil not available on site

Criteria 33: OK

Criteria 34: Look at using isohyets for measurements

Criteria 35: OK – need to look outside footprint

Criteria 36: Add Ocean to surface water

Criteria 37: Use response time not distance

Criteria 38: Look at turning needs for vehicle sizes and acceleration and deceleration needs

Criteria 39 – 42: These need tweaking and 42 needs quantification

The consultant agreed to get a new draft to the group prior to the next meeting.

The following criteria will be revisited during the August 29th meeting. 4, 10, 15, 28, 29. Additional criteria to be looked at will be sent to the consultant prior to the meeting. One developed for discussion at that meeting was wind direction toward the ocean. The group also needs to look at a definition of populated area.

Next Steps

- Discuss and finalize siting criteria.
- Discuss and finalize criteria weighting system.

Next Meeting – Note change in Place

The next meeting of the Mayor's Advisory Committee on Landfill Siting is scheduled for Friday, August 29, 2003 from 10:00 AM to 12:00 PM in the Second Floor Conference Room at the Honolulu Municipal Building.

Mayor's Advisory Committee on Landfill Siting
Friday August 29, 2003
10:00 AM to 12:30 PM
2nd Floor Municipal Building

Attendance

Present: Bruce Anderson
Todd Apo
Kathy Bryant-Hunter
Michael Chun
Eric Guinther
Ted Jung
Shad Kane
Cynthia Rezendes
Gary Slovin
Cynthia Thielan
Robert Tong

Wilma Namumnart (Refuse Division, Dept. of Environmental Services)
Brian Takeda (RM Towill)
Mark White (Pacific Waste Consulting Group)

J. Ikaika Anderson (Representative for Council member Barbara Marshall)
Dee Dee Letts (Facilitator)

Absent Peter Apo, Steve Holmes, Bill Paty, Gary Tomita, George Yamamoto

Agenda Overview

- Criteria Discussion
 - Last meeting
 - Requested language changes, measures and consistency issues
 - Definitions
 - Errors
- Prioritization

Discussion

All criteria numbers and adoptions are done from the August 28th draft passed out at the August 29th meeting.

Criteria 4 (population density) – was adopted with the deletion of the phrase “living within 0.5 miles of the [footprint] property” in all measures

Criteria 9 (visibility from residences, schools, and visitors) – this criterion was change to be a general visibility criterion to read “Visibility of Landfill for residents, visitors and school populations – the measure should be changed to reflect the angle of visibility to the ocean.

Criteria 11 (wetlands) – this criteria will use the Fish and Wildlife definition of wetlands and aquatic sites which includes oceans – the word adjacent will be added and the references to mitigation in the measures will be removed – these measures will reflect the change of this criteria from and economic to an impact criteria and the distances will be standardized the distances used in other criteria and approved by the group

Criteria 12 (flora and fauna) – adjacent will be added and the measures will be distance standardized and critical habitat will be added

Criteria 14 (oceans) is removed as it is now covered by criteria 11 (wetlands)

Criteria 18 (archeological and historical significance, now criterion 17) – adjacent will be added and it will be standardized for distance

Criteria 25 (haul distance from H-POWER) will stay however one member suggested that we look at different ash sites especially old holes at Kalaeloa that might be suitable for this use – he was asked to get together with the consultant so that this could be looked at

Criteria 26, 27 and 28 were combined into one set of access road considerations

Criteria 37 (traffic safety, now criterion 28) – needs to look at the impact on safety of potential haul distances – the measures will be reworked to assess haul distances for city vehicles and some estimates will be made from central areas of private pick ups

Errors

- Criteria 3 first measure needs to read 50 to 80% - change will be made
- Criteria 8 the measures should high visibility, moderate visibility and low visibility – the word public needs to be inserted before road in measure 3
- Criteria 17 the measure values need to be reversed
- Criteria 26 – in the first line “haul” needs to be replaced with “access” for consistency

All of the other criteria were Ok as presented in the draft.

The group discussed that there could be positive criteria such as employment opportunities that were not looked at. Employment, restoration of degraded sites and a decrease in the community of roadside dumping were mention as examples. The consultant stated that they could come up with measures for the first two but that quantifying roadside dumping impacts would be hard. The group asked the consultants to do the first two and then to run the sites twice once with just the approved criteria and

once adding the new positive criteria and bring the results back to the group at their September meeting.

The group moved forward to the prioritizing exercise and some combining of criteria was done in preparation for this exercise.

- Numbers 26, 27, and 28 were combined into access road considerations criteria.
- Numbers 21, 24, 29, 31 and 32 were combined into a cost of operations criteria
- Numbers 20, 23, and 29 were combined into a cost of development criteria

The group next asked the consultants and City staff to leave the room while they prioritized the criteria so the results of the prioritization would not influence the consultant's evaluation of the sites. The sites will be presented at the September meeting with no weighting by priority – the results of today's exercise will be shared at that meeting and applied to the site list.

The next meeting will be September 26th from 10 to 11:30 at the Mayor's Conference Room.

Meeting adjourned at 12:30

**1 Mayor's Advisory Committee on Landfill Siting
Friday, October 3, 2003
10:00AM to 11:45AM
Mayor's Conference Room**

Attendance

Present:

Kathy Bryant-Hunter
Eric Guinther
Shad Kane
Cynthia Rezendes
Gary Slovin
Cynthia Thielen
Robert Tong

Wilma Namumnart (Refuse Division, Dept. of Environmental Services)

Brian Takeda (RM Towill)

Mark White (Pacific Waste Consulting Group)

Nancy Crittenden (Representative for Council member Barbara Marshall)

Roc Riggs (Representative for Council member Michael Gabbard)

Dee Dee Letts (Facilitator)

Karen Takahashi (Recorder)

Absent:

Bruce Anderson, Todd Apo, Michael Chun, Steve Holmes, Ted Jung, Bill Paty, Gary Tomita, George Yamamoto

Agenda Overview

Facilitator Dee Dee Letts welcomed members of the Mayor's Advisory Committee on Landfill Siting and provided an overview of the meeting agenda which included the following items:

- Discussion - Benefit Criteria
 - Employment Opportunity
 - Restoration of Degraded Sites
- Discussion - Possible Community Benefit Concept
 - Ko Olina Presentation with Questions and Answers
 - Mark White, Presentation on Host Community Benefit Concepts Research with Questions and Answers
 - Privatization
- Discussion - Landfill Capacity
- Adjournment

Discussion of Benefit Criteria

Dee Dee asked Mark White to address positive benefit criteria in the areas of (1) Employment / Jobs and (2) Restoration of Degraded Sites / Remediation. Mark White indicated that, irrespective of site, approximately 25 would be employed at the landfill. The Committee agreed to add a criteria on employment but to also factor in the % unemployment present in the proposed host community.

It was also suggested that the potential for employment should include employment numbers factoring in any resulting secondary employment. It was pointed out that this might be difficult to assess. To illustrate this suggestion, the University of Hawaii's location of its West Oahu campus was provided. Based on President Evan Dobbelle's projections, 150 acres will be used for the university campus, 100 acres for future expansion, and 100 acres for commercial businesses. Similarly, if the landfill is sited somewhere, could it become a magnet for other potential businesses (e.g., composting businesses, etc.)? The Committee decided to revisit this matter when the discussion of specific sites occurs.

Mark explained that remediation/rehabilitation of degraded sites would only be applicable in quarry situations – so the only site would be Ameron. The beneficial use of the landfill when closed is covered under the criteria on landfill closure. The Committee agreed that remediation should be deleted as a criteria.

Dee Dee asked the Committee if they were okay with the consultants conducting a single run using all of the criteria since the Committee had the opportunity to discuss all the criteria. The Committee agreed that a single run was sufficient.

Regarding Host Community Benefits, it was noted that benefits occur primarily when there are private interests involved. A question was raised asking if there was a benefit to privatization the landfill operations (i.e., a community, municipal-owned operation versus a private entity)?

Committee members were provided a compilation of articles researched by Pacific Waste Consulting Group entitled *Host Community Benefit Concepts*. The handout included the full text of one report on Host Community Benefits (HCB), an article from a national publication, and two other articles that illustrate the actual benefit as applied by different communities. Mark noted that the Cornell summary was helpful because it explained the conditions necessary for host community benefits. Todd Apo had indicated that he was not able to make the meeting and that someone from KoOlina would be present to make the presentation. No one from KoOlina was present.

The Committee discussed the possibility of the community determining their own controls and oversight on mitigation for an operating site. It was noted that a survey may help to suggest ideas and identify opportunities for benefits. If constructed well, surveys may provide useful information and get more responses than a public hearing. When the

community identifies sites, it is possible to present recommendations that link host community benefits with site recommendations. It was noted that there could also be financial benefits for the community (i.e., make recommendations that a surcharge on dump fees could go to the community).

The Committee agreed that when the committee identifies potential site recommendations, these need to strongly include the recommendation that no proposed site shall be permitted until a community benefit package specific to the selected community is agreed to.

Some in the Committee believe that the landfill is a short-term solution and that other issues contribute to the problem (e.g., population increase). It was suggested that a short-term landfill site be selected and that alternative technology be explored.

The Committee discussed the issue of privatization briefly. Wilma Namumnat explained that the landfill property is owned by the City while the landfill operator is contracted by the City. The City currently manages the scale house and sets the tip fees. If it was a private landfill, tip fees would need to be set up. She also explained that research was conducted to determine if it is more economical to operate the landfill with city employees or to privatize the landfill. It was noted that host community benefit articles provided by the consultant illustrate private landfill operations.

One of the Committee members asked for information on the City's RFP on plasma technology.

Capacity

Dee Dee noted that after reviewing the group memories, there was ambiguity regarding the minimum number of years for sites to be considered. The number of years ranged from 10 years to 25 years. A question was raised as to what will be used as the basis -- today's estimated capacity or revised numbers based on successful alternatives as they are implemented. It was explained that any successful alternative would lengthen the site life by the same amount at any site and that the current capacity numbers would be used. Another question was raised as to when the Committee decides on a new landfill, whether there would be two sets of equipment. It was explained that the equipment at the current landfill that belongs to the city is minimal -- weigh station etc. The new landfill would have to have its own infrastructure as most of what is at the old one will still be in use and is not moveable.

Fiscal Year 2002-2003 tonnage is used to determine capacity. Household and commercial wastes to H-POWER. It is assumed that 600,000 cubic yards per year, including cover, should be used to calculate the life of the landfill. This also includes MSW and ash. The current tonnage per year is 490,000 tons per year to 550,000 cubic yards. It was noted that the basis for calculation is very conservative and could be less depending on recycling efforts. This figure would be applied to all sites.

It was suggested that one approach would be favor a lower capacity landfill in order to apply pressure on the City to find alternative technologies. It was explained that the City's philosophy has always been to save landfill capacity (e.g., plasma technology RFP's recently put out to bid and are currently being evaluated, H-POWER).

Another question was raised regarding what makes up the 600,000 cubic yards? It was suggested that there needs to be an explanation from legitimate scientists regarding this issue. Consultant Mark White noted that the composition can be identified (e.g., metal, glass, asphalt, roofing materials, etc.) but indicated that it is a conservative estimate, and until the design is completed, precise capacity would be difficult to ascertain. He also explained that alternative technologies are often costly (e.g., plasma arch technology costs \$4 per pound).

The Committee agreed that 10 years minimum size should be used to maximize the number of sites to be looked at.

It was also clarified that the costs to develop a land fill as far as equipment are generally minimal compared to the cost of land acquisition.

Next Steps

Wilma Namumnart explained the following:

- (1) The consultant will be finishing the evaluation criteria and will bring the criteria to the next meeting.
- (2) A draft generic press release will be e-mailed to Committee members for their review and discussion at the next meeting.
- (3) The website will be made current with minutes and updated criteria

Next Meeting

The next October meetings of the Mayor's Advisory Committee on Landfill Siting are scheduled 10/10/03 and 10/24/03 from 10:00 am to 11:30 am in the Mayor's Conference Room.

**1Mayor's Advisory Committee on Landfill Siting
Friday, October 3, 2003
10:00AM to 11:45AM
Mayor's Conference Room**

Attendance

Present:

Bruce Anderson
Todd Apo
Kathy Bryant-Hunter
Michael Chun
Eric Guinther
Ted Jung
Shad Kane
Cynthia Rezentos
Gary Slovin
Cynthia Thielen
Robert Tong
George Yamamoto

Wilma Namumnart (Refuse Division, Dept. of Environmental Services)

Brian Takeda (RM Towill)
Mark White (Pacific Waste Consulting Group)

Nancy Azeri (Representative for Council member Barbara Marshall)

Roc Riggs (Representative for Council member Michael Gabbard)
Dee Dee Letts (Facilitator)
Karen Takahashi (Recorder)

Absent:

Steve Holmes, Bill Paty, Gary Tomita

The consultant presented the scoring on the various sites on the agreed to criteria. The site locations and names were not noted at this time to maintain the anonymity during weighting and ranking. The previous weighting of criteria that the committee had done and not shared with the consultant was unveiled. One of the criteria that the committee had combined as they weighted the criteria did not get translated to the consultant and therefore no scoring was available on Access Road. The consultant will compute this and bring it to the next meeting. The access road criterion was to cover such issues as condition of the road and ownership.

The committee again confirmed that high numbers in the consultants scoring denoted the most favorable or preferred sites and low numbers indicated the least desirable sites. The weighting that the committee had done ranged from a score of 0 to 10, with 6 items receiving 0, 5 items 1, 5 items 2, 1 item 3, 1 item 4, no items 5, 6 items 6, 2 items 7, 1

item 8, 1 item 9, and 2 items 10. The committee grouped them into high, medium and low with low being assigned 1 points, medium 2 points and high 3 point. Criteria receiving 0 to 3 votes were considered low, those receiving 4 to 6 votes were considered medium and those receiving 7 to 10 votes were considered high.

After reviewing the results there were several discussions which the results prompted. One was that costs were underweighted in the calculation and that the group needed to take another look at the cost issues and decide how and if to weight them differently than the original weighting. The point was made that the costs to the tax payers was a key issue and that the group would be remiss in not addressing this issue in the weighting scheme. As the weighting currently stood all cost criteria were ranked low in the weighting scheme.

The other discussion was a revisit of the discussion had at the last meeting regarding the minimum number of years for a site to be considered. Several members felt that the ten year minimum set by the group was too short and that 15 or 20 years should be the minimum. Some members of the group wanted to vote on changing the minimum. After allowing everyone a chance to express their opinions the group decided to wait until the next meeting and asked the consultant to be prepared to present one final product that included 10 and more year sites and a second one that included 15 and more year sites.

There was also discussion about the LUC special use permit which stated that the Blue Ribbon Committee should pick one site. Wilma explained that the City was in the process of requesting an amendment to the permit as the City has consistently asked this committee to recommend 3 – 5 sites for study in the EIS process which would determine the preferred site. There was disagreement around the table that the EIS would do this as the committee felt that most EIS documents they were familiar with included a preferred site at the beginning of the process. The committee will select 3 to 5 sites and if the amendment to the LUC is not successful then the committee will be reconvened to choose the preferred site.

It was agreed that the consultant will send out the methodology used in scoring the sites by October 15, 2003. The committee members would submit any questions they had by October 22, 2003 in order to give the consultant time to look at the concern prior to discussion at the next meeting. Committee members also would express via email their preference for a 10 or 15 year minimum for the site. Those speaking in favor of the larger site discussed length of time and difficulty in permitting and that no matter how well the City implemented alternatives a landfill site was still going to be needed. Those in favor of the 10 year minimum noted their desires to force the City to move more quickly to alternatives and also to allow for banking of future sites as the City has not done this in the past and therefore has lost several viable sites to development.

A draft press release was distributed for comment and input at the next meeting. It was noted that it would be up to the committee if a press release goes out and what it says. The concern noted was that if the committee does not do a press release then the work of the committee will be subject to interpretation by whoever wants to talk to the press.

The next meeting is October 24th 10AM to 12PM at the Mayor's Conference Room.

Mayor's Advisory Committee on Landfill Siting
Friday, October 24, 2003
10:00AM to 11:45AM
Mayor's Conference Room

Attendance

Present:

Bruce Anderson
Todd Apo
Kathy Bryant-Hunter
Eric Guinther
Steve Holmes
Shad Kane
Cynthia Rezendes
Gary Slovin
Gary Tomita
Cynthia Thielen
Robert Tong
George Yamamoto

Wilma Namumnart (Refuse Division, Dept. of Environmental Services)

Brian Takeda (RM Towill)

Mark White (Pacific Waste Consulting Group)

Ikaika Anderson (Representative for Council member Barbara Marshall)

Roc Riggs (Representative for Council member Michael Gabbard)

Dee Dee Letts (Facilitator)

Absent:

Bill Paty, Ted Jung, Michael Chun

The meeting began at 10. Several members arrived between 10:15 and 10:30. The first item for discussion was the methodology document distributed via e-mail to the group. The consultant asked if there were any questions to the methodology as none had been received via e-mail. The group had no questions on the methodology.

A letter was shared from DLNR, the landowner of the Waimanalo North site, stating that they would not entertain its use as a landfill site. The group agreed that for the integrity of the work done the Waimanalo North site would stay on the list and the report that went forward would state that DLNR would not consider it for this use and that the letter would be attached to whatever was forwarded by the committee.

Next on the agenda was a revisiting of the minimum capacity questions for the landfill. Group members had been asked to register their preference via e-mail for a minimum of 10 or 15 years. Eleven members chose to register their preferences regarding this issue.

Two voted for 15 years or longer and nine expressed a preference for 10 years or stated that they did not think the smaller sites should be removed at this time. A total of eight sites remained after removing those that did not provide at least 10 years of life.

The consultant passed out the ranking of the various sites with the weighting and scoring filled in for discussion purposes. The consultant noted that they had summarized the site scores grouped by categories of criteria (community, environmental and land use, economic, technical and other considerations). No matter whether the criteria categories were considered individually or as a group, the order of the top sites did not change significantly – the top 4 to 5 remained the top 4 to 5. A table was passed out showing this. Some members of the group after receiving the information felt that there had been an agreement to talk about the cost-based criteria and discuss re-prioritizing the cost criteria prior to knowing the site names. The discussion on the cost criteria was held after the sites were identified. Dee Dee apologized for any confusion on this. The discussion on weighting and costs was extensive. Some felt that costs should be given a higher weighting value as they felt the committee would look less then credible if they did not rank costs as important. They noted that costs are a major concern of taxpayers in general and to not reflect that made them feel uncomfortable with the work of the group. Others felt that the committee composition had been set up to ascertain what the most important factors were to the communities that might host a landfill and therefore felt the weighting that was done was appropriate. After much discussion it was decided that the integrity of what the group felt was a good process would be jeopardized if the group chose to start tinkering with any of the criteria or weighting factors. Group members noted that this product was only one thing the committee would be looking at it in making its final recommendations and that the ranking of the sites through this process did not necessarily mean that this ranking would be the preferred order.

The group then proceeded to look at the various sites. The consultants noted that they had brought all the background information for the committee members to take with them and rather than try to absorb it today. They wanted to pass it out at the end of the meeting and have a discussion around it on November 7th after committee members had had a chance to look at it.

There were several general concerns noted by the group:

- No criteria addresses the impact on the construction industry on the removal of Ameron as a quarry site – it was noted that these costs could be significant.
- The archaeological criteria, No. 17, does not take into account undocumented burials that are completely missed by the current research effort. The consultant concurred this would be case until the 3-5 sites are decided upon by the committee at which time a detailed study would be done as part of the EIS effort.
- There was also a question as to why Ameron and Bellows received different scores as regards Haul distance from H-Power as they are both on the windward side. The consultant noted that Ameron was off a major highway and that the distance to Bellows was significantly farther as regards haul.
- There was a question about the assumption that Ohikilolo and Nanakuli B would have low purchase costs. There is a belief that Ohikilolo would result in a lawsuit

and past history indicates this is a possibility. The consultant noted that it is difficult to assign numbers or weights to things that might or might not happen.

- It was also noted that using the tax base as a way to set value is not valid or accurate as the tax base is always low. The consultant noted that the tax base would be equally low for each site so relatively speaking the spread would be the same.
- It was noted that the only site that would not require condemnation is Waimanalo Gulch as the City already owns it.
- It was also noted that as discussions continue criteria 18,19 and 20 need to be grouped and dealt with appropriately as the cost criteria (some of this went back to whether or not to re-weight these criteria or separate them out – which the group decided not to do)
- The committee noted a lack of clarity on the part of the City as to whether Waimanalo Gulch is on the table. Members noted the LUC hearing where the 5 year extension approval was predicated on the City closing the Gulch site. Even though the City has talked about filing a request to amend this decision those present at the hearing felt that based on the testimony this is not an option. They also site statements from both the Mayor and Frank Doyle to the effect that the Gulch would be closed. Others noted that it would be irresponsible to throw it out as there is significant capacity remaining, is owned by the City, and is already a landfill.
- There is still concern about recommending 3 to 5 sites as the LUC order asks the committee for one and it has not been amended.
- Members of the group pointed out that there are always going to be costs that can't be quantified at this point. An example was archeological sites: we can only compute costs for what we know now and when a survey is done we might find others that either raise costs or make the site not feasible.

The group discussed what its final report would look like. Some members wanted to just send the matrix of how all the sites scored. Others felt that this was not acceptable because as they had previously stated they felt the matrix was only one thing the committee would look at. Others felt that the group should just send their recommendations and no explanation of the process the committee went through to arrive at their recommendations. The group for the time being agreed to have the consultant prepare a report for their input that would have the following contents:

- Introduction
 - Background and purpose
 - Workplan (Approach rationale, criteria etc.)
- Results
 - Criteria evaluation, matrix etc.
- Discussions and issues raised
- Recommendations

Meeting adjourned at 12. The next meeting is November 7, 9:30 to 12 at the Mayor's Conference Room.

Mayor's Advisory Committee on Landfill Siting
Friday, November 7, 2003
9:30AM to 12:30PM
Mayor's Conference Room

Attendance

Present:

Todd Apo
Kathy Bryant-Hunter
Eric Guinther
Steve Holmes
Ted Jung
Shad Kane
Cynthia Rezendes
Gary Slovin
Gary Tomita
Cynthia Thielen
Robert Tong
George Yamamoto

Wilma Namumnart (Refuse Division, Dept. of Environmental Services)

Brian Takeda (RM Towill)

Mark White (Pacific Waste Consulting Group)

Roc Riggs (Representative for Council member Michael Gabbard)

Ikaika Anderson (Representative for Council member Barbara Marshall)

Dee Dee Letts (Facilitator)

Karen Takahashi (Recorder)

Absent:

Bruce Anderson, Michael Chun, Bill Paty

Agenda Overview

Facilitator Dee Dee Letts explained that the purpose of the meeting is to surface the top sites. She explained that Advisory Committee members were emailed instructions to review the eight sites and identify pros/cons/questions for each site.

Pros/Cons/Questions – Eight Sites

Ameron

Pros:

- Pretty good access

- Has existing ground cover
- Proximity to former landfill
- Hole in ground; needs to be filled
- Potentially compatible

Cons:

- Site not viable given its importance as rock quarry, cost of acquisition, and relatively limited capacity (Bruce Anderson)
- Lost revenue to Ameron
- Increased operational costs
- 59 years lost lease revenue to landowner
- Cost of equipment
- Value of lost reserves
- Phase 1 – active for next 10-20 years
- Economic impact
- Loss of income and excise taxes paid to State and County, plus income taxes paid to Federal government
- Environmental consequences – existing permits and stormwater retention
- Impacts construction industry/other businesses/government projects including roads and government buildings
- Difficult to resite quarry
- Distance from population centers / H-POWER
- Proximity to Kawainui Marsh; federal protection issues
- Highest level of precipitation of any sites on the list
- Access road substandard; private owners
- Visibility from Kailua town

Questions:

- 15 years filling up phase 1
- Can a landfill and quarry coexist?
- Can you place safely in a rock cup with that much rainfall close to an environmental sensitive site (Kawainui Marsh)?
- Capacity seems low with potential site providers

Bellows

Pros:

- Federal land
- High unemployment area
- Two access routes to landfill
- Not super environmentally sensitive area – no wetlands

Cons:

- Federal land – cannot be condemned
- Bellows an environmentally protected area

- Relatively small capacity – 12 ½ years
- Two access routes poor – two lane road
- Coastal area; probably was wetland

Maili

Pros:

- Approximately 20 years
- Onsite fill
- Onsite brackish well for dust control
- Consistent zoning
- Utilities onsite
- Below UIC pass/no pass lines
- Viable site (Bruce Anderson)
- Dry area

Cons:

- Traffic
- Hazardous rockfalls
- Planned highway/drainage projects
- Traffic accidents cause major delays; one road
- Significant pedestrian cross traffic
- Access road privately owned – Lonestar- use by farmers only
- Upwind Maili Elementary School and major subdivision
- Schools and medical facilities along the route
- Only coral quarry on island
- Loss of taxes – income and excise

Questions:

- What is the status of the Department of Health's review of quarry operation for taking coal ash?
- 0-5 feet above water - would need fill prior to liner – added cost / diminished volume.
- How is capacity calculated?

Makaiwa Gulch

Pros:

- Next best site (#2) (Bruce Anderson)
- Access
- Large capacity – 25 years
- Zoning consistent
- Property currently not being used
- Below UIC line
- Shortest distance from H-POWER and center of population growth (short haul distance)

- Extensive archeological/flora/fauna surveys completed
 - Dry area
- Cons:
- Cost (i.e. Campbell Estate's objections)
 - Upwind from heavily populated residential and resort area
 - No onsite utilities and access road
 - Close to transition between H-1 and Farrington Highway
 - Planned for residential, upscale residential development
 - View plains readily seen
 - Major economic impact that would close down residential development at resort and resort development according to developers looking at the area
 - Close to center of population growth
 - Archeological information (i.e., Hawaiian cultural sites)

Nanakuli B

Pros:

- Already zoned
- Dry area
- Viable site (top 3 sites – Bruce Anderson)
- Proximity to existing landfill
- Utilities readily accessible
- Currently not being used
- Site acquisition costs relatively low
- Brackish wells for dust control
- Below UIC line
- 22.3 year life span

Cons:

- Very similar to Maili – Traffic
- Bad access
- Hazardous rockfalls (#11 of 117 potential rockfall sites studied)
- Planned highway projects i.e. construction
- Traffic accidents cause major delays – one road
- Pedestrian cross traffic
- Status of NAV-MAG road
- Upwind of residences behind Pacific Mall, Pacific Mall – potential odors would wipe out businesses
- Dust problems
- Passes schools, medical facilities to get there

Questions:

- Need to clarify the impact of the Waianae Coast Emergency route

Ohikilolo

Pros:

- Precipitation – dry area
- Far removed from most residences
- Large acreage – 660 acres
- Access road already onsite
- Utilities onsite
- AG-2 zoning appropriate
- Below UIC line
- Landfill traffic slow
- Acquisition cost low

Cons:

- Most remote
- Access will be bad; numerous churches, schools, medical facilities along the route
- Hazardous rockfalls
- Numerous known archeological sites
- Traffic/informal raceway (majority at night)
- Pedestrian cross traffic
- Construction and planned future highway improvements
- 13 year lifespan – smaller capacity site
- Operation cost high

Questions:

- Unreported cultural sites in central portion said to include heiau
- Question on water table/ fishponds
- If condemned, potential lawsuit relating to ownership; Hawaiian ancestry issues

Waimanalo Gulch

Pros:

- Should be on final list because least costly site to acquire and operate; with proper management, lifespan of 20+ years (Bruce Anderson)
- Proximity to existing landfill; H-POWER
- All factors of site known
- Road access reasonably good
- Close to population centers
- Precipitation – dry area

Cons:

- Land Use Commission, Planning Commission and current Administration are on record as not supporting continued use of the site
- Upwind and visible of major resort area
- Control of operations/management improved, but need further improvement (escaping waste)
- Based on past experience and slope, hard to hide
- Economic impact (see Makaiwa Gulch)
- Truck visibility – lineups onsite and along Farrington Highway
- Traffic
- Road access problem
- Projected increase in traffic

Questions:

- Is technology available to make it invisible?

Waimanalo North

Pros:

- Life capacity higher than other sites
- Moderate precipitation

Cons:

- State says No
- City cannot condemn State land
- Traffic problems
- Long haul distance

Final Recommendations:

The Committee eliminated by consensus the following three sites: Bellows, Ohikilolo, and Waimanalo North. The following five sites emerged because there was no consensus to take any other sites off of the list. The five sites include: Ameron, Maili, Makaiwa, Nanakuli B, and Waimanalo Gulch.

It was agreed that a document review subcommittee would be created to work with the consultants to develop the final report. The following Advisory Committee members volunteered to serve on the subcommittee: Todd Apo, Kathy Bryant-Hunter, Eric Guinther, Cynthia Rezendes. Subcommittee members will review the report outline and work with the consultants on the final report.

Advisory Committee members agreed that it would not issue a press release explaining their recommendations.

It was also recommended that the report include some discussion about community benefits, landbanking multiple sites, and the reason why Waimanalo Gulch was not eliminated as a potential landfill site. The question of requesting that the Board of Water

supply review the UIC/no pass line was raised. There was significant support for making this recommendation although consensus was not reached.

The consultants will be drafting the report and distribute copies to Advisory Committee members by November 18th. Advisory Committee members were asked to submit their comments to the consultants if they were unable to attend the final meeting scheduled to November 21st from 10:00 a.m. to 12:00 p.m. at the third floor conference room at Kapolei Hale.

November 7, 2003

Notes Submitted by
Cynthia Rezentes, Advisory Committee Member

MA`ILI

PROS

- Approximately 20 acre site ready for filling and another significant area already being quarried.
- Onsite cover material
- Onsite permitted brackish water well for dust control
- Within an area already zoned for landfill use (Agriculture-2)
- Utilities already onsite
- Below the artificial UIC and Pass-No Pass lines

CONS

- "Rockfall Protection Study At Various Locations on the Island of Oahu" (Final Report) dated November 2002 prepared by Earth Tech, Inc. for State of Hawai'i Department of Transportation refers to a traffic volume of 24786 AVT (Average Daily Traffic) at the entrance to Nanakuli (Black Rock)
- Traffic volume as reported for the Waimanalo Gulch Sanitary Landfill Expansion FSEIS dated December 2002 page 4.2 (prepared by R.M. Towill for the C&C of Honolulu Department of Environmental Services) reports per long-range projections from the Oahu Regional Transportation Plan done by OMPO in 1995, the "morning peak traffic along Farrington Highway at Kahe Point will increase from the current 2,000 vehicles per hour to 2,880, or from 36,000 to 70,000 vehicles per day (about 45%)."
- From the rockfall study, Black Rock is the number 11 priority out of 117 sites ranked or within the top 10% of sites ranked.
- Farrington Highway is currently scheduled for significant construction. Current plans call for construction to begin 1Q04 for safety upgrades including, converting sidewalks in Nanakuli to meet ADA standards, placing "zip-type" barriers along Ma`ili Point (temporary barrier with further permanent design/construction projected), drainage upgrades in Nanakuli at two separate locations.
- Any incident causes huge backups of traffic along Farrington Highway. Example 1: October 23, 2003-construction at Sack n Save driveway in Nanakuli into one lane of Farrington Highway was not managed well from a traffic perspective. The final result was a traffic backlog at 4:15-4:30 p.m. to the Campbell Industrial Park Interchange. Example 2: November 3, 2003-An accident at 5:30 a.m. involving an oil spill resulted in a traffic backlog at 8:00 a.m. to Kaukamana Road in Ma`ili, a distance of approximately five (5) miles. November 6, 2003-a traffic accident involving a fuel spill (Wai`anae bound direction) caused lookie-loos to cause a traffic backup to Hakimo Road, a distance of approximately two (2) miles. It is not unusual to have one fairly major traffic tie-up per month on Farrington Highway.
- There is significant pedestrian traffic along Farrington Highway laterally and cross-wise (access to bus stops and the beach).
- Pa`akea Road is a private road owned by Lone Star Hawaii. It is one road that the farmers depend upon for access from one area to another without having to license their farm vehicles. This status should not change but then who would be responsible to upgrade Pa`akea Road to handle the increased truck volume on a road currently not adequate for regular heavy vehicular traffic?
- Upwind of Ma`ili Elementary School which has fought for relief from farm odors, flies, etc. already. Even though the classrooms are air-conditioned what happens during recess, etc.?
- Upwind from numerous residences (old Lualualei Homesteads, "Manu" streets subdivision), Ho`okele subdivision)
- Upwind from Ma`ili Kai subdivision which already recognizes odors from nearby husbandry operations and have disclosures in sales documents per a Unilateral Agreement with the City. The area is currently undergoing a new area expansion with more, probably, planned in the future.
- Passes: 4 churches, 1 pre-school, 1 school and 2 medical facilities if Lualualei Naval Magazine Road is used. If Ma`ili`ili`i Road is used as access then the numbers become: 8 churches, 1 pre-school, 2 schools, and 3 medical facilities.

MISSING INFORMATION

- State DOH reviewing whether to require a formal permit to allow the continued placement of AES coal ash onsite. (AES coal ash has a high level of arsenic and may need to be placed in a lined area.)
- State DOH also believes that the depth which can be used any landfill is approximately 8-10 feet above the water table. This level could mean the landfill could only be approximately 30 feet below surrounding grade.

NANAKULI B

PROS

- Within an area already zoned for landfill use (Agriculture-2)
- Utilities readily accessible
- Property currently not being used
- Near brackish water sources (wells drilled further inland reveal brackish water readily available within the area)
- Below the artificial UIC and Pass-No Pass lines

CONS

- "Rockfall Protection Study At Various Locations on the Island of Oahu" (Final Report) dated November 2002 prepared by Earth Tech, Inc. for State of Hawai'i Department of Transportation refers to a traffic volume of 24786 AVT (Average Daily Traffic) at the entrance to Nanakuli (Black Rock)
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- There is significant pedestrian traffic along Farrington Highway laterally and cross-wise (access to bus stops and the beach) including children who walk to school.
- Upwind of nearby residences behind Pacific Mall (abutting the property being proposed). There is already a significant dust problem with houses downwind of the current PVT landfill (Wai'anae side of LLL NavMag Road).
- Upwind of Sack n Save, KFC, McDonald's, Chinese restaurant, Korean restaurant, Nanakuli Giant (grocery store), Nanaikaola Clinic (Kaiser), WCCHC Clinic, Tongan/Samoan foodstore, 2Go minimart, Baskins-Robbins.
- Passes: 4 churches, 1 pre-school, 1 school and 2 medical facilities.

MISSING INFORMATION

- Property makai of this parcel or on the makai portion of this parcel is being proposed for a part of the Wai'anae Coast Emergency Access Route project.

'OHIKILOLO

PROS

- Far removed from most residential areas of Wai'anae (only a few homes located nearby)
- Large acreage
- Access road already onsite
- Some utilities already onsite, electric, water, telephone
- Within an area already zoned for landfill use (Agriculture-2)
- Below the artificial UIC and Pass-No Pass lines

CONS

- Numerous churches, schools, pre-schools and medical facilities along the route.
- "Rockfall Protection Study At Various Locations on the Island of Oahu" (Final Report) dated November 2002 prepared by Earth Tech, Inc. for State of Hawai'i Department of Transportation refers to a traffic volume of 24786 AVT (Average Daily Traffic) at the entrance to Nanakuli (Black Rock)
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- There is significant pedestrian traffic along Farrington Highway laterally and cross-wise (access to bus stops and the beach) including children who walk to school.
- This portion of Farrington Highway has been the scene of numerous fatal traffic accidents. Accidents were typically the result of speeding, drinking under the influence, "dangerous" highway conditions, etc.

MISSING INFORMATION

- Unrecorded cultural sites are said to be located in the lower central portion of the valley including a suspected heiau not listed.
- There is a suspicion that a portion of the valley was used as fishponds (prior to Farrington Highway and the railroad being located in its present location). If this is true, then there needs to be a determination as to the water table and the potential porosity of the soils.
- Verification needs to be made regarding all owners of the parcel in question. Alika Silva claims to have been the one to have claimed 2 acres were given to him by his grandmother in a centralized portion of the property and his holding out on selling to Alpha Kai is what doomed the proposed golf course at the initial sale. If Alika still believes he owns 2 acres, there will be a contentious lawsuit.

MAKAIWA

PROS

- Below the artificial UIC and Pass-No Pass lines
- Within an area already zoned for landfill use (Agriculture-2 and Preservation-2)
- Property currently not being used

CONS

- Upwind from heavily populated area (specifically, Honokai Hale and Nanakai Gardens)
- No onsite utilities or access road
- Close to transition of H1 freeway and Farrington Highway (previous vehicular and pedestrian accidents in the vicinity)
- Future plans for the area per the 'Ewa Sustainable Communities Plan (Development Plan) include upper-scale housing as part of total Makakilo-Kapolei development
- View planes to the site would be like Waimanalo Gulch, readily seen from a highly traveled road and residences and part of KoOlina Resort

MISSING INFORMATION

- Unknown

WAIMANALO GULCH

PROS

- Already being used for a landfill
- "All" factors known regarding the site
- Capacity available greater than that permitted

CONS

- Upwind of a major resort area (KoOlina)
- Better control but still not 100% control on operations, visual and odor
- Economic impacts to a major resort (KoOlina)
- Not be a site to be considered per statements made by Mayor Harris, Frank Doyle, Order 12 by the Land Use Commission and Decision and Order 10 from the Planning Commission

MISSING INFORMATION

- Verification that this is no longer a site to be considered based on statements made during the request for permit modification for expansion to May 2008

November 7, 2003

Notes Submitted by
Linda Goldstein, Ameron

AMERON QUARRY SITE

Kapaa Quarry is slated to be a quarry through 2052. Phase I (the current active pit) is an essential part of that operation, and will be for at least the next 10 to 20 years. Beyond this major, important, and existing use, the following is provided:

1. Economic Impact

- Cost to acquire: City & County appraised property value of \$768,200, plus some or all of the equipment appraised at \$2,416,000, plus value of lost rock reserves and related items such as lost lease revenue to landowner, Castle Trust
- Loss of taxes paid to State and County: Portion of \$785,000 annual General Excise and Use Tax (based upon 2003 projections), plus portion of income taxes paid to State and Federal governments
- Financial impact to Ameron Hawaii: Lost revenue on 5 million tons of rock reserves in Phase I, increased operations costs and reduced production for Phase II, increased cost to dispose of water and Phase II dirt (700,000 cubic yards annually)

2. Environmental Consequences

- Reduction of Ameron Hawaii's positive stewardship of Kawainui Marsh: A zero-discharge NPDES permit results in Ameron Hawaii containing all stormwater that falls on the quarry and the need to contain 6.3 million cubic yards (1.3 billion gallons) of water in the Phase I pit
- Ameron Hawaii's active and financial participation in environmental and educational projects in Hawaii would be severely reduced: Resources would need to be redirected to bolster impacted operations because continued use of the Phase I pit beyond extraction of the rock reserves is essential for effective operations in Phase II

3. Effect on Construction Industry

- Ameron Hawaii is one of two major suppliers of ready-mix concrete and one of two Grade A rock quarries on Oahu: Without Phase I as part of the viable operation of Kapaa Quarry, scheduled projects, such as massive military housing (7700 units) and municipal and State road construction projects, will take significantly longer to complete and cost much more than originally planned
- Loss of production from Grace Pacific's asphalt plant at Phase I will result in a reduction of asphalt production for Oahu, and similarly result in more expensive and delayed projects
- Three small trucking companies are also now located at Phase I and could need new locations, difficult to find on the Windward side of Oahu
- With a decrease in rock products available on Oahu, and the resulting negative impacts on project timing and costs, other members of the construction industry will be forced to adjust accordingly

Group Memory
Mayor's Advisory Committee on Landfill
Friday November 21, 2003
Kapolei Conference Room

Attendance

Present: Bruce Anderson
Todd Apo
Kathy Bryant-Hunter
Eric Guinther
Steve Holmes
Shad Kane
Cynthia Rezentes
Gary Slovin
Cynthia Thielen
Gary Tomita
George Yamamoto

Wilma Namumnart (Refuse Division, Dept. of Environmental Services)
Brian Takeda (RM Towill)
Mark White (Pacific Waste Consulting Group)
Dee Dee Letts (Facilitator)

Absent: Michael Chun, Bill Paty, Ted Jung, Robert Tong

The Committee began by going over the proposed final report of the Committee. The sections regarding recommendations were put on hold pending discussion about another meeting to further try to reduce the five recommended sites. Several edits and changes to the report were made that the consultant will incorporate. The report without the recommendation sections was approved as long as the edits are made.

The Committee next took up the issues of whether to add to the agenda a discussion on reducing the number of proposed sites from 5 to 1. It was noted that under Sunshine such a move would take a vote by 2/3 of the members that the Committee was entitled to. Since the Committee has 15 members that met 10 votes were needed. The motion to place the issue on the agenda failed.

The Committee next discussed whether or not to schedule another meeting and if such a meeting were scheduled what the agenda for the meeting would be. An informal poll of the entire Committee had been taken via email as a member of the report drafting subcommittee stated their intent to push for a vote for one site in the last five minutes of the final drafting meeting. A deadline of close of business November 20 was set for registering your view. At the deadline there were 6 in favor of a meeting, one abstention and 7 opposed. On the morning of this meeting Wilma received an email from one

member to change his vote from opposed to favor. There was much discussion around this issue. The key points are bulleted below:

- A question was asked of those proposing to reduce the sites what process they intended for the Committee to use to do this, as consensus had not worked to reduce the list of 5. Those in favor of reducing the sites stated that the only way they could see to do it was to vote.
- Some members felt that voting at this stage would only polarize the membership and that after working for five months by consensus this was unnecessary as what was currently on the table for a recommendation met the charge given to the Committee by the City.
- Several members felt that voting would be inappropriate due to the unfair makeup of the Committee for voting i.e. more leeward than windward residents, and special interests advocating against some sites with other special interests not being at the table.
- Two members claimed that the LUC at its Maui meeting today had reconfirmed its prior order. The Committee and City will wait to be notified in writing and wait for the City to clarify whether the order changes the mandate to the Committee. Members pointed out that this was a City Committee and that the LUC had no jurisdiction over what the Committee does.
- Some Committee members felt that efforts by a Committee member to move things in a particular way outside the Committee deliberations were disrespectful to the Committee and the process. This included the circulation of petitions to some not all Committee members with no discussion at the table. One petition requested the removal of Waimanalo Gulch from consideration and the other chose the site of Nanakuli B. Several members of the Committee felt that this was unfair and that decisions of the Committee had to be made at the table through discussion and not behind the backs of Committee members. They also felt that this action violated Sunshine.
- Some Committee members felt that with the lack of information available about the various sites to push forward to vote one site would discredit all the work the Committee had done thus far.
- There was a question of whether the member pushing to pick one site really wanted to pick one site or just get Waimanalo Gulch off the list. The member maintained that he felt the Committee needed to come up with one site despite the City's charge to the contrary.

The Committee voted 6 to 5 to hold another meeting to discuss further reductions of the five sites. The meeting will be December 1 from 9 to 10:30 at the Kapolei Third Floor Conference Room. The agenda will be to finalize the site recommendations and the recommendations section of the report should changes to the final recommendations be needed based on the first item on the agenda.

A motion was made that should this meeting not take place or that no agreement be reached, then the current draft report would go forward with no recommendations. The report would have a statement of where the Committee ended up and that it could go no

further. The motion carried 6 to 5. (One vote was gotten via email as one member had had to leave as the meeting was running over time.)

The meeting adjourned at 12:15.

Group Memory
Mayor's Advisory Committee on Landfill
Monday December 1, 2003
9AM to 10:30 AM
Kapolei Conference Room

Attendance

Present: Bruce Anderson
Todd Apo
Kathy Bryant-Hunter
Michael Chun (arrived 10:10)
Eric Guinther
Ted Jung
Shad Kane
Cynthia Rezendes
Gary Slovin
Cynthia Thielen
Gary Tomita
Robert Tong
George Yamamoto

Wilma Namumnart (Refuse Division, Dept. of Environmental Services)
Brian Takeda (RM Towill)
Mark White (Pacific Waste Consulting Group) via phone
Dee Dee Letts (Facilitator)

Absent: Steve Holmes, Bill Paty

This meeting was an extra meeting scheduled by the Committee to 1) see if there was any correspondence from the LUC that the committee could not recommend multiple sites and that Waimanalo Gulch could not be considered, 2) to see if the list of 5 sites arrived at by consensus could be further narrowed and 3) to make changes to the recommendations section of the plan should the sites be narrowed.

Wilma reported that no correspondence had been received by the City from the LUC and that she had verbally contacted Tony Ching who had reiterated his earlier statements that the LUC had no jurisdiction over the Committee and therefore it can consider any sites it feels are appropriate and, that the Committee will have met its charge if it recommends several sites. If Waimanalo Gulch was recommended and selected, the State Land Use Commission's Decision and Order must be amended before May 1, 2008. The Committee also received several pieces of correspondence one from Jeff Stone at Ko Olina and the other from Frank Doyle Director of Environmental Services for the County stating that the City Administration would not consider Waimanalo Gulch and that the Committee was free to recommend whatever it decided as the City Council would select the site.

Cynthia Thielen handed out a letter she had sent to the Honorable Mark Bennet (AG), Leslie Kondo (Director OIP) and Peter Carlisle (Prosecuting Attorney) regarding what she viewed as illegal activities under Sunshine taken by Todd Apo. She stated that she feels that the petitions that were circulated to selected Committee members for signature in support of removal of Waimanalo Gulch from the list of recommended sites and the choosing of Nanakuli B as the final site violated the open decision making intent of the Sunshine Law.

Discussion was then open regarding further reductions to the list of five proposed sites. Bruce Anderson made the following points in a written statement:

- That this Committee was not constituted to represent the interests of all the residents of the island of Oahu. Indeed, it was heavily weighted with members representing Leeward Oahu communities. Thus, it is inappropriate for the Committee to pretend that they represent these interests by voting to eliminate any site that, based on criteria developed by the Committee, should be included just as it would be inappropriate to add sites based on a vote. The City Council, the duly elected legislative body representing the interest of all residents of Oahu, should make a final decision based on the best information that is available on all the alternatives.
- The Committee went as far as it could in reducing the list from eight sites to five sites with the limited information that was available to the Committee on each site. Unsolicited comments and information was received from developers and individuals who owned land adjacent to only three of the five sites. Further information is required on environmental, social and economic impacts associated with establishing a landfill at all five sites before a decision should be made to drop any of the sites from consideration. When the Land Use Commission made their decision only to extend the permit at Waimanalo Gulch landfill until 2008, they did not consider alternatives or the impacts at alternative sites. They need this information to make a good decision. Likewise, the City Council should be provided the best available information on all the alternatives to make a decision that best serves residents of the island of Oahu. Indeed, they deserve this information.
- Waimanalo Gulch got the highest score in the Committee's double blind process
- It is an irresponsible land use decision to walk away from an operating landfill with 20 years of life left
- That although the City Administration had made a commitment to the Community this does not bind the City Council and that the LUC has a process for revisiting its decision should Waimanalo Gulch become the preferred site.

Other Committee members expressed that the Administration had made a commitment to the Leeward Community to close Waimanalo Gulch and they should honor this commitment. The LUC order says that Waimanalo Gulch will be closed in 2008 and the City agreed. These members felt that this was not a decision that was made lightly but that the City had the benefit of two years of study and was aware of the severe impact expansion of the site would

have on Ko Olina.

A Committee member asked Wilma if the Committee would fulfill its obligation if it forwarded multiple sites. Wilma stated that she had checked with Corporation Counsel and that they had said multiple sites would fulfill the mandate.

A Committee member voiced that we should proceed by consensus as the Committee has operated this way for five months and that we have done our best to reduce the number of sites to a reasonable list. They noted that the Committee has several opinions that forwarding multiple sites fulfills their mandate and that there is nothing to the contrary from the LUC. Nor is there anything from the LUC prohibiting Waimanalo Gulch from being on the list.

It was noted by some members that they felt that the letter received from Ko Olina, Jeff Stone was written in a way to threaten legal action against them individually and therefore further fair and open deliberations were not possible, and that the continuing Committee process under these circumstances could not be perceived as fair.

A motion was put on the floor by Todd Apo to change the Committee process from consensus to voting – it was seconded by Shad Kane – For: Gary S., Gary T., George Y., Mike C., Cynthia R., Todd A., Robert T., Ted J., Shad K., – opposed Kathy, Bruce, Eric G., and Cynthia T.

During the discussion on the motion several members stated that they felt strongly about forwarding a consensus report and that if the process were changed to voting due to the unbalanced nature of the Committee as previously noted they would not put their names on the final recommendations. Some also felt that due to threatening nature of Jeff Stone's letter they could not participate in a process that included voting. Mike Chun arrived during this discussion.

When the motion passed Bruce Anderson, Cathy Bryant-Hunter, Eric Guinther and Representative Cynthia Thielen resigned from the Committee and left the meeting. They noted that they did not want their names associated with any section of the final report that changed due to a vote by the remaining Committee members.

Todd Apo moved and Shad Kane seconded to remove Waimanalo Gulch from the recommended sites. For: Todd, Mike, George, Gary S., Gary T., Robert, Shad, Cynthia R., and Ted. All other Committee members had resigned so there were no opposing votes.

The recommendations section of the report will be amended to reflect sending 4 sites forward and the resignations of the Committee members concerning this action will be included.

Meeting adjourned at 10:40.



December 1, 2003

Notes Submitted by
Dr. Bruce Anderson, Advisory Committee Member

**Comments by Bruce Anderson Concerning the Site Selection Process
Read to the Committee on December 1, 2003**

Our Committee has come very close to succeeding--beyond my expectations--in making a sound, objective recommendation to the City on where the next municipal landfill should be on the Island of Oahu. I was pleased that Frank Doyle was not closed-minded and said at our first meeting that the City would accept whatever the recommendation the committee developed. It was on this basis that I agreed to continue as a committee member and, until recently, I was very proud to be part of the effort.

I remember looking around the room at our first meeting and wondering how such a group could possibly come up with a recommendation that would consider all the interests of the residents on the island of Oahu. As everyone introduced themselves, it was obvious the committee was appointed with political expediency in mind to include a disproportionate number of representatives of communities most likely to be impacted by the decision, those from Leeward and Windward Oahu. A handful of others were appointed because of their experience, expertise or because of a history of dealing with difficult issues. After working for over 20 years at the State Health Department on environmental health issues and problems, including solid waste management, I hoped I could be helpful.

After the first few meetings, I was pleasantly surprised with the process that our Committee agreed to follow. Despite not having a Chair, Dee Dee has done an outstanding job in facilitating a process that has served us well. After coming up with a list of over 40 potential sites, our Committee developed comprehensive criteria to rank sites. Although we did not have anyone with landfill management experience on the committee, we did come up with valid criteria based on input from those concerned about potential impacts on their communities and comments from others who were generally aware of problems and issues associated with landfills.

Both environmental and social criteria were considered and incorporated into a method of objectively ranking potential landfill sites. Environmental criteria included such factors as the presence or absence of potable groundwater and capacity and social criteria considered factors such as the proximity of nearby residents and schools. We even included some rough estimates of costs as criteria for ranking the sites. It was only then that I became cautiously optimistic that our Committee's recommendations would be objective and based on the best information available. On reflection, there seemed to be some wisdom in selecting members of the Committee from communities who have hosted landfills in the past who know what the impacts may be based on their experience. Based on criteria developed by the committee, the list was rapidly narrowed to eight sites for detailed evaluation by the City's consultant.

The consultant did a fine job in gathering information that was available on the eight sites and applying this to the siting criteria without the committee knowing before hand how the criteria would be applied. Weighting factors were subsequently developed by the Committee and applied to the sites. This assured that biases were not introduced in the process by the consultants or by the Committee to skew the final rankings.

Comments by Bruce Anderson

Page 2

I must admit that I was skeptical that we could weigh the criteria—giving emphasis to factors that were most important—in a manner that was objective given the make-up of the committee. It seemed to me that people were emphasizing criteria that would make the landfill least likely to be in their community. However, I was pleasantly surprised at that even when weighting factors, such as the cost of acquisition, development and operations, were varied, the relative ranking of sites did not change. This gave me confidence that the criteria were not only appropriate, they were robust enough to endure changes and not significantly affect the ranking of sites.

When the ranking of actual sites were first revealed by the consultant, we all had the opportunity to scrutinize how the criteria were applied to each site. Again, the presence of representatives from potentially affected areas helped to assure that the consultants were fair and impartial in making their assessments and applying the criteria appropriately to the individual sites. In fact, there was little argument from the community representatives as it relates to the application of criteria to specific sites. The consultants have done a good job, too.

Finally, based on federal land-ownership and other factors that are beyond the control of the City or the State, we narrowed the number to sites from eight to five. Although there still may be some argument that the criteria has not been fairly applied to the sites that remain, there is no apparent disagreement that these are the five best sites based on the criteria developed. We now have five sites for the City to further evaluate. Our committee is poised to make a recommendation—a sound recommendation—based on criteria we developed, not political promises or any other factors that should be excluded from the process

Last week, the process turned ugly. One member of the committee proposed throwing out all of what had been accomplish over the last few months and selecting a single site by vote from committee members—at least those that remain active—ignoring the fact that the committee was never intended to represent the interests of the people who live on Oahu. This would eliminate the two sites that ranked highest on the list, Waimanalo Gulch and Makaiwa Gulch, based on environmental and social criteria developed by the committee. In fact, the site he recommended, Nanakuli B, ranked number 4 on the list.

This negates all that we have gone through for the past five months. Farrington Highway is already extremely congested, many residents already live immediately adjacent to this site in Nanakuli and it is the logical extension of the existing PVT construction and demolition debris landfill next door. I can only presume that this site was felt to be most politically viable because nearby residents would complain the least. It certainly is not the best site based on the criteria our committee has developed that has been uniformly applied to each site.

To my surprise, other members of this committee seem to support this recommendation, throwing out everything we have discussed, previously agreed to, and worked so hard to accomplish. I will have no part of it. The residents of our island deserve better.

Comments by Bruce Anderson

Page 3

I urge that we stick to the process we all agreed to at the outset and the criteria we have developed over the past few months to rank sites with the best information that is available. Let the City take our recommendation—a recommendation of the five most viable landfill sites on Oahu—and continue with the process of further evaluating these sites. Much more information is needed on all five sites before a good decision can be made. If any or all of the sites is found to be untenable for political or other reasons, so be it. Ultimately, the City Council, the duly elected body legislative body representing all the residents of this island, should make a final decision based on the best information they have at the time.

Thank you for listening.

Attachment C – Application of Preliminary Siting Criteria

ATTACHMENT C
APPLICATION OF PRELIMINARY SITING CRITERIA

1. INTRODUCTION

This attachment describes the process used by ENV and the consultant to analyze the 45 preliminary landfill sites against the following siting criteria:

1. Environmental Protection Agency (USEPA), Resource Conservation Recovery Act Subtitle D (RCRAD) Regulations;
2. Restrictions on developed areas where a landfill cannot be sited;
3. Board of Water Supply groundwater restrictions; and,
4. A minimum capacity requirement of more than 10 years for a new landfill site.

2. ORIGINAL SITES LIST

Table A, Original Site List and **Figure A, Alternative Landfill Sites**, identifies the original 45 sites which were obtained from previous literature and work completed by ENV for the siting of landfills. The list represents sites which were previously considered or used over an approximately 30 year period.

Table A, Original Site List

Site Name	TMK	Total Acreage	Million Cubic Yds Capacity*	Years Lifespan*
Auloa	4-2-14:por 1	55	2.8	4.7
Ameron Quarry	4-2-15:01	391	9.0	15.0
Barbers Point	9-1-16:18, por 1	15	0.7	1.2
Bellows	4-1-15: por. 01	173	7.5	12.5
Diamond Head Crater	3-1-42:por 6	115	4.3	7.2
Ewa No. 1	9-1-17	-	-	
Ewa No. 2	9-1-10	-	-	
Halawa A	9-9-10:8,9,por 10 & 26	40	1.5	2.5
Halawa B	9-9-10:27, por 10	60	2.2	3.7
Heeia Kai	4-6	-	-	
Heeia Uka	4-6-14:01	163	2.4	4.0
Honouliuli	9-1-17:por 4	22	1.7	2.8
Kaaawa	5-1	150	5.6	9.3
Kaena	6-9-1:por 3, 33 & 34	40	1.5	2.5
Kahaluu	4-7	-	-	
Kahe	9-2-3:por 27	200	7.4	12.3

Table A, Original Site List, Continued

Kalaheo (landfill reuse)	4-2-15:por 1 & 6	134	4.3	7.2
Kaloi	9-2-02:por 1; 9-2-3:por 2; 9-2-4:por 5	400	24.3	40.5
Kapaa No. 1	4-4-14:por 2	60	3.0	5.1
Kapaa No. 2 & 3 (closed)	4-2-15:por 1, 3, 4, 7	-	-	
Kaukonahua	7-1	34	1.3	2.2
Keekee	6-9-1:por 3 & 4, 6-9-3: por 2	40	1.2	2.0
Koko Crater	3-9-12: por 1	140	5.5	9.2
Kunia A	9-4-4: por 4	150	5.6	9.3
Kunia B	9-4-3: por 19	190	7.0	11.7
Mali	8-7-10:por. 03	200	9.2	15.3
Makaiwa	9-2-3: por. 02	338	15.0	25.0
Makakilo Quarry	9-2-3:82	175	10.0	16.7
Makua	8-1-1, 8-2-1	600	7.4	12.3
Mililani	9-5	34	2.2	3.7
Nanakuli A	8-7-9:1 &3 and 8-7-21:26	179	4.0	6.7
Nanakuli B	8-7-9: pors. 1 & 7	432	9.4	15.6
Ohikilolo	8-3-1: 13	706	15.6	26.0
Olomana	4-2	-	-	
Poamoho	7-1	5	0.7	1.2
Punaluu	5-3	200	7.4	12.3
Sand Island	1-5-41	150	5.6	9.3
Waiahole	4-8	60	2.3	3.8
Waianae Expansion	8-5-3 and 6	140	6.8	11.3
Waihee	4-7	61	2.3	3.8
Waikane	4-8	200	9.0	15.0
Waimanalo Gulch New Exp.	9-2-3: 72 & 73	60	12.0	20.0
Waimanalo North	4-1-8: 13	171	9.6	16.0
Waimanalo South	4-1	355	14.0	23.3
Waipio	9-3-2	60	2.5	4.2

*Capacity is based on analysis of site characteristics, slope, and area available for development by ENV.

**Lifespan is based on capacity divided by disposal rate of 600,000 cubic yards MSW per year.

See Table E in this Attachment.

Note: Based on Final EIS for Waimanalo Gulch Expansion, December 2002.

3. ANALYSIS OF PRELIMINARY SITING CRITERIA

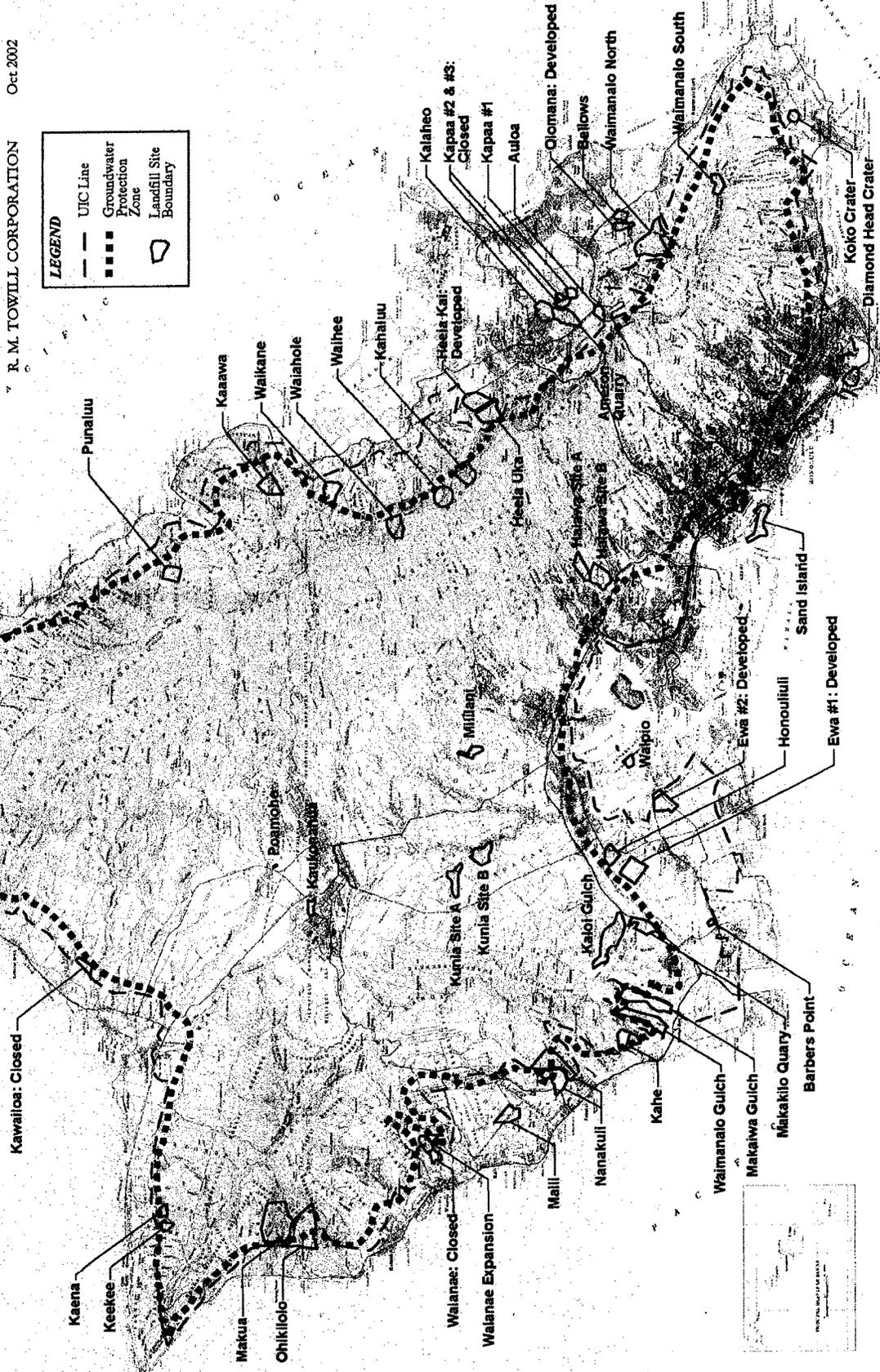
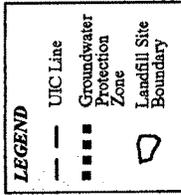
A. Resource Conservation and Recovery Act (RCRAD) Criteria

Volume 40 of the Code of Federal Regulations (CFR), Part 258, governs the development, operation and closure of landfills. This Federal regulation is administered by the EPA, and delegated to the State of Hawaii, Department of Health (DOH). The State DOH, Solid Waste Permit Program, which incorporates the Federal Municipal Solid Waste Landfill (MSWLF) Criteria, identifies six criteria related to the location of existing and new municipal solid waste landfills. The criteria and a brief summary are provided below:

FIGURE A
Alternative Landfill Sites
Island of Oahu



R. M. TOWILL CORPORATION Oct. 2002



U. C. F. A. Y.

Overview - Operators and owners must comply with each of the six criteria and maintain records in the facility operating record demonstrating that each of the criteria has been met. These criteria include the following:

Restriction No. 1: Airport Restriction - Owners/operators must demonstrate that the landfill does not constitute a bird hazard if the facility is located within 10,000 feet of the end of any airport runway used by turbojet aircraft, or within 5,000 of any airport runway used only by piston driven aircraft. If the owner/operator proposes construction of a landfill or expansion of an existing landfill within 5 miles of any airport, the airport and the Federal Aviation Administration (FAA) must be notified.

Restriction No.2: Floodplains - Landfills located within a 100 year floodplain cannot restrict stormflows within the floodplain, reduce the temporary water storage capacity of the floodplain, or allow the washout of solid waste.

Restriction No. 3: Wetlands - Owners/operators of a new or existing landfill may not build or expand into wetlands. An exception to this rule may be permitted by EPA-approved permitting programs to construct or expand a landfill only if the following can be demonstrated:

- No other siting alternative is available;
- Construction and operation of the landfill will not violate applicable State regulations governing water quality or discharges of toxic or hazardous effluent; jeopardize threatened or endangered species, or critical wildlife habitat; or, violate protection of a marine sanctuary;
- The landfill will not contribute to the significant deterioration of the wetland;
- Steps are taken to achieve no net loss of wetlands by avoiding potential for impacts where possible, sufficiently minimizing unavoidable impacts; or, making proper compensation for example, through the restoration of damaged wetlands or the creation of manmade wetlands;

Restriction No. 4: Fault Areas - New landfills or landfill expansions are generally prohibited within 200 feet of fault areas that have shifted since the last Ice Age. However, the director of an authorized EPA permitting program may permit an alternative setback distance of less than 200 feet if the owner or operator can demonstrate that the landfill will maintain structural integrity in the event of a fault displacement.

Restriction No. 5: Seismic Impact Zones - Landfills located in a seismic impact zone must demonstrate that the facility including, but not limited to, its liners, leachate collection system, surface water control system, et. al., has been designed to resist the effects of ground motion due to earthquakes.

Restriction No. 6: Unstable Areas - All owners/operators must demonstrate that the structure of their units will not be compromised during geologically destabilizing events including:

- Debris flows resulting from heavy rainfall or storm conditions;
- Fast formation of sinkholes caused by excessive groundwater withdrawal;
- Rockfalls which are initiated by explosives or sonic booms; and,
- The sudden liquefaction of soil after prolonged periods of repeated wetting and drying.

The results of comparing the sites to the USEPA criteria are shown in **Table B, Application of USEPA Criteria.**

Table B, Application of USEPA Criteria

Site Name	Sites Failing EPA Criteria					
	1. Airport Restriction	2. Flood Plain	3. Wetlands	4. Fault Areas	5. Seismic Impact Zone	6. Unstable Area
Auloa						
Ameron Quarry						
Barbers Point	X					
Bellows						
Diamond Head Crater			X			
Ewa No. 1						
Ewa No. 2						
Halawa A						
Halawa B						
Heeia Kai						
Heeia Uka						
Honouliuli						
Kaaawa						
Kaena	X					
Kahaluu						
Kahe						
Kalaheo (landfill reuse)						
Kaloi						
Kapaa No. 1						
Kapaa No. 2 & 3 (closed)						
Kaukonahua						
Keekee	X					
Koko Crater						
Kunia A						
Kunia B						
Maili						
Makaiwa						
Makakilo Quarry						
Makua						
Mililani						
Nanakuli A						

Table B, Application of USEPA Criteria, Continued

Nanakuli B						
Ohikilolo						
Olomana						
Poamoho						
Punaluu						
Sand Island	X	X				
Waiahole						
Waianae Expansion						
Waihee						
Waikane						
Waimanalo Gulch New Exp.						
Waimanalo North						
Waimanalo South						
Waipio						

Application of the USEPA criteria resulted in the removal of five sites from the original list of 45 sites. 40 sites remained for further evaluation.

B. Developed Areas

This criteria includes the evaluation of developed areas where a landfill cannot be sited. Included in this criteria are closed landfills with no further capacity available.

Table C, Application of Developed Area Criteria, shows the 40 sites left after the USEPA criteria and the application of the Developed Areas Criteria.

Table C, Application of Developed Area Criteria

Site Name	Sites Failing Criteria for	
	Developed Area	Closed Landfill
Auloa		
Ameron Quarry		
Bellows		
Ewa No. 1	X	
Ewa No. 2	X	
Halawa A		
Halawa B		
Heeia Kai	X	
Heeia Uka		

Table C, Application of Developed Area Criteria, Continued

Honouliuli		
Kaaawa		
Kahaluu	X	
Kahe		
Kalaheo (landfill reuse)		
Kaloi		
Kapaa No. 1		
Kapaa No. 2 & 3 (closed)		X
Kaukonahua		
Koko Crater		
Kunia A		
Kunia B		
Maili		
Makaiwa		
Makakilo Quarry		
Makua		
Mililani		
Nanakuli A		
Nanakuli B		
Ohikilolo		
Olomana	X	
Poamoho		
Punaluu		
Waiahole		
Waianae Expansion		
Waihee		
Waikane		
Waimanalo Gulch New Exp.		
Waimanalo North		
Waimanalo South		
Waipio		

Application of the Developed Areas criteria resulted in the removal of six sites from the list of 40 sites. 34 sites remained for further evaluation.

C. Board of Water Supply Groundwater Restrictions

There were 34 sites remaining after application of the developed area and closed landfill criteria. The remaining sites were reviewed with BWS staff to identify areas believed to be useful for water supply or which should be protected based on groundwater concerns.

Table D, Results of Review by BWS Staff, lists the sites, comments, and indicates sites that were eliminated.

Table D, Results of Review by BWS Staff

Site Name	BWS Evaluation Notes	Sites Failing Review
Auloa	Very little to no groundwater resources. Within a rock complex. BWS does not consider feasible for potable water use.	
Ameron Quarry	Dike type rocks associated with caldera complex. Very little groundwater resources.	
Bellows	No potable resources. Non-potable irrigation developed. BWS does not consider feasible for potable water use.	
Halawa A	Site within BWS groundwater resource.	X
Halawa B	Site within BWS groundwater resource.	X
Heeia Uka	Site outside BWS designed groundwater resource zone.	
Honouliuli	Site just outside BWS designated groundwater resource zone, but within an area considered subject to groundwater impact.	X
Kaaawa	Very little to no groundwater resources. BWS does not consider feasible for potable water use.	
Kahe	BWS plans to use site for future desalination facility.	X
Kalahao (landfill reuse)	Very little to no groundwater resources. BWS does not consider feasible for potable water use.	
Kaloi	Groundwater resources present or nearby.	X
Kapaa No. 1	Very little to no groundwater resources. BWS does not consider feasible for potable water use.	
Kaukonahua	Site within BWS groundwater resource.	X
Koko Crater	Very little to no groundwater resources. BWS does not consider feasible for potable water use.	
Kunia A	Groundwater resources present or nearby.	X
Kunia B	Groundwater resources present or nearby.	X
Mali	Brackish groundwater present but BWS does not consider feasible for potable water use.	
Makaiwa	No potable resources. BWS does not consider feasible for potable water use.	
Makakilo Quarry	Groundwater resources present or nearby.	X
Makua	Groundwater resources present or nearby.	X
Mililani	Site within BWS groundwater resource.	X
Nanakuli A	Very little to no groundwater resources. BWS does not consider feasible for potable water use.	
Nanakuli B	Very little to no groundwater resources. BWS does not consider feasible for potable water use.	
Ohikilolo	Only half of site available for development where there are very little to no groundwater resources in the lower half of property. BWS does not consider feasible for potable water use.	
Poamoho	Groundwater resources present or nearby.	X
Punaluu	Groundwater resources present or nearby.	X
Waiahole	Groundwater resources present or nearby.	X
Waiānā Expansion	Groundwater resources present or nearby.	X
Waihe'e	Groundwater resources present or nearby.	X
Waikāne	Groundwater resources present or nearby.	X
Waimanalo Gulch New Expansion	Very little to no groundwater resources. BWS does not consider feasible for potable water use.	

Table D, Results of Review by BWS Staff, Continued

Waimanalo North	Very little to no groundwater resources. BWS does not consider feasible for potable water use.	
Waimanalo South	Groundwater resources present or nearby.	X
Waipio	Very little to no groundwater resources. BWS does not consider feasible for potable water use.	

Application of the BWS Groundwater Restriction criteria resulted in the removal of 18 sites from the list of 34 sites. 16 sites remained for further evaluation.

**Table E
Disposal Capacity Needed
Based on Waimanalo Gulch Sanitary Landfill**

Material or Item	Amount	Notes
H-POWER Ash	101,665 Tons	1
H-POWER Residue	94,549 Tons	2
Rubbish that is weighed	225,370 Tons	
Rubbish that is not weighed	22 Tons	3
Total rubbish to be compacted	225,392 Tons	
Compaction ratio	1,600 Pounds/Cubic Yard	
Compacted rubbish volume	180,314 Cubic Yards	
Volume of rubbish and residue to be covered	274,863 Cubic Yards	
Percent of rubbish and residue that is cover	20%	4
Volume of cover	54,973 Cubic Yards	
Volume of rubbish, residue, and cover	329,836 Cubic Yards	
Volume of rubbish, residue, cover, and ash	431,500 Cubic Yards	
Volume of rubbish, residue, cover, and ash	0.43 Million Cubic Yards	
Allowance for growth in the amount of material disposed over the life of the landfill.	20%	
Annual volume demand used to estimate life of the landfill (includes cover)	0.6 Million Cubic Yards	

1. This material is not required to be covered.
2. This material is covered, but does not compact.
3. Rubbish is not weighed when the scale is down. Assumed density of 1,000 pounds/cubic yard.
4. Includes volume of cover only; volume of liners would reduce site capacity.

Attachment D – Individual Site Evaluations

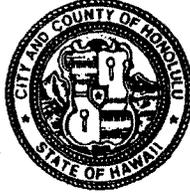
See Attached Under Separate Cover

Attachment E – Correspondence

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
Phone: (808) 692-5159 Fax: (808) 692-5113

JEREMY HARRIS
MAYOR



FRANK J. DOYLE, P.E.
DIRECTOR

TIMOTHY A. HOUGHTON
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 03-125

September 12, 2003

Commanding General
Attention: Assistant Chief of Staff G4
Building 216
Box 63002
Marine Corps Base Hawaii
Kaneohe, Hawaii 96863-3002

Dear Commanding General:

Subject: Request for Use of Land for a Municipal Solid Waste Landfill at
Bellows Air Force Station, Waimanalo, Hawaii

The City and County of Honolulu is examining the potential for use of land at various locations on Oahu for landfill purposes due to the scheduled closure of Waimanalo Gulch Sanitary Landfill in five years, or 2008. Bellows Air Force Station has been identified as one of several locations with potential space for a new municipal landfill. We have attached a description of the site location and request your consideration and reply concerning the feasibility for use of this site.

Thank you in advance for your consideration of this important matter. If further information is required, please call Wilma Namumnart at 692-5378.

Sincerely,

A handwritten signature in black ink, appearing to read "Frank J. Doyle", is written over a large, stylized circular flourish.

For FRANK J. DOYLE, P.E.
Director

Attach.

cc: Mayor's Advisory Committee on Landfill Siting
Brian Takeda, R.M. Towill Corporation

10. BELLOWS FIELD LANDFILL SITE

The Bellows Field Landfill Site is situated at the north end of Waimanalo Community and Bellows Air Force Base. See Plate II-A-1. Keolu Hills Subdivision is adjacent but over a hill north of the site. Site is not over ground water source. The total area is approximately 173 acres, with usable area of 133± acres.

The site is approximately 2,500 ft. wide and 3,500 ft. long, capacity is 7,510,000± cubic yards and life is 15.4± years. Cover material is available on the site.

Temporary destruction of vegetation will be necessary. The site will be returned to a green area. A buffer strip with heavy landscaping will be required to screen the landfill activity from Bellows Field Air Base and the Olcmana Golf Course.

Prevailing trade wind direction is away from the residential area and is favorable.

A drainage system must be constructed on and off site to control runoff and infiltration, soil erosion and flooding of lower areas.

Approximately 2,000 ft. of access road and utilities from Kalaniana'ole Highway to the site must be constructed.

Site preparation and improvement costs will be moderate and will include a new access road; drainage system; water, electric power and telephone connection; a sanitary waste disposal system; permanent operation and maintenance facilities.

With proper screening and buffer areas, this site can be a desirable site. However, according to the military, the site is needed to maintain military preparedness and is not available for sanitary landfill purposes.



UNITED STATES MARINE CORPS

FACILITIES DEPARTMENT
MARINE CORPS BASE HAWAII
BOX 63082
KANEHOE BAY, HAWAII 96863-3082

RECEIVED

'03 NOV -4 02:01

IN REPLY REFER TO:
11000
Ser G-4/
29 October 2003

Mr. Frank J. Doyle, PE
Director, Department of Environmental Services
City and County of Honolulu
1000 Uluohia Street, Suite 308
Kapolei, HI 96707

Dear Mr. Doyle,

In response to your letter of 17 September 2003 requesting consideration by Marine Corps Base Hawaii to allow the City use of approximately 173 acres of Marine Corps Training Area Bellows (MCTAB) for siting of a Municipal Solid Waste Landfill. We commend your proactive search for a viable location to replace the Waimanalo Gulch Sanitary Landfill. We regret that Marine Corps Base Hawaii will not be able to accommodate your request for siting of a new landfill at MCTAB.

Through recent events, both on a local and international level, it is clear that the Hawaiian Islands are becoming of greater strategic military significance and will remain, a focal point for training and operations throughout the Pacific. MCTAB is a critical element to the training and readiness of Marine and Naval forces assigned throughout the Pacific Rim. Marines and Sailors stationed in Hawaii, and those going to or from hot spots throughout the world regularly train at MCTAB. MCTAB affords military forces a realistic amphibious and littoral training environment that cannot be matched anywhere on US soil in the Pacific. MCBH hosted sixty separate units, consisting of over 13,000 Marines, sailors, soldiers, airmen and civilians throughout the course of FY 2003 at MCTAB, during which all areas of MCTAB were fully utilized. Hawaii Army National Guard units also routinely use MCTAB for their training on weekends. Your request for utilization of approximately 16% of the MCBH owned land at MCTAB would impede regularly conducted training today, and negatively impact on our plans for development of MCTAB into a world class training area. These plans include a \$21 million Military Operations on Urban Terrain (MOUT) Training Facility on 38 acres of land in the close proximity to the parcel you are requesting.

My point of contact is Commander Ian Lange, Public Works Officer, at 257-2171 extension 223. Again, we commend and applaud your proactive efforts to replace Waimanalo Gulch.

Sincerely,

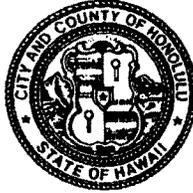
A handwritten signature in black ink, appearing to read "Kent Murata".

KENT MURATA
Director, Installations and Logistics
Marine Corps Base Hawaii

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
Phone: (808) 692-5159 Fax: (808) 692-5113

JEREMY HARRIS
MAYOR



FRANK J. DOYLE, P.E.
DIRECTOR

TIMOTHY A. HOUGHTON
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 03-124

September 16, 2003

Mr. Anthony J.H. Ching, Executive Officer
State Land Use Commission
P.O. Box 2359
Honolulu, Hawaii 96804-2359

Dear Mr. Ching:

Subject: Notification Concerning Docket No. SP87-362, Decision and Order Approving Amendment to State Special Use Permit

We are providing the following update and notice concerning Condition No. 1 of the Decision and Order, which states,

"The Blue Ribbon Site Selection Committee shall make its recommendation for a new landfill site to the City Council by December 1, 2003. The City Council shall select a new site by June 1, 2004. If a new site is not selected by June 1, 2004, this Special Use Permit shall immediately expire."

We are moving expeditiously to identify the recommended landfill site(s), but believe that it is necessary to comply with Chapter 343, Hawaii Revised Statutes (HRS), which requires the completion of full and complete environmental review and disclosure prior to selection of a preferred site. We therefore propose the following schedule to meet the spirit of Condition No. 1:

1. Phase 1: June - August 2003. The Mayor's Advisory Committee on Landfill Siting (Blue Ribbon Site Selection Committee) has completed a series of meetings starting on June 27, 2003, with subsequent meetings held on July 11th, and August 8th, 22nd, and 29th. Site selection criteria have been established, and the next phase will be to review alternative sites in the light of the selection criteria.
2. Phase 2: September 2003 - October - 2003. This phase will involve the review of alternative sites with regard to EPA and Site Selection Committee criteria. As required, preliminary research will be undertaken to facilitate the work of the committee. The conclusion of this effort will be the recommendation of not less than three landfill sites subject to environmental review.

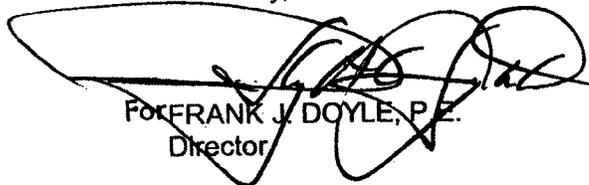
Mr. Anthony J.H. Ching
September 16, 2003
Page 2

3. Phase 3: November 2003 - December 1, 2003. The third phase will involve preparing a summary Report and Recommendation of the Mayor's Advisory Committee on Landfill Siting. The report and recommendation identifying the sites will be forwarded to the State Land Use Commission and Honolulu City Council by December 1, 2003.
4. Phase 4: December 2003 - February 2004. This phase will involve preparation and publication of the EIS Preparation Notice (EISPN). The EISPN will document the work of the Mayor's Advisory Committee on Landfill Siting, and the proposed analysis of alternative landfill sites.
5. Phase 5: March 2004 - September 2004. A Draft EIS (DEIS) will be prepared to address requirements of Chapter 343, HRS, and the Office of Environmental Quality Control (OEQC). The DEIS will identify the preferred landfill sites and document the basis for selection of one or more landfill sites. Information used for preparation of the DEIS shall be forwarded to the Honolulu City Council for their appropriate action in accordance with Condition No. 1.
6. Phase 6: October 2004 - January 2005. The Final EIS (FEIS) will be prepared to address public comments in the DEIS and serve to complete the Chapter 343, HRS, process.

We understand that the proposed schedule is a modification of our current approved permit. However, we hope that you and the Commission will agree that it is correct and appropriate to meet the spirit of Condition No. 1, involving identification of a selected site(s) through use of the Chapter 343, HRS, process.

Thank you in advance for your consideration of this important matter. Should you or your staff have any questions, please contact Ms. Wilma Namumnart at 692-5378.

Sincerely,



FRANK J. DOYLE, P.E.
Director

cc: Mayor's Advisory Committee on Landfill Siting
Brian Takeda, R.M. Towill Corporation

Statement of Anthony Ching, Executive Officer of the State Land Use Commission

November 17, 2003

Disclaimer – The executive officer of the Land Use Commission is a non-voting member of the commission. Nothing in this statement should be construed to be anything other than the non-binding opinion of the executive officer. Among other duties, the executive officer certifies orders as to their accuracy, assists the chair in establishing the Commission's calendar, supervises staff of the agency and serves at the pleasure of the Commission.

1. With respect to the recommendation and submission by the Blue Ribbon Site Selection of **multiple sites for a new landfill** to the City Council for their consideration.

The operative part of Condition #1 of the Commission's Decision and Order Approving Amendment to Special Use Permit says that the Blue Ribbon Site Selection Committee shall make **its recommendation** to the City Council by December 1, 2003.

I believe that the order is silent with respect to the scope or nature of any recommendation by the Site Selection Committee. The committee's recommendation is their own choosing and device and is not specifically governed by the Commission's order. It is my personal opinion and hope that if multiple sites are provided to the City Council by the site selection committee, that they be at a minimum, ranked in priority order.

I believe instead that the critical deadline specified in the Commission's order is that the City Council shall select a new site no later than June 1, 2004 or suffer immediate expiration of the LUC special permit.

2. With respect to the inclusion of Waimanalo Gulch as one of the recommended sites for the new landfill.

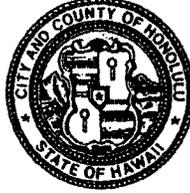
Condition #12 of the Commission's Decision and Order clearing specifies that no later than May 1, 2008, that the Waimanalo Gulch Landfill will be restricted from accepting any additional waste material and will be closed in accordance with an approved closure plan. Should the City Council choose to expand rather than close the Waimanalo Gulch Landfill, they would have to petition the Land Use

Commission for relief prior to May 1, 2008. The Commission may approve, or not, any such petition for relief on the merits of the presentations made to it.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
Phone: (808) 692-5159 Fax: (808) 692-5113

JEREMY HARRIS
MAYOR



FRANK J. DOYLE, P.E.
DIRECTOR

TIMOTHY A. HOUGHTON
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 03-132

September 23, 2003

Mr. Peter T. Young, Chairperson
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Chairperson Young:

Subject: Inquiry Concerning Potential for Use of Land for Municipal Landfill at
TMK: 4-1-8: Parcel 13, Waimanalo North, Waimanalo, Oahu, Hawaii

The City and County of Honolulu is examining the potential for use of land at various locations on Oahu for landfill purposes. As you may be aware, the pending closure of the Waimanalo Gulch Sanitary Landfill in approximately five years, or 2008, requires that we consider all options with the potential to benefit the broader Oahu island community.

One of the potential landfill sites that the Mayor's Oahu Landfill Site Selection Committee has included for evaluation is the Waimanalo North site. That location has been identified as one of only a few locations with the capacity and location characteristics that could support a landfill. The City has set an aggressive schedule for review and evaluation of potential sites. In that effort, we are asking if your office has any reasons that the Waimanalo North site should not be considered a potential site for our siting analysis. Given the short time we have for analysis, we would appreciate your response by October 10, 2003.

Thank you for your attention to this important matter. We look forward to your response.

Sincerely,


FRANK J. DOYLE, P.E.
Director

cc: Oahu Landfill Site Selection Committee
Brian Takeda, R.M. Towill Corporation

WAIMANALO NORTH LANDFILL SITE

A. BASIC DATA OF SITE

1. Location: South of Kailua urban areas, west of Olomana Golf Course and Bellows Air Force Station, northwest of Waimanalo urban areas, north of Waimanalo farm lands and approximately one mile southeast of Olomana Peak.
2. Tax Map Key: 4-1-08:13
3. Total Area: 171± acres
4. Owner: State of Hawaii
5. Present Use of Land: Open
6. City Zone District: Agriculture
7. City General Plan Land Use: Agriculture
8. State Land Use District: Agricultural
9. Adjacent Land Uses, Zones, etc.: Agriculture and Residential
10. Restrictions and Setbacks: Special permit required from State for construction in Agricultural District
11. Historical and Archeological Significance: No sites known to exist
12. Proximity to Population and Refuse Centers: Between Waimanalo and Kailua urban areas (about 500 ft. from the closest residents of north Waimanalo community)

B. DESCRIPTION OF SITE

1. Accessibility: Access from Kalaniana'ole Highway
2. Topography: The site consists of two defined gullies. Approximately a third of the lower area rises at 5 to 15% slope, half of the area lies between 15 to 30±% slope and the balance of the area greater than 30+% slope. The width at its widest point is 3000± ft. and is 2500± ft. from the lower limit to the ridge line.
3. Soil Classification: Site consists of the following soils taken from the SCS Soil Survey:

0 to 6% slopes, Hanalei silty clay
15 to 35% slopes, Alaeloa silty clay

LINDA LINGLE
GOVERNOR OF HAWAII



*Ketuse # 31969
VIA DM/Dep*
PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER



**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION**

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

October 8, 2003

Mr. Frank Doyle, P.E., Director
Department of Environmental Services
City & County of Honolulu
1000 Uluohia Street, Suite 308
Kapolei, Hawaii 96707

*RECORDED
OCT 15 10:25
03*

Dear Mr. Doyle:

**Subject: Inquiry Concerning Potential for Use of Land for Municipal Landfill
at TMK 4-1-8: Parcel 13, Waimanalo North, Waimanalo, Oahu**

Thank you for your letter dated September 23, 2003 regarding the proposed use of the subject State land for use as a municipal landfill. We offer the following comments.

On June 26, 1992, the Board of Land and Natural Resources approved the set aside of the subject parcel to the Division of Forestry and Wildlife (DOFAW) as an addition to the Waimanalo Forest Reserve. As a forest reserve, the area will benefit from management activities that include protection and enhancement in watershed, fire protection, erosion control, forest management, unique native plant and animal habitat, and public recreation through the Na Ala Hele trail and access program. DOFAW is working on scheduling a public hearing for the proposed addition. As such, the parcel has already been committed for forest reserve program.

Also, we note that the majority of the subject parcel is in the Conservation District.

Please feel free to contact my staff Barry Cheung at 587-0430 if you have any questions. Thank you.

Sincerely,

Peter T. Young
Chairperson

cc Land Board Member
DOFAW (Attn.: Mr. Earl Pawn)
District File (PSF 97OD-308)

THE ESTATE OF JAMES CAMPBELL

November 6, 2003

Mr. Frank J. Doyle, P.E.
Director
Department of Environmental Services
City & County of Honolulu
1000 Uluohia Street, Suite 212
Kapolei, Hawaii 96707

Mr. Brian Takeda
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817

Dear Messrs. Doyle and Takeda:

Makaiwa Gulch

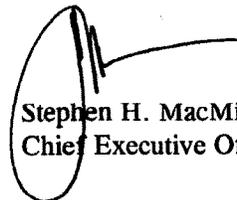
It has come to our attention that Makaiwa Gulch is under active consideration as a Municipal Refuse Facility. In that regard, we believe it is necessary to clarify certain misrepresentations and acquaint you with several points for your consideration.

The subject property is owned by the Estate of James Campbell. Contrary to the "Alternatives Analysis for Disposal of Municipal Refuse" by R. M. Towill Corporation dated March 2001, the property is in the State Urban District, not the State Agricultural District. Furthermore, it is an integral part of the overall Makaiwa Hills Residential Project which is designated on the City and County Ewa Development Plan as residential and is actively being planned for near term development.

If a condemnation action is initiated on this property for a Municipal Refuse Disposal facility, it would be vigorously opposed by the Estate. The Estate would seek, in addition to the value of the land condemned, direct and indirect economic damages caused by the adverse impact that such a facility would have on the value and marketability of its surrounding lands that have already been entitled for residential and commercial development.

We understand that the Mayor's Advisory Committee on Landfill Siting committee is to meet Friday. We feel it is important for the committee members to have this information and I have forwarded a copy of this letter to each of them.

Sincerely,



Stephen H. MacMillan
Chief Executive Officer

mga:01001900\K12074



November 20, 2003

Mr. Frank Doyle
Director
Department of Environmental Services
City & County of Honolulu
1000 Uluohia Street, Suite 212
Kapolei, Hawaii 96707

Ms. Wilma Namumnart
Department of Environmental Services
City & County of Honolulu
1000 Uluohia Street, Suite 212
Kapolei, Hawaii 96707

Deedee Letts
c/o Wilma Namumnart
Department of Environmental Services
City & County of Honolulu
1000 Uluohia Street, Suite 212
Kapolei, Hawaii 96707

Mr. Brian Takeda
R.M. Towill Corporation
420 Waikamilo Road, Suite 411
Honolulu, Hawaii 96817

Re: Waimanalo Gulch Landfill Replacement Site

Ladies and Gentlemen:

We are writing in regards to the status of the Blue Ribbon Panel currently working on selecting a new landfill to replace the Waimanalo Gulch Landfill. We are appalled that the Panel is even considering having Waimanalo Gulch on any list for consideration. It has been made clear by the City, through statements by the Mayor, Ben Lee and Mr. Doyle, that Waimanalo Gulch Landfill will close no later than May 1, 2008, and that no further expansion would occur.

We assume that we need not remind you of the sworn statements of Mr. Doyle at the State Land Use Commission hearings on March 27, 2003, where he repeatedly confirmed the City's commitment and promise to be out of the Waimanalo Gulch Landfill within five years.

November 20, 2003

Page 2



We further point out that when Land Use Commission Chair Ing asked Mr. Doyle, "This proposed Blue Ribbon committee, could they come out with a recommendation that this Waimanalo Gulch landfill be expanded?" the response was a simple and pointed "No." (page 177 of hearing transcript, lines 21-25)

These facts and promise by the City are confirmed in both the City's Planning Commission Order and the State Land Use Commission Order concerning the recent permit for the 5 year expansion of Waimanalo Gulch Landfill. Both the Planning Commission and Land Use Commission orders specifically state that Waimanalo Gulch Landfill will close by May 1, 2008. Based on these statements, the City must instruct the Panel that it cannot select Waimanalo Gulch as a potential new landfill site.

As you are aware from our previous discussions with you, Mr. Doyle, the numerous existing, new and potential owners at the Ko Olina Resort have relied heavily on these statements and promises by the City concerning the closure of the Waimanalo Gulch Landfill. These owners, from large corporations owning and developing hotel, timeshare and commercial projects and operations to individual home owners have placed significant and justified reliance on the City's promises. And this is not the first time.

As was discussed in various community meetings in 2001 and 2002, the City had previously promised the leeward region that the Waimanalo Gulch Landfill would not be expanded and that it would be closed upon reaching its then current capacity, which was expected to be between 2000-2002. As we argued during the initial attempts to expand the landfill for 15 years, our initial purchase of the bankrupt Ko Olina Resort in 1999 was done in reliance on City promises that the landfill would be closing in a few years, and those expectations fueled our opposition to any expansion of the Waimanalo Gulch Landfill. Similarly, Fortune 500 companies like Mass Mutual and Marriott International invested in the Resort based on their reliance that the landfill would soon close. We have documented well the impact that the landfill has on the Resort.

Our efforts to be the economic engine for the revitalization of the leeward coast is also well known. Two different state legislatures passed bills recognizing that:

The legislature finds that further development planned by the State and the city and county of Honolulu to enhance the west side of Oahu and develop the second city of Kapolei and Ko Olina Resort and Marina would bring extensive economic benefits and result in the creation of thousands of construction and permanent jobs. The legislature believes that Ko Olina can play a pivotal role in regenerating Oahu's tourism economy.



As you know, the most recent version (SB377 – Act 100) was recently signed by Governor Lingle.

The attempt to even begin to consider the expansion of Waimanalo Gulch Landfill (or to consider the neighboring Makaiwa Gulch), is a direct insult to the joint efforts we have made with the State to resurrect the leeward coast and to help boost Hawaii's visitor industry.

The mere naming of the Waimanalo Gulch Landfill site as a possible "next" landfill will have a significant and real economic impact on the Ko Olina Resort and the entire region. Ko Olina Resort's role as an economic engine, providing jobs and infusing new money into our local economy, would be severely damaged. As was presented to the Panel, it is clear that even the *possible* expansion of the Waimanalo Gulch Landfill would impact future development at the Resort. The lands where these projects are to occur are already zoned and entitled for planned construction. Damages caused by such a turn of events would run in the billions of dollars. Deals completed and being finalized, planned construction and existing operations all have been embarked upon in reliance upon the City's promise that Waimanalo Gulch Landfill would close no later than May 2008. A change in this promise would be the direct cause of these economic damages.

We understand that some members of the Panel have rationalized that they could leave Waimanalo Gulch on the list of potential sites because the City Administration has not instructed them otherwise. We demand that you correct this situation immediately and instruct the Panel that it cannot name the Waimanalo Gulch as a potential site. We trust that you will forward this letter to each of the Panel members and convey to them the potential liabilities that exist by continuing to consider Waimanalo Gulch as a potential new landfill site. You must instruct the Panel to comply with the Land Use Commission Order and Planning Commission Order, and to act in accordance with the promises made by the City. Failure to do so, we believe, would be immediately actionable, and would risk the loss of the City's permit to operate the landfill. If the Waimanalo Gulch site is named, this would cause most, if not all, Resort landowners to seek immediate protection through the enforcement of the Land Use and Planning Commission Orders and to seek appropriate damages.

We have worked in good faith, and have attempted to help the City find solutions to the island's landfill needs. Even today, we are attempting to put together a solution for the Panel to select a new landfill site that will comply with the Land Use and Planning Commission Orders. We justifiably relied on the City's promises and we fully expect to City to live up to those promises. Mr. Doyle, you were fully aware of our position from the Resort and knew the development plans we had that were dependent on the landfill closing. With this information, you continued to make statements regarding the City's promise to close the Waimanalo Gulch Landfill. All we ask is that those promises be kept.

November 20, 2003

Page 4



Finally, we share Campbell Estate's concerns regarding the potential use of Makaiwa Gulch as a landfill site and assure you that its use would have the same economic impact on the Resort and region as expanding Waimanalo Gulch. The Resort's role in the region is too important to lose, when other viable landfill sites are available.

We look forward to your immediate action and resolution of this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeff R. Stone".

Jeffrey R. Stone



KAMEHAMEHA SCHOOLS
KAPĀLAMA CAMPUS
OFFICE OF THE PRESIDENT AND HEADMASTER

November 21, 2003

Wilma Namumnart
ENV/Refuse Division
City and County of Honolulu
Honolulu, Hawaii

Dear Wilma:

First of all, my commendations to you and your staff for your professionalism and patience in overseeing these very difficult landfill discussions. The task presented to the Blue Ribbon Committee has been daunting. Yet, with so many divergent views, you brought calm and thoughtfulness to the process. After so many years, it was good working with you once again. Thank you.

I am also impressed with the focused effort that members of the Committee directed to this important task. For my part, I apologize for not participating fully during these latest critical meetings. Despite my inability to attend all of these meetings, the electronic communications among members have helped to keep me abreast of the work that has taken place. So, while I apologize for not being present at the recent meetings, I do feel comfortable in providing my input.

After our recent conversation, I felt it important to share my thoughts with others on the Committee. As you recall, I do not want to meet again to select a single site. I believe it is in the City's best interest to have several legitimate sites to consider. Final determination rests with engineering and environmental impact studies, which together will help identify the most desirable among those we believe are suitable at this time.

Secondly, I do not believe Waimanalo Gulch should be offered at this time. Admittedly, my conclusion ignores any engineering or environmental

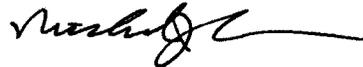
considerations. However, I cannot ignore the agreements and stipulations reached with the Land Use Commission that precludes this site in the long term.

Finally, I have serious concerns about offering the Ameron site. This site has serious economic implications, not only in terms of landfill operational costs but in terms of impacts on an on-going economically viable quarrying operation as well.

Given these comments, I recommend that the Committee seriously consider offering the three remaining sites for further planning and implementation by the City.

I hope my last minute comments do not muddy the waters. Please contact me with your questions, telephone, 842-8231.

Me ke aloha pumehana,

A handwritten signature in black ink, appearing to read "Michael J. Chun", with a long horizontal flourish extending to the right.

Michael J. Chun, Ph.D.
President and Headmaster
Kamehameha Schools



HOUSE OF REPRESENTATIVES

STATE OF HAWAII
STATE CAPITOL
HONOLULU, HAWAII 96813

November 25, 2003

BY FAX AND POST

The Honorable Mark Bennett
Attorney General
Department of the Attorney General
Hale Auhau
425 Queen Street
Honolulu, HI 96813

Leslie Kondo
Director
Office of Information Practices
No. 1 Capitol District Building
250 South Hotel Street, Room 107
Honolulu, HI 96813

Peter Carlisle
Prosecuting Attorney
Department of the Prosecuting Attorney
1060 Richards Street
Honolulu, HI 96813

Dear Attorney General Bennett, Director Kondo, and Prosecuting Attorney Carlisle:

I am writing this letter to inform each of you of a possible violation of Hawaii Revised Statutes chapter 92, otherwise referred to as the "Sunshine Law". I am also writing to request a formal investigation into this matter by the Office of Information Practices to determine whether a violation of the "Sunshine Law" has occurred, and to forward such case to the proper authorities should the Office of Information Practices determine that a violation of the "Sunshine Law" has occurred.

As background information, at the request of the City and County of Honolulu, I agreed to serve on the Mayor's Landfill Selection Committee in my capacity as a state representative. Please see the attached appointment letter dated July 3rd, 2003. According to the Department of Environmental Services letter that informed me of my appointment to this Committee, this Committee was described as an "advisory group [that] will help the City establish site selection criteria and recommend one or more sites to the City Council for approval of the location of the next municipal solid waste landfill." The Committee has met over the past five months in an effort to accomplish this goal. The Committee has operated its meetings pursuant to chapter 92 of the Hawaii Revised Statutes, publishing timely notice of

November 26, 2003

open meetings and affording the opportunity for community input and discussion.

We have yet to reach consensus on our report to the City. The current draft report includes a list of five potential landfill sites that have been reported in both daily newspapers. At the November meeting of the Committee, no consensus could be reached as to reducing the number of sites below five to be forwarded to the City Council.

At some time when the Committee was not in open meeting, Committee member Todd Apo solicited signatures from other Committee members on two documents related to the decision making function of the Committee. Specifically, the first document called for the undersigned members of the Committee to make a statement clarifying their understanding of the undertaking they were assigned to perform, and that they "require[d] that Waimanalo Gulch be removed from any further consideration by the Committee as a potential landfill site, in accordance with the Land Use Commission Order." Adoption of such a document would result in altering the product of work done in open meetings, preparing a draft report that reduces the number of potential sites to five with Waimanalo Gulch included. The Committee members that signed on to the document were: Todd Apo, Shad Kane, Cynthia Rezendes, Gary Tomita, William Paty, and 4 others.

The second document calls for the recommendation of the site referred to as Nanakuli B as the decision of the Committee. This would clearly alter the work of the committee accomplished in open hearing as referred to above. The signatories to this document are: Todd Apo, Shad Kane, Gary Tomita, William Paty, and 3 others.

In light of the aforementioned actions, as part of the requested formal investigation, I also would like clarification as to whether a Committee member who solicits a vote or solicits promises to vote a certain way from Committee members outside of an open meeting situation violates the "Sunshine Law". Additionally, if such action represents a violation of the "Sunshine Law", I would like clarification as to whether a willful violation of the "Sunshine Law" is a misdemeanor, a criminal act.

Your prompt investigation of this matter would be greatly appreciated. Our next properly noticed meeting is December 1st, 2003.

Sincerely,



Representative Cynthia Thielen
Assistant Minority Floor leader
50th District, Kailua - Kaneohe Bay

Encls.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

REFUSE DIVISION
1000 ULUOHIA STREET, SUITE 212, KAPOLEI, HAWAII 96707
Phone: (808) 692-5358 Fax: (808) 692-5404

JEREMY HARRIS
MAYOR



July 3, 2003

FRANK J. DOYLE, P.E.
DIRECTOR

JOHN C.T. LEE, P.E.
ACTING CHIEF

IN REPLY, REFER TO:
RE 03 092

The Honorable Cynthia Thielen
State Representative
State of Hawaii
State Capitol, Room 443
Honolulu, Hawaii 96813

Dear Representative Thielen:

Subject: Landfill Selection Committee

Thank you for agreeing to serve on the Mayor's Landfill Selection Committee. This advisory group will help the City establish site selection criteria and recommend one or more sites to the City Council for approval of the location of the next municipal solid waste landfill. Your training, experience, and leadership make you imminently qualified to deliberate the complex, interrelated issues that bear upon landfill siting, and we expect committee discussions to be well-considered and productive.

The next meeting will be on July 11, 2003, at 10:00 a.m. in the Mayor's conference room on the third floor of City Hall. Enclosed are the meeting agenda and a list of committee members.

There will be much information to assimilate, and committee members may wish to discuss issues with their constituencies to identify and add sites that meet minimum criteria to the list of potential landfill sites. For these reasons, the subsequent meeting is scheduled for August 8, same time and place.

Should there be any questions, please call Wilma Namumnart at 692-5378.

Sincerely,

A handwritten signature in black ink that reads "John C.T. Lee".

JOHN C.T. LEE, P.E.

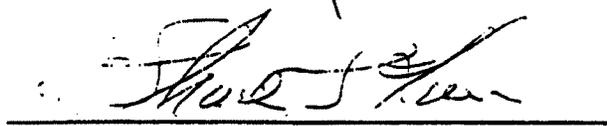
Enclosures

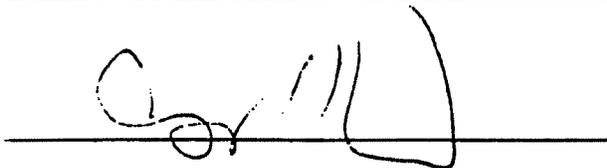
cc: Brian Takeda, R.M. Towill
DeeDee Letts, Resolutions Hawaii

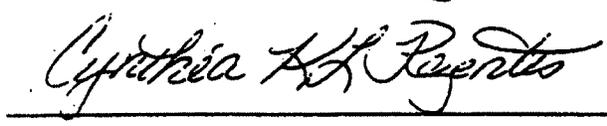
To the Blue Ribbon Site Selection Committee:

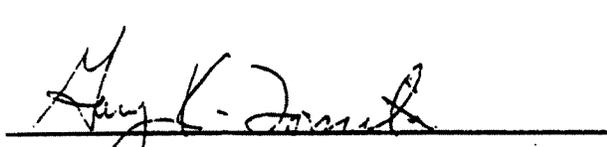
The persons signing below are members of the Blue Ribbon Site Selection Committee which was convened to make a recommendation for a new landfill site to the Honolulu City Council by December 1, 2003. We make this statement to clarify our understanding of the undertaking we were assigned to perform. We understood the Committee was charged with making a recommendation for a new landfill by December 1, 2003, and that this recommendation could not be the Waimanalo Gulch landfill site. No decision, either by consensus or vote, has been made to recommend five landfill sites or to include the Waimanalo Gulch as a recommended site. We require that Waimanalo Gulch be removed from any further consideration by the Committee as a potential landfill site, in accordance with the Land Use Commission Order.



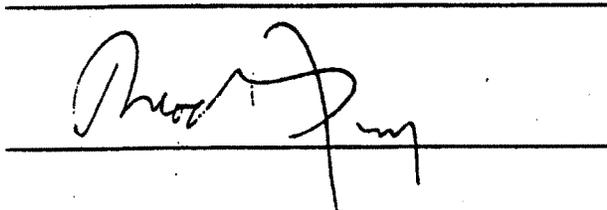


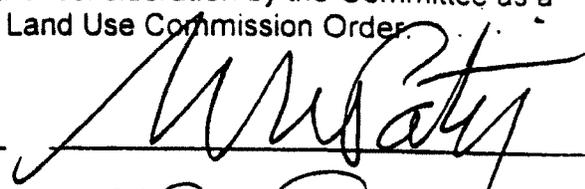






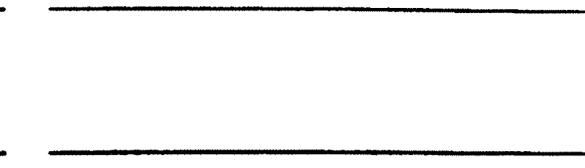


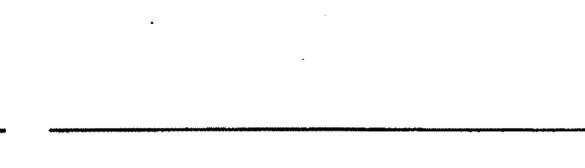


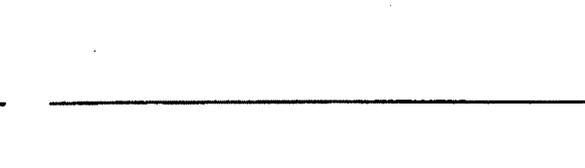






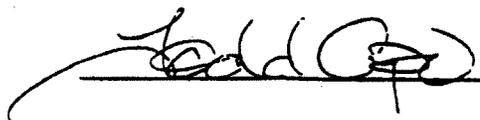


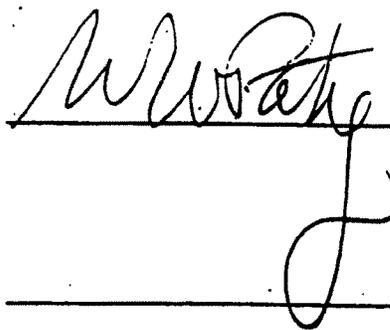




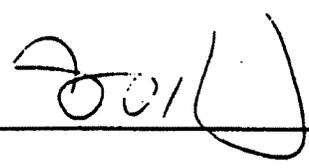
To the Blue Ribbon Site Selection Committee

The persons signing below are members of the Blue Ribbon Site Selection Committee which was convened to make a recommendation for a new landfill site to the Honolulu City Council by December 1, 2003. We understand the Committee was charged with making a recommendation for a single landfill by December 1, 2003, and that this single recommendation could not be the Waimanalo Gulch landfill site. Consistent with this understanding, we recommend Nanakuli B as the new landfill site.



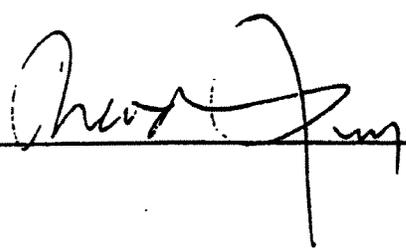








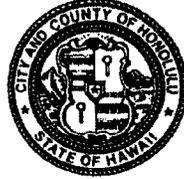




DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
Phone: (808) 692-5159 Fax: (808) 692-5113

JEREMY HARRIS
MAYOR



FRANK J. DOYLE, P.E.
DIRECTOR

DEPUTY DIRECTOR
IN REPLY REFER TO:

November 26, 2003

VIA FACSIMILE AND MAIL

Jeffrey R. Stone
Ko Olina Resort & Marina
55 Merchant Street, Suite 1500
Honolulu, Hawaii 96813

Re: Waimanalo Gulch Landfill Replacement Site

Dear Mr. Stone:

This letter is in response to your letter dated November 20, 2003. When the Mayor's Blue Ribbon Site Selection Committee ("Committee") met for the first time, the City made clear to the Committee that it intends to comply with the State Land Use Commission Decision and Order dated June 9, 2003 ("Order"), including condition #12, which requires the City to close Waimanalo Gulch Sanitary Landfill no later than May 1, 2008. We reiterate that commitment in this letter.

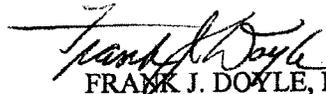
As you know, the Committee was formed for the purpose of discussing and analyzing potential sites in order to make its recommendations for one or more locations for a new landfill site to the City Council by December 1, 2003. Neither the City Administration nor the Land Use Commission can dictate what the City Council may or may not consider as a potential site. Therefore, the City Administration has not interfered with or tried to dictate what the Committee may or may not recommend. The City hired a consultant who provided the Committee with technical support. We understand the Committee's role is to provide an independent appraisal of potential landfill sites. Therefore, the City has not interfered with the Committee's process or decision in arriving at its recommendations. However, as stated above, the Committee is fully aware that the City will comply with the Order and close the Waimanalo Gulch Site Landfill no later than May 1, 2008.

The City administration anticipates receiving the Committee's recommendations on December 1, 2003, which we will transmit said recommendation to the City Council so it may select a new site by June 1, 2004 pursuant to the State Land Use Commission's Decision and Order.

Jeffrey R. Stone
Page -2-
November 26, 2003

Thank you for your concerns. Please call me at 692-5159 if you have any further questions or concerns.

Very truly yours,


FRANK J. DOYLE, P.E.
Director

FJD:MRC:mw

cc: Mayor's Blue Ribbon Site Selection Committee
Wilma Namumnart, P.E.
Brian Takeda
Dee Dee Letts

ENV-WAIMANALO GULCH.MRC

COMMITTEE E-MAIL LOGS

Brian Takeda

From: Namumnart, Wilma [WNamumnart@co.honolulu.hi.us]
Sent: Monday, December 01, 2003 12:00 PM
To: Brian Takeda (E-mail)
Subject: FW: Landfill Siting Committee - More Thoughts on Criterion

-----Original Message-----

From: Rezentesc@aol.com [mailto:Rezentesc@aol.com]
Sent: Friday, August 22, 2003 3:36 PM
To: Namumnart, Wilma
Subject: Landfill Siting Committee - More Thoughts on Criterion

Aloha Wilma,

I thought the meeting went well today and it was very lively indicating continuing interest in attempting to put a decision making process together that makes sense and covers most if not all of our individual concerns.

In addition to what was covered today other thoughts I had are:

Question 15: In addition to the change from populated areas to ocean, it may also be a good idea to consider adding whether or not the downstream wind pattern could be directly over conservation/preservation lands thereby potentially causing at least the need to address operationally the collection of windblown trash in more difficult areas to retrieve the materials.

Another approach to the question regarding wind direction towards the ocean might be to consider a distance measurement scheme. E.g. 0 points is >10 miles, 5 points if <1 mile (numbers are for illustration only). Something on this order should take into consideration any potential for windblown trash making it so far or not.

Additional thought should also be given to traffic considerations. I understand the difficulty in structuring a criteria or measurement but somehow we should consider the amount of traffic the refuse/ash trucks will be traveling in. How much traffic are they running with on H-1 or less adequate routes. Also, how can we take into consideration the condition of the roadways and current safety concerns. I mention this because access to some of the proposed sites would mean trucks would be traversing known high safety hazard roads.

Other than these additional thoughts (for now on a quicktime basis) I believe I got more than my two cents worth in regarding the measurements covered today (until I can digest more of the discussions we already had).

Again, thanks for hosting and having DeeDee facilitate and I believe that in the end we will at least have something we can all defend even though it may not be popular to some.

Mahalo and have a great weekend.

Cynthia

12/2/2003

Brian Takeda

From: Mark White [MarkWhite01@comcast.net]
Sent: Tuesday, December 02, 2003 7:09 AM
To: 'Takeda Brian'
Subject: FW: Criteria

Mark White
Pacific Waste Consulting Group
916/387-9777 (Voice)
916/387-9802 (Fax)
916/996-9777 (Cell)
mark@pwcg.net (reply email address)

-----Original Message-----

From: Namumnart, Wilma [mailto:WNamumnart@co.honolulu.hi.us]
Sent: Monday, August 25, 2003 12:27 AM
To: Mark White
Subject: FW: Criteria

i think we add this as suggestions from the committee members for consideration.

-----Original Message-----

From: Todd K. Apo [mailto:tka@hawaii.rr.com]
Sent: Saturday, August 23, 2003 11:13 AM
To: Namumnart, Wilma
Subject: Criteria

Please have them add a section(s) regarding economic impact of the new landfill site. As you know, that analysis is required by the EIS process, and should be a factor in determining the next site.

I don't have my list in front of me, but I would also suggest a section on compatibility with adjacent properties (if it doesn't already exist).

Thanks.

Aloha -
Todd K. Apo

12/2/2003

Brian Takeda

From: Namumnart, Wilma [WNamumnart@co.honolulu.hi.us]
Sent: Monday, December 01, 2003 12:01 PM
To: Brian Takeda (E-mail)
Subject: FW: Landfill COmmittee Criteria suggestions

-----Original Message-----

From: Kathy Bryant [mailto:kathybryant@dpr4adr.com]
Sent: Monday, August 25, 2003 11:55 AM
To: Namumnart, Wilma
Cc: mark@pwcg.net
Subject: Landfill COmmittee Criteria suggestions

Wilma:

Thank you for the opportunity to provide input on the criteria we reviewed on Friday. I apologize for having to leave early. I have the following suggestions:

1. I thought the DOH presentation was very helpful and provided some excellent criteria for our consideration. I would recommend that all the criteria presented in his handout be included particularly the section on siting and other considerations (pages 3-4 of handout). Some of the considerations are already included and I would recommend we add the others, particularly if DOH will be looking closely at those same considerations.
2. I would recommend that we add another criteria in the Economic Section (or expand an existing one) to include "Business elimination or permanent disruption". Will the siting of the landfill cause the elimination of or permanent disruption to existing businesses?
3. Criteria #29, could we add to access road considerations: "road improvements to meet state and county codes and standards". Some of the sites may be accessed by roads that may not be to county road standards and road improvements may be required which would be a cost to operations. (May also fit with Criteria #38 Traffic Safety for safety reasons.)
4. In the PWCG background material I reviewed, a number of the reports discussed "community benefits" in conjunction with siting a landfill. Communities that were selected received additional funds for community projects such as parks, community centers, road improvements, etc. AS part of our discussion of siting a landfill we should discuss what the city and county can do for the impacted community to offset the obvious impacts of a landfill. Perhaps the Consultant can provide some background on how that has been most effective in other communities.

Thanks again,

Kathy Bryant
262-6012
kathybryant@dpr4adr.com

Brian Takeda

From: Namumnart, Wilma [WNamumnart@co.honolulu.hi.us]
Sent: Monday, December 01, 2003 12:02 PM
To: Brian Takeda (E-mail)
Subject: FW: additional technical siting criteria

-----Original Message-----

From: Rep. Cynthia Thielen [mailto:repthielen@Capitol.hawaii.gov]
Sent: Monday, August 25, 2003 4:06 PM
To: Namumnart, Wilma
Subject: additional technical siting criteria

Wilma,

Please add the following (ok to reword):

1. Impact on environment and on public health of long hauls from HPower to landfill.
2. Impact on nearby property values, which would lower City's tax base.

Brian Takeda

From: Namumnart, Wilma [WNameumnart@co.honolulu.hi.us]
Sent: Monday, December 01, 2003 12:02 PM
To: Brian Takeda (E-mail)
Subject: FW: next meeting 9/26

-----Original Message-----

From: Peter Apo [mailto:papo@hawaii.rr.com]
Sent: Monday, September 22, 2003 8:58 AM
To: Namumnart, Wilma
Subject: Re: next meeting 9/26

Aloha Wilma:

I regret that I have to decline continuing serving on the committee. Some family considerations have curtailed my availability to serve our community. Please convey my regrets to the Mayor.

Peter Apo

> From: "Namumnart, Wilma" <WNameumnart@co.honolulu.hi.us>
> Date: Wed, 17 Sep 2003 17:12:36 -1000
> To: "Brian Takeda (E-mail)" <briant@rmtowill.com>, "Bruce Anderson
> (E-mail)" <bsa@hawaii.edu>, "Cynthia Rezentes (E-mail)"
> <rezentesc@aol.com>, "Cynthia Thielen (E-mail)"
> <repthielen@capitol.hawaii.gov>, "DeeDee Letts (E-mail)"
> <ddletts@lava.net>, "Eric Guinther (E-mail)" <guinther@hawaii.rr.com>,
> "Gary Slovin (E-mail)" <gslovin@goodsill.com>, "Gary Tomita (E-mail)"
> <igtwink@aol.com>, "George Yamamoto (E-mail)"
> <georges.yamamoto@alumni.usc.edu>, "Kathy Bryant Hunter (E-mail)"
> <kathybryant@dpr4adr.com>, "Mark/Carol White (E-mail)"
> <mark@pwcg.net>, "Michael Chun (E-mail)" <michun@ksbe.edu>, "Peter Apo
> (E-mail)" <papo@hawaii.rr.com>, "Robert Tong (E-mail)"
> <tongr002@hawaii.rr.com>, "Shad Kane (E-mail)" <kiha@hawaii.rr.com>,
> "Steve Holmes (E-mail)" <SHolmes@co.honolulu.hi.us>, "Ted Jung
> (E-mail)" <jung002@hawaii.rr.com>, "Todd Apo (E-mail)"
> <todd@koolina.com>, "William Paty (E-mail)" <bill@martroffice.com>
> Cc: "Brian Takeda (E-mail)" <briant@rmtowill.com>, "DeeDee Letts (E-mail)"
> <ddletts@lava.net>, "Mark/Carol White (E-mail)" <mark@pwcg.net>
> Subject: next meeting 9/26
>
> please note the next meeting will be in the corporation counsel's
> conference room on the first floor of city hall. please go to the ewa
> side of city hall in the corridor behind the open function room and
> stairway to the second and third floors. if you need further
> directions, please call me. i will be waiting at the doorway to let
> you into the room. see you all at 10 a.m. on friday, september 26th.
>
> Wilma Namumnart
> ENV/Refuse Division
> Phone 692-5378
> FAX 692-5402
>

Brian Takeda

From: Mark White [mark@pwcg.net]
Sent: Tuesday, December 02, 2003 7:09 AM
To: brian@rmtowill.com
Subject: FW: meeting postponed

Mark White
Pacific Waste Consulting Group
916/387-9777 (Voice)
916/387-9802 (Fax)
916/996-9777 (Cell)
mark@pwcg.net (reply email address)

-----Original Message-----

From: Namumnart, Wilma [mailto:WNamumnart@co.honolulu.hi.us]
Sent: Thursday, September 25, 2003 4:52 PM
To: Todd K. Apo; Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezentes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Gary Slovin (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark White; Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Holmes, Steve; Ted Jung (E-mail); William Paty (E-mail)
Subject: RE: meeting postponed

i am sorry you will not be here to attend the meeting on 10/3. do you have anything written that can be given to the committee members? would you like to send a representative to give a presentation? we will be talking about host community benefits at the 10/3 meeting.

Wilma Namumnart
ENV/Refuse Division
Phone 692-5378
FAX 692-5402

-----Original Message-----

From: Todd K. Apo [mailto:todd@koolina.com]
Sent: Thursday, September 25, 2003 9:16 AM
To: Namumnart, Wilma; Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezentes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Gary Slovin (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Holmes, Steve; Ted Jung (E-mail); William Paty (E-mail)
Subject: Re: meeting postponed

Unfortunately, I will be out of town next week Friday. Based on last meeting, I had planned to present the proposal regarding "regionalizing" the MSW and looking at ways to compensate communities impacted by accepting landfills. Also, we are obviously at an important point in the process. Therefore, while I know it is a big thing to ask, I need to ask that we try to identify a time where everyone will be available. As we discussed from the beginning of this process, commitment to the panel is important, which was at least part of the reason the meeting schedule was set out in advance, so that we could all secure those dates and times for meetings. While we all know that last minute changes are unavoidable at times, I hope we can find a way to reschedule the meeting to meet everyone's calendars.

Thanks for considering this request.

Aloha,
Todd Apo

----- Original Message -----

From: "Namumnart, Wilma" <WNamumnart@co.honolulu.hi.us>
To: "Brian Takeda (E-mail)" <briant@rmtowill.com>; "Bruce Anderson (E-mail)" <bsa@hawaii.edu>; "Cynthia Rezentes (E-mail)" <rezentes@aol.com>; "Cynthia Thielen (E-mail)" <repthielen@capitol.hawaii.gov>; "DeeDee Letts (E-mail)" <ddletts@lava.net>; "Eric Guinther (E-mail)" <guinther@hawaii.rr.com>; "Gary Slovin (E-mail)" <gslovin@goodsill.com>; "Gary Tomita (E-mail)" <igtwink@aol.com>; "George Yamamoto (E-mail)" <georges.yamamoto@alumni.usc.edu>; "Kathy Bryant Hunter (E-mail)" <kathybryant@dpr4adr.com>; "Mark/Carol White (E-mail)" <mark@pwcg.net>; "Michael Chun (E-mail)" <michun@ksbe.edu>; "Robert Tong (E-mail)" <tongr002@hawaii.rr.com>; "Shad Kane (E-mail)" <kiha@hawaii.rr.com>; "Steve Holmes (E-mail)" <SHolmes@co.honolulu.hi.us>; "Ted Jung (E-mail)" <jung002@hawaii.rr.com>; "Todd Apo (E-mail)" <todd@koolina.com>; "William Paty (E-mail)" <bill@martroffice.com>
Sent: Wednesday, September 24, 2003 10:55 AM
Subject: meeting postponed

our friday, september 26th meeting is postponed until friday, october 3rd. the meeting will be in the mayor's conference room on the third floor of city hall from 10:00 a.m. - 11:30 a.m.

Wilma Namumnart
ENV/Refuse Division
Phone 692-5378
FAX 692-5402

Brian Takeda

From: Mark White [mark@pwcg.net]
Sent: Tuesday, December 02, 2003 7:11 AM
To: briantr@rmtowill.com
Subject: FW: draft press release, project update, benefits criteria

Mark White
Pacific Waste Consulting Group
916/387-9777 (Voice)
916/387-9802 (Fax)
916/996-9777 (Cell)
mark@pwcg.net (reply email address)

-----Original Message-----

From: Namumnart, Wilma [mailto:WNamumnart@co.honolulu.hi.us]
Sent: Tuesday, October 07, 2003 7:39 PM
To: Slovin, Gary M.
Cc: DeeDee Letts (E-mail); Mark White; briantr@rmtowill.com
Subject: RE: draft press release, project update, benefits criteria

it was prepared by carol costa, mark white, brian takeda, dee dee letts, suzanne jones, and me. we can discuss release or non-release at the meeting and make any revisions.

i am very concerned that once the sites are known, someone either on the committee or off will leak to the press. we may be able to get the committee members to agree to a gag order, but what about people off the committee? we can discuss this.

-----Original Message-----

From: Slovin, Gary M. [mailto:gslovin@goodsill.com]
Sent: Tuesday, October 07, 2003 4:29 PM
To: Namumnart, Wilma; Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezentes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Holmes, Steve; Ted Jung (E-mail); Todd Apo (E-mail); William Paty (E-mail)
Subject: RE: draft press release, project update, benefits criteria

Wilma: My thoughts are that the press release is important enough to discuss at the next meeting before it is released. (Until a couple of days ago I didn't know there was going to be a press release and I'm not convinced this is a good time to be releasing one.) Email comments don't work very well for important documents because you don't get the discussion and give and take of a live meeting. In its present form, I am not comfortable with it.

Can you let us know who prepared it?

-----Original Message-----

From: Namumnart, Wilma [mailto:WNamumnart@co.honolulu.hi.us]
Sent: Tuesday, October 07, 2003 4:13 PM
To: Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezentes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Slovin, Gary M.; Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Steve Holmes (E-mail); Ted Jung (E-mail); Todd Apo (E-mail); William Paty (E-mail)
Subject: draft press release, project update, benefits criteria

<<draftpress.doc>> <<projectupdate.doc>> <<Employment Criterion and capacity
table1.doc>> since the draft press release is late, please submit any comments by email
to me before close of business, Thursday, 10/9. Also please note that the criteria for
the employment benefit will be revised to reflect actual conditions of unemployment in the
census tracts affected. the 2% and 3% are just place holders until research is completed.

Wilma Namumnart
ENV/Refuse Division
Phone 692-5378
FAX 692-5402

Brian Takeda

From: Mark White [mark@pwcg.net]
Sent: Tuesday, December 02, 2003 7:13 AM
To: brian@rmtowill.com
Subject: FW: draft press release, project update, benefits criteria

BRIAN,
THIS IS THE ONE WITH THE COMPLETE THREAD. IT WOULD BE THE BEST TO US.

Mark White
Pacific Waste Consulting Group
916/387-9777 (Voice)
916/387-9802 (Fax)
916/996-9777 (Cell)
mark@pwcg.net (reply email address)

-----Original Message-----

From: Namumnart, Wilma [mailto:WNameumnart@co.honolulu.hi.us]
Sent: Wednesday, October 08, 2003 12:57 PM
To: Slovin, Gary M.
Cc: Brian Takeda (E-mail); DeeDee Letts (E-mail); Mark White
Subject: RE: draft press release, project update, benefits criteria

mark white is with pacific waste consulting group, who are subbed to rm towill, our consultant.

the press release can come from the committee alone. we added the mayor's name as a courtesy, but he is being asked if he even wants to be part of the press release. he may ask that his name be deleted.

you are correct. no vote or extensive discussion was held on the press release. it is on the agenda for 10/10. we didn't want to start with a blank sheet of paper and 10+ ideas, so we did a draft that can be marked up. you can initiate another draft, if you want to.

isn't life fun!!

-----Original Message-----

From: Slovin, Gary M. [mailto:gslovin@goodsill.com]
Sent: Wednesday, October 08, 2003 9:50 AM
To: Namumnart, Wilma
Subject: RE: draft press release, project update, benefits criteria

Because your message asked for comments by 10/9, I was concerned. Thanks for the clarification. Who is Mark White with? I'm not sure it is a good idea to have so much involvement in the press release by the administration. I am also not sure it is a good idea to have it issued by the Mayor and the Committee--I think it should come from the committee alone, if we do it at all. As a committee member, I doubt I will feel comfortable with a number of the statements since I don't feel I have to reach these conclusions yet. I'm not concerned about leaks--that is preferable to a premature press release, which I think this is. There is a pressure here, as I noted at the last meeting, to move us along to conclusions we have not reached yet.

I don't recall that the committee took a vote to do a press release; nor did we have input as to who would draft it. Perhaps that all came up at the meeting I missed but I don't recall that.

I understand the concern about doing this on time but it seems to me this is the committee's responsibility. I also feel 'that things are progressing very well and that we will finish on time. Your support and that of the consultants has been terrific and a great help and, despite my efforts to hold back Dee Dee from time to time, she has also done a great job as well.

-----Original Message-----

From: Namumnart, Wilma [mailto:WNameumnart@co.honolulu.hi.us]
Sent: Tuesday, October 07, 2003 4:39 PM
To: Slovin, Gary M.
Cc: DeeDee Letts (E-mail); Mark/Carol White (E-mail); briant@rmtowill.com
Subject: RE: draft press release, project update, benefits criteria

it was prepared by carol costa, mark white, brian takeda, dee dee letts, suzanne jones, and me. we can discuss release or non-release at the meeting and make any revisions.

i am very concerned that once the sites are known, someone either on the committee or off will leak to the press. we may be able to get the committee members to agree to a gag order, but what about people off the committee? we can discuss this.

-----Original Message-----

From: Slovin, Gary M. [mailto:gslovin@goodsill.com]
Sent: Tuesday, October 07, 2003 4:29 PM
To: Namumnart, Wilma; Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezendes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Holmes, Steve; Ted Jung (E-mail); Todd Apo (E-mail); William Paty (E-mail)
Subject: RE: draft press release, project update, benefits criteria

Wilma: My thoughts are that the press release is important enough to discuss at the next meeting before it is released. (Until a couple of days ago I didn't know there was going to be a press release and I'm not convinced this is a good time to be releasing one.) Email comments don't work very well for important documents because you don't get the discussion and give and take of a live meeting. In its present form, I am not comfortable with it.

Can you let us know who prepared it?

-----Original Message-----

From: Namumnart, Wilma [mailto:WNameumnart@co.honolulu.hi.us]
Sent: Tuesday, October 07, 2003 4:13 PM
To: Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezendes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Slovin, Gary M.; Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Steve Holmes (E-mail); Ted Jung (E-mail); Todd Apo (E-mail); William Paty (E-mail)
Subject: draft press release, project update, benefits criteria

<<draftpress.doc>> <<projectupdate.doc>> <<Employment Criterion and capacity table1.doc>> since the draft press release is late, please submit any comments by email to me before close of business, Thursday, 10/9. Also please note that the criteria for the employment benefit will be revised to reflect actual conditions of unemployment in the census tracts affected. the 2% and 3% are just place holders until research is completed.

Wilma Namumnart
ENV/Refuse Division
Phone 692-5378
FAX 692-5402

Brian Takeda

From: Mark White [mark@pwcg.net]
Sent: Tuesday, December 02, 2003 7:14 AM
To: brian@rmtowill.com
Subject: FW: Press Release

Mark White
Pacific Waste Consulting Group
916/387-9777 (Voice)
916/387-9802 (Fax)
916/996-9777 (Cell)
mark@pwcg.net (reply email address)

-----Original Message-----

From: Namumnart, Wilma [mailto:WNamumnart@co.honolulu.hi.us]
Sent: Thursday, October 09, 2003 12:18 PM
To: Slovin, Gary M.; Todd K. Apo; Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezendes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark White; Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Holmes, Steve; Ted Jung (E-mail); William Paty (E-mail)
Subject: RE: Press Release

i don't want to belabor the point, but i remember distinctly that you asked the we have professional help on the press release. i did not interpret that to mean an outside the City professional. if you had asked for that specifically, i would have responded that we have no one outside the city on contract, so i would not be able to provide that kind of professional help. we can talk more about this on friday.

-----Original Message-----

From: Slovin, Gary M. [mailto:gslovin@goodsill.com]
Sent: Wednesday, October 08, 2003 3:37 PM
To: Todd K. Apo; Namumnart, Wilma; Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezendes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Holmes, Steve; Ted Jung (E-mail); William Paty (E-mail)
Subject: RE: Press Release

Since Todd has responded to my comment regarding the authorship of the press release, I thought I should explain my concern which I raised at the last meeting.

My impression was that we would have professional help on the press release and I assumed when the consultant said at the last meeting that there was funding for that function that it meant an outside-of-the-City professional. Carol is certainly a professional public relations person but she is obviously part of the City. The other folks are not public relations people. While the committee is certainly independent, the appearance of independence is just as important as the reality. The circumstances of the press release may not support the appearance of independence. Therefore, in addition to the text of the press release we might want to discuss this aspect as well.

-----Original Message-----

From: Todd K. Apo [mailto:todd@koolina.com]
Sent: Tuesday, October 07, 2003 5:21 PM
To: Namumnart, Wilma; Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezendes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Slovin, Gary M.; Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Steve Holmes (E-mail); Ted Jung (E-mail); William Paty

(E-mail)

Subject: Press Release

To the Committee, I am sorry that I was unable to attend the rescheduled meeting last week. As I previously emailed, I would have liked to have tried to find a way to be more accommodating for the last minute date change. Nonetheless, without knowing the details of what was discussed last week, I concur with Gary and Cynthia regarding the need to discuss the press release at Friday's meeting. It is an important message that we all want to make sure is correct both in content and in timing.

I also echo Gary's questions regarding the author of the draft release.

Todd Apo
Ko Olina Resort & Marina

----- Original Message -----

From: "Namumnart, Wilma" <WNamumnart@co.honolulu.hi.us>
To: "Brian Takeda (E-mail)" <briant@rmtowill.com>; "Bruce Anderson (E-mail)" <bsa@hawaii.edu>; "Cynthia Rezentes (E-mail)" <rezentes@aol.com>; "Cynthia Thielen (E-mail)" <repthielen@capitol.hawaii.gov>; "DeeDee Letts (E-mail)" <ddletts@lava.net>; "Eric Guinther (E-mail)" <guinther@hawaii.rr.com>; "Gary Slovin (E-mail)" <gslovin@goodsill.com>; "Gary Tomita (E-mail)" <igtwink@aol.com>; "George Yamamoto (E-mail)" <georges.yamamoto@alumni.usc.edu>; "Kathy Bryant Hunter (E-mail)" <kathybryant@dpr4adr.com>; "Mark/Carol White (E-mail)" <mark@pwcg.net>; "Michael Chun (E-mail)" <michun@ksbe.edu>; "Robert Tong (E-mail)" <tongr002@hawaii.rr.com>; "Shad Kane (E-mail)" <kiha@hawaii.rr.com>; "Steve Holmes (E-mail)" <SHolmes@co.honolulu.hi.us>; "Ted Jung (E-mail)" <jung002@hawaii.rr.com>; "Todd Apo (E-mail)" <todd@koolina.com>; "William Paty (E-mail)" <bill@martroffice.com>
Sent: Tuesday, October 07, 2003 4:15 PM
Subject: agenda for 10/10 meeting

<<Agenda10-10-03.doc>> please note we have two more meetings in october on the 10th and 24th. we have an optional meeting scheduled for 11/7. we are grateful for your continued participation. see you on october 10th. mayor's conference room, third floor, city hall.

Wilma Namumnart
ENV/Refuse Division
Phone 692-5378
FAX 692-5402

Brian Takeda

From: Namumnart, Wilma [WNamumnart@co.honolulu.hi.us]
Sent: Monday, December 01, 2003 12:07 PM
To: Brian Takeda (E-mail)
Subject: FW: Landfill Life Expectancy

-----Original Message-----

From: Bruce Anderson [mailto:bsa@hawaii.edu]
Sent: Tuesday, October 14, 2003 12:35 PM
To: Namumnart, Wilma
Subject: Landfill Life Expectancy

Wilma,

It is noted in your group memory of our last meeting that we should "express via email (our) preference for a 10 or 15 year minimum for the site" but you did not say to whom we should express our preference. As I mentioned at the meeting, I think it would be a irresponsible from a land-use and cost standpoint to pick a site that has an expected life of less than 20 years. However, I would strongly recommend that any site with a expected lifetime of less than 15 years be excluded from future consideration. The Committee has few if any people who are focused on the cost side of the equation and it seems that nobody is thinking about the difficulty of finding a contractor who would be willing to bid on operating a site with a short life-expectancy. Despite more aggressive recycling and waste diversion practices, we'll be lucky if the net volume of solid waste does not increase over the next 10 years as our population and the total amount of wastes they generate increase. I hope this is not the case, but it is prudent to assume that it will be so. Any other position is wishful thinking. If we choose a site that has only a 10 year life expectancy, you will need to reconvene another site selection committee immediately after we conclude our deliberations to start the process for selecting yet another site. I estimate that it will take about 10 years to go through the process again of selecting a site, getting the necessary county and state land use approvals, design, construction, bidding for operational contract, and permitting--if you're lucky. Anyway, I would vote for a minimum of 15 years--20 years would be more appropriate. Please pass this on to whomever is tallying the votes. Thanks.

Bruce

----- Original Message -----

From: "Namumnart, Wilma" <WNamumnart@co.honolulu.hi.us>
To: "Brian Takeda (E-mail)" <briant@rmtowill.com>; "Bruce Anderson (E-mail)" <bsa@hawaii.edu>; "Cynthia Rezentes (E-mail)" <rezentes@aol.com>; "Cynthia Thielen (E-mail)" <repthielen@capitol.hawaii.gov>; "DeeDee Letts (E-mail)" <ddletts@lava.net>; "Eric Guinther (E-mail)" <guinther@hawaii.rr.com>; "Gary Slovin (E-mail)" <gslovin@goodsill.com>; "Gary Tomita (E-mail)" <igtwink@aol.com>; "George Yamamoto (E-mail)" <georges.yamamoto@alumni.usc.edu>; "Kathy Bryant Hunter (E-mail)" <kathybryant@dpr4adr.com>; "Mark/Carol White (E-mail)" <mark@pwcg.net>; "Michael Chun (E-mail)" <michun@ksbe.edu>; "Robert Tong (E-mail)" <tongr002@hawaii.rr.com>; "Shad Kane (E-mail)" <kiha@hawaii.rr.com>; "Steve Holmes (E-mail)" <SHolmes@co.honolulu.hi.us>; "Ted Jung (E-mail)" <jung002@hawaii.rr.com>; "Todd Apo (E-mail)" <todd@koolina.com>; "William Paty (E-mail)" <bill@martroffice.com>
Cc: "Win, Zarli" <zwin@co.honolulu.hi.us>
Sent: Tuesday, October 14, 2003 10:36 AM
Subject: group memory for 10/10/03 meeting

<<gm10-10-03.doc>>
Wilma Namumnart
ENV/Refuse Division
Phone 692-5378

FAX 692-5402

Brian Takeda

From: Mark White [mark@pwcg.net]
Sent: Tuesday, December 02, 2003 7:15 AM
To: briant@rmtowill.com
Subject: FW: Landfill Life Expectancy

Mark White
Pacific Waste Consulting Group
916/387-9777 (Voice)
916/387-9802 (Fax)
916/996-9777 (Cell)
mark@pwcg.net (reply email address)

-----Original Message-----

From: Namumnart, Wilma [mailto:WNamumnart@co.honolulu.hi.us]
Sent: Wednesday, October 15, 2003 7:17 PM
To: Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezentes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Gary Slovin (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark White; Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Steve Holmes (E-mail); Ted Jung (E-mail); Todd Apo (E-mail); William Paty (E-mail)
Subject: FW: Landfill Life Expectancy

forwarded to you per dr anderson's request.

-----Original Message-----

From: Bruce Anderson [mailto:bsa@hawaii.edu]
Sent: Wednesday, October 15, 2003 4:15 PM
To: Namumnart, Wilma
Subject: Re: Landfill Life Expectancy

Wilma,

I thought about sending my comments to all the other committee members, but I didn't have all their email addresses. Obviously, I feel quite strongly that we should take a conservative approach toward estimating the wastes generated and that costs should be a very important criteria. Can you forward my comments (below) for me?

Bruce

----- Original Message -----

From: "Namumnart, Wilma" <WNamumnart@co.honolulu.hi.us>
To: "Bruce Anderson" <bsa@hawaii.edu>
Sent: Wednesday, October 15, 2003 1:26 PM
Subject: RE: Landfill Life Expectancy

i concur. you make some good points. would you be willing to share your comments with the whole committee?

-----Original Message-----

From: Bruce Anderson [mailto:bsa@hawaii.edu]
Sent: Tuesday, October 14, 2003 12:35 PM
To: Namumnart, Wilma
Subject: Landfill Life Expectancy

Wilma,

It is noted in your group memory of our last meeting that we should "express via email (our) preference for a 10 or 15 year minimum for the site" but you did not say to whom we should express our preference. As I mentioned at the meeting, I think it would be a irresponsible from a land-use and cost standpoint to pick a site that has an expected life of less than 20 years. However, I would strongly recommend that any site with a expected lifetime of less than 15 years be excluded from future consideration. The Committee has few if any people who are focused on the cost side of the equation and it seems that nobody is thinking about the difficulty of finding a contractor who would be willing to bid on operating a site with a short life-expectancy. Despite more aggressive recycling and waste diversion practices, we'll be lucky if the net volume of solid waste does not increase over the next 10 years as our population and the total amount of wastes they generate increase. I hope this is not the case, but it is prudent to assume that it will be so. Any other position is wishful thinking. If we choose a site that has only a 10 year life expectancy, you will need to reconvene another site selection committee immediately after we conclude our deliberations to start the process for selecting yet another site. I estimate that it will take about 10 years to go through the process again of selecting a site, getting the necessary county and state land use approvals, design, construction, bidding for operational contract, and permitting--if you're lucky. Anyway, I would vote for a minimum of 15 years--20 years would be more appropriate. Please pass this on to whomever is tallying the votes. Thanks.

Bruce

----- Original Message -----

From: "Namumnart, Wilma" <WNamumnart@co.honolulu.hi.us>
To: "Brian Takeda (E-mail)" <briant@rmtowill.com>; "Bruce Anderson (E-mail)" <bsa@hawaii.edu>; "Cynthia Rezendes (E-mail)" <rezentesc@aol.com>; "Cynthia Thielen (E-mail)" <repthielen@capitol.hawaii.gov>; "DeeDee Letts (E-mail)" <ddletts@lava.net>; "Eric Guinther (E-mail)" <guinther@hawaii.rr.com>; "Gary Slovin (E-mail)" <gslovin@goodsill.com>; "Gary Tomita (E-mail)" <igtwink@aol.com>; "George Yamamoto (E-mail)" <georges.yamamoto@alumni.usc.edu>; "Kathy Bryant Hunter (E-mail)" <kathybryant@dpr4adr.com>; "Mark/Carol White (E-mail)" <mark@pwcg.net>; "Michael Chun (E-mail)" <michun@ksbe.edu>; "Robert Tong (E-mail)" <tongr002@hawaii.rr.com>; "Shad Kane (E-mail)" <kiha@hawaii.rr.com>; "Steve Holmes (E-mail)" <SHolmes@co.honolulu.hi.us>; "Ted Jung (E-mail)" <jungt002@hawaii.rr.com>; "Todd Apo (E-mail)" <todd@koolina.com>; "William Paty (E-mail)" <bill@martroffice.com>
Cc: "Win, Zarli" <zwin@co.honolulu.hi.us>
Sent: Tuesday, October 14, 2003 10:36 AM
Subject: group memory for 10/10/03 meeting

<<gm10-10-03.doc>>
Wilma Namumnart
ENV/Refuse Division
Phone 692-5378
FAX 692-5402

Brian Takeda

From: Namumnart, Wilma [WNamumnart@co.honolulu.hi.us]
Sent: Monday, December 01, 2003 12:09 PM
To: Brian Takeda (E-mail)
Subject: FW: meeting agenda for 11/7

-----Original Message-----

From: Bruce Anderson [mailto:bsa@hawaii.edu]
Sent: Tuesday, November 04, 2003 4:21 PM
To: Namumnart, Wilma
Cc: Dee Dee Letts
Subject: Re: meeting agenda for 11/7

Wilma,

I will not be able to attend on Friday as I will be in San Diego.

The issue that I'm afraid will surface again is whether Waimanalo Gulch should remain on the list of options. I feel very strongly that it should be on our final list of recommended sites. Frankly, I can't think of any good reasons (other than those that are political in nature) why it shouldn't. It ranked highest based on the criteria developed by the Committee and it would be the least costly site to acquire and operate. Perhaps most important, it is irresponsible from a land use standpoint to walk away from this site (or any other existing landfill) on an island with such limited options and take up the valuable land at another site before fully utilizing the existing site. With proper management, Waimanalo Gulch can serve Oahu's municipal landfill needs for at least 20 more years.

I would strongly support that Makaiwa Gulch be on the final list of three, too. It was second in ranking and I think would be the next best site for a new landfill after Waimanalo Gulch has been fully utilized. I don't have any strong preference strong feeling about Maili or Nanakuli site. They were both tied in the latest rankings. Either would be viable. In my opinion, the Ameron Quarry site is not viable given it's continued importance as a rock quarry, the cost of acquisition, and it's relatively limited capacity. Other sites ranked lower. So, my top three choices would be Waimanalo Gulch, Makaiwa Gulch, and either Nanakuli or Maili (in that order). If you think it is appropriate, please don't hesitate to share this position with others.

If you have a draft report and/or draft press release ready for review before the meeting, I would like to have a copy and I will try to provide my comments before the meeting. Thanks.

Bruce

----- Original Message -----

From: "Namumnart, Wilma" <WNamumnart@co.honolulu.hi.us>
To: "Brian Takeda (E-mail)" <briant@rmtowill.com>; "Bruce Anderson (E-mail)" <bsa@hawaii.edu>; "Cynthia Rezentes (E-mail)" <rezentesc@aol.com>; "Cynthia Thielen (E-mail)" <repthielen@capitol.hawaii.gov>; "DeeDee Letts (E-mail)" <ddletts@lava.net>; "Eric Guinther (E-mail)" <guinther@hawaii.rr.com>; "Gary Slovin (E-mail)" <gslovin@goodsill.com>; "Gary Tomita (E-mail)" <igtwink@aol.com>; "George Yamamoto (E-mail)" <georges.yamamoto@alumni.usc.edu>; "Kathy Bryant Hunter (E-mail)" <kathybryant@dpr4adr.com>; "Mark/Carol White (E-mail)" <mark@pwcg.net>; "Michael Chun (E-mail)" <michun@ksbe.edu>; "Robert Tong (E-mail)" <tongr002@hawaii.rr.com>; "Shad Kane (E-mail)" <kiha@hawaii.rr.com>; "Steve Holmes (E-mail)" <SHolmes@co.honolulu.hi.us>; "Ted Jung (E-mail)" <jungt002@hawaii.rr.com>; "Todd Apo (E-mail)" <todd@koolina.com>; "William Paty (E-mail)" <bill@martroffice.com>
Sent: Tuesday, November 04, 2003 10:57 AM
Subject: meeting agenda for 11/7

just a reminder that the meeting will start at 9:30 a.m. <<Agenda 11 7.doc>>

Wilma Namumart
ENV/Refuse Division
Phone 692-5378
FAX 692-5402

Brian Takeda

From: Dee Dee [ddletts@lava.net]
Sent: Tuesday, December 02, 2003 9:13 AM
To: Brian Takeda
Subject: FW: Press Inquiries

Dee Dee

-----Original Message-----

From: Rep. Cynthia Thielen [mailto:repthielen@Capitol.hawaii.gov]
Sent: Monday, November 17, 2003 2:08 PM
To: 'Slovin, Gary M.'; kathybryant@dpr4adr.com; Dee Dee; Namumnart, Wilma; Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezendes (E-mail); Rep. Cynthia Thielen; Eric Guinther (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Steve Holmes (E-mail); Ted Jung (E-mail); Todd Apo (E-mail); William Paty (E-mail)
Subject: RE: Press Inquiries

I was contacted too and refused to give the names of the five sites. But someone evidently released the names. Who?? We reached a final decision on Nov. 7, and selected those five sites to go forward to Mayor Harris. I am not happy that Ameron is among the names, and I still believe we should not jeopardize our major quarry, but we made that group decision. It was hard, but we came to that FINAL decision, and five sites were selected. We all knew that that the final decision had been made on November 7, and we adjourned and left the room. The only purpose for our November 21 meeting is to give final approval to the cover document, transmitting the names of the five sites. I now understand that some people are trying to reopen the decision. I am unalterably opposed to doing that and believe it is unacceptable dirty politics. If those members succeed in reopening what was a final decision, so they can push their special interest to remove Waimanalo Gulch, then I officially quit this highjacked Advisory Committee on Landfill Siting.
Rep. Cynthia Thielen

> -----Original Message-----

> From: Slovin, Gary M. [SMTP:gslovin@goodsill.com]
> Sent: Monday, November 10, 2003 4:26 PM
> To: kathybryant@dpr4adr.com; Dee Dee; Namumnart, Wilma; Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezendes (E-mail); Cynthia Thielen (E-mail); Eric Guinther (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Steve Holmes (E-mail); Ted Jung (E-mail); Todd Apo (E-mail); William Paty (E-mail)
> Subject: RE: Press Inquiries

> I guess I should feel hurt that I was not contacted. Terrific response.

> I'll just read the email if I get a call.

> -----Original Message-----

> From: Kathy Bryant [mailto:kathybryant@dpr4adr.com]
> Sent: Monday, November 10, 2003 3:49 PM
> To: Dee Dee; 'Namumnart, Wilma'; 'Brian Takeda (E-mail)'; 'Bruce Anderson (E-mail)'; 'Cynthia Rezendes (E-mail)'; 'Cynthia Thielen

> (E-mail)'; 'Eric Guinther (E-mail)'; Slovin, Gary M.; 'Gary Tomita
> (E-mail)'; 'George Yamamoto (E-mail)'; 'Mark/Carol White (E-mail)';
> 'Michael Chun (E-mail)'; 'Robert Tong (E-mail)'; 'Shad Kane (E-mail)';
> 'Steve Holmes (E-mail)'; 'Ted Jung (E-mail)'; 'Todd Apo (E-mail)';
> 'William Paty (E-mail)'
> Subject: RE: Press Inquiries

>
>
> I too was contacted and provided the same information as Cynthia.

> Kathy

> -----Original Message-----

> From: Dee Dee [mailto:ddletts@lava.net]
> Sent: Monday, November 10, 2003 3:21 PM
> To: 'Namumnart, Wilma'; 'Brian Takeda (E-mail)'; 'Bruce Anderson
> (E-mail)'; 'Cynthia Rezentes (E-mail)'; 'Cynthia Thielen (E-mail)';
> 'Eric Guinther (E-mail)'; 'Gary Slovin (E-mail)'; 'Gary Tomita
> (E-mail)'; 'George Yamamoto (E-mail)'; 'Kathy Bryant Hunter (E-mail)';
> 'Mark/Carol White (E-mail)'; 'Michael Chun (E-mail)'; 'Robert Tong
> (E-mail)'; 'Shad Kane (E-mail)'; 'Steve Holmes (E-mail)'; 'Ted Jung
> (E-mail)'; 'Todd Apo (E-mail)'; 'William Paty (E-mail)'
> Subject: RE: Press Inquiries

> Aloha,

>
> Cynthia Rezentes just called me to say that she has been contacted by
> the Advertiser about Friday's meeting. She is unable to send this
email
> now and has asked me to send it for her. Her response to the reporter
> is that the committee is finalizing their report and when it is
> forwarded to the Mayor in the next two weeks it will be public and
> available to the press until then she has no further comment on the
work
> of the committee. She hopes that anyone else who gets contacted will
> respond in similar fashion.

> Dee Dee

Brian Takeda

From: Namumnart, Wilma [WNamumnart@co.honolulu.hi.us]
Sent: Wednesday, December 03, 2003 1:28 PM
To: Brian Takeda (E-mail)
Subject: FW: various developments

-----Original Message-----

From: Todd Apo [mailto:todd@koolina.com]
Sent: Tuesday, November 18, 2003 5:17 PM
To: Namumnart, Wilma; 'Brian Takeda (E-mail)'; 'Bruce Anderson (E-mail)'; 'Cynthia Rezendes (E-mail)'; 'Cynthia Thielen (E-mail)'; 'DeeDee Letts (E-mail)'; 'Eric Guinther (E-mail)'; 'Gary Slovin (E-mail)'; 'Gary Tomita (E-mail)'; 'George Yamamoto (E-mail)'; 'Kathy Bryant Hunter (E-mail)'; 'Mark/Carol White (E-mail)'; 'Michael Chun (E-mail)'; 'Robert Tong (E-mail)'; 'Shad Kane (E-mail)'; Holmes, Steve; 'Ted Jung (E-mail)'; 'William Paty (E-mail)'
Cc: lkakazu@goodsill.com; olchun@ksbe.edu
Subject: RE: various developments

While I obviously have more expansive comments to this email (which I will address later - as I believe there are some mis-statements in Wilma's email), the key point I want to address first is that I disagree that "the Committee had agreed to recommend the five sites." The Committee has not made any final decision. I raised this issue numerous times at the last meeting, including when I asked that we take a vote on selecting sites. The Committee never made a decision to recommend five sites. All that was done was that we eliminated three sites by consensus. I continue my objection to submitting 5 sites.

Deciding to recommend 5 sites is very different from not being able to eliminate any more sites. Until we either have complete agreement to recommend 5 sites (by consensus) or we take a vote to recommend any specific sites (whether it be 1, 2 or 5), we, as the Committee, have not made any decision or recommendation.

As many of you know, I have been seeking a way for us, the Committee, to reach an actual decision. Given the differing views, the reality is that it is unlikely that such a decision will be by consensus. Therefore, I have been searching for a resolution that more than just a mere majority can agree upon. The bottom line is that we must make an actual recommendation decision.

On an additional technical note, in looking at the sunshine law requirements, no decision making was ever noticed in the agenda for the previous (Nov 7) meeting - all that was on the agenda was "discussion of sites." Therefore, even if we attempted to make decisions at that meeting, it would have been invalid. Additionally for this Friday, while we may review, comment and attempt to finalize the report on Friday, the Committee's final report must be actually accepted by the Committee. This act of accepting the report was not noticed in the Agenda for Friday.

Therefore, it is imperative that we schedule a meeting for next week, with proper notification that the Committee will be conducting decision making on recommending sites, and that we will be acting to accept the final report.

While I understand that some members believe that we made a final decision at the last meeting, that is not the case. We clearly didn't do so by consensus, and we clearly did not take a vote on anything. All we did was eliminate 3 out of 8 sites. I made this point at the last meeting as well as at the sub-committee meeting yesterday.

Therefore, I ask that the City properly notice a decision making meeting for next week. Given the timing that exists relative to the Thanksgiving holiday and the Dec 1 deadline, I ask that the meeting be scheduled and noticed as soon as possible (I believe that if it is noticed tomorrow, it can be scheduled for Tuesday), and that we not wait until Thursday to schedule it. If it is determined that the meeting is not necessary, we can cancel the meeting. However, I don't want us to lose the opportunity to get this done correctly.

Todd Apo

-----Original Message-----

From: Namumnart, Wilma [mailto:WNameumnart@co.honolulu.hi.us]

Sent: Tuesday, November 18, 2003 1:19 PM

To: Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezentes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Gary Slovin (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Steve Holmes (E-mail); Ted Jung (E-mail); Todd Apo (E-mail); William Paty (E-mail)

Cc: lkakazu@goodsill.com; olchun@ksbe.edu

Subject: various developments

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End of statement.

The City from the beginning of this committee process has requested multiple sites from the Committee to go forward to an EIS process. A multiple-site recommendation addresses the allegation that a site has been predetermined prior to completion of an EIS. Multiple sites offer the opportunity for detailed studies during the EIS process that could assist in identifying the optimum site for a landfill.

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Wilma Namumnart
ENV/Refuse Division
Phone 692-5378
FAX 692-5402

Brian Takeda

From: Namumnart, Wilma [WNameumnart@co.honolulu.hi.us]
Sent: Wednesday, December 03, 2003 1:28 PM
To: Brian Takeda (E-mail)
Subject: FW: various developments

-----Original Message-----

From: Ted Jung [mailto:jung002@hawaii.rr.com]
Sent: Tuesday, November 18, 2003 7:07 PM
To: Namumnart, Wilma
Subject: Re: various developments

i think we cud be a serious conflict if we were to "re-vote " on something that was duly voted on. can we go back on other items that we previous voted on?it's not our pick anyway, the mayor will forward on to the council who will make the final decision. i think we will come under intense critisism if we were to revote, keep the five in place.

----- Original Message -----

From: "Namumnart, Wilma" <WNameumnart@co.honolulu.hi.us>
To: "Brian Takeda (E-mail)" <briant@rmtowill.com>; "Bruce Anderson (E-mail)" <bsa@hawaii.edu>; "Cynthia Rezentes (E-mail)" <rezentesc@aol.com>; "Cynthia Thielen (E-mail)" <repthielen@capitol.hawaii.gov>; "DeeDee Letts (E-mail)" <ddletts@lava.net>; "Eric Guinther (E-mail)" <guinther@HAWAII.RR.COM>; "Gary Slovin (E-mail)" <gslovin@goodsill.com>; "Gary Tomita (E-mail)" <igtwink@aol.com>; "George Yamamoto (E-mail)" <georges.yamamoto@alumni.usc.edu>; "Kathy Bryant Hunter (E-mail)" <kathybryant@dpr4adr.com>; "Mark/Carol White (E-mail)" <mark@pwcg.net>; "Michael Chun (E-mail)" <michun@ksbe.edu>; "Robert Tong (E-mail)" <tongr002@HAWAII.RR.COM>; "Shad Kane (E-mail)" <kiha@HAWAII.RR.COM>; "Steve Holmes (E-mail)" <SHolmes@co.honolulu.hi.us>; "Ted Jung (E-mail)" <jungt002@HAWAII.RR.COM>; "Todd Apo (E-mail)" <todd@koolina.com>; "William Paty (E-mail)" <bill@martroffice.com>
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Wilma Namumart
ENV/Refuse Division
Phone 692-5378
FAX 692-5402

Brian Takeda

From: Namumnart, Wilma [WNamumnart@co.honolulu.hi.us]
Sent: Wednesday, December 03, 2003 1:26 PM
To: Brian Takeda (E-mail)
Subject: FW: various developments

-----Original Message-----

From: Bruce Anderson [mailto:bsa@hawaii.edu]
Sent: Tuesday, November 18, 2003 3:09 PM
To: Namumnart, Wilma; Brian Takeda (E-mail); Cynthia Rezentes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Gary Slovin (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Holmes, Steve; Ted Jung (E-mail); Todd Apo (E-mail); William Paty (E-mail)
Cc: lkakazu@goodsill.com; olchun@ksbe.edu
Subject: Re: various developments

Wilma,

As discussed, I am opposed to meeting again to reconsider dropping Waimanalo or any other site from the list.

I was not able to attend the last meeting because I was giving a presentation on the mainland. However, I understand the Committee as a whole agreed to recommend five sites to the City for further evaluation. Although I would have preferred that the list be narrowed down to three sites, I defer to the judgment of the Committee at large and support this recommendation. I realize that it would be difficult at best to narrow the options. Further, it would be inappropriate given the limited amount of information that is available on each site. I think the City has a recommendation that will allow them to proceed through the next steps to more thoroughly evaluate the sites. Should the City ultimately choose to expand rather than close the Waimanalo Gulch Landfill, they would need to request approval of the Land Use Commission (LUC) just as they would for any other site that would require LUC approval. The deadline for asking for relief from the LUC (May 1, 2008) allows the City over four years to carefully evaluate the options and to go through the EIS process. This is all very reasonable and it does not preclude any of the five sites from further consideration.

Our commission was charged with a very difficult and thankless task. Given the potentially volatile and controversial nature of the issue, I am comfortable that we have done our job--and done it well. We have a recommendation we all agreed to and we should stick with it.

Respectfully submitted,

Bruce

----- Original Message -----

From: "Namumnart, Wilma" <WNamumnart@co.honolulu.hi.us>
To: "Brian Takeda (E-mail)" <briant@rmtowill.com>; "Bruce Anderson (E-mail)" <bsa@hawaii.edu>; "Cynthia Rezentes (E-mail)" <rezentesc@aol.com>; "Cynthia Thielen (E-mail)" <repthielen@capitol.hawaii.gov>; "DeeDee Letts (E-mail)" <ddletts@lava.net>; "Eric Guinther (E-mail)" <guinther@hawaii.rr.com>; "Gary Slovin (E-mail)" <gslovin@goodsill.com>; "Gary Tomita (E-mail)" <igtwink@aol.com>; "George Yamamoto (E-mail)" <georges.yamamoto@alumni.usc.edu>; "Kathy Bryant Hunter (E-mail)" <kathybryant@dpr4adr.com>; "Mark/Carol White (E-mail)" <mark@pwcg.net>; "Michael Chun (E-mail)" <michun@ksbe.edu>; "Robert Tong (E-mail)" <tongr002@hawaii.rr.com>; "Shad Kane (E-mail)" <kiha@hawaii.rr.com>; "Steve Holmes (E-mail)" <SHolmes@co.honolulu.hi.us>; "Ted Jung (E-mail)" <jungt002@hawaii.rr.com>; "Todd Apo (E-mail)" <todd@koolina.com>; "William Paty (E-mail)" <bill@martroffice.com>

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Wilma Namumnart
ENV/Refuse Division
Phone 692-5378
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Brian Takeda

From: Namumnart, Wilma [WNameumnart@co.honolulu.hi.us]
Sent: Wednesday, December 03, 2003 1:26 PM
To: Brian Takeda (E-mail)
Subject: FW: various developments

-----Original Message-----

From: Rep. Cynthia Thielen [mailto:repthielen@Capitol.hawaii.gov]
Sent: Tuesday, November 18, 2003 1:43 PM
To: Namumnart, Wilma; Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezentes (E-mail); Rep. Cynthia Thielen; DeeDee Letts (E-mail); Eric Guinther (E-mail); Gary Slovin (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Holmes, Steve; Ted Jung (E-mail); Todd Apo (E-mail); William Paty (E-mail)
Cc: lkakazu@goodsill.com; olchun@ksbe.edu
Subject: RE: various developments

My objection to reopening the FINAL decision still stands. No, no, no to a meeting to reduce the 5 sites. I still am appalled that some people who are unhappy with Waimanalo Gulch being on the list now want to hammer away until it is taken off. I do understand that some of this pressure comes from political person(s) not on the committee. That makes it even more unacceptable political manipulation. As I said before, I will not demean myself and participate in that political game. Rep. Cynthia Thielen

> -----Original Message-----

> **From:** Namumnart, Wilma [SMTP:WNameumnart@co.honolulu.hi.us]
> **Sent:** Tuesday, November 18, 2003 1:19 PM
> **To:** Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezentes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Gary Slovin (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Steve Holmes (E-mail); Ted Jung (E-mail); Todd Apo (E-mail); William Paty (E-mail)
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>

- > Wilma Namumnart
> ENV/Refuse Division
> Phone 692-5378
> FAX 692-5402

Brian Takeda

From: Namumnart, Wilma [WNameumnart@co.honolulu.hi.us]
Sent: Wednesday, December 03, 2003 1:27 PM
To: Brian Takeda (E-mail)
Subject: FW: various developments-2

-----Original Message-----

From: Robert Tong [mailto:tongr002@hawaii.rr.com]
Sent: Tuesday, November 18, 2003 4:27 PM
To: Namumnart, Wilma
Subject: Re: various developments-2

Wilma,

I vote to leave the 5 sites with all comments and criteria as discussed on 11/7 on the report to be sent to the City Council. Bob Tong

----- Original Message -----

From: "Namumnart, Wilma" <WNameumnart@co.honolulu.hi.us>
To: "Brian Takeda (E-mail)" <briant@rmtowill.com>; "Bruce Anderson (E-mail)" <bsa@hawaii.edu>; "Cynthia Rezentes (E-mail)" <rezentes@aol.com>; "Cynthia Thielen (E-mail)" <repthielen@capitol.hawaii.gov>; "DeeDee Letts (E-mail)" <ddletts@lava.net>; "Eric Guinther (E-mail)" <guinther@hawaii.rr.com>; "Gary Slovin (E-mail)" <gslovin@goodsill.com>; "Gary Tomita (E-mail)" <igtwink@aol.com>; "George Yamamoto (E-mail)" <georges.yamamoto@alumni.usc.edu>; "Kathy Bryant Hunter (E-mail)" <kathybryant@dpr4adr.com>; "Mark/Carol White (E-mail)" <mark@pwcg.net>; "Michael Chun (E-mail)" <michun@ksbe.edu>; "Robert Tong (E-mail)" <tongr002@hawaii.rr.com>; "Shad Kane (E-mail)" <kiha@hawaii.rr.com>; "Steve Holmes (E-mail)" <SHolmes@co.honolulu.hi.us>; "Ted Jung (E-mail)" <jungt002@hawaii.rr.com>; "Todd Apo (E-mail)" <todd@koolina.com>; "William Paty (E-mail)" <bill@martroffice.com>
Cc: <olchun@ksbe.edu>; <lkakazu@goodsill.com>
Sent: Tuesday, November 18, 2003 3:32 PM
Subject: FW: various developments-2

to clarify the email below, the question you are being asked to email or phone me about is "do you wish to schedule another meeting for next week to select a single site or do you wish to have the five recommended sites go forward?" for those of you who have already emailed me, please disregard this email unless you did not understand the question and wish to change your vote.

> -----Original Message-----

> From: Namumnart, Wilma
> Sent: Tuesday, November 18, 2003 1:19 PM
> To: Brian Takeda (E-mail); Bruce Anderson (E-mail); Cynthia Rezentes (E-mail); Cynthia Thielen (E-mail); DeeDee Letts (E-mail); Eric Guinther (E-mail); Gary Slovin (E-mail); Gary Tomita (E-mail); George Yamamoto (E-mail); Kathy Bryant Hunter (E-mail); Mark/Carol White (E-mail); Michael Chun (E-mail); Robert Tong (E-mail); Shad Kane (E-mail); Steve Holmes (E-mail); Ted Jung (E-mail); Todd Apo (E-mail); William Paty (E-mail)
> Cc: 'lkakazu@goodsill.com'; 'olchun@ksbe.edu'
> Subject: various developments

>
> This email addresses a recent development within the Committee > ' > s
Sub-committee on drafting the final report and asks you to vote your preference by email before close of business on Wednesday, November 19, 2003.

>
> The Sub-committee has been working diligently on the Committee > ' > s
behalf to craft a report the Committee can be proud of. The Sub-committee met twice, the second meeting occurring this past Monday (11/17) for three hours. As the Sub-committee was ending this meeting a member of the sub-committee announced an intent to re-open the process on Friday (11/21) to remove Waimanalo Gulch from the list of recommended sites.

It was pointed out that the Committee made its final recommendation at the last meeting on 11/7, and the only item on the 11/21 agenda is finalizing the report with the recommendation of five sites. This member continued to maintain that a vote should be taken even, when reminded that the Committee had agreed to recommend the five sites, as consensus could not be reached on removing any of them.

> Other members of the Committee were unhappy with other sites staying

> on

the list and put their differences aside in favor of not polarizing the Committee. This individual stated that they had talked with Anthony Ching, Executive Officer of the LUC, and that Anthony had said the Committee needed to come up with one site and that it could not be Waimanalo Gulch. The City, when informed of this comment, requested clarification from Anthony Ching. I sent his clarification by email to the Committee. In case anyone has not received a copy of his response, it is duplicated below. Basically Anthony states that the recommendation of the Committee can include multiple sites and that if the City decides to go back to Waimanalo Gulch, the City would have to file for and receive relief from the prior LUC ruling by May 1, 2008.

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> Statement of Anthony Ching, Executive Officer of the State Land Use Commission

>

> Disclaimer - The executive officer of the Land Use Commission is a non-voting member of the commission. Nothing in this statement should be construed to be anything other than the non-binding opinion of the executive officer. Among other duties, the executive officer certifies orders as to their accuracy, assists the chair in establishing the Commission's calendar, supervises staff of the agency and serves at the pleasure of the Commission.

>

> 1. With respect to the recommendation and submission by the Blue

> Ribbon

Site Selection of multiple sites for a new landfill to the City Council for their consideration.

>

> The operative part of Condition #1 of the Commission's Decision

> and

Order Approving Amendment to Special Use Permit says that the Blue Ribbon Site Selection Committee shall make its recommendation to the City Council by December 1, 2003.

>

> I believe that the order is silent with respect to the scope or nature

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any recommendation by the Site Selection Committee. The committee's recommendation is their own choosing and device and is not specifically governed by the Commission's order. It is my personal opinion and hope that if multiple sites are provided to the City Council by the site selection committee, that they be at a minimum, ranked in priority order.

>

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order is that the City Council shall select a new site no later than June 1, 2004 or suffer immediate expiration of the LUC special permit.

>

> 2. With respect to the inclusion of Waimanalo Gulch as one of the recommended sites for the new landfill.

>

> Condition #12 of the Commission's Decision and Order clearing specifies that no later than May 1, 2008, that the Waimanalo Gulch Landfill will be restricted from accepting any additional waste material and will be closed in accordance with an approved closure plan. Should the City Council choose to expand rather than close the Waimanalo Gulch Landfill, they would have to petition the Land Use Commission for relief prior to May 1, 2008. The Commission may approve, or not, any such petition for relief on the merits of the presentations made to it.

>

> End of statement.

>

> The City from the beginning of this committee process has requested multiple sites from the Committee to go forward to an EIS process. A multiple-site recommendation addresses the allegation that a site has been predetermined prior to completion of an EIS. Multiple sites offer the opportunity for detailed studies during

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> Subsequent to Anthony> ' > s letter, a member of the Sub-committee has asked me to schedule another meeting for next week to select a single site. The meeting agenda must be posted six calendar days before the meeting to comply with the Sunshine Law requirement. The meeting would be to reconsider the Committee> ' > s intent to recommend five sites. For all the reasons stated above, as well as the views of at least one of the Committee members who has shared these views with everyone on the Committee, the City does not believe that this is the proper way to proceed. However, this is the Committee> ' > s process so I am requesting that you all respond to this email by letting me know if you wish to schedule another meeting to discuss further reduction to the list of 5 recommended sites. Please let me know either by phone or by email before close of business tomorrow (11/19). The deadline to forward a final report by December 1, 2003, is still firm.

>

>

> Wilma Namumnart
> ENV/Refuse Division
> Phone 692-5378
> FAX 692-5402

>

Brian Takeda

From: Namumnart, Wilma [VNamumnart@co.honolulu.hi.us]
Sent: Wednesday, December 03, 2003 1:29 PM
To: Brian Takeda (E-mail)
Subject: FW: various developments

-----Original Message-----

From: Shad Kane [mailto:kiha@hawaii.rr.com]
Sent: Tuesday, November 18, 2003 9:35 PM
To: Namumnart, Wilma
Cc: Michael Chun (E-mail); Eric Guinther (E-mail); Bryant, Kathy; Yamamoto, George; Mark/Carol White (E-mail); Tong, Robert; Cynthia Thielen (E-mail); Brian Takeda (E-mail); Cynthia Rezentes (E-mail); Gary Slovin (E-mail); William Paty (E-mail); DeeDee Letts (E-mail); Ted Jung (E-mail); Holmes, Steve; Todd Apo (E-mail); Bruce Anderson (E-mail); Gary Tomita (E-mail)
Subject: Re: various developments

I think that I need to restate something that I have said a number of times. It amazes me how something so elementary is so difficult to understand by people with colorful resumes. The whole reason this process was put in place is simply because a substantial number of people said NO to Waimanalo Gulch. The Director of the Department of Environmental Services said that Waimanalo Gulch is not an option. He subsequently backed down under the abrasive behavior of several well placed, politically motivated members. This abrasive attitude is supported by some of these individuals identifying themselves by their political office held. Is it even okay to have politicians serve on this committee??? It is suprising that we have politicians (who hold paid positions) accusing volunteer community representatives (who are unpaid) of being political!

I constantly read in all these email communications that the "Committee of the Whole" in consensus agreed to moving 5 sites forward. Let me repeat what I have said before that seems difficult for some of our members to understand. There was no consensus. The decision is divided. If the decision goes forward recommending 5 sites it needs to go forward with a statement that a substantial number of members disagree with the inclusion of Waimanalo Gulch.

I am in support of another meeting to resolve this issue and bring it in compliance with the reason for the establishment of the Blue Ribbon Landfill Committee.

Shad Kane
Volunteer Community Representative

----- Original Message -----

From: "Namumnart, Wilma" <VNamumnart@co.honolulu.hi.us>
To: "Brian Takeda (E-mail)" <briant@rmtowill.com>; "Bruce Anderson (E-mail)" <bsa@hawaii.edu>; "Cynthia Rezentes (E-mail)" <rezentes@aol.com>; "Cynthia Thielen (E-mail)" <repthielen@capitol.hawaii.gov>; "DeeDee Letts (E-mail)" <ddletts@lava.net>; "Eric Guinther (E-mail)" <guinther@HAWAII.RR.COM>; "Gary Slovin (E-mail)" <gslovin@goodsill.com>; "Gary Tomita (E-mail)" <igtwink@aol.com>; "George Yamamoto (E-mail)" <georges.yamamoto@alumni.usc.edu>; "Kathy Bryant Hunter (E-mail)" <kathybryant@dpr4adr.com>; "Mark/Carol White (E-mail)" <mark@pwcg.net>; "Michael Chun (E-mail)" <michun@ksbe.edu>; "Robert Tong (E-mail)" <tongr002@HAWAII.RR.COM>; "Shad Kane (E-mail)" <kiha@HAWAII.RR.COM>; "Steve Holmes (E-mail)" <SHolmes@co.honolulu.hi.us>; "Ted Jung (E-mail)" <jungt002@HAWAII.RR.COM>; "Todd Apo (E-mail)" <todd@koolina.com>; "William Paty (E-mail)" <bill@martroffice.com>
Cc: <lkakazu@goodsill.com>; <olchun@ksbe.edu>
Sent: Tuesday, November 18, 2003 1:18 PM
Subject: various developments

This email addresses a recent development within the Committee's Sub-committee on drafting the final report and asks you to vote your preference by email before close of business on Wednesday, November 19, 2003.

The Sub-committee has been working diligently on the Committee's behalf to craft a report the Committee can be proud of. The Sub-committee met twice, the second meeting occurring this past Monday (11/17) for three hours. As the Sub-committee was ending this meeting a member of the sub-committee announced an intent to re-open the process on Friday (11/21) to remove Waimanalo Gulch from the list of recommended sites. It was pointed out that the Committee made its final recommendation at the last meeting on 11/7, and the only item on the 11/21 agenda is finalizing the report with the recommendation of five sites. This member continued to maintain that a vote should be taken even, when reminded that the Committee had agreed to recommend the five sites, as consensus could not be reached on removing any of them. Other members of the Committee were unhappy with other sites staying on the list and put their differences aside in favor of not polarizing the Committee. This individual stated that they had talked with Anthony Ching, Executive Officer of the LUC, and that Anthony had said the Committee needed to come up with one site and that it could not be Waimanalo Gulch. The City, when informed of this comment, requested clarification from Anthony Ching. I sent his clarification by email to the Committee. In case anyone has not received a copy of his response, it is duplicated below. Basically Anthony states that the recommendation of the Committee can include multiple sites and that if the City decides to go back to Waimanalo Gulch, the City would have to file for and receive relief from the prior LUC ruling by May 1, 2008.

Statement of Anthony Ching, Executive Officer of the State Land Use Commission

Disclaimer - The executive officer of the Land Use Commission is a non-voting member of the commission. Nothing in this statement should be construed to be anything other than the non-binding opinion of the executive officer. Among other duties, the executive officer certifies orders as to their accuracy, assists the chair in establishing the Commission's calendar, supervises staff of the agency and serves at the pleasure of the Commission.

1. With respect to the recommendation and submission by the Blue Ribbon Site Selection of multiple sites for a new landfill to the City Council for their consideration.

The operative part of Condition #1 of the Commission's Decision and Order Approving Amendment to Special Use Permit says that the Blue Ribbon Site Selection Committee shall make its recommendation to the City Council by December 1, 2003.

I believe that the order is silent with respect to the scope or nature of any recommendation by the Site Selection Committee. The committee's recommendation is their own choosing and device and is not specifically governed by the Commission's order. It is my personal opinion and hope that if multiple sites are provided to the City Council by the site selection committee, that they be at a minimum, ranked in priority order.

I believe instead that the critical deadline specified in the Commission's order is that the City Council shall select a new site no later than June 1, 2004 or suffer immediate expiration of the LUC special permit.

2. With respect to the inclusion of Waimanalo Gulch as one of the recommended sites for the new landfill.

Condition #12 of the Commission's Decision and Order clearing specifies that no later than May 1, 2008, that the Waimanalo Gulch Landfill will be restricted from accepting any additional waste material and will be closed in accordance with an approved closure plan. Should the City Council choose to expand rather than close the Waimanalo Gulch Landfill, they would have to petition the Land Use Commission for relief prior to May 1, 2008. The Commission may approve, or not, any such petition for relief on the merits of the presentations made to it.

End of statement.

The City from the beginning of this committee process has requested multiple sites from the Committee to go forward to an EIS process. A multiple-site recommendation addresses the allegation that a site has been predetermined prior to completion of an EIS. Multiple

sites offer the opportunity for detailed studies during the EIS process that could assist in identifying the optimum site for a landfill.

Subsequent to Anthony's letter, a member of the Sub-committee has asked me to schedule another meeting for next week to select a single site. The meeting agenda must be posted six calendar days before the meeting to comply with the Sunshine Law requirement. The meeting would be to reconsider the Committee's intent to recommend five sites. For all the reasons stated above, as well as the views of at least one of the Committee members who has shared these views with everyone on the Committee, the City does not believe that this is the proper way to proceed. However, this is the Committee's process so I am requesting that you all respond to this email by letting me know if you wish to schedule another meeting to discuss further reduction to the list of 5 recommended sites. Please let me know either by phone or by email before close of business tomorrow (11/19). The deadline to forward a final report by December 1, 2003, is still firm.

Wilma Namumnart
ENV/Refuse Division
Phone 692-5378
FAX 692-5402

Brian Takeda

From: Dee Dee [ddletts@lava.net]
Sent: Tuesday, December 02, 2003 9:10 AM
To: Brian Takeda
Subject: FW: various developments

Dee Dee

-----Original Message-----

From: Rezentesc@aol.com [mailto:Rezentesc@aol.com]
Sent: Wednesday, November 19, 2003 8:43 AM
To: WNamumnart@co.honolulu.hi.us; briant@rmtowill.com; bsa@hawaii.edu; repthielen@capitol.hawaii.gov; ddletts@lava.net; guinther@hawaii.rr.com; gslovin@goodsill.com; IGTWINK@aol.com; georges.yamamoto@alumni.usc.edu; kathybryant@dpr4adr.com; mark@pwcg.net; michun@ksbe.edu; tongr002@hawaii.rr.com; kiha@hawaii.rr.com; SHolmes@co.honolulu.hi.us; jungt002@hawaii.rr.com; todd@koolina.com; bill@martroffice.com
Cc: lkakazu@goodsill.com; olchun@ksbe.edu
Subject: Re: various developments

I have no objections to holding another meeting to settle the concerns expressed regarding clarifying whether we clearly are forwarding the five sites by consensus and would encourage it to get a full committee position.

Also, although I am no attorney and I understand that opinions, commitments and positions sometimes change on the winds and with whomever is in charge, I believe the City and County has made a verbal contract with the West Coast community, KoOlina, the PC and LUC by stating, not once but many times, they will not operate Waimanalo Gulch Sanitary Landfill beyond May 1, 2008. (My definition of a contract, verbal or written, remembered from my 500 level Business Law Class, is that both sides get something for something. In this case the City got their permit extension for another five years to operate Waimanalo Gulch Sanitary Landfill and the community and KoOlina got the commitment for closure after those five years were up.)

Cynthia Rezentes

12/2/2003

Brian Takeda

From: Namumnart, Wilma [WNamumnart@co.honolulu.hi.us]
Sent: Wednesday, December 03, 2003 1:30 PM
To: Brian Takeda (E-mail)
Subject: FW: various developments

-----Original Message-----

From: Shad Kane [mailto:kiha@hawaii.rr.com]
Sent: Wednesday, November 19, 2003 10:40 AM
To: Namumnart, Wilma
Subject: Re: various developments

Aloha Wilma,

I am in support of another meeting next week after this Fridays meeting. The purpose of this meeting to reduce the 5 sites to 1 site. Mahalo, Shad

----- Original Message -----

From: "Namumnart, Wilma" <WNamumnart@co.honolulu.hi.us>
To: "Brian Takeda (E-mail)" <briant@rmtowill.com>; "Bruce Anderson (E-mail)" <bsa@hawaii.edu>; "Cynthia Rezentes (E-mail)" <rezentes@aol.com>; "Cynthia Thielen (E-mail)" <repthielen@capitol.hawaii.gov>; "DeeDee Letts (E-mail)" <ddletts@lava.net>; "Eric Guinther (E-mail)" <guinther@HAWAII.RR.COM>; "Gary Slovin (E-mail)" <gslovin@goodsill.com>; "Gary Tomita (E-mail)" <igtwink@aol.com>; "George Yamamoto (E-mail)" <georges.yamamoto@alumni.usc.edu>; "Kathy Bryant Hunter (E-mail)" <kathybryant@dpr4adr.com>; "Mark/Carol White (E-mail)" <mark@pwcg.net>; "Michael Chun (E-mail)" <michun@ksbe.edu>; "Robert Tong (E-mail)" <tongr002@HAWAII.RR.COM>; "Shad Kane (E-mail)" <kiha@HAWAII.RR.COM>; "Steve Holmes (E-mail)" <SHolmes@co.honolulu.hi.us>; "Ted Jung (E-mail)" <jungt002@HAWAII.RR.COM>; "Todd Apo (E-mail)" <todd@koolina.com>; "William Paty (E-mail)" <bill@martroffice.com>
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Wilma Namumart
ENV/Refuse Division
Phone 692-5378
FAX 692-5402

Brian Takeda

From: Namumnart, Wilma [WNameumnart@co.honolulu.hi.us]
Sent: Wednesday, December 03, 2003 1:31 PM
To: Brian Takeda (E-mail)
Subject: FW: Various developments

-----Original Message-----

From: Robert Tong [mailto:tongr002@hawaii.rr.com]
Sent: Wednesday, November 19, 2003 2:08 PM
To: Namumnart, Wilma
Subject: Various developments

Wilma,
I would like to change my vote to send the five sites to the city council. If the majority wishes to meet next week I am available on Monday, 11/24, Tuesday, 11/25, or Wednesday, 11/26, to meet.

Bob Tong

Brian Takeda

From: Dee Dee [ddletts@lava.net]
Sent: Tuesday, December 02, 2003 9:08 AM
To: Brian Takeda
Subject: FW: Landfill Panel

Dee Dee

-----Original Message-----

From: Todd Apo [mailto:todd@koolina.com]
Sent: Monday, November 24, 2003 4:36 PM
To: 'DeeDee Letts (E-mail)'; Wilma Namumnart
Subject: Landfill Panel

Wilma and DeeDee,

I want to confirm that part of the agenda for Monday's meeting is to confirm the vote taken at last Friday's meeting that Waimanalo Gulch will be taken off from any further consideration and from any report of the Committee. This will confirm that after we took the vote on "what to do if we do not reach a decision on Monday, Dec 1," we then voted to remove Waimanalo Gulch from any further consideration. The vote was 7-3 (Apo, Gunthier, Kane, Rezentes, Slovin, Tomita, and Yamamoto in favor; Holmes, Hunter, and Thielen opposed) in favor of taking Waimanalo Gulch off. Additionally, I passed out copies with 9 signatures to take Waimanalo Gulch off – this included the signature of Bob Tong, Ted Jung and William Paty. I also understand that Mike Chun sent in a letter confirming his agreement that Waimanalo Gulch should be removed from further consideration. Therefore, there are 11 (of 15) committee members on record as opposing Waimanalo Gulch from any further consideration.

While this will be a part of finalizing site selection, we would like, to avoid any confusion or procedural problems, to have the agenda specifically reflect that this will be officially decided upon at Monday's meeting – either as a sub-matter under finalizing site selection or as a separate agenda item.

I would appreciate hearing back from you on this.

Aloha,
Todd

12/2/2003

Brian Takeda

From: Namumnart, Wilma [WNameumnart@co.honolulu.hi.us]
Sent: Wednesday, December 03, 2003 1:11 PM
To: Brian Takeda (E-mail)
Subject: FW: meeting, 12/1

-----Original Message-----

From: Bruce Anderson [mailto:bsa@hawaii.edu]
Sent: Monday, November 24, 2003 8:59 AM
To: Namumnart, Wilma
Cc: Dee Dee Letts
Subject: Re: meeting, 12/1

Wilma,

I think we all need some further clarification on the purpose(s) of another meeting.

As you know, I think the Committee has gone as far as it can given its constituency in recommending five sites for the City to consider. Others on the Committee share this opinion. We simply don't have enough information to narrow the list further at this point and would be inappropriate to do so by vote. If the purposes of the meeting is to vote on a preferred site or to vote on eliminating Waimanalo Gulch (the top choice based on criteria agreed to by the Committee) or any other site, I will be no part of this meeting.

Did you find out if the Land Use Commission provide further direction at their last meeting as represented by Todd Apo? If so, I would check to see if there was a public notice that this topic would be on the agenda. If the Commission did not provide adequate notice, this topic should not be discussed. I certainly would have commented at their meeting had I known this would be a topic of discussion--as would others. I would check on that and press the issue (through the AG), if necessary. That's what the public notice issue is all about. In any event, our Committee is an "advisory committee" to the City and is not beholden to the Commission or anyone else.

It would be helpful to everyone to have some further guidance before the meeting on exactly what would be discussed. Please check with Dee Dee.

Thanks.

Bruce

----- Original Message -----

From: "Namumnart, Wilma" <WNameumnart@co.honolulu.hi.us>
To: "Brian Takeda (E-mail)" <briant@rmtowill.com>; "Bruce Anderson (E-mail)" <bsa@hawaii.edu>; "Cynthia Rezentes (E-mail)" <rezentes@aol.com>; "Cynthia Thielen (E-mail)" <repthielen@capitol.hawaii.gov>; "Dee Dee Letts (E-mail)" <ddletts@lava.net>; "Eric Guinther (E-mail)" <guinther@hawaii.rr.com>; "Gary Slovin (E-mail)" <gslovin@goodsill.com>; "Gary Tomita (E-mail)" <igtwink@aol.com>; "George Yamamoto (E-mail)" <georges.yamamoto@alumni.usc.edu>; "Kathy Bryant Hunter (E-mail)" <kathybryant@dpr4adr.com>; "Mark/Carol White (E-mail)" <mark@pwcg.net>; "Michael Chun (E-mail)" <michun@ksbe.edu>; "Robert Tong (E-mail)" <tongr002@hawaii.rr.com>; "Shad Kane (E-mail)" <kiha@hawaii.rr.com>; "Steve Holmes (E-mail)" <SHolmes@co.honolulu.hi.us>; "Ted Jung (E-mail)" <jung002@hawaii.rr.com>; "Todd Apo (E-mail)" <todd@koolina.com>; "William Paty (E-mail)" <bill@martroffice.com>
Sent: Saturday, November 22, 2003 9:03 AM
Subject: meeting, 12/1

our meeting will be at kapolei hale in the third floor conference room from 9 - 10:30 a.m. attached is the agenda. <<Agenda 12 1.doc>>

Brian Takeda

From: Namumnart, Wilma [WNamumnart@co.honolulu.hi.us]
Sent: Friday, November 28, 2003 8:38 AM
To: Brian Takeda (E-mail); DeeDee Letts (E-mail); Mark/Carol White (E-mail)
Subject: FW: Landfill Committee on behalf of Bill Paty

-----Original Message-----

From: Susan Gall [mailto:susan@martroffice.com]
Sent: Wednesday, November 26, 2003 11:44 AM
To: Namumnart, Wilma
Cc: Wm W. Paty
Subject: Landfill Committee on behalf of Bill Paty

Wilma,

I regret that due to continuing family illness I have been unable to attend committee meetings. I have been following the minutes; I support the removal of Waimanalo gulch from further consideration.

Bill Paty

(the preceding msg is being sent on behalf of Bill Paty. His direct email is bill@martroffice.com)

Brian Takeda

From: Dee Dee [ddletts@lava.net]
Sent: Tuesday, December 02, 2003 9:15 AM
To: Brian Takeda
Subject: FW: Response to Todd Apo's email

Dee Dee

-----Original Message-----

From: Dee Dee [mailto:ddletts@lava.net]
Sent: Friday, November 28, 2003 4:04 PM
To: 'bsa@hawaii.edu'; 'Rep. Cynthia Thielen'; 'Eric Guinther (E-mail)'; 'Gary Slovin (E-mail)'; 'Gary Tomita (E-mail)'; 'George Yamamoto (E-mail)'; 'Kathy Bryant Hunter (E-mail)'; 'Michael Chun (E-mail)'; 'Robert Tong (E-mail)'; 'Shad Kane (E-mail)'; 'Steve Holmes (E-mail)'; 'Ted Jung (E-mail)'; 'Todd Apo (E-mail)'; 'William Paty (E-mail)'
Cc: Wima Namumart (wnamumart@co.honolulu.hi.us); Brian Takeda (BrianT@rmtowill.com); 'Mark White'
Subject: Response to Todd Apo's email



TO: Members of the Mayor's Blue Ribbon Committee on Landfill
FR: Dee Dee
RE: Email received from Todd Apo

I have duplicated below Todd's email sent to Wilma and myself and am via this email sending it to the entire Committee as I feel it concerns the entire Committee. I would request that any email sent to myself be sent to the entire Committee as I am responsible to the Committee as whole not individual members.

My responsibility is the process by which the Committee moves forward not the substance that the Committee considers or recommends. All substantive questions belong to the Committee as a whole not me. As far as process goes one member or one group of members can not change the agenda or group memories of the group. Agenda items are generally agreed to at the end of one meeting for the next and once posted require a 2/3 vote of all Committee members to change. In this case the agenda items for the December 1 meeting are a discussion about further narrowing the recommendations. Under this item a discussion of removal of Waimanalo Gulch can take place. The second item allows the group to change the

12/2/2003

recommendations section in the final report, if the first item results in changes.

This Committee has operated under the Sunshine Law, thus decisions must be made in the open at Committee meetings. There are no provisions for accepting petitions or email votes on substantive items. Votes for process items such as whether to have another meeting are OK but substantive decisions are not.

In regards to the meeting on November 24 there were three votes taken at that meeting. The first to put the discussion of site reduction on the agenda which required 2/3 of the entire Committee to amend the agenda under Sunshine and failed to get the 10 votes required. The second to hold the December 1 first meeting which passed, and the third which was to forward the report with no recommendations and just a list of the sites currently in the report if the December 1 meeting did not happen or resolution on the issue of reducing the number of sites could not be achieved which passed.

I hope this clears up any confusion around process. I look forward to seeing you all on December 1. Should the group decide to vote at that time it will be a change from the process the Committee has employed for five months and even if the Committee decides to do this, process questions will continue to be handled by consensus.

Mahalo for all your hard work and efforts toward forwarding a thoughtful set of recommendations to this point.

_Todd's email follows below

Wilma and DeeDee,

I want to confirm that part of the agenda for Monday's meeting is to confirm the vote taken at last Friday's meeting that Waimanalo Gulch will be taken off from any further consideration and from any report of the Committee. This will confirm that after we took the vote on "what to do if we do not reach a decision on Monday, Dec 1," we then voted to remove Waimanalo Gulch from any further consideration. The vote was 7-3 (Apo, Gunthier, Kane, Rezentes, Slovin, Tomita, and Yamamoto in favor; Holmes, Hunter, and Thielen opposed) in favor of taking Waimanalo Gulch off. Additionally, I passed out copies with 9 signatures to take Waimanalo Gulch off – this included the signature of Bob Tong, Ted Jung and William Paty. I also understand that Mike Chun sent in a letter confirming his agreement that Waimanalo Gulch should be removed from further consideration. Therefore, there are 11 (of 15) committee members on record as opposing Waimanalo Gulch from any further consideration.

While this will be a part of finalizing site selection, we would like, to avoid any confusion or procedural problems, to have the agenda specifically reflect that this will be officially decided upon at Monday's meeting – either as a sub-matter under finalizing site selection or as a separate agenda item.

I would appreciate hearing back from you on this.

Aloha,
Todd

Brian Takeda

From: Namumnart, Wilma [WNamumnart@co.honolulu.hi.us]
Sent: Wednesday, December 03, 2003 1:34 PM
To: Brian Takeda (E-mail)
Subject: FW: Response to Todd Apo's email

-----Original Message-----

From: Todd Apo [mailto:todd@koolina.com]
Sent: Saturday, November 29, 2003 12:04 AM
To: 'Dee Dee'; bsa@hawaii.edu; 'Rep. Cynthia Thielen'; 'Eric Guinther (E-mail)'; 'Gary Slovin (E-mail)'; 'Gary Tomita (E-mail)'; 'George Yamamoto (E-mail)'; 'Kathy Bryant Hunter (E-mail)'; 'Michael Chun (E-mail)'; 'Robert Tong (E-mail)'; 'Shad Kane (E-mail)'; Holmes, Steve; 'Ted Jung (E-mail)'; 'William Paty (E-mail)'
Cc: Namumnart, Wilma; 'Brian Takeda'; 'Mark White'
Subject: RE: Response to Todd Apo's email

Dee Dee,

Thank you for the response email, and the confirmation that we will address the Waimanalo Gulch issue under the current agenda. As my email started off, I was trying to confirm my understanding of "the process" for Monday's meeting, which is why I emailed you and Wilma initially, and not the whole committee. From your email, I understand that we will be making all substantive decisions at the meeting with those present, and not via email or petition.

From your email, I have two remaining questions:

- 1) Please confirm your understanding of the 7-3 vote that I referenced in my previous email below.
- 2) How do we make changes to the group memories?

Thank you again Dee Dee for your work on effort in keeping our group moving through this difficult task.

Aloha,
Todd

From: Dee Dee [mailto:ddletts@lava.net]
Sent: Friday, November 28, 2003 4:04 PM
To: bsa@hawaii.edu; 'Rep. Cynthia Thielen'; 'Eric Guinther (E-mail)'; 'Gary Slovin (E-mail)'; 'Gary Tomita (E-mail)'; 'George Yamamoto (E-mail)'; 'Kathy Bryant Hunter (E-mail)'; 'Michael Chun (E-mail)'; 'Robert Tong (E-mail)'; 'Shad Kane (E-mail)'; 'Steve Holmes (E-mail)'; 'Ted Jung (E-mail)'; 'Todd Apo (E-mail)'; 'William Paty (E-mail)'
Cc: Wima Namumnart; Brian Takeda; 'Mark White'
Subject: Response to Todd Apo's email



TO: Members of the Mayor's Blue Ribbon Committee on Landfill

FR: Dee Dee

RE: Email received from Todd Apo

12/3/2003

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at Monday's meeting – either as a sub-matter under finalizing site selection or as a separate agenda item.

I would appreciate hearing back from you on this.

Aloha,
Todd

12/3/2003

Brian Takeda

From: Namumnart, Wilma [WNameumnart@co.honolulu.hi.us]
Sent: Monday, December 01, 2003 11:29 AM
To: Brian Takeda (E-mail)
Subject: FW: addition to section 7.1 landfill costs

-----Original Message-----

From: Mark White [mailto:mark@pwcg.net]
Sent: Monday, December 01, 2003 11:18 AM
To: Namumnart, Wilma
Subject: RE: addition to section 7.1 landfill costs

Thank you.

Mark White
Pacific Waste Consulting Group
916/387-9777 (Voice)
916/387-9802 (Fax)
916/996-9777 (Cell)
mark@pwcg.net (reply email address)

-----Original Message-----

From: Namumnart, Wilma [mailto:WNameumnart@co.honolulu.hi.us]
Sent: Monday, December 01, 2003 12:58 PM
To: Mark White
Subject: addition to section 7.1 landfill costs

from kathy bryant

After reviewing the matrix, the Committee noted that the economic costs had been weighted low compared to other factors. While the committee eventually agreed not to make any changes to the weights, the Committee agreed that costs are a very significant factor and have a larger impact on the taxpayer. The Committee considered the issues in the brainstorming deliberations on the strengths and weaknesses of each site.

Wilma Namumnart
ENV/Refuse Division
Phone 692-5378
FAX 692-5402

Attachment F – Host Community Benefit Summary

Host Community Benefit Concepts

September 2003

Prepared by
Pacific Waste Consulting Group



Pacific Waste
CONSULTING GROUP

Host Community Benefit Concepts

Host Community Benefits (HCB) can help address local opposition to the siting of landfills needed to meet the City and County's future solid waste management needs. Some key advantages of using HCBs are

- HCB can generate a significant amount of revenue to help meet local needs.
- HCB can be used for any type of project, in addition to landfill impact mitigation projects.
- HCB have been established over a range of costs, with the most prevalent being \$1.00 per ton of material handled at the landfill site. Communities have customized the fee schedule to match their needs.
- HCB can be split between local jurisdictions.
- HCB has helped ease the resistance to being the host to a new or expanded landfill.
- HCB are very common. States that have them include New Jersey, Pennsylvania, Illinois, Iowa, Georgia, Michigan, West Virginia, Tennessee, California, and North Carolina.

This document provides the full text of one report on HCBs, an article from national publication, and two other documents on the topic. The fee schedule is provided to illustrate one level of fee compared to the tip fees that are charged at that site. The information provides a general discussion of the use of the benefit and how it has instrumental in improving key aspects of the local environment.

It is important to recognize that the material provided here represents a broad range of HCBs. These arrangements were crafted to address the local situation and each is adopted based on local conditions. The information provided here is only for example.

Table of Contents

General Information

1. Cornell Waste Management Institute

Winning When You Have Lost:

Cutting Your Losses With Host Community Benefits

<http://www.cfe.cornell.edu/wmi/WastRed/HCB5.pdf>

Comprehensive report with case studies from two communities.

Clearly defines and outlines benefit and mitigation plans.

2. WasteAge.com

Toronto's Trash To Call Michigan Home

http://www.wasteage.com/at/waste_torontos_trash_call/

Community would like to increase use of landfill to increase revenue for other municipal projects.

The last two paragraphs of the article, which are in italics, discuss HCB.

Examples of Fees

3. Lycoming County Resource Management Services

Landfill Disposal Facility Fee Schedule

[http://www.lcrms.com/RMSWebPa.nsf/0/bd02c4061ebdfe9485256d3b0046c4a0/\\$FILE/2003%20Fee%20Schedule%20andfill%20as%20of%20jul%201.pdf](http://www.lcrms.com/RMSWebPa.nsf/0/bd02c4061ebdfe9485256d3b0046c4a0/$FILE/2003%20Fee%20Schedule%20andfill%20as%20of%20jul%201.pdf)

This fee schedule is a detailed set of tables that show community benefit fees for various material types.

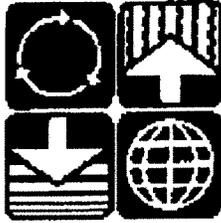
4. DailyAdvance.com

Roundtree: Landfill To Aid Schools

<http://www.dailyadvance.com/news/newsfd/auto/feed/news/2002/11/25/1038243575.03162.1237.3787.html>

County Commissioners look to host community benefits to fund new school.

The information about HCB is in the middle of the article and is in italics.



CORNELL WASTE MANAGEMENT INSTITUTE

Center for the Environment

Rice Hall

Ithaca, NY 14853-3501

(607) 255-1187

WINNING WHEN YOU HAVE LOST: Cutting Your Losses With Host Community Benefits

*Lyle S. Raymond, Jr., Kenneth H. Cobb and Clifford W. Scherer
Cornell University*

Since few communities volunteer to host a new landfill, usually a government or private entity outside the impacted neighborhood decides where the new site will be and imposes its decision on an unwilling community. Perceived fears provide the basis for opposition: decline of property values and community image; groundwater contamination; loss of development potential; uncertainty about future environmental problems; distrust of technology; increased truck traffic and consequent road deterioration and littering, to name a few. Compounding the problem are a lack of trust in promises of safety, lack of faith in governmental regulations and oversight, and fear that officials are neither sensitive to nor understand neighborhood concerns.

The arguments for and against a site polarize communities. One wins if the landfill is located in another neighborhood; one loses if it is forced to accept the site. Rarely are issues of fairness and equity discussed, such as how all those who use the new landfill benefit from it and therefore should share its potential detriments. And conversely, how those who shoulder the burden to a greater extent are entitled to fair and equitable treatment and some consideration for potential impacts.

This Fact Sheet examines a method investigated or adopted by many communities in New York and elsewhere to address this controversy and provide some way for affected residents to face the reality of compromise in resolving a common problem.

Are you in the midst of siting a waste disposal facility? Is the facility being sited in your back yard? Or are you breathing a sigh of relief because the facility is going elsewhere? If you answered yes to any of these questions, you need to know more about **Host Community Benefits**.

How your community disposes of your garbage can be one of the most controversial issues debated today. Nobody wants garbage dumped in their back yard. The situation can become even more contentious when waste from other communities is also involved. These controversies have become more strident as regulations have become stricter, thus forcing many

facilities to close. Public awareness and concern has heightened over perceived environmental, economic and social problems. Siting new waste disposal facilities has become costly as irate citizens block all attempts by others to discuss, inform or convince them that the facility not only will be safe, but is the best solution to an ever-growing waste problem.

Unfortunately, siting conflicts do not have a "win-win" solution for any involved parties—the local community, county or local government, or private industry. Host Community Benefits is an emerging concept to reduce the losses to all parties in the resolution of the siting controversy.

FACT SHEET / 5
VIEWPOINT

1993

Host Community Benefits

The cornerstones of Host Community Benefits (HCB's) are **compensation** and **mitigation**. The moral and logical goals of the concept are **equity** and **fairness**. The attempt is to balance the need for safe disposal of solid waste with the sacrifices borne by a solid waste disposal facility's host community. Additionally, such programs give citizens a participatory role in the process.

To understand how HCB programs work, one must determine their personal stake. Here's how:

For those in the impacted neighborhood who feel powerless and threatened, the stake is the perceived risk of siting a facility in the vicinity. "Winning" means only one thing—to stop the siting of the facility. If they cannot stop it, they have "lost." Or have they? Initiation of an HCB package after a site has been chosen is the only method of cutting losses. It ensures that you, your neighbors and your community will receive at least some compensation for the losses you feel are important.

For the county or private corporation, the primary stake is to succeed in siting the facility. If they alienate the public while accomplishing this goal, they will have "won the battle but lost the war" for the trust they need for future decision making, expansion or image building. Entering good-faith negotiations with affected citizens in

the development of an HCB package can help restore some of the trust. Even if a site is "lost," perceived sensitivity and openness in working with community representatives by responding to their fears will help maintain credibility for siting decisions and relations in the future and elsewhere.

For the citizens of the rest of the community or county who escaped the site, an HCB plan is the mechanism for reimbursing—through taxes or user fees—the host neighborhood for the sacrifices it will bear.

Therefore, no matter what the situation, everyone is involved in one way or another; everybody both wins and loses. An equitable balance is sought.

Benefit programs are unrelated to specific site selection. Rather they focus on helping the community at large fairly and equitably

manage its solid waste without penalizing a host community.

This discussion focuses on landfills, but the concepts can be applied to all waste management facilities.

A Balancing Act

Simply stated, the concept of Host Community Benefits aims to balance the *sacrifices* a local neighborhood and its individual citizens must bear in hosting the site of a waste management facility against the *"reverse" benefits* received by users of the facility who escape having it in their neighborhood. Various benefits can counterbalance perceived and real threats to public health; the social, economic and physical environment and individual rights.

In return for hosting a new landfill and accepting negative impacts,

Preferred Benefits

This table lists the benefits preferred and those rejected by citizens responding to public opinion surveys undertaken in Tompkins and Onondaga Counties, New York.

Tompkins County Landfill (Dryden)		Onondaga County Landfill (Van Buren)	
Top 10 Choices		Top 10 Choices	
Benefit	Percent Favoring	Benefit	Percent Favoring
Free Water Tests	95%	Guarantee to Replace Water	88%
Guarantee to Replace Water	92	Extend Public Water Lines	88
Enforce Speed Limits	92	Hire Own Property Appraiser	87
Hire Own Property Appraiser	92	Control Litter	87
Monitoring Well Reports	90	Free Water Tests	83
Property Value Protection	89	Landscaping	82
Landscaping	88	Monitoring Well Reports	80
Restricted Operating Hours	87	Restricted Operating Hours	77
Local Inspector	83	Local Inspector	75
Special Contingency Fund	82	Enforce Speed Limits	75
Bottom 10 Choices		Bottom 10 Choices	
Community Festival	26	College Scholarships	19
Neighborhood Pool	27	Free Water	21
College Scholarships	29	Wildlife Ponds	26
Park/Playground	30	Housing Loans	31
Support Community Center	41	Reduce County Taxes	34
Public Sewer Lines	45	More Landfill Entrances	38
Payments to Town	47	Support Ambulance	41
Landfill Job Priority	50	Free Town Garbage	41
Public Water (by opening date)	50	Payments to Town	44
No Private Construction Disposal	53	Support Fire Service	48

the host community is entitled to certain benefits. Hence, the concept of benefit sharing applies to the whole community: the neighborhood near the landfill is given benefits to ameliorate the impact of the nearby landfill, while the rest of the community receives the benefits of a new landfill without having it close by.

Mitigation

Mitigation refers to reducing problems and impacts that the host community believe may be caused by the landfill. Acting as a preventative maintenance incentive, it is also a way of encouraging compliance by the operators of the landfill with agreed-upon protective measures and operating procedures. Mitigative measures involve guarantees of costly remedial actions that do not kick in unless contamination occurs due to sloppy management. To avoid this possibility, landfill operators are stimulated to manage it so as to avoid these costs kicking in.

Mitigation addresses the dangers and fears of drinking water contamination, deterioration of highways, littering, odors, noise, visual eyesores, vermin, and reduced property values. By providing free water testing and guaranteed replacement if contamination is found is one example of how drinking water contamination can be mitigated.

Compensation

Compensation means providing some kind of direct payment (usually money or services) to offset the intangible effects of the landfill, such as a blemished community image and lower quality of life.

Compensation benefits can be in the form of cash payments to the host community's government, tax breaks, extra support for fire and ambulance services, free garbage

pickup, new parks, and offering landfill jobs to local residents. Often, however, such benefits are perceived as bribes to buy off the community.

Flexibility

The process of determining an HCB plan is inherently flexible. It is as individual as each host community. Since each community has its own unique demographics, geography, and economic climate, the benefits to be gained are negotiated depending on the needs and character of that community. No two HCB packages are alike. Examples of preferred benefits are shown in the table to the left.

It is crucial to remember that negotiating HCB's will not remove opposition to landfill siting. It is better if HCB's are negotiated separately from the siting controversy itself. Otherwise HCB's may become entangled in the siting process, and used as weapons during an antagonistic process, making negotiation futile. Opponents may view HCB's as unacceptable bribes, undermining their opposition to a landfill site. Still, pursuing an HCB program is useful since opponents can use HCB's as a contingency plan should their efforts to prevent siting fail.

Citizens Advisory Committee

Citizens Advisory Committees (CAC) are a *critical part* of Host Community Benefits. Through them, citizens feel recognized and respected; they understand that they are part of the process and thus are empowered to participate. Two types of CAC's are important: **generic and site-specific**. This two-track system is attuned to the needs of both the larger community and the affected neighborhood, as well as to the different stages of the siting process.

A generic CAC is useful in the early stages of siting, before a spe-

cific site is chosen. It should have broad membership providing general citizen input to all aspects of the siting process, including the site search.

The CAC develops a generic HCB plan as a starting point for negotiating a more specific HCB program with the impacted community after a site is chosen. The generic CAC becomes the vehicle for providing public information on benefits to be considered and how they might be applied. Public opinion surveys may be conducted to obtain or verify public attitudes on solid waste issues, including HCB's.

After a site has been selected, the formation of a site-specific CAC can refine the generic HCB program to reflect the concerns of the affected neighborhood, who too often feel shut out, ignored or devalued. Frustration over feelings of impotence in the decision-making process is an important component of public reaction in the impacted community. To maintain credibility, the affected neighborhood should have dominant representation on this CAC.

Both types of CAC's must be officially recognized and have membership from, or at least access to, governmental planning, public works and health department staff to benefit from their expertise. If this is not possible or desired—the CAC may feel these experts' interests conflict with those of the committee—funds can be provided to the CAC, or directly to the affected community, to hire their own technical experts and conduct their own studies of the proposed site.

Public Opinion Surveys

Surveying residents and property owners in the vicinity of the proposed landfill provides data useful in assessing community feelings and perceptions and determining preferred benefits. Usually commissioned by the sponsoring entity

or a CAC and conducted by a neutral third party, the survey asks residents and property owners what they think of proposed benefits, what course of action they recommend, and their opinion of solid waste issues. The data generated should be freely shared to build trust and encourage open communications.

Such surveys demonstrate that the facility sponsor or local government will seriously consider local concerns. They are also an effective public education tool to inform people about HCB's since these are usually poorly understood; people are often suspicious of their purposes.

Public opinion surveys also provide another mechanism for citizen input. Public meetings are often the only source of direct public input. However, public meetings require that those who participate actively by speaking have confidence in their speaking ability and the courage to stand up in public. Also, due to time constraints, only a limited number of people can speak at any one meeting, thus limiting the public's input into decision-making. A well-designed survey gives everyone equal opportunity to provide input unhampered by the pressures of public speaking.

Judging by surveys taken in various communities around New York State, the public's views are remarkably similar. For example, surveys undertaken in Chenango, Onondaga and Tompkins coun-

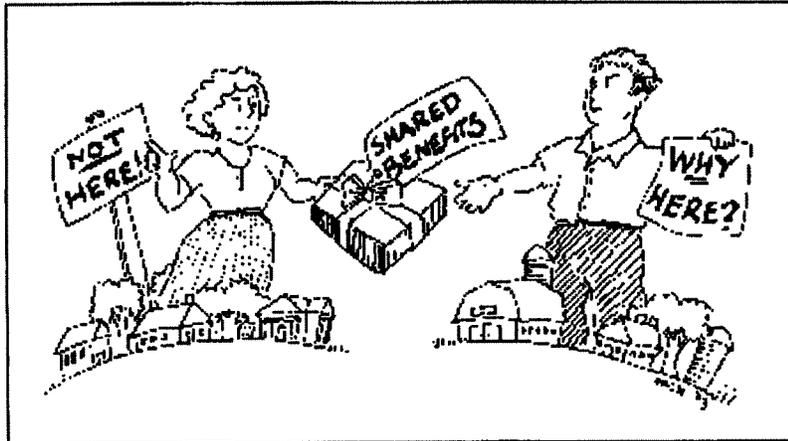
ties—which have markedly different characteristics—indicated that people shared the same attitudes about host community benefits.

The conclusions of the public opinion survey concerning the proposed Van Buren Landfill in Onondaga County are indicative of statewide public opinion. "An examination of the responses to the questions leads to one conclusion," states the survey's Final Report. "Respondents to this study present an overall picture of rational concern: They are interested in preserving their environment as it now is—both natural and economic. They (like all of us) desire some control over the events which are impacting on their lives. Their belief in technology (technical safeguards to prevent water contamination, for

and fears is vital to the success of negotiations. Specific benefits can be targeted in response to specific fears.

Equally important in the negotiating process is determining who will be eligible to receive benefits. The impact area can be rigidly defined by drawing lines on a map or more loosely defined depending on meeting certain criteria in order to receive benefits, regardless of location. In the latter case, different criteria can be applied to different benefits. For example, threats of water pollution are more critical downhill from the site as opposed to uphill, while loss of property values may depend on access roads or wind patterns.

Administration



After negotiations have produced an HCB agreement some entity must be designated to administer it. This could be the sponsoring entity, the local community, a separate body specifically formed for the purpose, or some combination of these.

Whatever the composition of the administering body, to be successful, it must have credibility within the affected community. Following a protracted or contentious dispute or litigation, the impartiality and credibility of the administering agency becomes all the more important.

Negotiation

To avoid suspicion of impropriety, negotiation of HCB's should be informal and open. Again, it is crucial that negotiations represent the community's feelings.

Sensitivity to local perceptions

Benefits of HCB Programs

A Host Community Benefits program can accomplish several goals

Case History

The experience of Tompkins County, NY illustrates the HCB concept. This Central New York county (located midway between Syracuse and Binghamton) began consideration of a new county-operated landfill in 1985. A site was selected by the county in 1987 and implementation of benefits in the affected community began in 1989.

Initially the HCB concept was introduced to county officials, who were receptive to the concept and supported further discussion. HCB's were introduced to the public at several meetings on solid waste disposal issues.

Following a year and a half of quiet discussion and networking about the concept, one town supervisor (whose town included potential sites preliminarily identified by the county) proposed a detailed HCB program to the county solid waste committee. Subsequently, other towns proposed HCB plans.

The county Board of Representatives passed a resolution committing the county to negotiate a benefits program with the selected community. The resolution contained provisions for off-site well monitoring, creation of a citizens advisory committee, guaranteed potable water, property-owner compensation against adverse impacts, property value protection, financial compensation for the host town, and recycling and waste reduction programs. This resolution was passed six months before a site was selected.

Once a site was selected a Citizens Advisory Committee was created by the county from a list of people identified by community residents, citizen leaders and local officials. The committee was composed of 11 voting members: 2 selected by the affected town, 1 selected by a neighboring village, 5 selected by the county to represent landfill neighbors, 1 representative of the county board, and 2 selected by the county as at-large members. In addition, the county appointed the planning commissioner, public works commissioner, solid waste manager, assessment director, and environmental health director as nonvoting members.

A compensation task group was created to draft a more detailed HCB program. One of their first recommendations was to undertake an opinion survey of the affected neighborhood. The survey, paid for by the county and conducted by Cornell University, polled all property owners on the assessment rolls and all renters who could be identified within two miles of the proposed site—67% of property owners and 23% of rental households responded. In addition to gathering data on the affected community, the survey informed residents about the benefits program and guided the county in developing an acceptable plan.

The benefits preferred by respondents to the Tompkins County survey are listed in the table on page two.

Cornell Cooperative Extension of Tompkins County developed a countywide educational program on solid waste issues, including HCB's. County residents gave the presentations, not county officials (though a county official was on hand to answer questions), to several towns at well-attended public meetings.

A Neighborhood Protection Committee was created to implement the HCB program. The committee reviewed all requests for benefits and recommended appropriate action. The landfill was delayed due to wetland issues and continued reevaluation of priorities, and has now been abandoned on the basis of cost changes. Property value protection had been only benefit in effect.

Other New York counties have taken action on HCB programs, including Broome, Chenango, Dutchess, Monroe and Onondaga. Interest in the concept is being expressed by officials in a growing number of other New York counties. The New York State Department of Environmental Conservation, in a technical assistance guidance document for siting waste facilities, emphasizes that an HCB program should be strongly considered.

but does have *limitations*. It provides a more equitable and fair response to affected residents. It opens communication channels between residents and decision makers and involves those who are impacted in the process.

Limitations of an HCB program

must be kept in mind. It will not stop opposition to a particular site nor will it stop lawsuits, although this may become part of the negotiations. Since it is best considered as a separate issue, it has little effect on the selection of a specific site.

Perhaps the greatest benefits of HCB programs are that they promote sensitive consideration of residents' fears and foster better, more equal relationships between residents and decision makers. In his book *The Community Development Process*, William Biddle found that

shared decisions are usually more actively supported by the community at large as well as being less prone to criticism or counter action by opposing groups.

The cost of HCB programs are low relative to the total cost of developing a landfill, particularly where mitigation (triggered by specific negative events) is favored over compensation (where funds are spent regardless of specific events).

A Host Community Benefits program directly addresses the fairness of competing interests between those who benefit from the new landfill and those who must live as its neighbors.

Lyle S. Raymond, Jr. is Extension Associate and Water Resources Specialist with the Local Government Program and the New York State Water Resources Institute in the Center for the Environment at Cornell University; Kenneth H. Cobb is Senior Extension Associate with the Waste Management Institute in the Center for the Environment at Cornell University; and Clifford W. Scherer is an Associate Professor in the Department of Communication at Cornell University.

This Fact Sheet was produced by Kenneth T. Marash and Susan A. Marash with Ghostwriters, inc. of Ithaca, NY.

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The Cornell Waste Management Institute
Cornell University
Rice Hall
Ithaca, NY 14853-5601

Toronto's Trash to Call Michigan Home

Brook Raflo

Waste Age, Dec 1, 2000

With the closure of its Keele Valley landfill looming on the horizon, the city of Toronto has spent more than a decade searching for a home for the 1.5 million annual tonnes of garbage it produces. Finally, the search is over. In the wake of a failed deal with Rail Cycle North, the city awarded municipal and private sector disposal contracts on October 30 to Republic Services, Ft. Lauderdale, Fla.

Until October 13, Rail Cycle North, a North Bay, Ontario-based consortium of waste management and transport companies, was set to dispose of Toronto's municipal waste after Keele Valley closes. But when Rail Cycle introduced a clause passing unforeseeable costs to the city, "our council found that would be too much liability for the city to take on," says Lawson Oates, manager of strategic planning for Toronto's solid waste management services.

Like New York City, Toronto has looked outside its borders for disposal capacity, and Oates says he and his team have watched New York's predicament closely. To avoid a similar predicament, Toronto has devised a three-part plan, which includes signing new disposal contracts, extending an existing disposal contract and implementing an ambitious diversion program, Oates says.

During each of the first two years of Republic's five-year contract with the city, Toronto-based Wilson Logistics will transport at least 300,000 tonnes of Toronto's garbage from city-owned transfer stations to Republic's Carleton Farms landfill in Wayne County, Mich. This will allow Toronto's Keele Valley landfill, which currently takes in nearly 1.35 million annual tonnes of the city's waste, to remain open until the end of 2002.

"By initiating the Republic contract in 2001, we will get continued waste settlement and decomposition of organics [at Keele Valley], which will allow us to create some additional capacity ... saving the city money," Oates says. Tipping fees at city-owned Keele Valley, he explains, are significantly lower than those at Carleton Farms.

Toronto also will seek to extend its five-year contract with Miami-based Onyx North America, the company that currently disposes of 450,000 tonnes of Toronto's waste per year at its Arbor Hills landfill in Northville, Mich. Because of a cap on Arbor Hills'

foreign waste intake, however, the landfill cannot accept more than 500,000 tonnes of Toronto's waste annually, Oates says.

Perhaps the most surprising aspect of Toronto's solid waste plan is its goal to divert 80 percent of the city's refuse from the waste stream by 2006.

The city's ambitious diversion plan includes an expanded curbside recycling program, construction of an anaerobic digestion facility designed to generate heat for the city's downtown core, a composting facility to provide landfill cover and soil remediation products, community outreach, funding for the research and implementation of emerging technologies, and new laws requiring apartment complexes to recycle. "There's a potential for 100 percent diversion by 2010," Oates says.

By 2003, Toronto's waste program will look very different than it does today, Oates continues. The city will divert an additional 5 percent of its refuse from the waste stream by the end of that year, bringing the total diversion rate to 30 percent or more, he says. Additionally, Keele Valley will be closed, and at least 100,000 tonnes per year of the city's waste will go to Carleton Farms landfill.

Republic's Area President Matt Neely says he expects Carleton Farms to receive much more than 100,000 tonnes.

"The projections Toronto has given us are about 500,000 tonnes of waste per year [after 2003]," Neely says.

Carleton Farms is a seven-year-old, 60-million-cubic-yard landfill, with 60 years of life remaining, Neely says. And, the landfill's host Wayne County is considering Republic's proposal to add an additional 40 million cubic yards to Carleton Farms' capacity, he notes.

Unlike Onyx's Arbor Hills landfill, Carleton Farms is not subject to a cap on foreign waste. In fact, Wayne county residents support the plan to import large quantities of Toronto's waste, according to Neely.

This is because when Republic acquired Carleton Farms from Houston-based Waste Management Inc. in February 1999, as part of a required divestiture, Waste Management diverted most of Carleton Farms' trash to a nearby Waste Management-owned landfill, Neely says. Consequently, Wayne county's Sumpter township, which had been receiving a host benefit for trash entering Carleton Farms, lost a significant amount of revenue, he explains.

"They had to lay off policemen and stop providing municipal services," he says. "So the township has been very supportive [of the Toronto deal]."

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LYCOMING COUNTY RESOURCE MANAGEMENT SERVICES

LANDFILL DISPOSAL FACILITY FEE SCHEDULE

2003 FEES Effective July 1, 2003

Hours: Monday - Friday 7:00 am - 4:30 pm; Saturday 7:30 am - 12:00 noon

Location: 447 Alexander Drive, Montgomery, PA 17752

Mailing Address: P.O. Box 187, Montgomery, PA 17752-0187

PHONE: (800) 326-9571 or (570) 547-1870 FAX: (570) 547-6534

A MINIMUM fee of \$15.00 is charged on EACH transaction*

(* Certified Waste Haulers are exempt from the minimum fee)

EACH LOAD MUST BE TARPED

NO PERSONAL CHECKS ACCEPTED

1. Municipal Solid Waste

CUSTOMER TYPE	DISPOSAL FEE	PA STATE RECYCLING FEE	HOST MUNICIPAL BENEFIT FEE	ENVIRON. STWD FUND	COUNTY ADMIN. FEE
Individual Residents ¹	\$48.60/Ton	\$2/Ton	\$1/Ton	\$4.25/Ton	See Listing Below ²
Commercial Business Accts ¹	\$36.15/Ton	\$2/Ton	\$1/Ton	\$4.25/Ton	See Listing Below ²
Industrial Generator Accts ¹	\$36.15/Ton	\$2/Ton	\$1/Ton	\$4.25/Ton	See Listing Below ²
Certified Waste Haulers ¹	\$33.00/Ton	\$2/Ton	\$1/Ton	\$4.25/Ton	See Listing Below ²

¹Rates listed are for MSW generated in the Counties naming Lycoming County Landfill in their solid waste plans including: Columbia, Lycoming, Montour, Northumberland, Snyder and Union Counties.

²County Administrative Fee: Add the following fee according to the county of origin as listed below:

Columbia County	\$3/Ton
Montour County	\$3/Ton
Northumberland County	\$3/Ton
Snyder County	\$2/Ton
Union County	\$2/Ton

2. MSW Miscellaneous Fees, Individual Residents:

Automobiles:	\$15.00	(cars, station wagons) If Gross wt. is >4200 lbs, reweigh required.
Pickup Trucks:	\$15.00	(1/2 Ton Pickups, Vans) If Gross wt. is >5500 lbs, reweigh required.
Full-Sized Pickups:	\$15.00	(3/4 Ton Pickups and greater) If Gross wt. is >6600 lbs, reweigh required.
Trailer attached to any of the above:	\$15.00	Price according to weight w/\$15 min., each load reweighed.

3. Miscellaneous Service Fees: (See Definitions)

White Goods without Refrigerant: No Charge with certification of evacuation by authorized vendor
 White Goods containing Refrigerant: \$15.00 per appliance
 Digout Fee: \$15.00 per vehicle
 Cleanup Costs: Equipment rental cost and operator time plus any additional fees associated with cleanup.

4. Industrial Residuals: (See Definitions)

Rates will be established on an individual basis. A letter of notification will be sent to individual customers.

5. Asbestos: (See Definitions)

	Disposal Fee	State Recycling Fee	Host Benefit Fee	Environ. Stwd Fund
Friable and Non-Friable Asbestos	\$46.55/Ton	\$2/Ton	\$1/Ton	\$4.25/Ton

6. Tires:**

	Disposal Fee	State Recycling Fee	Host Benefit Fee	Environ. Stwd Fund
Tires (Whole Loads)	\$93.75/Ton	N/A	\$1/Ton	\$.25/Ton
Car/Sm Truck Tires (P & LT Series)	\$3.00 each	N/A	N/A	N/A
Over-the-Road Truck Tires (R Series: 17" – 22")	\$5.00 each	N/A	N/A	N/A
Tractor & Heavy Equipment Tires (over 22")	\$148.75/Ton	N/A	\$1/Ton	\$.25/Ton

**Tires must be brought to the Landfill separately from other wastes. However, if tires are found mixed in other wastes at the time of disposal, an additional fee in addition to the original charge without reduction in weight for tires, will be added according to the tire size and number of tires found. The Standard Fee listed above is for whole, pneumatic, round, clean, and dry tires, which have the integrity to roll. This includes car, truck, ATV, golf cart, racing slicks, wheelbarrow, motorcycle, bicycle and mini bike tires. Tractor and Heavy Equipment tires include tires from farming equipment, heavy equipment such as graders, backhoes, etc., and airplane tires. Tire pieces, scrap sidewalls, tubes and wheels are to be landfilled at MSW posted rates, and will not be accepted for recycling purposes.

7. Clean Wood Wastes: (See Definition)

	Disposal Fee	State Recycling Fee	Host Benefit Fee	Environ. Stwd Fund
Participating Counties Rate	\$19.30/Ton	N/A	\$1/Ton	\$.25/Ton

Sorting Costs: If unacceptable wood or other waste products are found in loads received at the clean wood site, a \$10/hour sorting cost will be charged for the sorting of those items that are not acceptable. The unacceptable items will be weighed and charged at appropriate rates to the customer.

8. Construction/Demolition Wastes: (See Definition)

CUSTOMER TYPE	DISPOSAL FEE	PA STATE RECYCLING FEE	HOST MUNICIPAL BENEFIT FEE	ENVIRON. STWD FUND	COUNTY ADMIN. FEE
Individual Residents ¹	\$25.00/Ton ²	\$2/Ton	\$1/Ton	\$4.25/Ton	See Listing Below ³
Commercial Business Accts ¹	\$25.00/Ton ²	\$2/Ton	\$1/Ton	\$4.25/Ton	See Listing Below ³
Industrial Generator Accts ¹	\$25.00/Ton ²	\$2/Ton	\$1/Ton	\$4.25/Ton	See Listing Below ³
Certified Waste Haulers ¹	\$25.00/Ton ²	\$2/Ton	\$1/Ton	\$4.25/Ton	See Listing Below ³

¹Rates listed are for MSW generated in the Counties naming Lycoming County Landfill in their solid waste plans including: Columbia, Lycoming, Montour, Northumberland, Snyder and Union Counties.

²When C/D loads contain waste other than C/D, causing RMS to transfer the load from the C/D site to the MSW site, clean-up costs will be added to the transaction cost. The ticket will be corrected to reflect MSW waste at MSW posted rates, and a clean-up fee of \$32/Ton will also be charged. (The total cost for such transactions is \$71.95/ton for Certified Waste Hauler accounts based on current MSW posted rates, or \$75.05/ton for Commercial Business Accounts based on current MSW posted rates, and \$87.40/ton for Individual Accounts based on current MSW posted rates.)

³County Administrative Fee: Add the following fee according to the county of origin as listed below:

Columbia County	\$3/Ton
Montour County	\$3/Ton
Northumberland County	\$3/Ton
Snyder County	\$2/Ton
Union County	\$2/Ton

DEFINITIONS:

Certified Waste Hauler - A business enterprise trading in the solid waste industry, utilizing commercial grade solid waste industry equipment in the performance of their service, are subject to the PaDEP's rules and regulations, and conform to PA Code, Title 25, Chapter 285 – Storage, Collection, and Transportation Regulations, for collection and transportation of solid waste. Certified Waste Haulers are also required to carry automobile liability insurance with a combined single limit of \$1,000,000.

Commercial Business Accounts - Commercial enterprises, or non-profit enterprises including municipalities, schools, hospitals, and government agencies, that do not trade for profit in the solid waste industry, do not generate or dispose of industrial residual wastes, and are not subject to the rules and regulations of the PaDEP for collecting and transporting solid waste. Commercial Business Accounts are required to carry automobile liability insurance with a combined single limit of \$1,000,000.

Industrial Generator Accounts – A person generating and disposing approved waste through LCRMS's Form R, Waste Acceptance Plan. Industrial Generator Accounts delivering approved waste in their own vehicles are required to carry automobile liability insurance with a combined single limit of \$1,000,000.

Individual Residents - Private individuals utilizing LCRMS facilities on an occasional basis.

White Goods – Appliances and other salvageable materials including, washing machines, dryers, refrigerators, freezers, air conditioners, dehumidifiers, dishwashers, hot water heaters, stoves, sheet iron, tin, and steel auto parts.

Digout – Frozen loads in containers that are removed with LCRMS equipment and operators.

Cleanup Costs – Fees charged to customers for removal of waste dumped in improper disposal area, and for reloading and/or cleanup of wastes rejected for disposal. Fees may include personnel costs, testing fees, and any special handling fees associated with the load in question.

Asbestos – Wastes contaminated with, or containing asbestos, as defined by PaDEP.

Industrial Residual Waste – Those wastes meeting the permit conditions as approved in LCRMS's Form R application, and have been pre-approved for disposal at LCRMS. Wastes are subject to PA DEP regulations.

Clean Wood Waste – Acceptable clean wood includes, unpainted wood, (stained wood and wood with glue is acceptable), brush, limbs not exceeding 10" in diameter, pallets, skids, compressed wood fiber pallets, utility spools with hardware removed, plywood and waferboard. Clean wood may not contain non-wood items, any treated wood, plasterboard, creosote products, demolition waste, masonite, or painted wood.

Construction Demolition Waste - Solid waste resulting from the construction or demolition of buildings and other structures including, wood, plaster, roofing shingles, metals, asphalt substances, bricks, blocks, concrete, cardboard, styrofoam, insulation, plastic, empty buckets: (tar, paint, plaster), fire debris from structures only (excluding contents).

Holidays: The Lycoming County Resource Management Services facilities will be closed on the following listed Holidays:

New Year's Day, Wednesday, (January 1, 2003)

Memorial Day, Monday, (May 26, 2003)

Independence Day, Friday, (July 4, 2003)

Labor Day, Monday, (September 1, 2003)

Thanksgiving Day, Thursday, (November 27, 2003)

Christmas Day, Thursday, (December 25, 2003)

Operating Hours: Operating hours at the Landfill are: 7:00 am - 4:30 pm Monday through Friday, and 7:30 am - 12:00 noon on Saturday. Any waste delivered outside regular posted hours will be charged an additional \$1/Ton for approved, pre-arranged dumping Monday through Saturday, and \$2/Ton for approved, pre-arranged dumping on Sunday and listed Holidays. All out-of-hour, Sunday and Holiday deliveries must be pre-approved by Lycoming County Resource Management Services.

ALL RATES ARE SUBJECT TO CHANGE WITH 30 DAYS POSTED NOTICE OR AS REQUIRED BY LAW.

Rountree: Landfill to aid schools

By JULIAN EURE

Camden commissioners are pursuing a \$60 million deal with Waste Industries to bring a landfill to Camden because it's the only way to avoid a massive property tax hike needed to pay for new schools, the commission's chairman said Friday.

"With all these houses coming in (to Camden), we've got to have some money to build schools with," Commissioner J.C. Rountree said. Without a landfill or some other revenue source, "we're looking to have to raise taxes by 30 cents on the hundred."

Rountree, who represents South Mills Township, says officials have tried to slow down growth by implementing zoning and other measures. The trouble is, many of the areas being considered for development were already platted for residential use when the zoning rules were written. Consequently, landowners have use rights that can't be superseded by county ordinances.

The result has been a growing conversion of farmland into residential subdivisions. Rountree, a farmer, says he's lost three farms himself over the past three years because landowners couldn't pass up the price developers were offering for their land.

While the residential boom has helped the county's tax base, it's also increased pressure on the county's three-school school district, as many of the new Camden residents are bringing with them school-age children.

"Schools are what cost us the most money," Rountree said. "We're going to have to build another school in the next three years ... to take some pressure off Grandy" Primary School. Most likely the school will be for kindergartners and first- and second-graders, Rountree said.

The Board of Commissioners raised the property tax rate several years ago by 10 cents — to 75 cents per \$100 of valuation — specifically to pay for improvements at the county's three schools. To build a new school in three years, however, would force commissioners to raise the tax rate another 30 cents, Rountree says.

Knowing "the landowners couldn't stand that much of a tax increase," commissioners have been casting about for other potential revenue sources. The one they finally came up with was playing host to a privately owned landfill, Rountree said.

"That's why we're interested in this (landfill project)," he said. "It's a way to solve" our revenue problems.

Hosting a landfill would be lucrative for Camden, says Ven Poole, vice president of corporate development for Waste Industries, the Raleigh-based company that's proposing to build the 600-acre landfill in the northern part of the county.

Not only would the county be able to dump its residential and commercial garbage in the landfill for free — saving the county about a quarter of a million dollars annually — it also would be able to tax the equipment used at the landfill, bringing the county another quarter of million dollars of income a year.

The real prize, however, would be the host fees the county would receive once the daily volume of trash received at the landfill reached certain levels.

According to the franchise agreement Camden commissioners have signed with Waste Industries to build and operate the landfill, the county would earn 5 percent of each dollar Waste Industries charges once daily tonnage exceeded 500, and 7 percent of each dollar once daily tonnage exceeded 1,500.

Although it would take a new landfill some time to build up garbage volume to those levels, the deal has the potential to earn Camden between \$2 million and \$3 million annually, officials say. That could make the deal, which is for 30 years, worth anywhere from \$60 million to \$90 million.

The deal is contingent on the state of North Carolina approving the landfill. Waste Industries is just beginning the initial steps to obtain the many permits it will need before it can build and operate the landfill. If the state OKs Waste Industries' plans, a landfill in Camden is still two to three years away.

Forrest Pugh, a commissioner who represents Shiloh precinct, agrees with Rountree that the landfill would be a less painful way to raise revenue. He disagrees with Rountree, however, that a massive tax increase was imminent for school construction.

While a 30-cent tax increase "is something we talked about, it's not an absolute must," Pugh said.

Pugh, who didn't seek re-election and will be leaving the Board of Commissioners in December, believes the school district should benefit from any revenues the county receives for hosting a landfill. He also says addressing the school growth issue is "definitely a big reason" why commissioners are pursuing a landfill and the host fees it would bring.

At the same time, however, he says commissioners don't want to commit to expensive projects that will require them to spend the principal it receives in host fees. Any money spent, he said, would likely be from the interest that accrues from investment of the principal.

Besides the schools, Pugh would like to see some of the landfill money go toward improving infrastructure — roads, sewer service, utilities — in the county, particularly in northern Camden.

When the state of Virginia eventually widens U.S. Highway 17 to four lanes, officials are expecting commerce and business development in Hampton Roads to gravitate southward a lot more quickly. When it comes, Camden wants to compete for the jobs the companies will bring. But to do it, the county will first have to have the infrastructure business depends on.

The landfill money will help Camden get ready, Pugh says.

"Hopefully we'll be able to have the infrastructure in place" to meet their needs, he said.

Regardless of how the landfill money is used, commissioners pursued the landfill because they wanted to improve the lives of Camden residents, Pugh says.

"We don't have an Albemarle Hospital like Pasquotank County does," he said. "We did this because we saw it as an opportunity to help the county."

<http://www.dailyadvancer.com/news/newsfd/autos/feed/news/2002/11/25/1038243575.03162.1237.3787.html>

*Addendum to
Alternatives Analysis for Disposal of
Municipal Refuse*

*Submitted to the Department of Environmental Services (ENV),
City and County of Honolulu*



Pacific Waste
CONSULTING GROUP
September 2008

Introduction

This addendum includes additional information referenced to the appropriate sections in the *Alternatives Analysis for Disposal of Municipal Refuse*, as presented in the Waimanalo Gulch Sanitary Landfill Lateral Expansion, Draft Environmental Impact Statement (DEIS).

Section 3.4. Disposal (Addendum)

Overview of Waste Sources and Disposal

This section reviews the source and destination (recycling, composting, or disposal) for the waste material produced on Oahu. Waste is collected by the City and commercial waste haulers. The City primarily collects residential waste from households, although it does collect some waste from multi-family dwellings and commercial establishments. The majority of non-residential waste is collected by commercial haulers.

Waste is taken to the Waimanalo Gulch Sanitary Landfill, H-POWER, or the PVT Landfill. PVT only accepts construction and demolition debris waste. H-POWER accepts most of the City's residential waste and much of the commercial waste. The Waimanalo Gulch Sanitary Landfill accepts the remainder, as well as the ash and residue from H-POWER. The following tables show how much waste is delivered by each type of hauler to each facility in fiscal year 2006.

Table A shows the waste that was diverted through recycling, reuse or composting and disposed of. The total disposal for PVT and unpermitted sites is estimated because the data is not reported for those disposal locations.

Table A, Diversion and Disposal

Destination	Tons
Recycled, Reused, Composted	628,373
Waimanalo Gulch Sanitary Landfill	337,667
H-POWER	602,520
PVT Landfill (est.)	200,000
Unpermitted disposal sites (est.)	25,000
Total	1,793,560

Table B shows the types of material disposed of at the Waimanalo Gulch Sanitary Landfill. The ash and residue are from H-POWER resulting from the processing of waste at that facility. The residue is from processing the waste into a refuse derived fuel and ash as a product of combustion.

Table B, Materials Disposed at Waimanalo Gulch

Material	Tons
MSW	337,667
Ash	88,380
Residue	79,443
Total	505,490

Table C shows the total disposal at H-POWER and Waimanalo Gulch.

Table C, Total Disposal

Location	Tons	Percent
H-POWER	602,520	64%
Waimanalo Gulch	337,667	36%
Total	940,187	100%

Table D shows the source of materials disposed of at H-POWER and the Waimanalo Gulch Sanitary Landfill.

**Table D, Source of Materials
(Tons in FY 2006)**

Sector	H-POWER	Waimanalo Gulch	Overall
Residential	371,649	40,367	412,016
Commercial	384,389	114,300	498,689
Convenience Center	283	29,199	29,482
Total	756,321	183,866	940,187

Table E uses the same sources and disposal locations as Table D, but provides the percentage of each source that went to each disposal location.

Table E, Source of Materials — Percentage

Sector	H-POWER	Waimanalo Gulch	Overall
Residential	49%	22%	44%
Commercial	51%	62%	53%
Convenience Center	0%	16%	3%

Section 3.4.2. H-POWER (Addendum)

Current Status of H-POWER Expansion

The City is in process of working with Covanta Energy to add a third unit to H-POWER. When permitted, the third unit will have a capacity of 300,000 tons per year (TPY) and will be a mass burn facility. The existing H-POWER Units #1 and #2 are refuse derived fuel units in which the waste is processed to remove metals and other difficult to combust materials before incinerating the waste. The new mass burn facility will accept waste without pre-processing and convert it to energy.

The plant is intended to reduce the amount of disposal in the Waimanalo Gulch Sanitary Landfill. It will further reduce the Island of Oahu's greenhouse gas footprint by increasing from five to eight percent the amount of electricity produced from solid waste, a renewable fuel.

The plant will have an economic life, but it can be upgraded when technical improvements are available. When constructed, it will have emission controls among the best of any energy from waste plant in the country. The plant will be the most modern in operation. As with H-POWER units #1 and #2, future upgrades are expected to keep the plant technologically current and provide needed disposal capacity for the foreseeable future.

Section 4.4. Alternative Technologies (Addendum)

Combination of Smaller Alternative Technologies

The evaluation of a combination of smaller alternative technologies was not included in this EIS because doing so did not fit within the project schedule and the impacts were expected to exceed the impacts at one location.

The situation is similar to the evaluation of multiple smaller landfill sites with less capacity. This same issue was discussed by the 2002 Mayor's Advisory Committee on Landfill Site Selection. The Committee questioned whether the impacts of the landfill would be lessened if several smaller landfills were located around the island instead of just at Waimanalo Gulch. It was noted:

“The Committee decided to limit its consideration to sites that had more than 10 years of capacity based on: the assumption that demand projections from the City remain unchanged; the City's experience with the length of time needed to implement new and feasible waste reduction technologies; and the cost and time required to identify and permit a new landfill site.” (See Appendix K, Section 3.4).

The time and resources necessary to evaluate a combination of smaller scale technologies is expected to be substantial and include:

- Several potential alternative sites would need to be identified, evaluated with the public and governmental agencies concerning environmental and land use effects, selected, and purchased. The number of alternative sites and magnitude of the public and governmental agency coordination needed would be a function of the number of technologies selected. Mitigative measures to address potential environmental effects associated with each technology would need to be developed.
- Detailed evaluation of the feasibility and cost of multiple technology or technologies using a different set of qualifying criteria than currently considered by the City. This evaluation would need to include the detailed implementation plan identifying the planned construction scheduling and capital costs.
- An estimate of the time needed for environmental and land use permitting would also need to be factored into the project schedule.

In addition, for each alternative technology selected: (1) any waste by-products generated as a result of the technology process or processes used, would need to be at a scale that would not require landfilling; (2) a market would be required for the product resulting from the technology, and (3) the technology would have to be feasible, proven, and based on its use in a municipality similar in requirement to the City & County.

The City has the fiduciary and management responsibility to select only technologies that are proven to work on MSW with costs similar to the public cost of disposal and operations at WGS. Factors that are not in favor of the evaluation of several smaller alternative technology facilities are:

- The expected lengthy period of commitment of resources needed to research and develop a coordinated program to use small alternative technology facilities. This is reasonably expected to last more than a year and could take several years. The exhaustive process to select the technology for the third boiler at H-POWER took approximately a year to complete and was for a technology already proven in the City & County. The evaluation of smaller and newer technologies could reasonably be expected to last much longer.

- The use of several smaller facilities is not efficient and cost effective. This is because the economies of scale normally present in an appropriately sized facility is not necessarily present at a smaller scale. The installation of the infrastructure at multiple sites could have a much greater environmental impact than using just one site.

Thus, the evaluation of a combination of alternatives is not considered feasible and would have significantly extended the time required beyond the November 1, 2009 LUC deadline to allow for the same or similar disposal capacity as is available at the WGSL.

Section 5. Transshipment Off-Island (Addendum)

Current Status of Transshipment

On June 16, 2008, bids were opened for the City's Request For Bids for interim shipping of MSW to the mainland United States. Three bids were received. Three procurement protests were then filed on behalf of the two higher bidders. The City is working to resolve these protests. They are being evaluated with input from various City agencies. After the City issues final rulings on the protests, the parties will have the right to an appeal. Until any such time that the appeals are resolved, the City is prohibited by State law from awarding any contract.

Appendix L

Survey of Terrestrial Invertebrate Resources
Waimānalo Gulch Sanitary Landfill Expansion, 2008

Survey of Terrestrial Invertebrate Resources in the Waimanalo Gulch, O‘ahu, Hawai‘i: Sanitary Landfill Expansion Area



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Submitted to: AECOS Consultants

For: R. M. Towill Corporation on behalf of
City & County of Honolulu, Department of Environmental Services.

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Table of Contents

Summary	1
Introduction	1
General site description	2
Invertebrate Survey Methods	3
Previous surveys and literature search	3
Fieldwork	4
Collecting methods	5
Survey limitations	6
Invertebrate Survey Results	7
Invertebrates Not Present	14
Medically important species	16
Potential impacts to protected species	16
Recommendations	16
Acknowledgments	17
Nomenclature; Abbreviations	17
Glossary	18
Literature Cited	19

Figures & Tables

Figure 1. Map showing general location of project site on island of O'ahu	2
Figure 2. Map showing close up of Waimanalo Gulch Landfill site, O'ahu	3
Figure 3. Typical talus slopes of lichen covered rocks	
Figure 4. Typical light surveying arrangement	5
Figure 5. Steep slopes made light census important	7
Figure 6. Map of Waimanalo Gulch Landfill light monitoring locations	10
Figure 7. <i>Succinea caduea</i> at Waimanalo Gulch	11
Figure 8. Camouflaged <i>Hyposmocoma</i> at Waimanalo Gulch	12
Figure 9. Black witch moth resting in day	12
Figure 10. Sweetpotato hornworm showing pink markings	13
Figure 11. Globe skimmers often use human created water sources	13
Figure 12. Blackburn's sphinx moth showing orange markings	15
Figure 13. Waimanalo Gulch looking makai, tobacco in foreground	15
Figure 14. Paper wasp, building nest	16
Table 1. List of Arthropods: Waimanalo Gulch Landfill expansion area	8

SUMMARY

The Waimanalo Gulch Landfill expansion area sampled in this biological survey yielded native mollusks and native and adventive arthropods. No invertebrate listed under either federal or state endangered species statutes was located within the survey area.

INTRODUCTION

This report summarizes the findings of an invertebrate¹ survey conducted in support of an environmental impact statement as part of a proposal to expand the Waimanalo Gulch Landfill. Waste Management and the City & County of Honolulu propose to extend the landfill active area by 92.5 acres (Towill 2006). This survey was conducted by Steven Lee Montgomery, Ph. D., for AECOS Consultants as part of a team effort directed by R. M. Towill Corporation, Honolulu.

Invertebrates are often the dominant fauna in natural Hawaiian environments. The primary emphasis of this survey was on terrestrial arthropods, particularly those that are endemic, indigenous, or threatened species, especially those having legal status under either, or both federal and state endangered species statutes (DLNR 1996, USFWS 2005a, 2008).

Native Hawaiian plant, vertebrate, and invertebrate populations are often interdependent. Certain insects are obligatorily attached to specific host plants and are able to use only that plant as their food. Those insect - host relationships are ancient and intertwined. Invertebrates are the food of some birds and the pollinators of plants. Native invertebrates have proven inventive in adapting to opportunities in changed ecosystems. A surprising number of native arthropod species survive even in degraded habitats. Nevertheless, the overall health of native Hawaiian invertebrate populations depends upon habitat quality and absence or low levels of predators introduced from the continents. Sufficient food sources, host plant availability, and the absence or low levels of introduced, continental predators and parasites comprise a classic native, healthy ecosystem. Consequently, where appropriate in the survey discussion, host plants, and some introduced arthropods are also noted.

¹ Animals without backbones: insects, spiders, snails, shrimp, etc.

GENERAL SITE DESCRIPTION

The area identified for Waimanalo Gulch Landfill expansion occupies a valley on the dry foothills of the Wai‘anae Range, ‘Ewa District, O‘ahu (Figure 1). The Landfill area is largely bounded by Makaīwa Gulch to the east / Diamond Head, and Keone‘ō‘io Gulch to the west / ‘Ewa, and Farrington Highway to the south / makai (Figure 2). The expansion area is at the mauka end of the valley, narrow bottomed and steep sided. The majority of the land is steeply sloping valley walls cut into the old shield volcano. There are no perpetually flowing streams or standing, open water to support hygrophilous invertebrates. Short term stream flows follow only after significant rainfall. A few small ponds of water may persist for short periods in stream depressions after seasonal heavy rains. Host plant vegetation is thickest and most varied in the stream channels and on the gulch walls, especially during the winter rainy season.



Figure 1: Map showing general location of landfill site on island of O'ahu

At this site, several known native Hawaiian plants of interest as hosts or shelter for invertebrates were limited or missing in comparison to less altered dryland, low elevation locations in the islands. A few native plants such as `ilima (*Sida fallax*) and pili grass (*Heteropogon contortus*) are surrounded by aliens species introduced since 1790. Tree Tobacco (*Nicotiana glauca*) is frequently seen on its favored habitat, disturbed ground created by the usual activity of the landfill operation.

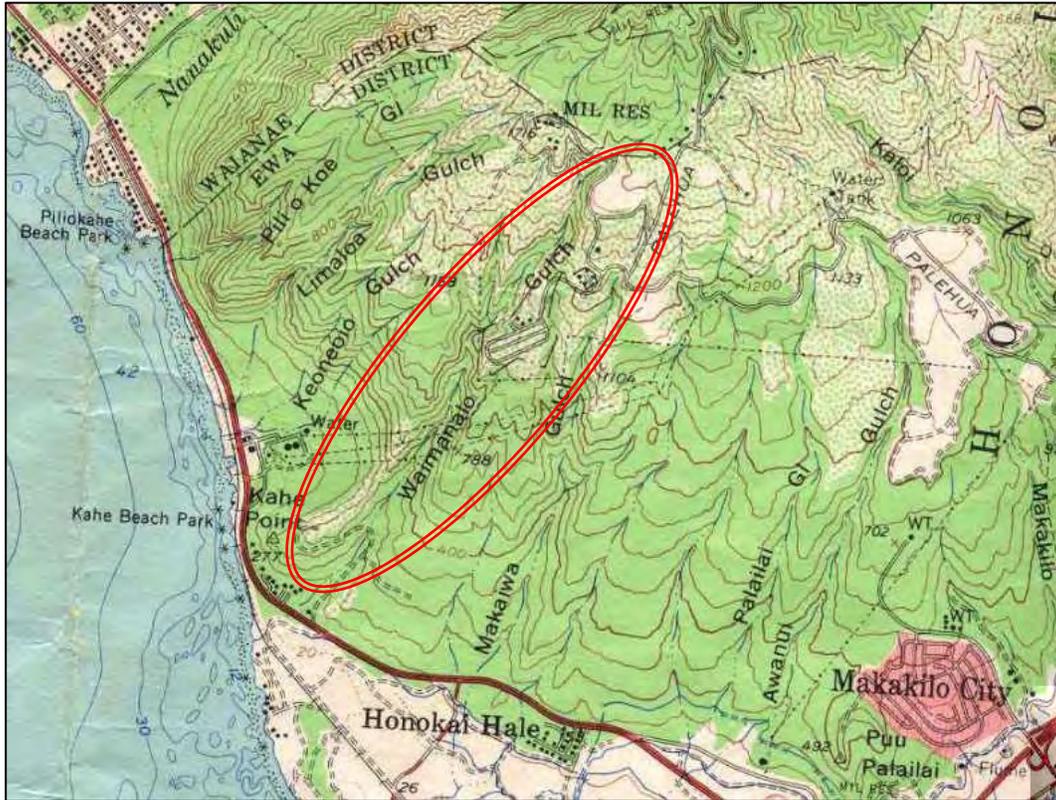


Figure 2. Waimanalo Gulch on O'ahu's leeward coast

INVERTEBRATE SURVEY METHODS

Previous Surveys and Literature Search

Prior to the field survey, a search was made for publications relating to invertebrates associated with the Waimanalo Gulch Landfill expansion area. This review did not find any previous invertebrate surveys of the Landfill areas. A recent survey at the adjacent proposed Makaiwa Hills housing development provided a comparison to a similar environment (Montgomery 2006). Earlier surveys of the Waimanalo Gulch Landfill expansion site for avian, botanical, and mammalian resources by Environment Impact Study Corporation (1983), Char (1999), Bruner (1999), and Guinther (2007) show no reference or evidence of surveying for invertebrates.

Searches also were made in regional and national databases which provide geographic access, such as the Pacific Basin Information Node and Hawaii Natural Heritage Program. None of the searches returned records of invertebrate surveys in Waimanalo Gulch. University of Hawaii Library holdings and Bishop Museum library and data bases also were searched.

Since 1970, I have taken part in field projects at other locations on the slopes near Waimanalo Gulch and other dryland locations on O'ahu and throughout the island chain. Surveys of other dryland areas have created a sizeable body of information on native invertebrate and related botanical resources found in areas similar to Waimanalo Gulch Landfill expansion area (Bridwell 1920, Swezey 1935a). Those experiences and the results of those surveys provided the basis for my study design and my analysis of results.

Fieldwork

Field surveys were conducted at the Waimanalo Gulch Landfill expansion site in August 2008. I conducted a general assessment of terrain and habitats at the start of the survey. Surveying efforts were conducted at various times of day and night, a technique which is vital for a thorough survey. Native botanical resources identified by Char (1999), and Guinther (2007) were an important focus of my searches. The talus slopes of lichen covered rocks and older rock ledges (Figure 3 and 5) were of special interest as undisturbed Hawaiian ecosystem habitat. These areas support a microflora of lichens and algae, food for a higher diversity and larger number of native invertebrates than other locations within the valley.

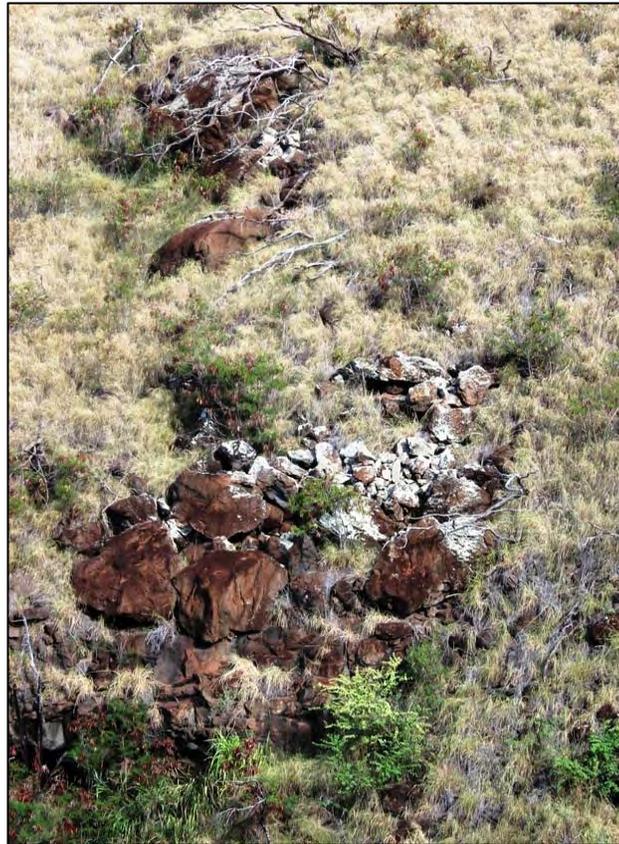


Figure 3: Typical talus slopes of lichen covered rocks.

During the day, I walked up the bulldozer road with wandering searches as practical off the sides of the road. When this road ended, I walked and climbed as far as possible into the remaining valley and up the slopes. See Figure 6 (page 10) for night collecting locations within the survey area.

Fieldwork schedule:

Aug. 26-27, 2008 Site examination and general orientation; general survey;
light assisted census

Aug. 31-Sept. 1, 2008 General survey; light assisted census

Collecting Methods

The following collecting methods for terrestrial invertebrates were used as appropriate to the terrain, botanical resources, and target species.

Host plant searches: Potential host plants, both native and introduced, were sampled for arthropods that feed or rest on plants. Tree tobacco was a special focus as were all native plants.

Light sampling: A survey of insects active at night is vital to provide a complete record of the fauna. Many insects are only active at night to evade birds, avoid high temperatures and desiccation, or to use food sources such as night opening flowers. Light sampling uses a bright light source in front of a white cloth sheet. Night active insects seem to mistake the collecting light for the light of the moon, which they use to orient themselves. In attempting to navigate by the collecting light, confused insects are drawn toward the light and land on the cloth in confusion. This type of collecting is most successful during the dark phase of the moon under clouds blocking starlight. Vegetation usually blocks light from being seen over long distances, and most moths and other night fliers are not capable of very distant flight. Consequently, light sampling does not call in many insects from outside the survey area.

Light censusing was conducted for 10 hours each night on Aug. 26-27, 2008, and Aug.



© Figure 4: Typical light surveying arrangement.

31-Sept. 1, 2008. The light source was a mercury vapor (MV) bulb powered by an electric generator (left). An additional, hand held UV light source was used on the Aug. 31 - Sept. 1, 2008, trip at an additional location. Locations were chosen based on experience, native host plant proximity, and terrain. Competing artificial light sources were not a factor in response success.

Sweep nets: This collecting method targets flying and perching insects. A fine mesh net was swept across plants, leaf litter, rocks, etc. to collect any flying, perching, or crawling insects. Transfer from the net was either by aspiration, or directly into a holding container.

Visual observation: At all times, I was vigilant for any visual evidence of invertebrate presence or activity. Visual observations provide valuable evidence and are a cross check that extends the reach of sampling techniques. Visual observation also included turning over rocks, dead wood, and other debris and examination of living and dead plants and plant parts.

Survey Limitations / Conditions

My ability to form advisory opinions is limited / influenced in the following ways:

Common alien species: No attempt was made to collect or completely document common alien arthropod species present in the area.

Collecting conditions: Monitoring at a different time of the year, or for a longer period of time, might produce a longer or different arthropod list. Weather and seasonal vegetation play an especially important role in any survey of invertebrates. Many arthropods time their emergence and breeding to overlap or follow seasonal weather or to coincide with growth spurts of an important plant food. Host plant presence/absence, and seasonal changes, especially plant growth after heavy rains, affect the species collected.

Weather was favorable for collecting during each day of collecting. This survey was conducted without the benefit of winter rains, however native dryland adapted vegetation was in a better than expected condition due to several summer rains. If vegetation displayed young tender or mature new growth, a different insect list might have resulted.

The moon did not present competition to light collecting efforts and should not have affected the number of insects attracted to the light. The moon rose late on August 26 (1:58 a.m.) as a waning crescent with only 19% of the visible disk illuminated. On August 31 the moon rose at 7:07 a.m. as a waxing crescent with 1% of the disk illuminated. The moon set at 7:28 p.m. on Aug. 31, and did not rise again until 8:02 a.m. on Sept.1, presenting no disc during the period of collecting. (USNO)

Physical limitations: The steepness of slopes in some areas made access to some possible host plants difficult (Figure 3 and 5). Light censusing at night was some compensation for this hurdle.

The size of the project area and the steepness of many slopes means the survey was not comprehensive. The overall study strategy and site selections were designed to mitigate this recognized handicap. The resulting survey was representative and targeted in favor of locating and examining native host plants.

RESULTS:

In addition to the invertebrate results noted below, I noted a Barn Owl (*Tyto alba*) pellet containing rat bones, confirming the expectation that the Owl would be present on the property (Bruner 1999). I also saw evidence of dogs in the area. I observed no signs of feral goats or pigs, common enemies of native host plants. I saw and heard cattle in the upper shrubland above the Landfill property (see Recommendations, p. 16).



Figure 5: Steep slopes made light census efforts extremely important in obtaining meaningful results.

DISCUSSION

Native invertebrates found in this survey and significant non-native species are listed in Table 1. Native species of note are discussed and information is provided on several adventive species often misidentified by the public as native species. Also, information is provided on some medically important species.

Table 1: List of Invertebrates: Waimanalo Gulch, O‘ahu ²

Species	common name	Status	Recovered at / by Abundance	
MOLLUSCA				
GASTROPODA				
PULMONATA	snails and Slugs			
Succineidae				
<i>Succinea caduca</i>	Hawaiian amber snail	End	O	in rocky ledges
ARTHROPODA				
ARACHNIDA				
SCHIZOMIDA				
Scorpiones	scorpions			
<i>Isometrus maculatus</i> (De Geer)	lesser brown scorpion	Adv	O	at light
ARTHROPODA				
INSECTA				
COLLEMBOLA	springtails			
Entomobryidae				
undetermined sp. 1		?	O	under stones
LEPIDOPTERA				
Cosmopterigidae	case bearers			
<i>Hyposmocoma alliterata</i> Walsingham, 1907	broad, pointed case	End	U	at light
<i>Hyposmocoma</i> sp. 1	straight slender case	End	C	under stones
<i>Hyposmocoma</i> sp. 2	curved, broad case	End	O	under stones
<i>Hyposmocoma</i> sp. 3	black, pointed adult	End	C	at light
<i>Hyposmocoma</i> sp. 4		End	R	at light
Crambidae	micro-moths			
<i>Mestolobes miniscula</i> (Butler 1881)		End	U	at light
<i>Mestolobes</i> sp.		End	U	at light
<i>Omiodes localis</i> (Butler, 1879)	grass leaf roller	End	R	at light
<i>Tamsica hyacinthina</i> (Meyrick 1899)		End	A	at light
<i>Tamsica floricolens</i> (Butler, 1883) ?	black saddled grass moth	End	R	at light
Noctuidae	miller moths			
<i>Ascalapha odorata</i> (Linnaeus, 1758)	black witch moth	Adv	O	at light
Oecophoridae				
<i>Thyrocopa abusa</i> Walsingham, 1907		End	R	at light
Sphingidae	hawk moths			
<i>Agrius cingulata</i> (Fabricius, 1775)	sweetpotato hornworm	Adv	U	at light
<i>Hippotion rosetta</i> (Swinhoe 1892)	Boerhavia sphinx moth	Adv	O	at light

² Names authority: Hawaii Biological Survey 2002a; Nishida 2002; Zimmerman 1948-80; Zimmerman 2001

Table 1: continued

Species	common name	Status	Recovered at / by Abundance	
ARTHROPODA				
INSECTA				
HOMOPTERA	planthoppers			
Cixiidae				
<i>Oliarus discrepans</i> Giffard, 1925	wild cotton planthopper	End	R	at light
HYMENOPTERA	wasps, bees, ants			
Apidae	bees			
<i>Apis mellifera</i> Linnaeus, 1758	honey bee	Pur	R	in flight
Formicidae	ants			
<i>Pheidole megacephala</i>	big-headed ant	Adv	C	on soil
<i>Solenopsis geminata</i> (Fabricius, 1804)	fire ant	Adv	O	
Halictidae				
<i>Dialictus</i> sp. possibly <i>nevadensis</i> (Crawford, 1907)	mining bee	Adv	C	at <i>Sida</i> flowers
Vespidae	wasps			
<i>Polistes exclamans</i> Viereck, 1906	common paper wasp	Adv	C	in rocky ledges
ODONATA	dragonflies and damselflies			
Libellulidae	skimmers			
<i>Pantala flavescens</i> (Fabricius, 1798)	globe skimmer	Ind	C	in flight
CHILOPODA				
SCOLOPENDROMORPHA				
Scolopendridae	centipedes			
<i>Scolopendra subspinipes</i> Leach, 1815	large centipede	Adv	O	at light

Status:

- End endemic to Hawaiian Islands
- Ind indigenous to Hawaiian Islands
- Adv adventive
- Pur purposefully introduced
- ? unknown

Abundance = occurrence ratings:

- R Rare seen in only one or perhaps two locations
- U Uncommon seen at most in several locations
- O Occasional seen with some regularity
- C Common observed numerous times during the survey
- A Abundant found in large numbers
- AA Very abundant abundant and dominant

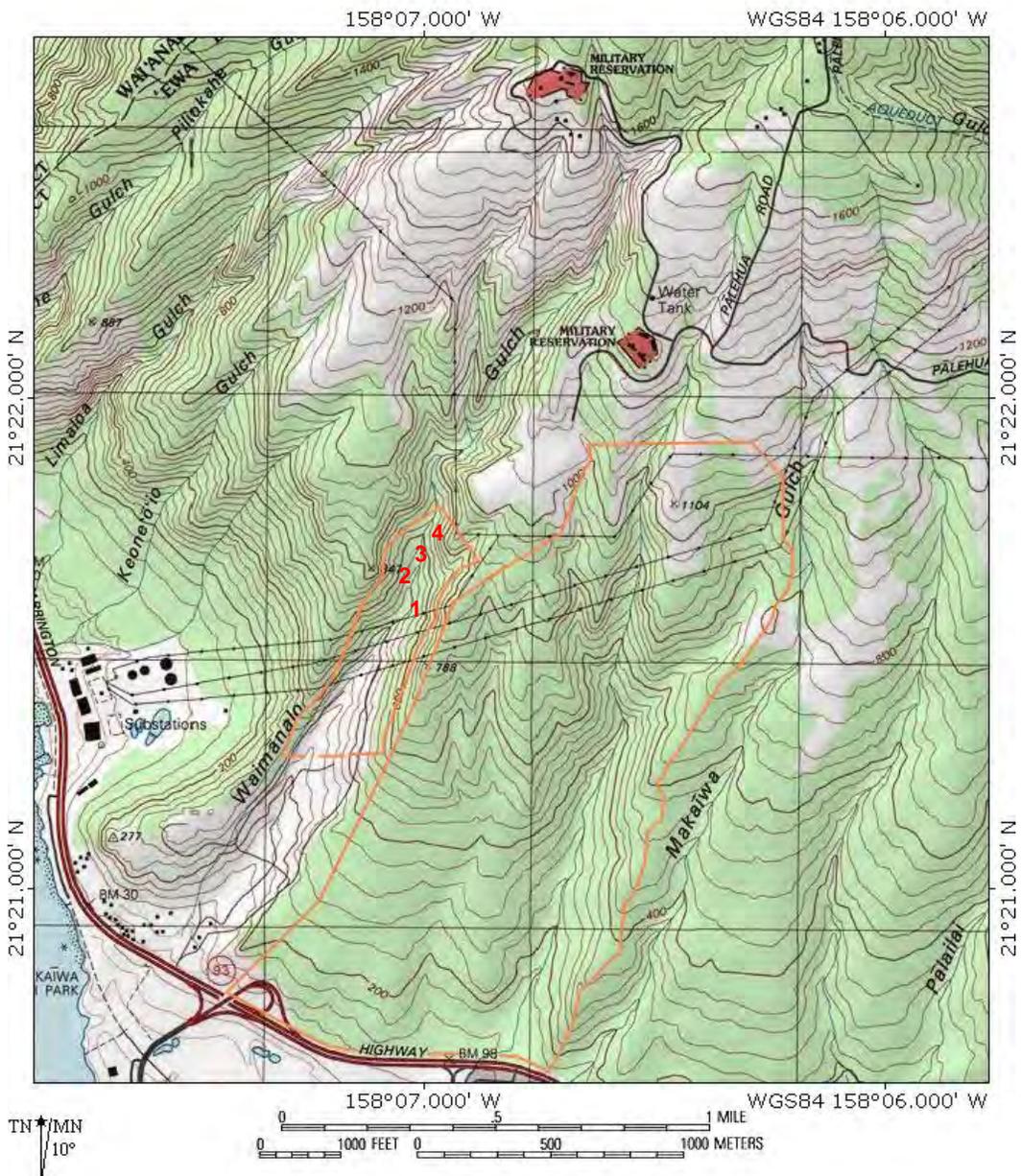


Figure 6. Waimanalo Gulch Landfill showing light monitoring locations [study area is smaller orange outline to left]

August 26-27, 2008 **1** = light sampling
 August 31- September 1, 2008 **2, 3, 4** = light sampling

(map courtesy R. Guinther)

INVERTEBRATE RESOURCES

MOLLUSCA: Gastropoda Pulmonata

Succineidae: *Succinea caduca* Hawaiian amber snail

The only native terrestrial mollusk encountered was a succineid (Figure 7), length approximately 6-8 mm. Endemic *Succinea* snails were observed under stones and on rocky ledges. The rocks are usually encrusted with lichens in a veneer. The ledges provide food and shelter from heat and desiccation. The 1983



Figure 7: *Succinea caduca* at Waimanalo Gulch

survey of Waimanalo Gulch botanical resources noted a fire swept through the valley in that year (Environment Impact Study Corporation), yet the snails persist. The rocky ledges and talus islands appear to offer refuge against destruction by fire and drought by offering a cool, moist habitat in the rocky crevices (Holland 2008).

This species is endemic to O'ahu, but is widely distributed. This distribution pattern is not uncommon in *Succinea*. This group of snails may be arboreal or ground dwelling, and occupies a wide range of habitats.

They often cover their shells with bits of decaying plant matter for camouflage. All *Succinea* feed on decaying plant matter. (Zimmerman 2001). They are not known to eat healthy, growing plants and pose no threat to home gardens or landscaping (R. Cowie, personal communication 2002). The group is under study by Dr. Cowie's lab at the University of Hawai'i (Cowie 2006).

ARTHROPODS

INSECTA

LEPIDOPTERA

Cosmopterigidae: *Hypsmocoma*

Two species of *Hypsmocoma*, as caterpillars, were found on the rocky outcroppings and three species, in adult stage, came to light. Considering the population is likely at a low level due to the dry weather, the diversity is note worthy. In the wet season it could be expected that a higher number of individuals and more species would be recovered. Properly called "case bearers," the caterpillars are sometimes misleadingly called "bagworms." Very young caterpillars of case bearers find safety inside a leaf curl or



Figure 8: Camouflaged *Hyposmocoma* at Waimanalo Gulch, O'ahu

similar hiding place, but when growth forces them out of that protection, they intricately weave a portable shell of their own silk from a lip spinneret. For camouflage, they add bits of their surroundings to the case using their silk: snips of dry grass or leaves, flakes of bark, maybe a little dirt. The case is then easily mistaken by a predator as another part of the landscape (Figure 8). These bunkers are fitted with a hinged lid (operculum), pulled shut by mini-mandibles to defend them from enemies like beetles and micro wasps. Their relationship to the case is similar to that of a hermit crab to his shell. They aren't physically connected to the case as a snail or turtle is fixed to their shells. They are

dependent on their case, and die if removed – even if protected from predators and given food. They don't move far, but feed while partly emerged from the case, dragging along their protective armor by their six true legs. Cases are sometimes attached to rocks a short distance above the ground. (Manning/Montgomery in Liittschwager & Middleton 2001) With over 500 kinds, *Hyposmocoma* micromoths are the greatest assemblage of Hawaiian Island moths, showing astonishing diversity. After writing 630 pages on them, Dr. Elwood Zimmerman lamented the inadequacy of his study. He noted an enormous cluster of species with explosive speciation and diverging radiation (Zimmerman 1978). Much remains to be learned about the life ways of this interesting group of insects now under study by University of Hawaii's Dr. Daniel Rubinoff and colleagues (Rubinoff et al. 2008). The UH lab will attempt to rear out the caterpillars to identify the species. As sexually based characters can be important in identifications, and some of the species were represented by a single specimen, additional collections may be needed for identification.

Noctuidae: *Ascalapha odorata*

The black witch moth (Figure 9) found in this census has been widely distributed in the island chain since the first O'ahu sightings were noted at Manoa in 1928 (Bryan 1929). This large moth is occasionally mistaken for a bat when seen in flight in low light. It is most frequently seen at dawn or dusk. In cities it is seen resting under the eaves of roofs during the day. In rural areas it rests under foliage and against tree trunks.



©Figure 9: Black witch moth resting in day

Sphingidae: *Agrius cingulata* Sweetpotato hornworm

© Figure 10: Sweetpotato hornworm showing pink markings

The sweetpotato hornworm (Figure 10), a large and easily seen moth, is often confused by the public with the Blackburn's sphinx moth (*Manduca blackburni*) described below. They are distinguished by their pink markings, as opposed to orange markings on Blackburn's sphinx moth (see Figure 12). *A. cingulata* caterpillars feed on all sweet potato, morning glory, and related plants. The species is widely distributed around the Hawaiian Islands.

HOMOPTERA (PLANTHOPPERS)Cixiidae *Oliarus discrepans* Giffard, 1925

Oliarus discrepans was previously listed by the US Fish & Wildlife Service as a "Species of Concern." (HBS 2002a) This designation has been abandoned by the Service. Five individuals of this native, lowland planthopper, rarely seen in the last 40 years, were recovered. *O. discrepans* is considered a founding species or ancestor for a large cluster of species.

ODONATA (Dragonflies and Damselflies)Libellulidae: *Pantala flavescens* Globe skimmer

This indigenous dragonfly was observed on the site. Among the most easily observed



© Figure 11: Globe skimmers often use human created water sources

native insects, dragonflies are large, easily approached by people, and graceful in flight. Any small amount of fresh water will attract globe skimmers (Figure 11) and they often colonized human maintained water sources such as golf-course water hazards and ponds. It is widely distributed throughout the Hawaiian Islands, from Kure to Hawai'i Island and has even been found flying at sea (Howarth & Mull 1992).

Invertebrates Not Present

Plant and invertebrate populations are interdependent, meaning host plant presence previews invertebrate diversity. The absence of wiliwili (*Erythrina sandwicensis*) and ma'ō or Hawaiian cotton (*Gossypium tomentosum*) and the low levels of 'ilima (*Sida* sp.) (Char 1999, Guinther 2007) contribute to the paucity of Hawaiian arthropods at Waimanalo Gulch. A longer survey after the winter flush of plant growth would surely have found several more frequently seen native arthropods as noted below.

Alien predatory ants are another major cause of low native arthropods. Both the fire ant (*Solenopsis geminata*) and big-headed ant (*Pheidole megacephala*), which prey on other insects (Zimmerman 1948-80), are present on the property. Ants are well documented as a primary cause of low levels of native arthropods at elevations up to 2000 ft. (Perkins 1913). On all nights during light collecting, ants quickly appeared and began attacking the resting moths and smaller insects at my light. Ants frequently do not overlap territories, but have separate territories, effectively apportioning the hunting grounds between themselves, offering few ant-free zones to native arthropods.

MOLLUSCA: Gastropoda (Snails) Pulmonata

Achatinellidae

The Oahu Tree Snail (*Achatinella*), listed on the federal endangered species list, was not found (DLNR 1996; Federal Register 1981). The habitat (elevation, host plants, and moisture levels) make the area inappropriate for the snail.

ARTHROPODA ARANEAE

Lycosidae: *Lycosa* sp.

Native *Lycosa* or wolf spiders (18 mm) were not seen on the property, although they are probably present based on their distribution in similar habitat island-wide. These are quick, strong predators which give maternal care to their young. They hide alone by day and hunt by night in established individual territories. (Manning/Montgomery in Liittschwager & Middleton 2001)

ARTHROPODA INSECTA

DIPTERA

Drosophilidae: *Drosophila*

No native *Drosophila* were observed on the property. The location does not provide appropriate habitat for any of the 12 native *Drosophila* species recently listed as endangered or threatened. (USFWS 2006a, b).

HETEROPTERA

Lygaeidae *Nysius* sp.

Although commonly found in dryland locations, this native seed bug which uses many host plants, alien and native, was not recorded by this survey.

HYMENOPTERA

Colletidae *Hylaeus* sp.

The yellow-faced bee was not found, but is likely present. This native, ground nesting bee is often found in dry habitats at similar elevations. *Ceratina smaragdula* (Fabricius, 1787), the small carpenter bee, was noted and is often confused with the yellow-faced bee as it is similar in size and often visits the same native plants. (Daly & Magnacca 2003)



© Figure 12: Blackburn's sphinx moth is distinguished from other hawk moths by orange markings.

LEPIDOPTERA

Sphingidae: *Manduca blackburni*

Blackburn's sphinx moth (*Manduca blackburni*), an endangered species (Fed Reg 1999-2000) which favors drylands, was not found in this survey. The moth's native solanaceous host plant, 'aiea (*Nothocestrum* sp.), was not observed on the property in my own survey or prior botanical surveys. The best alien host, tree tobacco (*Nicotiana glauca*), however, is present in many locations in the expansion area. Over 50 plants were searched without finding evidence of feeding or presence of caterpillars.

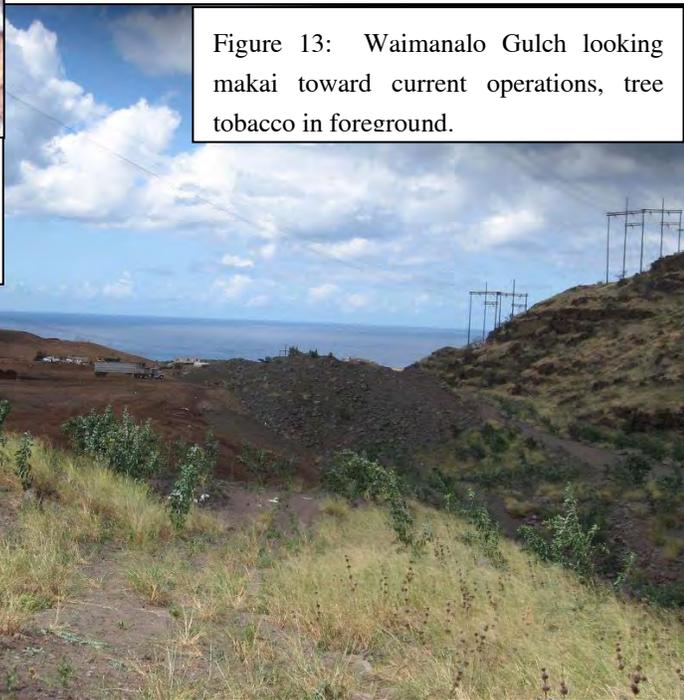


Figure 13: Waimanalo Gulch looking makai toward current operations, tree tobacco in foreground.

The moth has not been seen on O'ahu for many decades. The *Recovery Plan* (USFWS 2005b) for this large sphinx moth proposes only one Management Unit on O'ahu, at the Nature Conservancy's Honouliuli Preserve and relies on future reintroductions from other islands.

Medically important species

The Waimanalo Gulch Landfill Expansion area includes prime habitat for medically important species: centipedes, scorpions, and paper wasps. Widow spiders also may be present in the area. Paper wasps (Figure 14) were plentiful and aggressively defensive on overhanging ledges. Honey bees were in low numbers, most likely the result of the recent introduction of the Varroa mite which is killing colonies.



© Figure 14. Paper wasp building nest

Employees should be alert for these species during their work. These species may pose a serious risk to some individuals, and supervisors should be aware of any special allergy by employees. Some individuals can experience anaphylactic reactions to venom. When dislodging stones or brush, use of gloves and long sleeves will greatly reduce the risk of accidental contact and bites or stings. Please see *What Bit Me?* (Nishida and Tenorio 1993).

POTENTIAL IMPACTS

Potential Impacts on Federal or State Listed Species

No federally or state listed endangered or threatened species were noted in this survey (USFWS 2008). No anticipated actions related to the proposed project activity in the surveyed locations are expected to threaten entire species or entire populations.

RECOMMENDATIONS

Improve associated watershed

It is important to manage the ahupua'a to reduce peak flooding, which can damage stream banks, culverts, and undermine waste storage cells. The presence of cattle in the watershed above the Landfill has had and will have negative impacts. For example, at Hawai'i Kai's Haha'ione Valley and Manoa Valley, exceptional downpours on goat and pig disturbed mauka landscapes and have exacerbated extreme water runoff. Improving the quality of watershed on the property above the Landfill would reduce the intensity of flash flooding and the potential for damage. Removal of the cattle in the catchment area above the Landfill would improve vegetation and reduce erosion. Restoration of the watershed with selective planting of fire resistant plants intended to slow runoff (a mix of plant heights with a strong ground cover) would make a substantial contribution toward soil and water retention.

ACKNOWLEDGMENTS

Thanks are extended to the personnel of the Department of Land and Natural Resources for quick turn around time on permits to conduct this work and Waste Management staff for property access assistance. Thanks are extended to Eric Guinther for access to his botanical reports and to Dr. Brenden Holland and Dr. Daniel Rubinoff of the University of Hawaii for assistance with snails and case bearer identifications. Steven Lee Montgomery conducted all collecting and is responsible for all conclusions. Anita Manning contributed to preparation of this report.

STANDARD NOMENCLATURE

Bird names follow *Hawaii's Birds* (Hawaii Audubon Society 2005).

Invertebrate names follow

Freshwater & Terrestrial Mollusk Checklist (HBS 2002b)

Common Names of Insects & Related Organisms (HES 1990)

Hawaiian Terrestrial Arthropod Checklist (HBS2002a; Nishida 2002)

Place name spelling follows *Place Names of Hawaii* (Pukui et al. 1976).

Plant names follow

Manual of the Flowering Plants of Hawai'i (Wagner et al. 1999)

A Tropical Garden Flora (Staples and Herbst 2005)

ABBREVIATIONS

DLNR Department of Land and Natural Resources, State of Hawai'i

DOFAW Division of Forestry and Wildlife, State of Hawai'i

MV Mercury Vapor

n. new

sp. species

spp. more than one species

UH University of Hawai'i

USFWS United States Fish and Wildlife Service

UV Ultraviolet

GLOSSARY³

Adventive: organisms introduced to an area but not purposefully.

Ahupua'a: historic land division usually from uplands to seashore, recognizing the interconnectedness of uplands and seashore as a management unit

Alien: occurring in the locality it occupies ONLY with human assistance, accidental or purposeful; not native. Both Polynesian introductions (e.g., coconut) and post-1778 introductions (e.g., guava, goats, and sheep) are aliens.

Arthropod: insects and related invertebrates (e.g., spiders) having an external skeleton and jointed legs.

Endemic: naturally occurring, without human transport, ONLY in the locality occupied. Hawaii has a high percentage of endemic plants and animals, some in very small microenvironments.

Hygrophilous: literally water loving, adapted to living or breeding in wet or damp places

Indigenous: naturally occurring without human assistance in the locality it occupies; may also occur elsewhere, including outside the Hawaiian Islands. (e.g., Naupaka kahakai (*Scaevola sericea*) is the same plant in Hawai'i and throughout the Pacific).

Insects: arthropods with six legs, and bodies in 3 sections

Invertebrates: animals without backbones (insects, spiders, snails / slugs, shrimp)

Larva/larval: an immature stage of development in offspring of many types of animals.

Makai: down-slope, towards the ocean.

Mauka: up slope, towards the mountains.

Mollusk: invertebrates in the phylum Mollusca. Common representatives are snails, slugs, mussels, clams, oysters, squids, and octopuses.

Native: organism that originated in area where it lives without human assistance. May be indigenous or endemic.

Nocturnal: active or most apparent at night.

Purposefully introduced: an organism brought into an area for a specific purpose, for example, as a biological control agent.

Rare: threatened by extinction and low numbers.

Species: all individuals and populations of a particular type of organism, maintained by biological mechanisms that result in their breeding mostly with their kind.

Waning: describes a gradual decrease in the amount of the moon's disk that is visible; shrinking

Waxing : describes a gradual increase in the amount of the moon's disk that is visible; growing

3 Glossary based largely on definitions in *Biological Science: An Ecological Approach*, 7th ed., Kendall/Hunt Publishing Co., Dubuque, a high school text; on the glossary in *Manual of Flowering Plants of Hawai'i*, Vol.2, Wagner, et al., 1999, Bishop Museum Press, and other sources.

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Appendix M

Blasting Effects on Rockfalls and Vibrations
Waimānalo Gulch Sanitary Landfill Expansion, 2008

Blasting Effects on Rockfalls and Vibrations

Waimanalo Gulch Landfill

Ewa Beach, HI

At the Waimanalo Gulch Landfill blasting may be used to excavate rock in certain areas for excavation to the subgrade levels. The explosion of blast charges results in ground and surface vibrations. The best predictor of the impact of blasting on structures and humans is peak particle velocity and the frequency of vibration transmitted into the residence.

Acceptable Ranges of Particle Velocities and Frequencies of Vibration

Based on numerous blasting studies, the Bureau of Mines concluded that, for residential-type structures, safe levels of particle velocities from blasting range from 0.5 to 2.0 in/sec.

The damage threshold values are also a function of the frequencies of vibration transmitted to the residence. Depending on the type, the structure may experience strains when frequencies vary between 4 Hz and 25 Hz. Depending on the individual's response and annoyance level from ground vibrations, particle velocities ranging between 0.5 and 0.75 in/sec have been judged "less acceptable". Higher velocities are not acceptable.

Furthermore, information quoted from Merritt [1983] states that: "*Most courts have accepted the fact that a particle velocity not exceeding 2 in/sec will not damage any part of any structure.*"

Particle velocity can be estimated using the following equation:

$$v = H (D/\sqrt{W})^{-\beta} \quad (1)$$

where:

D = distance from the explosive charge, feet;

W = maximum weight of explosives, lbs per delay; and

β , H are site-specific constants determined based on the blast test program

Blast Test Program

Prior to starting the full-scale blasting program for production, WM plans to conduct a Blast Test Program at the site. The program will consist of monitoring particle velocity and frequency of vibration with distance from the blast source for the known blast charge. Based on the Blast Test Program, the site-specific constants β and H can be determined. Once these site-specific constants are established, equation (1) can be used to establish the distance from the blast beyond which the impact from the blast will be safe. Similarly the frequency-distance attenuation relationship will also be established based on the test program.

The above program will help establish the charge weights per delay that will be used during production blasting operations so that blasting does not adversely impact the residential developments.

In addition to the above, as a part of the above Blast Test Program, WM will also monitor the potential for rockfalls during blasting. If a potential for rockfalls is identified, WM will use barriers (e.g., nets) to mitigate the potential rockfall issues.

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