April 27, 1988

Marvin T. Miura, Ph. D
Interim Director
Office of Environmental Quality Control
State of Hawaii
Kekuanaoa Building, Room 104
465 South King Street
Honolulu, Hawaii 96813

Dear Dr. Miura:

Final Environmental Impact Statement (EIS)
Kapaa Refuse Transfer Station (March 1989)
City and County of Honolulu
Department of Public Works, Refuse Division

We are notifying you that the above is an acceptable EIS document, pursuant
to Chapter 343, HRS, and Title 11, Administrative Rules, Department of Health,
Chapter 200, Environmental Impact Statement Rules.


A copy of our Acceptance Report is attached. If you have any questions,
please contact Bennett Mark of our staff at 527-5038.

Very truly yours,

JOHN P. WHALEN
Director of Land Utilization

JPW:sl
1782B
attach.

cc: Alfred J. Thiede, DPW
A. BACKGROUND

The City and County of Honolulu, Department of Public Works (DPW) is proposing a Refuse Transfer Station in Kapaa in Kailua, Oahu, in order to improve its island-wide solid waste management program.

The proposed project covers approximately seven (7) acres and is located at the base of the Kapaa Sanitary Landfill on a site formerly mined as a rock quarry by HC&D. It is situated mauka of Kawainui Marsh, and adjacent to the Kapaa Quarry Road which connects to Kalianianaole Highway on the south terminus and to Mokapu Saddle Road on the north terminus. The site, which is part of the larger 76-acre parcel Maintenance Yard Facility owned by the City and County of Honolulu, will involve mainly the construction of a single 33,000-square-foot free-standing structure which will house the refuse transfer operations, a separate scale house, external parking areas, roadways, and a drainage system.

Based on preliminary design, the main structure will be approximately 200 feet long, 165 feet wide and 45 feet high. All transfer operations will be conducted within the enclosed structure. The structure will consist of a concrete pad supporting the concrete and metal frame building which will also contain administrative, locker and lunch, maintenance and storage areas. The structure will be designed to be aesthetically compatible with the existing area.

External parking areas will serve employee and official vehicle parking, while trailer parking will be provided near the quarry road.

Surface on-site runoff will be collected by a storm drain system and conveyed to the existing 48-inch culvert at the Kapaa Quarry Access Road for discharge into the Marsh. The
area around the Transfer Station will be landscaped and grassed. The resulting on-site runoff should therefore be relatively free of silt or debris. The drainage from the site will be directed into an existing settling basin off-site prior to discharge into the existing 48-inch drain pipe to the Marsh.

Trailer trucks will be washed only on the outside at the washracks provided and the washwater will be directed to an oil separator structure before being discharged into the storm drainage system. The oil separator will keep the oil and other floatable pollutants from being discharged into the storm drainage system. The exterior washing of the transfer trucks will be no different than what occurs at a commercial car wash or fleet maintenance facility.

An on-site evaporation/holding pond will not be employed since there will be no washing of the refuse transfer facility or the inside of the transfer trailer compartments.

The State Department of Business and Economic Development [DBED; formerly Department of Planning and Economic Development (DPED)] locates the project site within the Secondary Area of its Kawainui Marsh Resource Management Plan. The Plan cites runoff and marsh water quality as the chief concerns in the Secondary Area. Drainage and leachate impacts to the marsh are expected to be minimal as supported by various technical studies conducted in the area.

Mauka of the site, the Kapaa Landfill has been designated for future park use on the Development Plan Public Facilities Map. The area immediately above the proposed transfer station is too steep for active park activities and will serve as a buffer zone to the more usable area on top of the landfill. Because of the topography of the finish grade of the landfill, the transfer station will not be visible unless standing at the edge of the top of the landfill. The entire property has been extensively altered by the former quarrying operation and the present landfill activity. Differences from the lowest to the higher elevations within the existing Maintenance Yard Facility vary from about 25 to 30 feet; the elevation is about 10 feet along Kapaa Quarry Road and about 50 feet along the service road leading to the landfill disposal area.

The transfer station will be one of three major structures in the Maintenance Yard Facility. The other two are the new
Automotive Equipment Service building presently under construction and the existing Refuse Collection building.

It is anticipated that the hours of operation at the refuse transfer facility will be the same as the landfill; 7 AM to 4 PM, seven days a week. Vehicles will first check in at the scale house, which is a separate structure below the transfer station. After weigh-in, vehicles will be directed to go either to the transfer station or to the landfill depending on the type of refuse. Vehicles with mostly noncombustible refuse will be directed to the landfill.

City refuse vehicles, commercial hauler vehicles and other large vehicles will drive onto the receiving area where they will unload into the dumping pit 15 feet below the receiving area. Smaller vehicles will be directed to an upper level to deposit their refuse into bins. Future use of this area may be for a drop-off point for recyclable items. It is projected that the station will require 26 employees, including supervisors, heavy truck drivers, equipment operators, laborers, and scale attendants.

The estimated construction cost for the project is $6,500,000, and will require about 12 months to complete.

B. PROCEDURE

1. An EIS Preparation Notice (EISPN) was published in the "Office of Environmental Quality Control (OEQC) Bulletin" of October 8, 1987, under the Register of Chapter 343, HRS Documents. This bulletin was distributed to Federal, State, and City and County agencies, as well as interested community groups. Simultaneously, the DPW requested comments from forty (40) Federal, State, City and County and private agencies.

2. The deadline for comments from consulted parties and requests to be a consulted party was set for November 9, 1987. Twenty-six (26) parties made replies to the EISPN. The DPW made responses to all substantive comments, and included these in the Final EIS.

The Kailua Neighborhood Board No. 31 submitted comments after the deadline. Although not required to, the DPW responded to these comments, but did not include its response in the EIS. DPW's response letter is appended to this report.
3. On December 22, 1987, the DPW submitted the Draft EIS to the OEQC and subsequently to the DLU pursuant to the requirements of Chapter 343, HRS.

4. The announcement of the availability of the Draft EIS was published in the December 23, 1987 "OEQC Bulletin." The deadline for public review was set for February 8, 1988.

5. Twenty-six (26) parties commented on the Draft EIS before the deadline. The DPW made point-by-point responses to all substantive comments submitted before the deadline, and included these in the Final EIS. The State Office of Environmental Quality Control (OEQC) and the State Department of Transportation (DOT) submitted comments after the deadline. There were no substantive remarks made by the DOT. The concerns stated by the OEQC appear to have been addressed in the Final EIS or noted as an unresolved issue. The DOT and OEQC comment letters are appended to this report; together with the DPW's response to OEQC.

6. The Final EIS was submitted to the DLU on March 31, 1988.

In conclusion, the DLU finds that the applicant has complied with the EIS procedures in accordance with Chapter 200, Title 11, Environmental Impact Statement Rules, Sub-Chapter 7, Section 11-200-20, 21, and 22.

C. EIS CONTENT

The Final EIS consists of a single volume, containing the EIS, the comments, and four appendixes. The latter include: (1) "Traffic Impact Assessment;" (2) "Air Quality Study;" (3) "Noise Impact Study;" and (4) "Environmental Aspects of Potential Surface Water Runoff and Leachate Migration."

The Final EIS includes additions, revisions, and clarifications. These principally include the following items:

1. **Summary**

   The Summary section was revised to include the estimated construction cost and time required for completing the project.
2. Section III, Project Description and Statement of Objectives

Part B, Project Location was revised so that a new section describing the future park use of the Kapaa Landfill was added.

3. Section IV, Alternatives Considered

a. Part B.1, "Hydrology" was corrected so that the incorrect reference that runoff would contain some treated process water was deleted.

b. Part C, "Biological Characteristics" was revised by adding a new section on "Aquatic Fauna."

4. Section VI, Relationships to Plans, Policies, and Controls

a. Part C.2, "Development Plan" was revised with the addition of a new section describing the Development Plan Public Facilities Map (DPPFM) Park designation, the apparent conflict with the DPPFM Solid Waste Management designation, and the City Council's rationale for resolving these apparently conflicting DPPFM policies.

b. Figure 5, "Development Plan Public Facilities Map" was corrected.

c. Part C.4, "Special Management Area" was corrected to delete the incorrect notation that the Kapaa Quarry site was in the Special Management Area (SMA).

d. Figure 6, "SMA Boundary" was corrected.

e. Part C.5, "Resource Management Plan for Kawainui Marsh" was added.

5. Section VII., "Anticipated Impacts and Mitigative Measures"

a. Part B, "Impact on Hydrological Characteristics" was revised to include:

(1) a discussion of the site's negligible percentage of runoff as compared to the
runoff of the drainage basin in which the project is located.

(2) a revision of the notation of existing and projected runoff volume.

(3) a description of the on-site and off-site drainage system, washracks for vehicle exterior washdowns, and oil separators to be utilized.

(4) a notation that an evaporation/holding pond would not be used.

b. Figure 7, "Drainage Plan" and Figure 8, "Wash Rack Plan" were added.

c. Part E, Impact on Social and Economic Characteristics, was revised to indicate that, should facilities need to be increased in capacity, the transfer station will be designed to accommodate future expansion.

d. Figure 9, "Traffic Circulation Plan" was added.

e. Part I, "Impact on View Plane" was revised to include a description of the Public Service Area.

f. A new figure was added to show the view of the site from Kaimu and Kihapai Streets.

The Final EIS responded to other substantive comments by letter, but did not reflect these changes in the text. These included:

1. Information that (a) the site cannot be seen from Pahukini Heiau; (b) the landscaping of Monkeypod, Formosan Koa and Swamp Mahoganey trees will obscure the structure; and (c) the grading will also shield the structures from Kapaa Quarry Road since the buildings will be on a lower level than the entry road to the site.

2. Statements that (a) the type of future park to be developed on the adjacent landfill has yet to be determined, and (b) the Department of Parks and Recreation (DPR) did not believe that the park was feasible and had recommended that the Park designation be deleted from the Development Plan in the 1987 annual review.
3. A description that vehicular access to the Heiau and the proposed park would be through the same road system proposed for the transfer station.

4. A detailed explanation stating that (a) since the transfer operations will be within an enclosed building, contaminants will not be present in stormwater runoff; (b) in the unlikely event of a spill within the enclosed building, that sand or clay material would be used to absorb the spill, and the contaminants properly disposed of; and (c) although no toxic or hazardous materials will be accepted at the transfer station, the facility will be designed to contain accidental spills of hazardous wastes.

5. A statement indicating that although the last testing of Kawainui Marsh waters done by the University of Hawaii Water Resource Research Center was completed in 1983, a program is in place to continually test marsh waters. Since 1982, the City has continued testing on a monthly basis with the results sent to the State Department of Health.

The EIS fulfills the content requirements for a Final EIS in accordance with Chapter 200 of Title 11, Environmental Impact Statement Rules, Sub-Chapter 7, at Section 11-200-18. An Unresolved Issue is noted in Section E.

D. RESPONSES TO COMMENTS

The DPW made point-by-point responses to all significant environmental points raised before the deadline. These are reproduced in Section 12 of the Final EIS. The EIS therefore fulfills the public review requirements in accordance with Chapter 200 of Title 11, Environmental Impact Statement Rules, Sub-Chapter 7, at Section 11-200-22.

E. UNRESOLVED ISSUES

There were no Unresolved Issues cited in Section 10 of the EIS.

The DLU notes Visual Impacts as an unresolved issue that, although discussed in greater detail in the Final EIS, still requires further analysis of the visual impacts of the proposed buildings and further discussion of mitigative measures. A Visual Impact Analysis and a landscaping plan will be required with the Special Management Area Use Permit application.
F. DETERMINATION

The Final EIS is determined to be ACCEPTABLE under the procedure established in Chapter 343, HRS.

APPROVED

JOHN P. WHALEN
Director of Land Utilization

JPW:sl
KAPAA REFUSE TRANSFER STATION
Kailua Oahu Hawaii
Department of Public Works
City and County of Honolulu
Division of Refuse Collection and Disposal

Final Environmental Impact Statement
April 1988
DEPARTMENT OF PUBLIC WORKS
REFUSE DIVISION
CITY AND COUNTY OF HONOLULU

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE
KAPAA REFUSE TRANSFER STATION
Koolaupoko District, Oahu, Hawaii

This document is prepared pursuant to Chapter 343, HRS

PROPOSING AGENCY: Department of Public Works
Refuse Division
City and County of Honolulu

RESPONSIBLE OFFICIAL: [Signature] Alfred J. Thiele, Chief Engineer 3.21.88 Date
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Appendix

A  Traffic Impact Assessment for the Proposed Kapaa Refuse Transfer Station
B  Air Quality Study for the Proposed Kapaa Refuse Transfer Station
C  Noise Impact Study for the Proposed Kapaa Refuse and Transfer Station Project
D  Environmental Aspects of Potential Surface Water Runoff and Leachate Migration from the Proposed Kapaa Refuse Processing and Transfer Station, Windward Oahu, Hawaii
I. SUMMARY

CHAPTER 343, HRS
FINAL ENVIRONMENTAL IMPACT STATEMENT

Action: Agency
Department of Public Works
Refuse Division
City and County of Honolulu

Project Name: Kapaa Refuse Transfer Station

Project Description: The proposed project will involve the construction of a refuse transfer station for improved solid waste management. Transfer operations will be handled within an enclosed concrete and metal frame structure of approximately 33,000 square feet which will also provide related services including administration, locker and lunchrooms, maintenance and storage areas. The structure will be designed to be aesthetically compatible with the existing area.

Project Location: The proposed project is located at the base of the Kapaa Sanitary Landfill on a site formerly mined as a rock quarry by HG&D. It is situated mauka of Kawainui Marsh and adjacent to the Kapaa Quarry Road in the Koolaupoko District, Oahu, Hawaii.

Proposed Action: Commitment of City funds for the design and construction of Kapaa Refuse Transfer Station. The estimated construction cost for the project

I-1
is $6,500,000. It is estimated that the project will require 12 months to complete in one phase.

Determination: EIS Required

Tax Map Key: 4-2-15:5

Development Plan Designation: Public Facility, Solid Waste Management

Zoning: R-5

State Land Use District: Urban

Existing Use: The site is part of the Kapaa Quarry Maintenance Yard Master Plan which was formerly part of the HC&D rock quarry. The site is currently unused.

Accepting Authority: Department of Land Utilization
City and County of Honolulu
650 S. King Street
Honolulu, Hawaii 96813

Prepared By: Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Summary: The proposed project will involve the construction of a refuse transfer station for improved solid waste management. Transfer operations will be handled within an enclosed concrete and metal frame structure of approximately 33,000 square feet which will also provide related
services including administration, locker and lunchrooms, maintenance and storage areas. The structure will be designed to be aesthetically compatible with the existing area. The site is part of the Master Planned Kapaa Maintenance Yard.

Significant environmental impacts are not expected from the proposed project. Vehicular traffic, air, and noise in the area should be improved with the implementation of the transfer station and decreased usage of the Kapaa/Kalaheo Sanitary Landfill. Drainage and leachate impacts are expected to be minimal as supported by various technical studies conducted in the area. Flora, fauna, and archaeological impacts are also expected to be minimal. The site is generally in conformance with existing land use regulation, however, the project will require a Special Management Area permit.

No major mitigation measures are expected to be necessary for the operation of the transfer station. Standard measures will be implemented to mitigate construction related impacts.

Alternatives considered for the proposed project, other than minor structural and operational changes, include a no-action alternative and a Keehi Refuse Transfer Station alternative. The no-action alternative was rejected because it would not meet the present and future needs for a safe, efficient public services facility. The Keehi Refuse Transfer Station alternative was rejected because it would require extensive trans-Koolau crossings by collection vehicles which would adversely impact traffic.

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II. PURPOSE

This Environmental Impact Statement is prepared pursuant to Chapter 343, Hawaii Revised Statutes, since the proposed action will involve the commitment of City Funds for the design and construction of the Kapaa Refuse Transfer Station.
III. PROJECT DESCRIPTION AND STATEMENT OF OBJECTIVES

A. Introduction

Currently on Oahu over 730,000 tons of solid waste are disposed of in City (Waipahu Incinerator and the Kapaa/Kaluheo and Waianae Sanitary Landfills), private (Palailai Sanitary Landfill), and military (Kaneohe MCAS Landfill) facilities. Over 80% of the refuse is disposed of in landfills.

For years, disposal in sanitary landfills was used because it was cost-effective and environmentally acceptable. However, with increased urbanization and an increase in the amount of solid waste generated, landfills are fast approaching their capacity, and new sites are becoming more difficult to acquire. On Oahu, the problem of solid waste disposal is more critical than in many other American communities because of the scarcity of usable land. In addition to the small amount of land that is actually available, a major limitation is the restriction of landfills from areas located over potential supplies of municipal water, which rules out most of the accessible land on Oahu. To further compound the problem, the federal government prohibits landfilling in wetland areas, and potential sites in remaining areas are limited because most are either too close to residential communities, or owned by the State or Federal governments and used for other purposes.

To preserve the limited landfill life, the City and County of Honolulu pursued a solid waste disposal program which would reduce the volume of refuse going into the landfills. On July 1985, the City entered into a contract with Honolulu Resource Recovery Venture to design, construct, and operate for 20 years the City's resource recovery facility, H-POWER. H-POWER will be located in Campbell Industrial Park and is expected to be completed in the later part of 1990. To minimize landfill usage, the City plan to
incinerate all of the combustible refuse at H-POWER or the Waipahu Incinerator which will include the refuse generated on the windward side of Oahu. To increase cost-effective transporting of refuse to H-POWER, the City proposes to construct the Kapaa Refuse Transfer Station.

B. Project Location

The proposed project is located at the base of the Kapaa Sanitary Landfill on a site formerly mined as a rock quarry by HC&D (Figure 1, 2). It is situated mauka of Kawaihui Marsh, and adjacent to the Kapaa Quarry Road which connects to Kalanianaole Highway on the south terminus and to Mokapu Saddle Road on the north terminus. The site is part of a large 76-acre parcel owned by the City and County of Honolulu. The entire property has been extensively altered by the former quarrying operation and the present landfill activity. Ground elevation within the existing Maintenance Yard Facility varies from about 25 to 30 feet, with the elevation dropping to about 10 feet along Kapaa Quarry Road and rising to 50 feet along the service road leading to the landfill disposal area. The Kapaa Landfill has been designated for future park use on the Public Facilities Development Plan and will be in view of the proposed transfer station. The area immediately above the proposed transfer station would be too steep for active park activities and would serve as a buffer zone to the more usable area on top of the landfill. Because of the topography of the finish grade of the landfill, the transfer station would not be visible unless standing at the edge of the top of the landfill. The proposed transfer station is included in the Maintenance Yard Facility Environmental Assessment which resulted in a Negative Declaration completed in April 1985 as a planned expansion within the Maintenance Yard Facility.

C. Project Description

The proposed refuse transfer station will consist of the construction
Figure 2
Project Site Map
of a single freestanding structure which will house the refuse transfer operations (Figure 3). The transfer station will be one of three major structures in the Maintenance Yard Facility. The other two are the new Automotive Equipment Service building presently under construction and the existing Refuse Collection building. Based on preliminary design, the structure will be approximately 200 feet long, 165 feet wide and 45 feet high. The transfer process will also include a weighing station. All operations will be conducted in the enclosed structure. The structure will consist of a concrete pad supporting the concrete and metal frame building which will also contain administrative, locker and lunch, maintenance and storage areas. The structure will be designed to be aesthetically compatible with the existing area. The entire operation will be conducted in a similar manner as Keahi Refuse Transfer Station.

External parking areas will serve employee and official vehicle parking, while trailer parking will be provided near the quarry road.

The basis for the proposed design consists of: A 200-foot x 165-foot building; eight dump spots; two loadout slots; with built-in public service area on the west face of the building. However, due to budget constraints the public service area may be deleted and the building dimension changed to 250-foot x 150-foot to accommodate more dump spots.

1. Base Condition at 500 Tons per day (TPD)

   a. Eight dump spots serving municipal and privately-operated collection vehicles (packers or bins) can accommodate $8 \times 6 = 48$ vehicles per hour, based on a conservative turnaround time allowance of 10 minutes per vehicle. This number of dump spots can accommodate the expected peak vehicle arrival of about 35 vehicles per hour.
b. Projected average daily collection vehicle traffic at 500 TPD is 89 trucks (42 Refuse Division, plus 47 private haulers). The eight dump spots provide sufficient capacity to readily accommodate the average traffic, as well as a peak traffic condition of 14 vehicles per day (calculated at 1.5 times average traffic). Nominal vehicular capacity, assuming levelized arrival at the hourly service rate of 48 collection vehicles per hour, is 384 vehicles per eight-hour day.

c. The built-in public service area will accommodate approximately 60 vehicles per hour based on seven bins, two vehicles per bin, and a turnaround time allowance of 14 minutes per vehicle. Nominal public service area vehicular capacity, assuming levelized arrival at the hourly service rate, is 480 vehicles per eight-hour day. Projected general public traffic at 327 vehicles per day is within this capacity.

2. Expansion Condition at 750 TPD:

a. The eight dump spots for collection vehicle unloading continue to provide adequate capacity for peak hourly collection vehicle traffic up to the conservatively calculated service rate of 48 vehicles per hour. With service inside the building limited to collection vehicles, peaking traffic is unlikely to involve waits of longer than 5 to 10 minutes. Larger peaks can also be accommodated by encouraging drivers to achieve turnarounds of less than 10 minutes per vehicle (turnaround times as low as 5 to 6 minutes per vehicle can be achieved). For example, achieving an average turnaround time of 8 minutes per vehicle would allow the eight dump spots to accommodate 60 vehicles per hour during peak periods, which is well in excess of expected peak traffic volumes.
b. Projected average daily collection vehicle traffic at 750 TPD is 134 trucks (63 Refuse Division, plus 71 private haulers). This average traffic condition and a peak day traffic condition of 201 trucks (calculated as 1.5 times the average) remain well within the rated daily capacity of 384 vehicles per 8-hour day. Spare capacity during slack periods can be used, if desired, to accommodate selected private vehicles (probably those with larger loads, such as pickups or other small trucks).

c. The calculated public service area capacity of 480 vehicles per 8-hour day is virtually equivalent to the projected general public traffic of 490 vehicles per day. Staff supplementation in this area during busy periods, selective use of spare transfer station capacity, extension of service hours, or other operational accommodations may be required during peak usage hours.

D.  Facility Operations

It is anticipated that the hours of operation at the facility will be the same as the landfill; 7 AM, to 4 PM, seven days a week.

Vehicles will check in at the scale house which will be a separate structure below the transfer station. After weigh-in, vehicles will be directed to go either to the transfer station or to the landfill depending on the type of refuse. Vehicles with mostly noncombustible refuse will be directed to the landfill.

Vehicles entering the transfer station will be segregated with the drivers of smaller vehicles going to an upper level to deposit their refuse into bins. Future use of this area may be for a drop off point for recyclable items. City refuse vehicles, commercial hauler vehicles and other large vehicles will drive onto the receiving area where they will unload into the dumping pit 15 feet below the receiving area.
Unlike the Keehi Refuse Transfer Station, the Kapaa Refuse Transfer Station will utilize open-top trailers. These will be similar to the ones utilized at Kawaiola Refuse Transfer Station. One open-top transfer trailer will be stationed on each end of the facility. Front-end loaders will be used to push the refuse from the dumping pit directly into the trailers. A knuckleboom loader will be used to level the load. Once full, the load will be hauled to H-POWER at Campbell Industrial Park and an empty trailer will be brought in to be loaded.

Several different unloading systems are used with the open-top trailer, including the live-bottom or "walking" floor, chain drag, hydraulic ram, and stationary tipper located at the unloading point. Three 103.5 c.y. capacity open-top trailers equipped with chain drag unloaders are presently being used at the Kawaiola Refuse Transfer Station.

It is projected the station will require 26 employees which includes supervisors, heavy truck drivers, equipment operators, laborers, and scale attendants.
IV. ALTERNATIVES CONSIDERED

A. No-Action

This alternative does not meet the present and future needs for a safe, efficient work place to provide the designated public services. The transfer station will extend landfill life. With the limited landfill sites available, alternative actions are necessary for future refuse disposal. Therefore, "no-action" is not considered a viable alternative.

B. Keehi Refuse Transfer Station

Another alternative is the utilisation of the Keehi Refuse Transfer Station. This alternative would require extensive trans-Koolau crossings by collection vehicles which would adversely impact traffic. When the H-Power facility opens, commercial refuse haulers from Honolulu presently using Kapaa/Kalaheo Sanitary Landfill are expected to use the Keehi Refuse Transfer Station. Additional loads from windward Oahu would tax the existing Keehi facility.

C. Proposed Project Alternative

This alternative provides the most efficient and economical way of maintaining services to the public by the Division of Refuse Collection and Disposal presently located at the Kapaa facility. The proposed improvements provide for safer and more efficient facilities and will mitigate potential adverse impacts which might occur at alternative sites outside of the existing sanitary landfill compound. The proposed alternative does not represent the final, working drawing design. The project may be modified and scaled down to accommodate future budget constraints.
V. AFFECTED ENVIRONMENT

A. Geographical Characteristics

1. Topography

The entire project area has been extensively altered by the former quarrying operation and the present landfill activity. Ground elevation within the existing Maintenance Yard Facility varies from 25 to 30 feet, with the elevation dropping to about 10 feet along Kapaa Quarry Road and rising to 50 feet along the service road leading to the landfill disposal area.

2. Geology/Soils

The Maintenance Yard lies within the caldera of the Koolau volcano, which was about eight miles long and four miles wide extending from near Waimanalo to beyond Kaneohe. Within the caldera, the rocks have been much affected by rising volcanic gases and hot water. The original pyroxene of the rocks has commonly been changed to chlorite and clay minerals, giving the rock a greenish to greenish gray hue. Silica released during the alteration has been redeposited as one or another of the silica minerals (opal, chalcedony and quartz), in the form of amygdules filling former vesicles or as irregular masses and veinlets filling other openings in the lavas. The mass is centered approximately beneath Kawaiul Marsh. Within the Koolau caldera is the castle vent, an eroded cinder cone from which a dense lava flow more than 100 feet thick has been largely quarried away. The old Kapaa Quarry site is in this lava flow.

Although the Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, indicates the site as a
quarry, some adjacent soils classified as Alaeola silty clay may be found on the project site.

3. Climate

The climate is moderated with predominant northeasterly tradewinds with a mean speed of 10 knots. Average temperature ranges from 73 to 79 degrees F. The average annual rainfall at KMCAS is 44 inches, with slightly higher rainfall of approximately 50 inches at the site. An average of five winter storms affect this area each year. The maximum recorded 24-hour rainfall has been less than 12 inches. The U.S. Weather Service 100-year storm for the Kapaa area is 15 inches in 24 hours.

B. Hydrological Characteristics

1. Hydrology

The site is part of Kapaa Valley which drains into Kawainui Marsh. The marsh provides 3,000 acre feet of flood storage as part of the Oneawa Channel (Kawainui Channel) design which conveys the runoff to Kailua Bay. Two perennial streams enter Kawainui Marsh from Maunawili Valley, with average total discharge of about 7 mgd. Kapaa Valley is drained by the intermittent Kapaa Stream. Its flow consists of storm runoff. Sizeable continuous aquifers do not occur in the area; in general, the groundwater saturates flow basalts compartmentalized by dikes and other intrusives. The surface of Kawainui Marsh represents the general groundwater table in the region.
2. Drainage

Storm runoff from the site sheet flows toward Kapaa Quarry Road and drains into the marsh through two existing 36-inch culverts. An existing pipe and ditch intercepts runoff from the landfill areas mauka of the Maintenance Yard and alleviates previous flooding problems at the site.

3. Flood Plain Management

The site is located in Zones C and D of the Flood Insurance Rate Map of Oahu. Zone C is designated as an area of minimal flooding while Zone D is comprised of areas of undetermined flooding.

C. Biological Characteristics

1. Flora

The project site is practically devoid of flora, with the exception of three monkey pod trees, a few coconut trees, two avocado trees, one plumeria tree, and one brassai tree fringing the Maintenance Yard and caretaker's cottage at the eastern property line. The natural vegetation consists of bermuda grass and guava.

An earlier survey of the flora did not locate any endangered species of flora, however, the following species were identified near Kapaa Quarry Road to the ridgeline.
Common Name
Guinea grass
California grass
Napier grass
Blue-Morning Glory
Slender mimosa
Maile pilau
Vervain
Lilikoi
Guava
Pili
Japanese tea
Broomedge
'Ulei
'Akoko
Hi’aloa
Spanish clover
Flora paintbrush
Buffelgrass

Scientific Name
Panicum maximum
Brachiaria mutica
Pennisetum purpureum
Ipomoea congesta
Desmanthus virgatus
Paederia foetida
Stachytarpheta sp.
Passiflora sp.
Psidium guajava
Heteropogon contortus
Cassia leschenaultiana
Andropogon virginicus
Osteomeles anthyllidifolia
Euphorbia celtastroides
var. amplexcens
Waltheria americana
Desmodium uncinatum
Emilia sonchifolia
Cenchrus ciliaris

2. Fauna

Birds and mammals sighted or observed around and within the project site include:
Birds:

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardinal</td>
<td><em>Cardinalis cardinalis</em></td>
</tr>
<tr>
<td>Cattle egret</td>
<td><em>Bubulcus ibis</em></td>
</tr>
<tr>
<td>Barred dove</td>
<td><em>Geopelia striata</em></td>
</tr>
<tr>
<td>Mynah</td>
<td><em>Acridothera tristis</em></td>
</tr>
<tr>
<td>Lace-necked dove</td>
<td><em>Streptopelia chinensis</em></td>
</tr>
<tr>
<td>Sparrow</td>
<td><em>Passer domesticus</em></td>
</tr>
<tr>
<td>Japanese white-eye</td>
<td><em>Zosterops japonica</em></td>
</tr>
<tr>
<td>Shama thrush</td>
<td><em>Copsychus malalaricus</em></td>
</tr>
</tbody>
</table>

Mammals:

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mongoose</td>
<td><em>Herpestes auropunctatus</em></td>
</tr>
<tr>
<td>Mice</td>
<td><em>Mus musculus</em></td>
</tr>
<tr>
<td>Rat</td>
<td><em>Rattus rattus</em></td>
</tr>
<tr>
<td></td>
<td><em>R. norvegicus</em></td>
</tr>
<tr>
<td></td>
<td><em>R. exulans</em></td>
</tr>
</tbody>
</table>

The adjoining Kawainui Marsh is a habitat for birds and other wildlife. When it was an open lake, a large number of endemic birds made their habitat there. Up to World War II, Kawainui was a valuable breeding ground for the Hawaiian Ducks. For a while it was rarely seen until the State reintroduced a colony of ducks into the open water areas near Quarry Road. With the reduction of the size of the lake due to sediment loading from drainage areas flowing into the marsh, endemic and migratory birds are rarely seen because of their reduced number. Plans to re-establish the existing waterbird habitat by removing excess vegetation are being recommended by the State. The following birds have been sighted by various investigators in and around the marsh.
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardinal</td>
<td><em>Cardinalis cardinalis</em></td>
</tr>
<tr>
<td>Pintail</td>
<td><em>Anas acuta</em></td>
</tr>
<tr>
<td>Mynah</td>
<td><em>Acridotheres tristis</em></td>
</tr>
<tr>
<td>Pacific Golden Plover</td>
<td><em>Pluvialis dominica fulva</em></td>
</tr>
<tr>
<td>Japanese White-eye</td>
<td><em>Zosterops japonicus</em></td>
</tr>
<tr>
<td>Black-crowned Night Heron</td>
<td></td>
</tr>
<tr>
<td>Hawaiian Duck*</td>
<td><em>Nycticorax nycticorax hoactli</em></td>
</tr>
<tr>
<td>Hawaiian Coot*</td>
<td><em>Ana wyvillieu</em></td>
</tr>
<tr>
<td>Hawaiian Stilt*</td>
<td><em>Fulica americana alai</em></td>
</tr>
<tr>
<td>Hawaiian Gallinule*</td>
<td><em>Himantopus himantopus knudseni</em></td>
</tr>
<tr>
<td>Shoveler</td>
<td><em>Gallinula chloropus sandvicensis</em></td>
</tr>
<tr>
<td>Frigate Bird</td>
<td><em>Anas clypeata</em></td>
</tr>
<tr>
<td></td>
<td><em>Fregata minor</em></td>
</tr>
</tbody>
</table>

*Endangered species

3. Aquatic Fauna

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pelagic milkfish or awa</td>
<td><em>Chanos chanos</em></td>
</tr>
<tr>
<td>Aholehole</td>
<td><em>Kuhlia sandvicensis</em></td>
</tr>
<tr>
<td>Mullet</td>
<td><em>Migul cephalus &amp; Neomyxid</em> chaptali*</td>
</tr>
<tr>
<td>Papio</td>
<td><em>Caranx sp.</em></td>
</tr>
<tr>
<td>Barracuda</td>
<td><em>Sphyraena sp.</em></td>
</tr>
<tr>
<td>Juvenile nehu</td>
<td><em>Stolephorus purpureus</em></td>
</tr>
<tr>
<td>O'opu okuhe</td>
<td><em>Eledone sandvicensis</em></td>
</tr>
<tr>
<td>Juvenile goblids</td>
<td><em>Awacous stamineum and A. genivittatus</em></td>
</tr>
<tr>
<td>Rice eels</td>
<td><em>Monopterus sp.</em></td>
</tr>
<tr>
<td>Endemic Shrimp</td>
<td><em>Macrobrachium grandimanus</em></td>
</tr>
<tr>
<td>Hapa crab</td>
<td><em>Thalamita crenata</em></td>
</tr>
<tr>
<td>Worm</td>
<td><em>Tendipes sp.</em></td>
</tr>
</tbody>
</table>
D. Cultural Resources

Several historic sites border Kawainui Marsh. Ulupo Heiau, located off Kailua Road, and Pahukini Heiau, located mauka of the project site, were placed on the National Register of Historic Places in 1972 (Figure 4). In March 1980, Kawainui Marsh was determined to be eligible for listing in the National Register, and the State is planning to propose formal nomination as soon as specific boundaries can be defined. The project site has been extensively altered by previous quarry activity, and nothing of historic significance is known to exist in the immediate area of the Maintenance Yard Facility.

E. Social and Economic Characteristics

1. Population

The 1980 population within the Koolaupoko District served by the Kapaa Maintenance Yard was 81,186. Between 1970 and 1980, the population increased by an average annual rate of 11.5%. The total household count for 1980 was 22,727. Population projections for future growth of Oahu through the year 2005 were taken from the City and County "General Plan Objective and Policies," dated December 8, 1982, State DBED 1984 Series "M-F" Population Projections. This series projected a population of 954,500 for Oahu in Year 2005. The rural district of Koolaupoko, which includes Kailua and Kaneohe, is projected to have a population increase of 12.4% to 13.6% or 118,358 to 124,225 over the next 17 years.

2. Employment

The urban fringe areas of Kailua and Kaneohe are classified primarily as "bedroom" communities. The bulk of the population commutes to employment centers on the leeward side of the island. Of the total work force over age 16 on the
Figure 4
Historic Sites
island of Oahu, only 5.6% (20,705) work within the Koolaupoko district, while 14.3% of the total population resides in the district. The largest employer in this area is the Kaneohe Marine Corps Air Station.

F. Existing Traffic

A traffic impact assessment for the proposed Kapaa Refuse Transfer Station conducted by Austin, Tsutsumi & Associates, Inc. (Appendix A) stated that access to the existing facility at Kapaa is primarily from Kapaa Quarry Access Road which runs from Kalanianaole Highway, near Kailua Drive-In, to Mokapu Saddle Road, near Kalaheo High School. All refuse vehicles must check in at the weigh station at Kapaa before proceeding either to the Kapaa or Kalaheo sites.

A potential hazard exists at a skewed intersection between the Quarry Access Road leading to Mokapu Saddle Road, and the access road leading to Ameron HC&D Kapaa Quarry. Vehicles from Mokapu Saddle Road, bound for the weigh station at Kapaa, conflict with vehicles from Kalanianaole Highway, bound for Kapaa Quarry.

The peak hours of traffic on the Kapaa Quarry Access Road occur between 6:15 AM and 7:15 AM and between 3:00 PM and 4:00 PM, with traffic volumes of 652 vehicles per hour (vph) and 416 vph, total for both directions. The 24-hour traffic volume on the Kapaa Quarry Access Road totals 5,843 vehicles for both directions.

The vehicular traffic mix consists of private vehicles, using Kapaa Quarry Access Road as a cutoff between Mokapu Saddle Road and Kalanianaole Highway, as well as employee and truck traffic bound for the landfill or the quarry.
The length of the Quarry Access Road between the Kapaa Site and Mokapu Saddle Road is subject to flooding. The roadway becomes inaccessible and is prone to deterioration from heavy truck traffic.

G. Ambient Air Quality

The "Air Quality Study for the Proposed Kapaa Refuse Transfer Station" (Appendix B) conducted by Barry D. Root has indicated that there are no available long-term air pollutant measurements for the project site or its immediate vicinity. Particulates have been measured for several years in Waimanalo, on the windward coast of Oahu, but this station was selected primarily to sample background concentrations upwind of Oahu and readings are consequently quite low. Particulate levels at Waimanalo typically range from 20 to 40 with an average of 30 micrograms per cubic meter, a level well below all existing air quality limits. Particulate levels in the vicinity of the present Kapaa Landfill can, at times, be much higher than background levels; however, because dirt moving activities and heavy vehicles moving over unimproved roadways create a significant amount of fugitive dust.

Carbon monoxide levels at the intersection of Kapaa Quarry Road and Kalanianaole Highway are presently estimated under worst case atmospheric dispersion conditions, to be above State of Hawaii one and eight hour limits, and Federal eight hour limits.

Present concentrations of other regulated pollutants within the project area are probably quite low. Refuse collection trucks used on the windward side of Oahu are primarily diesel-powered. Diesel emissions contain significant amounts of nitrogen dioxide, but the percentage of refuse trucks within the daily traffic volume at the primary intersection of concern is small and nitrogen dioxide emissions from gasoline-powered vehicles are very low. On the
other hand, carbon monoxide emissions from diesel trucks conse-
sequently make a small contribution to vehicle-related carbon monoxide
levels.

In summary, existing levels of particulates within the project site,
and carbon monoxide levels near the primary intersection serving
the project site are estimated to be quite high, but levels of other
regulated pollutants are most likely well within allowable limits.

H. Existing Noise Environment

Background ambient noise measurements were obtained in the
evrons of the project site, as well as at the Keehi Refuse Transfer
Station by Y. Ebisu & Associates and documented in "Noise Impact
Study for the Proposed Kapaa Refuse and Transfer Station Project"
(Appendix C). Background ambient noise levels in the project
area were obtained during the quiet time of the day (6:00 PM to
7:00 PM), with resulting average noise levels of 47 to 52 dBA.
Minimum background ambient noise levels ranged from 39 to 40
dBA, which are considered to be very quiet. From these
measurements, background ambient noise levels in the residential
areas to the east of the project site are estimated to be in the
range of 45 to 55 Ldn (Day-Night Average Sound Level.)
VI. RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

A. Federal

No Federal plans or programs directly affect the proposed project site, therefore, no special Federal permits will be required.

B. State

1. Hawaii State Plan

The Hawaii State Plan consists of a series of broad goals, objectives, and policies which act as guidelines for the growth and development of the State. In general, the proposed project is consistent with the overall intent of the State Plan. The overall theme of the Hawaii State Plan is:

- Individual and family self-sufficiency
- Social and economic mobility
- Community or social well-being

Specifically, the Hawaii State Plan details objectives and policies in the various areas such as population, the economy, physical environment, facility systems, socio-cultural advancement and fiscal management. The Kapaa Refuse Transfer Station project is generally consistent with the goals and policies of the Hawaii State Plan and has been designed to facilitate its objectives.

2. State Functional Plan

The Hawaii State Functional Plan has been prepared for use as the primary planning tool in directing the planning process for Hawaii's long and short-term goals. By setting the overall
theme and directive, functional plans were created as extensions, policies, and implementing actions to address these concerns. These plans were reviewed to determine their relationship to the proposed project and are generally considered consistent and mutually in conformance with the objectives and policies of the functional plans.

3. State Land Use

The proposed transfer station will be located within the existing Urban State Land Use District boundaries in Kapaa.

4. H.R.S. Chapter 205-A Coastal Zone Management

This project will not require a State CZM federal consistency determination, since no federal funds or federal permits are involved.

C. City

1. City and County of Honolulu General Plan

The General Plan sets forth the long-range social, economic, environmental, and design objectives for enhancing the general welfare and prosperity of Oahu residents. The proposed project is generally considered to be in conformance with the objectives of the General Plan and is particularly applicable to Transportation and Utilities Objective B, Policy 5. Objective B states "To meet the needs of the people of Oahu for an adequate supply of water and for environmentally sound systems of waste disposal." Policy 5 states "Provide safe, efficient, and environmentally sensitive waste-collection and waste disposal services."
2. Development Plan

The proposed project is in conformance with the Development Plan Map which designates the site as a Public Facility. The project is, in general, consistent with the relevant portions of Development Plan Common Provisions, Sections 1 through 14. More specifically, the site is designated "SW/M," solid waste management on the Development Plan Public Facilities Map (Figure 5).

The Development Plan Public Facilities Map (DPPFM) park designation on the subject parcel is for the expansion of Kawaiulii Regional Park. The rationale for this designation is that it would continue the string of planned parks around the marsh perimeter to help preserve and protect Kawaiulii Marsh.

The refuse transfer station designation (SW/M) is also on the DPPFM at this site which is part of the existing City maintenance yard. Council has previously indicated that the site is suitable for both uses. They feel that alternative uses and alternative sites should be indicated on the DPPFM to provide option and greater flexibility in determining the final placement of the various public facilities. Council feels that the final resolution of issues of priority when conflicting policies are involved rests with them.

3. City and County Zoning District

The parcel is currently zoned R-5 residential.

4. Special Management Area

The proposed project is within the Special Management Area (Figure 6) and therefore an SMA permit will be required.
5. Resource Management Plan for Kawainui Marsh

The State of Hawaii Department of Planning and Economic Development (DPED) locates the project site in the Secondary Area of its Kawainui Marsh Resource Management Plan. The Plan cites runoff and marsh water quality as the chief concerns in the Secondary Area.

Recommended actions of the management plan which potentially relate to the proposed project are:

a. **Economic:**

A-1 Remove the auto dump from the primary area (Kailua Auto Wreckers).

A-2 Relocate existing industrial uses situated on the marsh side of the Quarry Road.

B-B Acquire those lands in the secondary area that will fulfill the other policies and implementing actions of this plan, including an access trail to Pohukini Helau and lands related to other historic sites.

b. **Ecological:**

B-1 Develop an ethno botanical garden within the old landfill area occupied in part by the model airplane field.

E-1 Develop criteria for monitoring discharge of sediments in the marsh.

E-2 Discontinue direct discharges of treated sewage effluent into the Marsh and into streams subsequently discharging into the Marsh.
E-3 Develop and maintain a system to monitor the quality and quantity of influent streams and overland flows to the Marsh.

c. **Cultural:**

B-1 Acquire lands necessary to provide visual corridors and trail linkages between Ulupo and Pohukini Helaus.

D-2 The existing sanitary landfill site, following closure should be graded and landscaped.

D-2 The auto junkyard should be cleared and the area restored to an appropriate natural area setting.

The proposed improvements to the Kapaa Quarry Maintenance Yard do not conflict with the above recommendations of the State plan.

Additionally, although the plan is very specific in its recommended actions, e.g., remove auto junkyard and relocate existing industrial uses on the marsh side of Kapaa Quarry Road, it does not call for the removal of the existing maintenance yard.
VII. ANTICIPATED IMPACTS AND MITIGATIVE MEASURES

A. Impacts on Geographical Characteristics

No major impacts are expected to result from the development of the proposed project. All earthwork grading will be mitigated to prevent siltation and unnecessary runoff.

B. Impact on Hydrological Characteristics

The proposed transfer station is not expected to have any significant impact on existing water quality. Vehicular washdowns will take place on site but any structural washdown runoff is expected to be minimal. Similar to Keehi Refuse Transfer Station, the dumping pit will not be washed down but will be swept daily.

The net impact of any increase in storm runoff as a result of this project is expected to be negligible. The entire drainage basin covers approximately 7100 acres. In comparison, the project area covers about 7 acres, or approximately 0.1 percent of the entire drainage basin.

Total onsite runoff from the project site will be increased from approximately 24 cfs to 37 cfs. Although there will be more runoff, less silt is expected because of the covered area. Onsite drainage will be discharged through an existing 46" RCP.

A study of surface water runoff and leachate migration conducted by Gordon L. Dugan, Ph.D (Appendix D) states that previous surface water and leachate quality studies have indicated that identifiable water quality problems in Kawainui Marsh due to the implementation of the proposed project are extremely unlikely. For example, accidental spillage of refuse to and from the station (from which leached constituents could be extracted by storm water for potential...
transportation by surface and/or subsurface flow to the marsh); or washdown water that may be produced at the station during the washdown of station facilities and trucks.

Surface on-site runoff will be collected by a storm drain system and conveyed to the existing 48" culvert at the Kapaa Quarry Access Road for discharge into the Marsh (Figure 7). Once the Transfer Station is constructed, and the area landscaped and grassed, on-site runoff will be relatively free of silt or debris. There will be no washdown of the refuse transfer facility. Trailer trucks will be washed on the outside only at the washracks provided and the washwater will be directed to an oil separator structure before being discharged into the storm drainage system (Figure 8). The oil separator will keep the oil and other floatable pollutants from being discharged into the storm drainage system.

An evaporation/holding pond will not be employed in that there will be no washing of the refuse transfer facility or the inside of the transfer trailer compartments. The exterior washing of the transfer trucks is no different than what occurs at a commercial car wash or fleet maintenance facility.

C. Impact on Biological Resources

No impact to existing flora or fauna within the project site is expected. For the most part, the site is clear of vegetation and wildlife. Existing trees fringing the eastern property boundary will be preserved to minimize views of the facility from the Kapaa Quarry Road. The proposed improvements will have no significant impacts on Kawainui Marsh.

D. Impact on Cultural Resources

There are no identified historic sites within the immediate vicinity.
The closest historic site, Pahukini Helau, is located approximately 1,000 feet from the project site and is fenced separately for protection to the Helau. Nevertheless, if anything of potential historic significance is discovered during construction, the work will be halted and the State Historic Preservation Officer will be consulted.

E. Impact on Social and Economic Characteristics

The proposed action is not expected to have any significant socio-economic impacts. The proposed improvements will improve the social well-being of employees by providing safer, more efficient facilities. Should the facilities need to be increased in capacity, the transfer station will be designed to accommodate future expansion. With the construction of the refuse transfer station, approximately 26 additional jobs will be provided for operation of the facility. The net gain of jobs will be offset by a reduction in force at the landfill site of approximately 10 positions.

F. Impact on Traffic

As stated earlier a traffic impact assessment was conducted by Austin, Tsutsumi & Associates, Inc. (Appendix A). They concluded that when the proposed transfer station becomes operational, it is expected that the refuse load and the resulting traffic will be significantly reduced. The load reduction of 70% by tonnage will be a result of Honolulu's private collectors' refuse being disposed of at the H-POWER Plant. The City refuse load and general public refuse load are expected to remain relatively constant. The resulting average daily traffic is expected to be reduced by one-third. The solid waste loading and traffic generation for the existing condition and the projected conditions for the proposed transfer station are shown in Table 1.
Table 1. DAILY TRAFFIC COMPARISON (Monday – Saturday)

<table>
<thead>
<tr>
<th></th>
<th>Average Daily Tonnage</th>
<th>Peak Daily Tonnage</th>
<th>Average Vehicular Traffic</th>
<th>Peak Vehicular Traffic</th>
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<tr>
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<td>Refuse Division Collection Trucks</td>
<td>174</td>
<td>211</td>
<td>31</td>
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<tr>
<td>Private Collection Trucks</td>
<td>1,027</td>
<td>1,246</td>
<td>221</td>
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<td>General Public Total</td>
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<tr>
<td>Total</td>
<td>1,236</td>
<td>1,500</td>
<td>493</td>
<td>598</td>
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</table>

| **Kapa Transfer Station**      |                       |                    |                           |                        |
| Refuse Division Collection Trucks | 174                   | 211                | 31                        | 42                     |
| Private Collection Trucks      | 160                   | 246                | 35                        | 47                     |
| General Public Subtotal        | 35                    | 43                 | 241                       | 327                    |
| Total                          | 369                   | 500                | 307                       | 416                    |

The number of refuse personnel needed for a full-scale landfill operation is about the same as the number of personnel required for the transfer station operation.

The transfer station traffic would actually be less than the existing landfill traffic. Therefore, the proposed transfer station is expected to have a negligible impact on traffic operations on Kapa Quarry Access Road (Figure 9).

G. Impact on Air Quality

The proposed activities should not exceed standards set forth in Chapter 11-60 (Section 11-60-5 and 11-60-4). Dust from short
term construction activities will be controlled by sprinkling water. In addition, the prevailing northeast tradewinds will carry airborne particles towards the mauka landfill area. Paving improvements related to the Maintenance Yard, in addition to improvements planned for the Kapaa Refuse Transfer Station, will mitigate present dust generation at the site due to existing barren undeveloped lands and unpaved roadways.

Once construction is completed, the proposed project will not in itself constitute a major direct source of air pollutants. By serving as an attraction for motor vehicle traffic in the area, however, the project could be considered a potential indirect air pollution source, but in the case of this particular project future levels of traffic entering and leaving the project site are expected to be lower than present levels. Because of a significant reduction in the daily volume of private haulers using the transfer station as compared to present landfill operations, daily traffic volume at the site is expected to drop from 493 to 307 trips. This would reduce peak morning rush hour volume by an estimated 24 vehicles. While this decrease is not particularly significant, it is possible to quantify the ameliorative effect it would have on carbon monoxide levels at the intersection of Kalaniaole Highway and Kapaa Quarry Road.

H. **Impact on Noise Environment**

Noise levels will increase slightly during construction activities. Noise level of vehicles anticipated to be added to the permanent fleet will be offset by the departure of the landfill equipment when the Kapaa landfill is closed, although this may not occur simultaneously. Vehicular noise will not exceed standards set forth in Chapter 11-42 and 11-43, Section 11-43-3 of the Department of Health Administrative Rules.

During unloading operations at the proposed Refuse Transfer Station, noise from the refuse vehicles at the tipping stalls and
the front end loader in the refuse pit are expected to emanate from the wall openings of the transfer station. These wall openings include the entry and exit doorways (on the north and south faces of the building) to the tipping stalls, and ventilation openings along the west face of the buildings.

Predicted worst case noise levels at 1,000, 2,000, 3,000, and 4,000 FT distances from the open sides of the proposed transfer station are 47, 39, 33, and 29 dBA, respectively. The noisiest (or open) sides of the facility were designed to face toward the north, south and west, and away from the noise sensitive residences toward the east. Because of the optimum orientation of the transfer station, the long distances (approximately 4,000 Ft) to noise sensitive properties across Kawaihau marsh the beneficial shielding effects of the mountains to the north, west, and south, and the remote location of the proposed facility, the noise from the proposed facility should not present risks of adverse noise impacts. For this reason, special noise mitigation measures should not be required.

I. Impact on View Plane

The retained architectural consultant has reviewed public concerns expressed regarding the potential visual impacts this project could have on adjacent communities and viewing positions. Their review has resulted in the following design considerations that will be incorporated into the structural planning for the transfer station.

1. The function of the Refuse Transfer Station is to facilitate refuse collection vehicles' ability to unload refuse for transfer into high capacity transfer trailers. These transfer trailers would then move the refuse either to a sanitary landfill, or to the H-POWER plant at Campbell Industrial Park.

The station will also provide a "Public Service Area" to be used by homeowners. Homeowners will go to this area to unload refuse into bins. Separate bins may also be set aside for recyclable items.

VII-9
The design of the project will require a long, low building profile, maintaining as much as possible, the restraints inherent in this facility, i.e., refuse unloading at a high level, and transfer loading out at a low level. This transfer function dictates a building that takes advantage of the existing terrain features and is stepped down the existing grade profile.

2. Benefits from this design requirement to comply with the transfer station function will place the proposed building in the existing grade and as low as possible, while maintaining adequate vehicle approach and circulation. All of these design criteria will reduce the building mass when viewed from across the Marsh or adjacent residential communities.

3. In addition to incorporating design constraints on the building's architecture, landscaping on the sloping surfaces immediately adjacent to the building and flowing out into the site will reduce the building mass and soften the impacts of the structure from a distance. The landscaping will also integrate the building with the surrounding area. It is planned to establish several canopy trees at varying heights so that a compatibility with the adjacent vegetation is achieved.

4. Building exterior materials will be selected to blend rather than contrast and clash with the adjacent natural vegetation. Design recommendations will include metal cladding, painting concrete surfaces, and factory finished metal siding selected in the basic green range (light lime green to medium forest green). Roofing materials will be in dark gray to dark beige with the building's concrete base and retaining walls in earthen tones. It is felt that selection of these more natural tones will help the building blend more effectively with the adjacent site.
View Plane Analyses from four positions are shown in Figure 10 on the USGS map indicating the four photos and their location of reference towards the proposed project site.

Figure 11 is towards the project site from the Ulu Po Heiau.

Figure 12 is towards the project site from Kaliua Road and Kaineehe Street.

Figure 13 is towards the project site from Kalemi and Kihapai Streets.

Figure 14 is towards the project site from Mokapu Saddle Road at the H-3 Overpass.
VIII. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY AND IRREVERSIBLE/IRRETRIEVABLE COMMITMENTS OF RESOURCES

It is anticipated that the construction of the proposed project will commit the necessary construction materials and human resources (in the form of planning, designing, engineering, construction labor, landscaping, and personnel for the management, services offices, and maintenance functions). Some of the construction materials could be reused if and when the structures are demolished; however, at the present time and state of our economy, it is felt that the reuse of much of this material is not practical. Labor expended for this development is not retrievable.

The appearance of the project site will be altered from its present open, vacant appearance to that of a completed planned maintenance facility. The development will not be highly visible to surrounding residents but will be visually integrated with the surrounding areas.

The project development will result in a commitment of land for a long-term period. Once the transfer station use is established, it is unlikely that the land will revert to other uses in the long-term future. Commitment of land for this purpose will likely foreclose certain future use options of the land.

Ultimately, the use of the transfer station will be environmentally beneficial since alternate solid waste disposal systems used in conjunction with the transfer station will alleviate the adverse impacts of the existing Kapaa/Kalaheo Landfills.
IX. ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The following adverse environmental effects (both short- and long-term) cannot be avoided.

No significant adverse environmental impacts are expected from the proposed project. Short-term impacts from site-preparation and construction work will result in temporary, but minor, fugitive dust, traffic disruption, and noise. The project will permanently alter the appearance of the site but it is not felt that the project will have any significant view impacts.
X. SUMMARY OF UNRESOLVED ISSUES

At this time, there are no unresolved issues with respect to potential physical impacts. The project will require a Special Management Area permit since it is within an SMA area. Other approvals include normal building and construction permits and a solid waste management permit from the State Department of Health. Alternatives to the proposed action were developed, but were found to be less desirable than the subject project.
XI. ORGANIZATIONS AND PERSONS CONSULTED IN THE PREPARATION OF THE ENVIRONMENTAL IMPACT STATEMENT

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* Received After Deadline Date
NRN - No Response Needed
Mr. Alfred J. Thiede  
Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
650 South King Street, 11th Floor  
Honolulu, Hawaii  

Dear Mr. Thiede:

Subject: Environmental Impact Statement
Preparation Notice for the
Kepas Refuse Transfer Station

We have reviewed the subject document and have no comments to offer.

Very truly yours,

TOMIHADA  
State Public Works Engineer

EN:jk

NO RESPONSE NEEDED
October 15, 1987

Mr. Alfred J. Thiede, Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Thiede:

Subject: Environmental Impact Statement Preparation Notice for
Kapaa Refuse Transfer Station
Department of Public Works
File No.: R 87-1063-45109
TKH: 4-2-15: 05 Kapaa Quarry, Oahu

The Department of Agriculture has reviewed the subject document and finds that the proposed activity will not affect the agricultural resources of the area, nor the plans, programs and activities of our Department.

Thank you for the opportunity to comment.

Sincerely,

[Signature]

SUZANNE D. PETERSON
Chairperson, Board of Agriculture

NO RESPONSE NEEDED
The Honorable Alfred J. Thiela
Page 2
October 30, 1987

Thank you for the opportunity to provide comments.

Sincerely,

Roger A. KurIEL

October 30, 1987

Ref. No. P-7559

DEPARTMENT OF BUSINESS
AND ECONOMIC DEVELOPMENT

The Honorable Alfred J. Thiela
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Thiela:

Subject: Environmental Impact Statement Preparation Notice Kapaa Refuse Transfer Station

We have reviewed the subject proposal and have the following comments.

The EIS should include a discussion of relevant objectives and policies of the Hawaii Coastal Zone Management (CZM) Program, Chapter 305A, Hawaii Revised Statutes. As part of this discussion, we recommend that particular attention be given to the following areas of concern:

Coastal Ecosystems

A CZM policy is to promote water quality planning practices which reflect the tolerance of marine ecosystems and prohibit land and water uses which violate state water quality standards. The subject document indicates that washdown effluent from an estimated thirty-one County refuse collection trucks will flow through existing drainage systems in Kawaihao Marsh. In view of ongoing efforts to improve water quality of the Marsh, the potential impacts of this proposed practice should be fully assessed.

Scenic and Open Space Resources

Another CZM policy is to improve desirable scenic resources. Public and private agencies have been trying to restore and improve the scenic resources of Kapaa Valley and Kawaihao Marsh. The potential impacts of the project should be discussed in more detail with respect to these ongoing efforts. The preparation notice asserts that the proposed facility's construction will "conform with the aesthetic design of the adjacent maintenance yard." This requires further elaboration.
Mr. Murray E. Towill  
December 17, 1987  
Page 2

however, that the function of the building will require operational and  
functional efficiency which may affect the final design.  

Thank you for your comments and continuing concern.  

Very truly yours,  

[Signature]

ALFRED A. THEIDE  
Director and Chief Engineer

December 17, 1987  

R 87-1342-4526F

Mr. Murray E. Towill  
Deputy Director  
Department of Business and  
Economic Development  
P.O. Box 2358  
Honolulu, Hawaii 96816

Dear Mr. Towill:

Subject: Environmental Impact Statement Preparation Notice for the  
Kapaa Refuse Transfer Station

Thank you for your review and comments dated October 19, 1987 on the  
Environmental Impact Statement Preparation Notice for the proposed Kapaa  
Refuse Transfer Station.

The comments have been reviewed by the retained consultants and our staff  
and we respond as follows:

1. Coastal Ecosystems

A report cataloging the impacts on Kualulau Marsh from anticipated  
drainage flows due to the refuse transfer station will be provided in  
the Draft Environmental Impact Statement (DEIS). We will be  
incorporating design features wherever practicable, to minimize impacts  
to Kualulau Marsh.

2. Scenic and Open Space Resources

The design team responsible for the refuse transfer station architecture  
has been advised of the importance of the potential view plane impacts  
on adjacent communities. There will be landscaping as well as building  
design features to lessen the facility visual impact; please understand
October 23, 1987

Mr. Alfred J. Thiede, Director
and Chief Engineer
Department of Public Works
City & County of Honolulu
600 S. King Street
Honolulu, Hawaii 96813

Dear Mr. Thiede:

Environmental Impact Statement Preparation
Notice for Kapaa Refuse Transfer Station

Thank you for providing us the opportunity to review the above subject project.

We have no comments to offer at this time regarding this project.

Yours truly,

[Signature]

Jerry M. Matsuda
Major Hawaii Air National Guard
Chief Engr Officer

NO RESPONSE NEEDED
Mr. Alfred J. Thiede  
Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
650 S. King Street  
Honolulu, HI 96813

Dear Mr. Thiede:

SUBJECT: EIS Preparations Notice for  
Kapas North Transfer Station

Our review of the subject project indicates that it will have  
a negligible effect on our area schools.  

Thank you for the opportunity to comment.

Sincerely,

Charles T. Tengan
Superintendent

NO RESPONSE NEEDED

CC: E. Inoue, DOH  
S. Loo, Windward Dist.

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER
MEMORANDUM

To: Mr. Alfred J. Thiele, Director & Chief Engineer
   Department of Public Works, City & County of Honolulu

From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement Preparation Notice for Kapaa Refuse Transfer Station, Koolau District, Oahu, Hawaii

November 10, 1987

Thank you for allowing us to review and comment on the subject EISP. In the preparation of an EIS, compliance to Title 11, Administrative Rules Chapters 42 and 43 must be included.

1. The proposed project must be designed to comply with the provisions of Title 11, Administrative Rules Chapter 43, Community Noise Control for Oahu. Noise from the transfer activities must be attenuated to meet the allowable noise levels of the rules based on zoning districts.

2. Construction activities must comply with the provisions of Title 11, Administrative Rules Chapter 43, Community Noise Control for Oahu
   a. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the rules.
   b. Construction equipment and onsite vehicles or devices requiring an exhaust of gas or air must be equipped with mufflers.
   c. The contractor must comply with the conditional use of the permit as specified in the rules and conditions issued with the permit.

BRUCE S. ANDERSON, PH.D.

November 10, 1987

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

December 17, 1987

Dr. Bruce S. Anderson, Deputy Director
Department of Health
P.O. Box 2278
Honolulu, Hawaii 96801

Dear Dr. Anderson:

Subject: Environmental Impact Statement Preparation Notice for the Kapaa Refuse Transfer Station

We have received your department's comments dated November 10, 1987 on the subject Environmental Impact Statement Preparation Notice and we respond as follows:

1. The subject project will be designed to comply with the provisions of Title 11, Administrative Rules Chapter 43, Community Noise Control for Oahu.

2. The contractor selected for this project will be apprised that applicable noise requirements as mandated by the provisions of Title 11, Administrative Rules Chapter 43, Community Noise Control for Oahu must be met.

Thank you for your comments and continuing concern.

Very truly yours,

ALFRED J. THIELE
Director and Chief Engineer

R 87-1242-45259
Honorable Alfred J. Thiade
Director and Chief Engineer
City and County of Honolulu
Department of Public Works
600 S. King Street
Honolulu, Hawaii 96813

Dear Mr. Thiade:

SUBJECT: Kapaa Refuse Transfer Station
Kalua, Koolau Pono, Oahu
TMK: 4-2-151: 5

Thank you for the opportunity to review the Environmental Impact Statement (EIS) Preparation Notice cited above. We offer the following comments:

Historic Sites Concerns:

This project area contains one historic site, Pahukini Heiau, which is listed on the Hawaii Register and the National Register of Historic Places. However, this project will not impact the heiau. The immediate project area has been altered by previous quarry activity, so we would not anticipate subsurface archaeological remains. Therefore, we believe this project will have "no effect" on significant historic sites.

However, if historic remains such as artifacts, shell or charcoal deposits, burials, and stone platforms, pavings, or walls are found during construction, please direct the applicant to stop work in the immediate area and contact the Historic Sites Section at 548-7460 immediately. Our office will assess the situation and make recommendations for mitigative action, if needed.

Recreation Concerns:

This project needs to be assessed in relationship to the Kawainui Marsh Resource Management Plan, particularly in regard to visual impact. The combined effect of the project with the proposed expansion of the adjacent Kapaa Quarry Maintenance Yard needs to be addressed.

Water and Land Development Concerns:

The Draft EIS should fully describe the proposed operation of the transfer station, including site and vehicle maintenance activities such as site and vehicle washdown. The potential impact, if any, to Kawainui Marsh water quality and habitat values should be addressed.

Potential overall impact to this Department's Kawainui Marsh Management Plan should also be considered.

Thank you for considering our concerns.

Very truly yours,

[Signature]

WILLIAM W. PATY, Chairperson
Board of Land and Natural Resources
December 17, 1987

Mr. William W. Paty
P.O. Box 621
Honolulu, Hawaii 96808

Dear Mr. Paty:

Subject: Environmental Impact Statement Preparation Notice for the Kapan Refuse Transfer Station

Thank you for your comments dated November 24, 1987 on the Environmental Impact Statement Preparation Notice for the Kapan Refuse Transfer Station. We have prepared the following responses to your comments:

1. Historic Sites Concerns
   We acknowledge the statement of "no effect" on significant historic sites. We will keep your office apprised of any discovery of historic remains during site preparations; we will direct the contractor to stop work and advise your office so that an evaluation can be made to determine mitigative action, if needed.

2. Recreation Concerns
   The subject of visual impact and the concerns expressed by other agencies and individuals has been passed to the retained architectural consultant for their review and consideration. There will be a specific effort made to mitigate the proposed structural improvements by additional landscaping, selection of exterior color schemes, and other mitigative measures that may be suggested by the consultant team.

3. Water and Land Development Concerns
   The draft EIS will assess the impacts on Kawainui Marsh from washdown due to the proposed project.

We appreciate the time you and your staff spent reviewing the document and look forward to your further participation in the EIS process.

Very truly yours,

[Signature]

Director and Chief Engineer
Mr. Alfred Thiede
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Thiede:

Environmental Impact Statement Preparation Notice
Kapaa Refuse Transfer Station

We have no objections to the construction of a refuse transfer station at the Kapaa Sanitary Landfill site. The projected decrease in the overall daily traffic should have a positive impact on Kalanianaole Highway.

Thank you for this opportunity to provide comments.

Very truly yours,

Edward Y. Hiata
Director of Transportation

No response needed.
TO: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: YOUR MEMORANDUM OF OCTOBER 6, 1987 ON THE ENVIRONMENTAL IMPACT PREPARATION NOTICE FOR THE KAPAA REFUSE TRANSFER STATION, THEF-4-2-15-7

The proposed refuse transfer facility is not anticipated to have any adverse impacts to potable ground water resources or our water system facilities in the area.

The availability of additional water will be determined when the construction drawings are submitted for our review and approval. If additional water is made available, then the applicant will be required to pay our Water System Facilities Charges for source-transmission and storage. The installation of fire hydrants within the project site should be coordinated with the Fire Department.

If you have any questions, please contact Lawrence Khong at 527-6138.

KAZU HAYASHIDA

MEMORANDUM

TO: MR. KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE KAPAA REFUSE TRANSFER STATION, THEF-4-2-15-5

Thank you for your comments on the above proposed project and we will provide your staff the construction drawings for their review and approval. (Installation of fire hydrants will be coordinated with the Fire Department for their review and approval.)

We appreciate the time you and your staff spent reviewing the document.

ALFRED J. THIEDE
Director and Chief Engineer
MEMO TO:  MR. ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
         DEPARTMENT OF PUBLIC WORKS
FROM:   HERBERT K. MURAKA
         DIRECTOR AND BUILDING SUPERINTENDENT
SUBJECT: EIS PREPARATION NOTICE FOR
         ZAPAA REFUSE TRANSFER STATION

We have reviewed the subject EIS preparation notice and
have no comments.

Thank you for the opportunity to review the preparation
notice.

HERBERT K. MURAKA
Director and Building Superintendent

cc:  J. Harada

NO RESPONSE NEEDED
November 23, 1987

MEMORANDUM

TO: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM: DONALD A. CLEGG, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT (EIS) PREPARATION NOTICE FOR THE KAPAA REFUSE TRANSFER STATION—DPP FILE NO. 87/FX-10071(C)

The following comments and recommendations are aimed at strengthening Section III. Affected Environment and Section IV. Summary of Major Impacts and Mitigation Measures to provide more information and details for governmental, environmental and community organizations that will review, analyze and comment on this EIS.

SECTION III. AFFECTED ENVIRONMENT

E. DRAINAGE

1. Provide a map showing storm and/or vehicle washdown runoff flow patterns from the subject site toward Quacky Road and Kawainui Marsh.

2. Describe and provide a map of DW's leachate monitoring program and the results thereof. If the Kapaa Refuse Transfer Station is not expected to produce leachate, explain the reasons.

F. CULTURAL RESOURCES

Display on a map the historic sites around the periphery of Kawainui Marsh within 1000 feet of the project site.

Alfred J. Thiede, Director and Chief Engineer
Department of Public Works
Page 3
November 23, 1987

SECTION IV. SUMMARY OF MAJOR IMPACTS AND MITIGATION MEASURES

A. PHYSICAL AESTHETIC

Because of the great community concern about potential visibility of proposed city projects in the Kapaa area, prepare a view study to determine the visibility of the proposed Kapaa Transfer Station from all residential areas that may be visually impacted by it (i.e., Kaliu, Oholana and Pobaku). If the proposed refuse transfer station would not result in visual impacts, please so indicate via a profile map.

B. WATER QUALITY

Our previous comments should be deleted.

C. NOISE ENVIRONMENT

Our previous comments should be deleted.

D. BIOLOGICAL RESOURCES

The EIS should fully discuss any anticipated primary and secondary impacts that the proposed Kapaa Refuse Transfer Station will have upon Kawainui Marsh. Even if these are expected to be minimal, the amount of community concern on this point suggests that a fuller discussion would be helpful.

E. SOCIO-ECONOMIC

Quantify the projected future refuse service needs of the Kapaa Refuse Transfer Station and show how the new Kapaa Refuse Transfer Station fits into the overall refuse processing plan for Kapaa. Describe the 26 new jobs that the new Kapaa facility will provide. Several statements on population (Page 11-6 of the Environmental Assessment) should be corrected (e.g., 1970-1989 growth rate for Kapaa, title of DPED 1982 paper).

Donald Clegg
Chief Planning Officer
MEMORANDUM

TO: MR. DONALD A. CLEGGE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISP) FOR THE KAPAA REFUSE TRANSFER STATION
DPU FILE NO. 87/KP-10111(C)

December 17, 1987

R 87-1242-4524F

Thank you for your letter of November 23, 1987, on the proposed Environmental Impact Statement Preparation Notice (EISP) for the Kapaa Refuse Transfer Station. We appreciate the time you and your staff spent reviewing this document.

The comments and information which you provided were valuable to us in preparing the Environmental Impact Statement. We expect to file it with the State Environmental Quality Commission shortly.

We look forward to your further participation in the EIS process and your comments on the EIS. If you have questions regarding the project, please contact Melvin Lee at 527-6257.

ALFRED J. THIEDE
Director and Chief Engineer
MEMORANDUM

TO: Alfred J. Thiele, Director and Chief Engineer
Department of Public Works

FROM: Mike Noon

SUBJECT: EIS Preparation Notice
Kapaa Refuse Transfer Station
TRK: 4-2-16; 5
Koalapoko, Oahu

Thank you for the opportunity to review and comment on the EIS preparation notice for the proposed Kapaa Refuse Transfer Station in the Koalapoko district, Oahu.

We have no objections to the proposed project which involves the construction of a refuse transfer station for solid waste in the Koalapoko district.

[Signature]
Mike Noon
Director

NO RESPONSE NEEDED
MEMORANDUM

TO: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM: JOHN P. WHALEN, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR KAPAA REFUSE TRANSFER STATION

October 30, 1987

Thank you for your October 6, 1987 request for consultation comments. We offer the following comments and questions for your consideration:

1. Consistency with the Development Plan Public Facilities (DP-PF) map should be discussed. The DP-PF map shows that the site selected is proposed for both a solid waste facility and for a park facility. We note that another nearby site is also shown for a solid waste facility.

   The EIS should discuss the City’s policy, as shown on the DP-PF map. It is unclear how the site can be used for both a refuse transfer station and a park. Have the plans for a park at the site been abandoned? What is the other nearby site identified for use as a solid waste facility on the DP-PF map be used for?

2. Figure J. Project Site Map (at 1” = 1000’ scale) should be revised to show the boundaries of actual site proposed for the transfer station.

3. Conformance of the project to the Kawainui Marsh Resource Management Plan should be discussed.

4. The existing nearby Sanitary Landfill (SLF) site is nearing capacity. Will this SLF site be used as a public park in the future? If the SLF site is used in the future for a public park, will the refuse transfer station be compatible with the park use?

5. Impacts on views from significant viewing points and areas should be discussed. Specifically, how will the views from PauHula Park, the Saddle Road, and the Kapaa Quarry Road be affected? If and when the SLF operations are completed and the site is converted to a public park, will views from the park be adversely affected by the refuse transfer station structures? A view impact study on important public viewpoints around the periphery of Kawainui Marsh should also be included.

6. The water quality of Kawainui Marsh is an important concern. A drainage study should estimate the quantity and type of contaminants which may be carried by runoff into the marsh. Mitigative measures to capture oil, grease, sediment, and other contaminants by means of catch basins or other methods should be discussed. Since the degradation of the water quality of the marsh may have adverse effects upon waterbirds and other wildlife within the marsh, a full discussion of these effects should be included.

Thank you for the opportunity to comment. If you have any questions regarding our comments, please call Bennett Mark of our staff at 527-5036.

Very truly yours,

John P. Whalen
Director of Land Utilization

JPw:sl
14128
December 17, 1987

MEMORANDUM

TO: HB. JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR KAPAA REFUSE TRANSFER STATION

Thank you for your letter of October 30, 1987, on the Environmental Impact Statement Preparation Notice (EISPWN) for the proposed Kapaa Refuse Transfer Station. We appreciate the time you and your staff spent reviewing this document.

The comments and information which you provided were valuable to us in preparing the Environmental Impact Statement. We expect to file it with the State Environmental Quality Commission shortly.

We look forward to your further participation in the EIS process and your comments on the EIS. If you have questions regarding the project, please contact Melvin Lee at 527-6267.

ALFRED J. THIEDE
Director and Chief Engineer
MEMORANDUM

TO:    ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
       DEPARTMENT OF PUBLIC WORKS

FROM:  JOHN E. HIRTON, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR KAPAA REFUSE TRANSFER STATION

This is in response to your memorandum of October 6, 1987 requesting comments concerning the subject preparation notice. We believe that the mix of heavy vehicles with private vehicles around the project site during construction as well as during the eventual operation of the proposed transfer station should be addressed in the forthcoming EIS.

Thank you for the opportunity to comment. If there are any questions, please contact Kenneth Hira of my staff at Local 5009.

[Signature]

John E. Hirtton

MEMORANDUM

TO:    MR. JOHN E. HIRTON, DIRECTOR
       DEPARTMENT OF TRANSPORTATION SERVICES

FROM:  ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
       DEPARTMENT OF PUBLIC WORKS

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR KAPAA REFUSE TRANSFER STATION

December 17, 1987

Thank you for your review and comments dated November 3, 1987 on the Environmental Impact Statement Preparation Notice for the proposed Kapaa Refuse Transfer Station.

We will be providing a Traffic Impact Analysis report in the Draft Environmental Impact Statement currently under preparation. We look forward to your further participation in the EIS process and to your comments on the EIS.

We appreciate the time you and your staff spent reviewing this document.

[Signature]

Alfred J. Thiede
Director and Chief Engineer
TO: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM: FRANK K. KANOHOIHOANO, FIRE CHIEF

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR KAPAA REFUSE TRANSFER STATION (807-1031-4173')

November 2, 1987

We have reviewed the subject material provided and foresee no adverse impact on fire protection facilities or services, existing or planned.

Fire protection for the proposed Kapa'au Refuse Transfer Station is available from the Kauai Fire Station (an engine company and 5 personnel), Kauai Fire Station (a ladder company and 6 personnel) and Ki'alea Fire Station (an engine company and 5 personnel). Fire protection for the proposed project is considered adequate. We are concerned about water supply in case a fire should occur and request adequate hydrants be provided in accordance with applicable codes and ordinances.

Should you have any questions, please contact Battalion Chief Kenneth Word at local 3084.

FRANK K. KANOHOIHOANO
Fire Chief

MEMORANDUM

TO: FIRE CHIEF FRANK K. KANOHOIHOANO
HOLOLU FIRE DEPARTMENT

FROM: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE KAPAA REFUSE TRANSFER STATION (807-1031-4173')

December 17, 1987

Thank you for your review and comments dated November 2, 1987 on the proposed Kapaa Refuse Transfer Station. The information provided as to the source and capability for fire protection support will be included in the Draft Environmental Impact Statement. Fire hydrants will be provided in accordance with applicable codes and ordinances.

We appreciate the time you and your staff spent reviewing the document.

ALFRED J. THIEDE
Director and Chief Engineer
TO: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM: DOUGLAS G. GIEB, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISN) FOR KAPAA REFUSE TRANSFER STATION

We have reviewed the above EISN and have no objections to the proposed project at this time.

Thank you for the opportunity to provide comments.

Douglas G. Gieb
Chief of Police

NO RESPONSE NEEDED
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
HONOLULU
FT. SHAFTER, HANNAH, HAWAII 96860

Planning Branch

Mr. Alfred J. Thiede, Director
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Thiede:

Thank you for the opportunity to review and comment on the EIS Preparation Notice for Kapaa Refuse Transfer Station. The following comments are offered:

a. Based on the EIS Preparation Notice, the project does not involve work or fill in waters of U.S. or adjacent wetlands. Please be advised that EA permit requirements also apply to temporary construction fills and stockpile areas in wetlands as well.

b. The parcel identified by tax map key 4-2-15:5 is shown on the enclosed Flood Insurance Rate Map and is designated as Zone X which is outside of the 500-year flood plain.

Sincerely,

[Signature]

Chief, Engineering Division

Enclosure
December 17, 1987

Mr. Kaauk Cheung
Chief, Engineering Division
Department of the Army
U.S. Army Engineer District, Honolulu
Building 230
Ft. Shafter, Hawaii 96858

Dear Mr. Cheung:

Subject: Environmental Impact Statement Preparation Notice for the Kapua Refuse Transfer Station

Thank you for your agency's comments dated October 20, 1987 on the Environmental Impact Statement Preparation Notice (EISP) for the proposed Kapua Refuse Transfer Station. As you have noted in your comments, the project will not involve any work requiring U.S. Army Corps of Engineers permits and we do not anticipate any temporary construction fills and/or excavations in wetland areas.

The information as to the location of the subject project on the Flood Insurance Rate Map will be included in the Draft Environmental Impact Statement.

We appreciate your comments and continuing concern,

Very truly yours,

[Signature]

ALFRED J. THIEDE
Director and Chief Engineer
Re: Environmental Impact Statement Preparation Notice for Kapaa Refuse Transfer Station

Dear Mr. Thiede:

Thank you for providing the Service with an opportunity to review the subject project. We offer the following comments for your consideration.

The Service recommends that the EIS fully evaluate the potential impacts of stormwater runoff on an adjacent Hawaiki Marsh. This evaluation should include a description of the type and potential quantity of contaminants that may be carried by stormwater draining from the site; a determination of their accumulation in marsh sediments and impacts to fish and wildlife resources within the marsh; and a discussion of appropriate measures to contain and/or decontaminate runoff before it is discharged into the marsh. Consideration should also be given in the design of the proposed facility to contain accidental spills of toxic and hazardous materials at the waste transfer station.

Finally, we suggest that a more thorough description of fish and wildlife resources on lands immediately surrounding the project site be included.

We look forward to reviewing the draft statement.

Sincerely,

[Signature]

cc: DRM, DLU

United States Department of the Interior
FISh AND WILDLIFE SERVICE
FISH AND WILDLIFE SERVICE
100 Ala Moana Boulevard
P.O. Box 23077
HONOLULU, HI 96821

OCT 21 1987

Mr. Ernest Kosaka, Field Supervisor
Environmental Services
Pacific Islands Office
U.S. Department of Interior
Fish and Wildlife Service
100 Ala Moana Boulevard
P.O. Box 23077
Honolulu, Hawaii 96821

December 17, 1987

Dear Mr. Kosaka:

Subject: Environmental Impact Statement Preparation Notice for the Kapaa Refuse Transfer Station

Thank you for your office's comments dated October 21, 1987 on the Environmental Impact Statement Preparation Notice (EISP/N) for the proposed Kapaa Refuse Transfer Station.

The comments and information which you provided were valuable to us in preparing the Environmental Impact Statement. We expect to file it with the State Environmental Quality Commission shortly.

We appreciate the time you and your staff spent reviewing the document. We look forward to your further participation in the EIS process and your comments on the EIS.

Very truly yours,

[Signature]

ALFRED J. THIEDE
Director and Chief Engineer

Save Energy and You Serve America!
Mr. Alfred J. Thiade  
Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96815  

November 4, 1987

Dear Mr. Thiade:

Subject: Environmental Impact Statement Preparation Notice for Kapakai  
Refuse Transfer Station

We have reviewed the EIS preparation notice and have no comments to offer at this time.

In the future, please send similar-type documents to Stratford Whiting,  
District Conservationist, Soil Conservation Service, P.O. Box 50006,  
Honolulu, HI 96850.

Sincerely,

[Signature]  

[Name]
State Conservationist

cc: Stratford Whiting, DC, SCS, Honolulu 70

[Stamp: NO RESPONSE NEEDED]
Mr. Alfred J. Thiede  
Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
615 South King Street  
Honolulu, Hawaii 96813  

Dear Mr. Thiede:

Subject: Environmental Impact Statement Preparation Notice for  
Kapaa Refuse Transfer Station

We have reviewed the above document and have no comments.

Sincerely,

Brenner Mungo

NO RESPONSE NEEDED
October 19, 1987

Mr. Alfred J. Thiela
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Thiela:

Subject: EIS Prep Notice-Kapaa Refuse Transfer Station

Thank you for the opportunity to review the subject document. We have reviewed the cultural resource portion and agree with the statement made in Section III-V. The prior disturbance has been extensive in the subject area and no surface remains are present. However, since there always exists the possibility of subsurface material we also agree with the recommendation made in Section IV-F. We further recommend that at the time of construction related excavation, the State archaeologist should inspect the area and record any pertinent subsurface data.

If you have any questions, I am available at 848-4110.

Sincerely,

Ali Sinoto, Acting Leader
Applied Research Group

December 17, 1987

Mr. Ali Sinoto, Acting Leader
Applied Research Group
Bishop Museum
P.O. Box 19900A
Honolulu, Hawaii 96817-9916

Dear Mr. Sinoto:

Subject: Environmental Impact Statement for the Kapaa Refuse Transfer Station

Thank you for your review and comments dated October 19, 1987 on the Environmental Impact Statement Preparation Notice for the proposed Kapaa Transfer Refuse Station. The State Historical Preservation Officer will be made aware of any subsurface artifacts that are uncovered during the construction excavation.

We appreciate your comments and continuing interest.

Very truly yours,

[Signature]
Director and Chief Engineer
October 21, 1987

Mr. Alfred J. Thiede
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96819

Subject: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
      NOTICE FOR KAPAAN REFUSE TRANSFER STATION

Dear Mr. Thiede:

We have reviewed the subject EIS preparation notice and have only one
comment as follows:

Section III D HYDROLOGY fifth sentence in reference to
the intermittent Kapaan stream states: "Its flow consists
of storm runoff and some treated process water from the
existing quarry." The words "...and some treated process
water from the existing quarry," should be deleted.

Although Ameron HCAD has an NPDES permit we implemented a "zero-discharge"
treatment and handling system some time ago for our process water and
infact we had no discharge except for the period when the City was
relocating our settling basin in conjunction with its Kaimuki landfill
access road construction.

The aforementioned fifth sentence of paragraph III D implies otherwise
however and this is incorrect. We trust that the noted deletion will be
made in the EIS.

Yours very truly,

E.H. Curtis
Vice President, Engineering

cc: T. E. Bastis
    G. M. Davidson
    G. N. West
    File F 202-14E

December 17, 1987

Mr. E.H. Curtis
Vice President, Engineering
Ameron HCAD
P.O. Box 29968
Honolulu, Hawaii 96820

Subject: Environmental Impact Statement Preparation Notice for the
Kapaan Refuse Transfer Station

Thank you for your comments dated October 21, 1987 on the proposed
Kapaan Refuse Transfer Station. The comment specifically requesting deletion
of the reference to treated process water from the existing quarry will be
done in the Draft Environmental Impact Statement (DEIS).

We appreciate your comments and continuing interest.

Very truly yours,

Alfred J. Thiede
Director and Chief Engineer
Mr. Alfred J. Thieme
Director and Chief Engineer
Department of Public Works
City & County of Honolulu
450 South King Street
Honolulu, Hawaii 96813

Re: Environmental Impact Statement Preparation Notice for the
Kapaa Refuse Transfer Station (TM 4-2-158)

Dear Mr. Thieme:

Please accept my apologies for this delayed response to the
referred EISP. We do agree that an EIS should be prepared for
the proposed project. I hope our comments which follow can still
be of some use as the EIS is formulated.

First we would like to make two general comments.

1) There seems to be no mention of the cumulative impact of
the expansion of the City's Kapaa Quarry Maintenance Yard (as
proposed in the Department of General Planning (DGP) Koloa-
lau-poko Development Plan Public Facilities Map amendment 87/29-
10IB112) and this proposal. Since they are both projects of
your Department and apparently in the same area and
location, we believe the impact of both projects should be
mentioned in the EIS.

2) The Foundation and its predecessor organization, the Aho
Committee for Kawaiulani Park, have long maintained that
industrial development should not be encouraged or increased
on the periphery of Kawai Nui Marsh. We are aware that the
Development Plan Public Facilities Map for the area shows a
"solid waste facility, site unimproved, 6 years and beyond"
further back in Kapaa's valley. Therefore we urge that both
the transfer facility and the current corporation yard be
placed back in Kapaa's Valley and that the 6 year time limit be
changed to show placement of the joint facility with a timing
within 6 years.

Comments on specific sections of the EISP:

P. II-2, first paragraph under item D: No dimensions are given
for the structure which is to be designed to be aesthetically compatible with the

Na Kia'i Pono 'O Kawai Nui
KAWAI NUI HERITAGE FOUNDATION
P.O. BOX 1101 KAILUA, HAWAII 96734
Mr. Alfred J. Thiess from Susan E. Miller
17 November 1987
Page 3

p. III-4, item E.1: What is the source of the statement "maximum recorded 24-hour rainfall has been less than 12 inches" and where was this rainfall recorded?

p. III-5, item E.2: Last two lines of this leachate monitoring program continued? If so, what were results? It is our understanding that during the 1978-79 study, two of the three test wells (of a total of six) that were in the landfill were accidentally destroyed and the third became clogged. Thus, the study period referred to may also represent the potential for leachate contamination of groundwater in the area.

p. III-5, item G.1: No sources are given for either the flora or fauna lists on this or the next page. Since runoff from the project area will enter the man-made channelized drainage system, it would seem appropriate to mention that the State's four endangered waterbirds. This becomes more significant when the objectives of the State's Resource Development Plan for Kawaihui Nui are taken into account, at least calling for a channel for additional waterbird habitat in the area of the Marsh adjacent to the proposed project site.

p. IV-1, item A.1: We have previously expressed our disagreement with the conclusion that there will be no significant aesthetic impact of the project. If the new facility is in conformity with the aesthetic design of the adjacent maintenance yard, it will be consistent with the previously existing aesthetic.

p. IV-1, item B.1: How can a structure that large be considered minimal structural runoff? It and the surrounding parking areas will be covered with a low permeable surface with impermeable materials, which logically would increase drainage into the receiving area of the existing drainage system which is in the keeping.

p. IV-2, item E.1: How can the EIS/EPN talk about "improvements to the Transfer Station" when it has not been built yet? Is it being built now? When we took our

quarterly bus tour past the project area on 14 November, we observed that a new concrete slab has been laid in the area.

p. IV-2, item F.1: The entire Kawaihui Nui area (not just the Marsh) was identified as a Historic Place by the National Register of Historic Places as a historically and archaeologically significant site. Since all areas applicable to listed properties are applicable to eligible properties, it is not sufficient just to refer to Panakiki Marsh when talking about cultural resources in connection with the proposed project.

p. IV-2, item G.1: How can the statement "approximately 26 additional jobs will be provided for the operation of the facility" be squared with the statement on p. II-4 that "Traffic from the Transfer Station employees will be offset by the decrease in landfill personnel?"

The State's Resource Management Plan referred to earlier includes in it a rail from Kapa'a Quarry Road to Panakiki Marsh. Use of such a trail will not be encouraged by the presence of this facility and large transfer vehicles.

Also, Cultural Resource Assessment of the State Plan states that "The existing sanitary landfill site (Kapa'a), following closure, should be greened and landscaped." This certainly implies that it is not appropriate to place a large, permanent structure in front of that landfill, when the emphasis is on restoring the area to a semblance of its former natural state.

p. VIII-2r: Please note that the Ad Hoc Committee to Save Kawaihui Marsh has not existed since 1983, when Kawaihui Marsh Preservation Foundation was incorporated to carry on the Ad Hoc Committee's efforts.

Ha Kia'i Pono 'O Kawaihui
KAWAIHUI HERITAGE FOUNDATION
RO BOX 1101 KAILUA, HAWAII 96734

Na Kia'i Pono 'O Kawaihui
KAWAIHUI HERITAGE FOUNDATION
RO BOX 1101 KAILUA, HAWAII 96734
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

December 17, 1987

Mrs. Susan E. Miller
Vice President for Public Affairs
Kualii Nui Heritage Foundation
P.O. Box 1181
Kauai, Hawaii 96734

Dear Mrs. Miller:

Subject: Environmental Impact Statement Preparation Notice for the Kapaa Refuse Transfer Station

Thank you for your comments dated November 17, 1987 on the Environmental Impact Statement Preparation Notice (EISP) for the proposed Kapaa Refuse Transfer Station. We have reviewed your organization's comments and respond as follows:

1. The Public Facilities Map amendment refers to an expansion of the new Automotive Equipment Service building presently under construction. A Negative Declaration dated April 1985 was prepared for this project.

2. The project is presently designated on the Development Plan Public Facilities Map as SWM (Solid Waste Management) within 6 years. A new Automotive Equipment Service building is also presently under construction. It would be difficult and not cost effective to physically move the transfer station and corporation yard.

Specific Comments

a) Page II-2: The structural design phase is still ongoing and building dimensions will be provided in the draft EIS for review and comment.

b) Page II-5, Item C.11 The DPED Series II-F population projection figures of 1984 will be used where applicable and will be cited in the draft EIS.

c) Page II-6, Item D. The retained architectural consultant will be providing landscaping and exterior color finish selections to mitigate the visual impacts of this proposed project.

We realize that existing characteristics will not be equivalent to any new structural improvements, but please be assured that all efforts will be made to mitigate, to the extent practicable, these visual impacts on adjacent communities and vantage points.

Appropriate review of the Chapter 205A, HBS requirement for Coastal Zone Management review will be made by the DPED.

d) Page III-4, Item E: The source for this statement was the Negative Declaration prepared for the Kapaa Maintenance Yard in April 1985, and the location cited was Kapaa where the U.S. Weather Service advised that the 10-year storm rate was 15 inches of rain in 36 hours.

e) Page III-5, Item E: The city is continuing the leachate monitoring program. Two leachate monitoring wells are installed on the site, and are operational.


g) Page IV-1, Item A: Your comment is acknowledged.

b) Page IV-2, Item I: The structural runoff was meant to refer to runoff resulting from washdown of the facility.

h) Page IV-2, Item E: The sentence you refer to will be corrected in the draft EIS to read: "The proposed addition to the Corporation Yard will have no significant secondary impacts on Kawainui Stream."

i) Page IV-2, Item E: Discussions with the State Historic Preservation Office confirm your statement that the entire March is eligible for listing on the National Register.

k) Page IV-2, Item G: A Traffic analysis will be included in the draft EIS that will identify the additional traffic flow that will result from this proposed project. At the present time, the net additional traffic is not considered significant.

The implementation of this project should have minimal impact to the referenced trail from the Kapaa Quarry Road to the Fabulous Forest. The average daily traffic on Kapaa Quarry Road is 5,843 vehicles of which 315 vehicles would be attributable to the transfer station.

The transfer station will be at the base of the landfill. As stated before all efforts will be made to mitigate the visual impacts.
Mrs. Susan E. Miller
December 17, 1987
Page 3

1) Page VIII-1: This comment is acknowledged and will be corrected in the draft text.

Thank you for your comments and continuing concern.

Very truly yours,

[Signature]

SIGNED at THAMES
Director and Chief Engineer
Mr. Al Thiade, Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
650 S. King Street  
Honolulu, HI 96813

Dear Mr. Thiade:

The Environmental Committee thanks you for allowing us additional time in which to respond and request that the following concerns be addressed regarding the EIS for the Kepaa Refuse Transfer Station:

1. Page 11-12, "City will incinerate all of the combustible refuse." What effect will this have on air quality, and will there be an odor or noise factor? If so, how will they be mitigated?

2. What traffic impact will the 25 expected cars per day? Page 11-14 create and what hours will these trucks travel?

3. Koolau golf is not slated to grow as fast as Dac and Central, so why a facility for this area and not where growth is occurring?

4. With a structure this size we are concerned about aesthetics and want to know what color the building will be painted and what are the landscaping plans?

5. Since this will be a large permanent and expandable operation, we would like to see an update of the leachate monitoring done. We suggest that this be done before the facility is in place and after operations have started. This monitoring is essential in providing protection to the Marsh and its endangered species.

6. Page 14-1. We need further information on what the design of the facility will be as to conform to the adjacent maintenance yard. How do you conform to a maintenance yard?

Sincerely,

Annette Kinnicutt, Chair  
Environmental Committee

Donna Weng, Member  
Environmental Committee

7. Page 14-1. "On site drainage will be discharged through existing drainage system" What is that system? Will it have to be enlarged? Will the new drainage system affect the Marsh? Please show reasons why it would or would not.

8. The new facility will provide approximately 26 new jobs. What will those jobs be?

9. Please explain the extremely high cost of $7 million and the rationale for $47,000 for art?

10. We would like to know the exact dimension of the building. We would appreciate receiving some type of architect's rendering in addition to specifics on height, width, and length.

RECEIVED AFTER DEADLINE DATE – NO RESPONSE NEEDED
November 6, 1987

Department of Public Works
City & County of Honolulu
650 South King St.
Honolulu, HI 96813

ATTENTION: Mr. Alfred J. Thiede,
          Director and Chief Engineer

SUBJECT: Environmental Impact Statement Preparation
         Notice for Kapaa Refuse Transfer Station

Dear Mr. Thiede:

Thank you for the opportunity to comment on the Environmental Impact Statement for a Kapaa Refuse Transfer Station.

Our Lani-Kailua Outdoor Circle members have for many years been supportive of the City's efforts to minimize the visual impacts of Mindward refuse on our Kailua community, and have supported separation and recycling alternatives in order to cut down the vast bulk of the problem addressed by the Transfer Station. Seeing no change in policy in this direction, we are wholly opposed to establishment of a transfer station so close to Kualulani Marsh and in full view of much of Kailua. Expansion of the visual blight of the landfill, plus expanding the Corporation Yard together with a Refuse Transfer Station really puts a very great burden on the Outdoor Circle's aim to keep Hawaii beautiful. Others will be addressing problems of traffic, health, culture, etc., and these are also our concerns.

We would support a plan to construct the facility back in Kapaa Valley if we could sense any change in direction toward long term planning to solve our immediate solid waste problem -- other than the temporary and destructive solution which is with us now.

Yours truly,

Hope Miller,
Public Affairs Committee Co-Chair

CC: The Outdoor Circle, Honolulu

Ms. Hope Miller
Public Affairs Committee Co-Chair
The Lani-Kailua Outdoor Circle
P.O. Box 261
Kailua, Hawaii 96734

Dear Ms. Miller:

Thank you for your review and comments dated November 6, 1987 on the Environmental Impact Statement Preparation Notice for the proposed Kapaa Refuse Transfer Station.

The concerns that you have expressed on behalf of the Lani-Kailua Outdoor Circle have been forwarded to the design consultants currently working on the design of the proposed Transfer Station structure. We have apprised them of the strong concerns expressed by your organization in terms of visual impacts on adjacent communities. There will be substantial effort made to design and landscape the new building to blend into the existing site to the extent practicable.

The increasing solid waste management problems that face Oahu make it necessary to deal with the refuse volume in broad efforts: incineration, recycling and landfilling. Recycling by itself will not solve Oahu's waste disposal problem. The City will be looking to assist expanding existing recycling programs as well as to develop other recycling programs. A consultant will be brought on board early next year to assist the City.

Very truly yours,

Alfred J. Thiede
Director and Chief Engineer
November 20, 1987

Mr. Alfred J. Thiede
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 King Street
Honolulu, Hawaii 96813

Dear Mr. Thiede:

RE: Environmental Impact Statement Preparation Notice for Kapaa Refuse Transfer Station.

The residents of Pohai Nani Good Samaritan Kaahale have authorized me to write this letter of support for the proposed project.

It is our sincere hope that the Refuse Transfer Station would solve these problems related to standard sanitary landfill operations. In addition, we hope that it will improve environmental and aesthetic conditions in the area which at the present time seem to be lacking.

Sincerely yours,

[Signature]

December 17, 1987

Mr. Gunter W. Brunk, Administrator
Pohai Nani
Good Samaritan Kaahale
48-090 Homoku Street
Kaneohe, Hawaii 96744

Dear Mr. Brunk:

Subject: Environmental Impact Statement Preparation Notice for the Kapaa Refuse Transfer Station

Thank you for your comments dated November 20, 1987 on the Environmental Impact Statement Preparation Notice (EISP) for the proposed Kapaa Refuse Transfer Station. We appreciate your positive remarks and look forward to your review and comments on the draft EIR currently under preparation.

Thank you again for your comments and continuing concern.

Very truly yours,

[Signature]

Alfred J. Thiede
Director and Chief Engineer
### XII. ORGANIZATIONS AND AGENCIES CONSULTED DURING THE DRAFT EIS CONSULTATION PERIOD

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NRN: No Response Needed  
ND: No Date  
?: Wrong Year
Mr. John P. Whalen
Director
Department of Land Utilization
City and County of Honolulu
445 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Subject: Kapaa Refuse Transfer Station
Draft Environmental Impact Statement

We have reviewed the subject document and have no comments to offer.

Very truly yours,

TOMOYOSHI
State Director

cc: Division of Refuse, Department of Public Works
City and County of Honolulu

NO RESPONSE NECESSARY
MEMORANDUM

To: Mr. John P. Whalen, Director
   Department of Land Utilization
   City and County of Honolulu

Subject: Draft Environmental Impact Statement (EIS) for
         Kapaa Refuse Transfer Station
         City and County of Honolulu Department of Public Works
         TMK: 4-2-15; 5 Kapaa Quarry, Oahu
         Area: less than one acre

The Department of Agriculture has reviewed the subject
application and has no comments to offer.

Thank you for the opportunity to comment.

Suzanne D. Peterson
Chairperson, Board of Agriculture

CC: Department of Public Works, Division of Refuse

No response needed
Engineering Office

Mr. John P. Keala, Director
Department of Land Utilization
City & County of Honolulu
601 South King Street
Honolulu, Hawaii 96813

Dear Mr. Keala:

Kapiolani Transfer Station
Ewa, Ewa Beach, Oahu

Thank you for providing us the opportunity to review the above subject project.

We have no comments to offer at this time regarding this project.

Sincerely,

Jerry N. Sato
Maj., Hawaii Air National Guard
Commander, Zany Officer

Enclosure

CC:
Division of Refuse

NO RESPONSE NEEDED
MEMORANDUM

To: Mr. John P. Whalen, Director
   Department of Land Utilization, City & County of Honolulu

From: Deputy Director for Environmental Health

Subject: Draft Environmental Impact Statement for Kapaa Transfer Station, Kauai, Hawaii

January 21, 1998

Thank you for allowing us to review and comment on the subject EIS. We provide the following comments:

1. The proposed project must meet provisions of Administrative Rule Title 11, Chapter 26, Subchapter 2, Section 11-26-11, entitled "Fleas, Protection Against Breeding."

2. The Draft EIS does not address the opportunity to deposit their solid wastes when the Kapaa Transfer Station is closed. Will the transfer station be open to the public?

BRUCE S. ANDERSON, PH.D.

cc: Div. of Refuse, DPW, CAP

March 10, 1998

Dr. Bruce S. Anderson
Deputy Director
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96809

Subject: Draft Environmental Impact Statement for the Kapaa Transfer Station, Kauai, Hawaii

Thank you for your comments dated January 21, 1998 on the above project. We respond as follows:

1. The operations of the proposed project will comply with Administrative Rule Title 11, Chapter 26, Subchapter 2, Section 11-26-11, entitled "Fleas, Protection Against Breeding."

2. The Transfer Station will provide the individual homeowner the opportunity to deposit their home-generated refuse. The area designated "Public Service Area" shown on Figure 2, page III-4 is to be used by homeowners. The Kapaa Sanitary Landfill will remain open for non-combustible waste.

Thank you for your comments and continuing concern.

Sincerely,

BRUCE S. ANDERSON, PH.D.

Director of Engineering & Chief Engineer
Honorable John P. Whalen, Director  
Department of Land Utilization  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Whalen,

SUBJECT: Kapaʻa Refuse Transfer Station. TK1: 4-2-15: 5.

Thank you for the opportunity to review the draft EIS for the project cited above. We offer the following comments:

The final EIS should address, in greater detail, the onsite drainage designed to handle water run-off and wash-down water. Since water may contain hazardous material such as petroleum products, other chemicals and heavy metals, it should not be permitted to drain directly into Kawainui Marsh. Holding or settling ponds should be maintained and sludge or settled material removed from the site on a regular basis.

While there are no state park concerns directly affecting existing state parks, we are involved in the acquisition of land for the Kawainui Marsh Resource Management Plan. This plan includes the existing county land located along the Kapaʻa Quarry Road directly opposite the subject project. We note this major industrial facility will be located within 50 feet of the public road and future Kawainui Marsh wildlife areas. Considering the subject facility is located on a 76 acre parcel, alternative locations within the existing parcel should be considered. A location further from the marsh and the public road along the edge of the marsh would be desirable.

Very truly yours,

WILLIAM W. PATY, Chairperson  
Board of Land and Natural Resources

March 10, 1988

Mr. William W. Paty, Chairperson  
Board of Land and Natural Resources  
State of Hawaii  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Paty:

Subject: Draft Environmental Impact Statement (DEIS) for the Kapaʻa Refuse Transfer Station

We have received your department's comments dated February 1, 1988 and we respond as follows:

1. On-site surface runoff will be collected by a storm drain system and conveyed to the existing 60' culvert at the Kapaʻa Quarry Access Road for discharge into the marsh. Once the Transfer Station is constructed, and the area landscaped and graded, on-site runoff will be relatively free of silt or debris. There will be no washdown of the refuse transfer facility. Trailer trucks will be washed on the outside only at the proposed washrack provided and the washwater will be directed to an oil separator structure before being discharged into the storm drainage system. The oil separator will keep the oil and other floating pollutants from being discharged into the storm drainage system.

An evaporation/holding pond will not be employed in that there will be no washing of the refuse transfer facility or the inside of the transfer trailer compartments.
Mr. William W. Paty
Page 2

The transfer station has been located as far as possible from the marsh and road within the 76 acre parcel. Above the project is the landfill where it is not possible to construct permanent structures such as the transfer station.

Thank you for your comments and continuing concern.

Sincerely,

ALFRED J. WOODE
Director & Chief Engineer
January 19, 1988

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
660 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Subject: Draft Environmental Impact Statement (EIS) for the Proposed Kapaa Refuse Transfer Station

We have reviewed the subject EIS and have no comments to offer.

Sincerely,

[Signature]

JOSEPH K. CONANT
Executive Director

CC: Division of Refuse
City & County of Honolulu

NO RESPONSE NEEDED

JAN 28 1988
February 8, 1988

Mr. John P. Whalen
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Draft Environmental Impact Statement
Kapaa Refuse Transfer Station
Kauai, Kauai

The above referenced document involves the construction of a refuse transfer station in the Kapaa Sanitary Landfill area. Our review of this document was prepared with the assistance of P. Hoon Griffin, Anthropology; Yu-Si Fok, Henry Gao, and Edwin Murabayashi, Water Resources Research Center; Frank Peterson, Geology and Geophysics and Jennifer Cruasser, Environmental Center.

Dr. G. L. Dugan has made the recommendation that evaporation/holding ponds be implemented to decrease the chance of excess washdown water and other runoff reaching the Kawainui Marsh. On page VII-7, the EIS states "waste drainage will be discharged through an existing 48-inch RCP pipe". How will this effluent be disposed of? Will the recommended evaporation/holding ponds be employed?

Though there are no identified historic sites within the immediate vicinity, there is potential for historically significant subsurface features. If all construction is conducted on previously disturbed surfaces, as stated on page III-2 section B, it is unlikely that deposits will be found. However, should construction go beyond these confined subsurface testing should be undertaken.

We thank you for the opportunity to comment. We look forward to your consideration and response to our comments.

Sincerely,

John T. Harrison
Environmental Coordinator

AN EQUAL OPPORTUNITY EMPLOYER
March 18, 1988

Mr. John T. Harrison
Environmental Coordinator
Environmental Center
University of Hawaii at Manoa
Crawford 317
2550 Campus Road
Honolulu, Hawaii 96822

Dear Mr. Harrison:

Subject: Draft Environmental Impact Statement for the Kapaa Refuse Transfer Station

We have received your comments dated February 9, 1988 on the Draft Environmental Impact Statement (DEIS) prepared for the proposed Refuse Transfer Station, Kapaa Oahu. We respond to your comments as follows:

Surface Runoff/Drainage:
On-site surface runoff will be collected by a new storm drain system and conveyed to the existing 18" culvert at the Kapaa Quarry Access Road for discharge into the Hanalei. Once the transfer station is constructed, and the area landscaped and graded, on-site storm runoff will be relatively free of silt or debris. There will be no washdown of the refuse transfer facility. Trailer trucks will be washed on the outside only at the proposed washback and the washwater will be directed to an oil separator structure before being discharged into the storm drainage system. The oil separator will keep oil and other floatable pollutants from being discharged into the storm drain system.

An evaporation/holding pond will not be employed in that there will be no washing of the refuse transfer facility or the inside of the transfer trailers.

Historical/Archaeological Sites:
In the event that archaeological sites are uncovered during the construction...
December 31, 1987

TO:    JOHN P. MIALEN, DIRECTOR
       DEPARTMENT OF LAND UTILIZATION

FROM:  KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
       BOARD OF WATER SUPPLY

SUBJECT: STATE OF HAWAII OFFICE OF ENVIRONMENTAL QUALITY
         CONTROL LETTER OF DECEMBER 22, 1987 ON THE DRAFT
         ENVIRONMENTAL IMPACT STATEMENT FOR KAPAA REFUSE
         TRANSFER STATION. FAX: 4-2-15-15

We do not have any additional comments to those already appended in Section XI of the environmental document.

If you have any questions, please contact Lawrence Whang at 527-6136.

cc: Division of Refuse
    (City Department of Public Works)

NO RESPONSE NEEDED
MEMORANDUM

TO:    Michael H.H. Moon, Director
       Department of Housing & Community Development

FROM:   Alfred J. Thiede, Director and Chief Engineer
       Department of Public Works

SUBJECT:  DRAFT ENVIRONMENTAL IMPACT STATEMENT, KAPAA
       REFUSE TRANSFER STATION

We have received your department's comments dated January 20, 1988 on
the Draft Environmental Impact Statement for the Kapaa Transfer Station.
We acknowledge your review and no objections position. Thank you for
your continuing concern.

Alfred J. Thiede
Director and Chief Engineer

JAN 28 1988
MEMORANDUM

TO: JOHN F. WEALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: DONALD A. CLEGGS, CHIEF PLANNING OFFICE
DEPARTMENT OF GENERAL PLANNING

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR THE
KAPAANAA REFUSE TRANSFER STATION, 81/82-1007(10)

February 9, 1988

Donald A. Clegg
Chief Planning Officer

cc: Department of Public Works, Division of Refuse

MEMORANDUM

TO: DONALD A. CLEGGS, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR
THE KAPAANAA REFUSE TRANSFER STATION, 81/82-1007(10)

March 18, 1988

We have received your department's comments dated February 9, 1988 on the
above project and acknowledge that the DEIS has adequately addressed the
questions concerning drainage, historic sites, relationship of the proposed
project to cultural resources on the periphery of Kualulani Marsh, and
impact on view planes. Further, we acknowledge the project conformance
with the Development Plan Public Facilities Map.

Thank you for your comments and continuing concern.

Alfred J. Thiede
Director and Chief Engineer
MEMORANDUM

TO: ALFRED THIEME, DIRECTOR & CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM: JOHN F. MALEKI, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
KAUAI BOUNDARY TRANSFER STATION
DECEMBER 1997

WE HAVE REVIEWED THE DEIS AND HAVE THE FOLLOWING COMMENTS:

1. Cost of Project and Time Schedule
   Indicate cost of the project and projected time schedule for construction
   in the Summary Section.

2. Drainage and Impact on Hydrological Characteristics
   a. A plan drawing showing the existing and proposed drainage pattern
      would be appropriate. Show the area of sheet flow, the location
      of the culverts, and the location of the existing pipes and ditch
      intercepts. The DEIS should relate the volume of additional runoff
      created by the project which will be diverted into the storm to the
      total runoff from the drainage basin that the project is located
      within.
   b. Show the location and describe the design of the evaporation/holding
      ponds which will be used to decrease the chance of excess runoff
      reaching the marsh.

3. Relationship to Chapter 205A
   The reference to the issuance of a State CSM "permit" is incorrect; the
   reference should be to the State's CSM federal consistency determination.

Although no consistency determination from the State is required, the DEIS
should discuss whether or not it means the project meets pertinent coastal
zone management objectives and policies contained in Chapter 205A.

4. City Development Plan
   a. Figure 5 is not the City Development Plan Public Facilities (DP-PP)
      map. A copy of the pertinent section of the DP-PP map is attached.
      (Attachment B)
   b. Consistency with the DP-PP map was not addressed adequately. A
      portion of the City Department of General Planning's (DPG) report to
      the Planning Commission for a DP-PP amendment for the adjacent
      Automotive Equipment Service (AES) Maintenance Yard addresses
      the question of the apparent conflict between the Park designation
      and the Solid Waste Management designation. Attachment B shows
      that DPG's explanation be incorporated into the DEIS.

5. Special Management Area (SMA) Map
   Figure 6 should be replaced with an accurate SMA map (such as Attachment
   C).

6. Land Use Ordinance (LDO)
   The 45-foot high building will require a waiver from the 25-foot height
   limit allowed in the R-5 Residential District. A basis for the waiver,
   presumably that the project is for a public use, should be noted.

7. View Analysis
   The View Analysis is not adequate. The DEIS should note that the City's
   Coastal View Study identified the entire Kauai Island Ranch as an "Important
   Open Space/Landscape." Figures 7, 8, 9, and 10 should be augmented to
   show the outline of the proposed project.

Since a 45-foot high building is being proposed, it would be appropriate
   to show the location of proposed trees and landscaping. A detailed
   landscaping plan will be required for the SMA permit application.

The view analysis section does not evaluate the impact on views from
   Pahukini Heiau and Kauai Quarry Road as DMB had suggested in its
   consultation comments. Since Pahukini Heiau, which was placed on the
   National Register of Historic Places in 1973, is located about
   one-fourth mile from the site, measures to screen the view of the proposed
   project from the heiau should be described.
MEMORANDUM TO ALFRED THURST
Page 3


The EIS should address the "Resource Management Plan for Kawainui Marsh"
(Department of Planning and Economic Development [DPE], March 1983). The
proposed project should be related to the recommended actions of the
management plan, as DPE had done in its report to the City Planning
Commission for the adjacent AES park. (Attachment G)

9. Project Description

As DPE had suggested in its consultation comments, the future use of the
nearby Sanitary Landfill (SFL) should be noted. Since the SFL is to be
developed as a park in the future, a description of the adverse effects
that the transfer station may have on park activities should be described
with possible mitigation measures.

How will vehicular access to the park and trails be provided and how will
this be affected by the proposed facility? The EIS should also provide a
site plan showing the proposed facility in relation to the City Automotive
Equipment Service facility, the proposed park, and the Kapaa Quarry Road.

10. Consideration of Consultation Comments

The preparer of the DPE is not necessarily a matter of serious and relevant
concerns noted in the consultation comments submitted to the concerned
agencies and community organizations. The EIS suggests that the preparer
be responsible for diligently addressing all relevant concerns in the
content of the EIS; a later response indicating that a concern would be
addressed in the EIS, but without the resulting EIS addressing the concern
is not acceptable. If the EIS is not acceptable to the community, these concerns must be addressed
adequately in the text of the EIS.

Thank you for the opportunity to comment. If you have any questions, please
call Bennett Ward of our staff at 527-5038.

John P. Walsh
Director of Land Utilization

JPMalr
16118
Robert J. Hauwson, Jr., Chairman
and Members of the Planning Commission
January 4, 1988

Attachment B

Park Designation on the DP Public Facilities Map

The Development Plan Public Facilities Map (DPFPFM) park designation on the subject parcel is for the expansion of Kawaihui Regional Park. The rationale for this designation is that it would continue the string of planned parks around the marsh perimeter to help preserve and protect Kawaihui Marsh.

There is also a refuse transfer station designation (R/T/S) on the DPFPFM at this site which currently houses the existing City maintenance yard. Council has previously indicated that the site is suitable for all three uses. They feel that alternative uses and alternative sites should be indicated on the DPFPFM to provide option and greater flexibility in determining the final placement of the various public facilities. Council feels that the final resolution of issues of priority when conflicting policies are involved rests with them.

Several actions taken by Council recently are pertinent to the amendment being considered and should clarify Council’s policy for park expansion in this area.

1. An amendment deleting the park designation from a 28-acre parcel adjacent to and north of the City’s maintenance yard was adopted on May 20, 1985 (Ord. 85-49).

The same parcel was redesignated on the DP Land Use Map from Preservation to Industrial use to allow the development of the Kapaa Industrial Park (May 29, 1987, Ord. 87-66).

2. An amendment to place a solid waste management facility modification symbol on the DPFPFM to allow construction of the Kapaa Refuse Transfer Station at the City-owned parcel in Kapaa Quarry was adopted on May 29, 1987 (Ord. 87-66).

3. A resolution approving the Special Management Area Use Permit for improvements to the Kapaa Maintenance Yard was adopted by City Council on December 16, 1986 (Resolution 86-295).

These actions indicate that Council has shifted its priorities from park to maintenance yard and refuse transfer station (industrial type uses) in this area.

Robert J. Hauwson, Jr., Chairman
and Members of the Planning Commission
January 4, 1988

The Department of Parks and Recreation offered no written comments on the proposed amendment. On further investigation, DPFPFM has indicated that it has no interest in the subject property because it feels that the maintenance yard and the refuse transfer station are the more appropriate uses of that property.

DPFPFM was, at one time, interested in the adjacent property as an active regional type facility which would have consisted of ball fields, playgrounds, recreation buildings, etc. However, this 10-acre parcel has since been redesignated to industrial use (see 1 above).

Kapaa Refuse Transfer Station

The City will locate its Kapaa Refuse Transfer Station adjacent and to the north of the Kapaa Quarry Maintenance Yard. The transfer station will also be within the boundaries of the former quarrying operation on City owned land.

Like the maintenance yard, there will be little or no impacts on the water quality of the Marsh. And as with the maintenance yard, precautions will be taken to ensure minimal impacts.

In actuality, the Refuse Transfer Station is a separate issue from the maintenance yard. A policy decision committing the City to the refuse transfer station was made with the adoption of Ordinance No. 87-66 (May 29, 1987) which placed a symbol for a solid waste management facility on the Development Plan Public Facilities Map for Kauai County at the site of the old quarry.

Project Location

Several alternative sites have been investigated, including those further back in Kapaa Valley. Improvements to the existing maintenance yard was determined to be the best alternative for the following reasons:

1. Owners of the alternative sites objected to City acquisition of these properties, although many have indicated possible long delays in acquiring those properties. The present maintenance yard is in need of immediate upgrading and renovation.
2. The acquisition of alternative sites would substantially increase the project costs considering that there is no land acquisition costs by remaining at the existing City-owned site. There is a tremendous additional cost advantage to remaining at the present location. Besides eliminating land acquisition costs, renovating the existing facility means less new construction, elimination of grading costs, utility installation costs and moving expenses.

3. It is not feasible to locate the maintenance yard at the alternative sites considered. For example, the Amonano/NACAD site is in the middle of their operating area and is needed for the viability of their long-term quarry operation. The suggested Kalaheo Landfill site lacks the space required for the siting of a maintenance yard.

4. The existing facility is situated on land that is marginal for other uses because it has already been extensively altered by the former quarrying operation and the present landfill activity.

5. The renovation of the existing maintenance yard is nearly 50% complete and nearly $2 million has already been expended to upgrade the facility.

Resource Management Plan for Kawaihau Marsh

The State of Hawaii Department of Planning and Economic Development (DPED) locates the project site in the Secondary Area of its Kawaihau Marsh Resource Management Plan. The Plan cites runoff and marsh water quality as the chief concerns in the Secondary Area.

These concerns have been addressed previously. (See "Impact on the Water Quality of Kawaihau Marsh.")

Recommended actions of the management plan which potentially relate to the proposed project are:

Economic:
A-1 Remove the auto dump from the primary area (Kaliua Auto Wreckers).
A-2 Relocate existing industrial uses situated on the marsh side of Quarry Road.
MEMORANDUM

TO: MR. JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) KAPAA REFUSE TRANSFER STATION, DECEMBER 1988

TAKE OFF KEY: 4-4-1515

We have received your department's comments dated February 8, 1988 and respond as follows:

1. Cost of Project and Time Schedule

Planning and engineering costs for this project are $400,000. Preliminary construction cost figures for this project as provided by our design consultant are estimated at $5,520,000. Once all required permits and approvals are obtained, it is estimated that the project will require 12 months to complete in one phase of work.

2. Drainage and Impact on Hydrological Characteristics

a. Figure 7 shows the proposed drainage scheme for the transfer station site. Runoff mounds of the project site are intercepted by an existing ditch along the access road, and conveyed to an existing siltation basin. Therefore, only on-site rainfall will be designed for.

The contributing drainage runoff area to Kawainui swamp is about 7,100 acres. Area disturbed by construction is approximately 7 acres, or less than 0.1% of the total runoff area; a negligible amount.

b. There will be no evaporation/holding pond (see above). Dr. Dugan had recommended evaporation/holding pond for excess washdown water from the facility and trucks. However, there will be no need for a washdown of the facility and a wash rack with an oil separator will be constructed.
3. **Relationship to Chapter 205A**

   The incorrect reference to the issuance of a State CEM "permit" will be corrected in the Final EIS. We do not see the need to discuss the project's ability to meet the objectives of the coastal zone management objectives if a consistency determination is not required.

4. **City Development Plan**

   a. We will replace the DP-FF map with the provided Attachment A (Figure 5).

   b. The DP/FF language as provided in Attachment B will be incorporated into the Final EIS.

5. **Special Management Area (SMA) Map**

   Figure 6 will be replaced with the Attachment C map.

6. **Land Use Ordinance (LUD)**

   A building height waiver application will be submitted after acceptance of the EIS.

7. **View Analysis**

   New photographs with the proposed building superimposed have been included in the Final EIS (Figures 11, 12, 13, and 14).

   A detailed landscape plan is being developed in conjunction with the architect/planning firm so that view aesthetics and cost effective use of funds budgeted can be maximized to the most effective use and purpose.

   View plane impacts from the Pahukuli Heiau and the Kapaa Quarry Road were not considered since the site cannot be seen from Pahukuli Heiau and the landscaping around the Transfer Station structure which will consist of Monkeypod, Firmosa Koia and Swamp Mahogany trees will more than adequately obscure the structure. Further, the grading of the site will also aid in shielding the structure from Kapaa Quarry Road as the building will be on a lower level than the entry road to the site.


   Incorporation of the language contained in Attachment D will be provided in the Final EIS.

9. **Project Description**

   The type of park to be developed on the existing landfill has yet to be determined. The Kapaa Landfill Environmental Impact Statement recommends the area above the transfer station be made into an arboretum. The Department of Parks and Recreation does not think a park is feasible on the landfill site and had recommended the Park designation deleted from the development plan in the 1987 annual amendment review. There were no community comments to the amendment although we did recommend the Park designation remain since the open areas have potential for active or passive park use. The transfer station would be located at the base of the landfill. Since the slope of the landfill would be too steep for active park activities, this area would serve as a buffer zone to the more usable area on top of the landfill. Because of the topography of the finish grade of the landfill, the transfer station would not be visible unless standing at the edge of the top of the landfill. Since transfer operations will be conducted indoors, there should not be any impacts from noise and odors.

9. **Vehicular access to the Heiau**

   A site plan identifying the proposed facility in relation to the other Corporation Yard functions will be provided in the Final EIS.

10. **All effort will be made in the Final EIS to meet the requirements of the DLU as the accepting authority.**

    Thank you for your comments and continuing concern.

   ![Signature]

   ALFRED J. FREUND

   Director & Chief Engineer
February 3, 1988

TO:        JOHN P. WHALEN, DIRECTOR  
            DEPARTMENT OF LAND UTILIZATION  

FROM:      NIRAN K. KANAKA, DIRECTOR  

SUBJECT:   KAPAA REFUSE TRANSFER STATION - REVIEW OF DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)

We have reviewed the subject draft EIS and have no comments. Thank you for the opportunity to review the preparation notice.

NIRAN K. KANAKA, Director  

cc: Department of Public Works, Refuse Division  

NO RESPONSE NEEDED
To: JOHN P. WALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

From: FRANK K. KAROOHANNO, FIRE CHIEF

Subject: KAPAA REFUSE TRANSFER STATION

After reviewing the subject EIS, the proposed project would be limited to a single hydrant located approximately 500-2000 feet at the entrance of the Aanak Rock Quarry. This could hamper firefighting efforts.

A relay by the engine companies would have to be applied.

Engine companies from Kahului and Grahman Fire Stations and a ladder company from Kailua Fire Station would respond on the initial call with arrival time at the scene approximately 3-5 minutes.

Additional assistance is available from the Kailua and Kaneohe Fire Stations.

An additional hydrant in the area will enhance fire protection in that area.

All building fire codes should be strictly adhered to.

Should you have any questions, please contact Battalion Chief Kenneth Ward at local 3938.

FRANK K. KAROOHANNO
Fire Chief

R. 84-365
March 18, 1988

To: FIRE CHIEF FRANK K. KAROOHANNO
HONOLULU FIRE DEPARTMENT

From: ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

Subject: KAPAA REFUSE TRANSFER DRAFT ENVIRONMENTAL IMPACT STATEMENT

The comments provided by your department dated January 4, 1988 have been provided to the Division of Refuse Collection and Disposal for their future planning and design considerations. Design will be in accordance with applicable fire codes and standards. Thank you for your comments and continuing interest.

ALFRED J. THIEDE
Director and Chief Engineer
TO:  JOHN P. WHALEN, DIRECTOR
      DEPARTMENT OF LAND UTILIZATION

FROM:  DOUGLAS G. GIBB, CHIEF OF POLICE
       HONOLULU POLICE DEPARTMENT

SUBJECT:  ENVIRONMENTAL IMPACT STATEMENT FOR KAPAA REFUSE
          TRANSFER STATION LOCATED AT KAILUA, KOOLAUPOKO, OAHU

The proposed project should have little or no impact on the
services provided by this department.

Thank you for the opportunity to review the Environmental Impact
Statement.

DOUGLAS G. GIBB
Chief of Police

CC:  Division of Refuse

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

FROM:  ALFRED J. THIEDE, DIRECTOR AND CHIEF ENGINEER
       DEPARTMENT OF PUBLIC WORKS

SUBJECT:  ENVIRONMENTAL IMPACT STATEMENT FOR KAPAA REFUSE
          TRANSFER STATION LOCATED AT KAILUA, KOOLAUPOKO, OAHU

We acknowledge your review and comments on the subject Draft EIS and
accept that there will be little or no impact on the services of the Police
Department.

Thank you for your comments and continuing concern.

ALFRED J. THIEDE
Director and Chief Engineer
Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 S. King Street
Honolulu, HI 96813

Dear Mr. Whalen:

DRAFT ENVIRONMENTAL IMPACT STATEMENT
KAPA'AA REFUSE TRANSFER STATION

The Draft Environmental Impact Statement for the Kapa'aa Refuse Transfer Station has been reviewed and we have no comments to offer. Since we have no further use for the EIS, it is being returned to the Office of Environmental Quality Control.

Thank you for the opportunity to review the Draft.

Sincerely,

[Signature]

Enclosure

Copy to:
Division of Refuse
Department of Public Works
City and County of Honolulu
650 S. King Street
Honolulu, HI 96813

Office of Environmental Quality Control

NO RESPONSE NEEDED
January 27, 1988

Mr. John P. Whalen, Director
City and County of Honolulu
Department of Land Utilization
650 S. King Street
Honolulu, HI 96813

Dear Mr. Whalen:

Subject: Environmental Impact Statement (EIS), Kapaa Refuse Transfer Station - Kalihi, Oahu

We have no comments to offer at this time regarding the above subject matter. Thank you for the opportunity to review the document.

Sincerely,

[Signature]

RICHARD M. DUNCAN
State Conservationist

cc:
Division of Refuse, City and County of Honolulu, Department of Public Works, 650 S. King Street, Honolulu, HI 96813

NO RESPONSE NEEDED

RECEIVED FEB. 4, 1988
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 220
FT. SHAFTER, HAWAII 96760-5440

February 2, 1988

Mr. John P. Whalen, Director
City and County of Honolulu
Department of Land Utilization
658 S. King Street
Honolulu, HI 96813

Dear Mr. Whalen:

Thank you for the opportunity to review the Draft Environmental Impact Statement (DEIS) for the Kapaa Refuse Transfer Station, Kauai, Hawaii. Comments on the Preparation Notice provided in our letter dated October 29, 1987 are still current. We have no additional comments on the DEIS.

Sincerely,

[Signature]

Chief, Engineering Division

Chief Kluck Cheung
Engineering Division
Department of the Army
U.S. Army Engineer District, Honolulu
Building 220
Ft. Shafter, Hawaii 96858-5440

March 18, 1988

Dear Chief Cheung:

Subjects: Draft Environmental Impact Statement (DEIS) for the Kapaa Refuse Transfer Station

We have received your agency's comments dated February 2, 1988 on the above and acknowledge that your comments dated October 29, 1987 are still current and you have no further comment.

Thank you for your comments and continuing concern.

Sincerely,

[Signature]

ALFRED J. THOMAS
Director and Chief Engineer
Mr. John P. Whalen, Director
City and County of Honolulu
Department of Land Utilization
650 S. King Street
Honolulu, Hawaii 96813

Re: Draft Environmental Impact Statement for the Kapaa
Refuse Transfer Station, Kauai, Oahu.

Dear Mr. Whalen:

We have completed our review of the subject document and offer
the following comments for your consideration in preparation of
the final impact statement.

In general, the document has not addressed all the specific
colltrash raised in our letter of October 21, 1987. Specifically,
the document has not identified aquatic life within Kauai Marsh
that lies adjacent to and may be affected by the proposed
project. The document has also failed to adequately identify
contaminants which may be present in leachate and stormwater
runoff from the landfill and the proposed site. We acknowledge
that design measures to contain accidental spills of hazardous
materials is discussed in the draft statement.

Although the previous monitoring studies at the landfill have
indicated that no leachate is present in the marsh (based largely
on low chemical oxygen demand levels), we do not believe that
this and other similar studies are definitive. Specifically, we
suggest that levels of hydrocarbons, organochlorines and other
pesticide residues, polychlorinated biphenyls and tetrachloroethylene/vinyl chloride be determined both in marsh
soils and in the tissues of aquatic invertebrates and fishes
living adjacent to the landfill. The results of these studies
would greatly enhance the value of the final environmental impact
statement for the proposed action.

We appreciate this opportunity to comment and offer our staff
assistance regarding environmental contaminants and wildlife
toxicology. Please contact John Ford of my staff at 541-2749 if
you have specific questions regarding our comments.

Sincerely yours,

Ernest Kosaka
Field Supervisor, Environmental Services
Pacific Islands Office

COI: DEAR
DOH

Save Energy and You Serve America
March 18, 1988
R 88-356

Mr. Ernest Kosaka
Field Supervisor, Environmental Services
Pacific Islands Office
United States Department of the Interior
Fish and Wildlife Service
P.O. Box 50167
Honolulu, Hawaii 96820

Dear Mr. Kosaka:

Subject: Draft Environmental Impact Statement (DEIS) for the Kapaa
Refuse Transfer Station

We have reviewed your comments dated January 26, 1988 and we respond as
follows:

The Drainage system for the refuse transfer station will not alter the existing
drainage system that serves the sanitary landfill mounds of the project site.
On-site drainage will be conveyed to an existing 48" culvert that crosses
Kapaa Quarry Access Road. Once the transfer station is completed with
pavement, landscaping, and ground cover, the on-site runoff will be relatively
free of silt and debris.

Similar to our other transfer station at Shafter Flats, the facility will not be
washed down.

The transfer trucks/trailer will be washed approximately once per month, and
only for aesthetics, i.e., only on the outside. The wash rack will be designed
to convey the wash water to an oil separator structure before discharging into
the storm drainage system. The interior of the trailer will not be washed.
Therefore, we do not believe such extensive studies as suggested in your
letter are required.

Thank you for your comments and continuing concern.

Sincerely,

Alfred S. Pakalani
Director & Chief Engineer
January 8, 1988

Mr. John R. Whalen, Director
City and County of Honolulu
Department of Land Utilization
650 South King Street
Honolulu, HI 96813

Dear Mr. Whalen:

Subject: Draft Environmental Impact Statement for Kapaa Refuse Transfer Station

We have reviewed the above document and have the following comments:

1. HECO has no existing or planned transmission facilities in the area of this project.

Sincerely,

Brenner Hunger

cc: Division of Refuse

March 18, 1988

Dr. Brenner Hunger, Manager
Environmental Department
Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96810

Subject: Draft Environmental Impact Statement for the Kapaa Refuse Transfer Station

We have received your comments dated January 8, 1988 on the Draft Environmental Impact Statement (DEIS) prepared for the Kapaa Quarry Refuse Transfer Station. Your advice that HECO has no existing or planned transmission facilities in the area of the project is acknowledged.

Thank you for your continuing interest.

Sincerely,

Alfred J. Friede
Director & Chief Engineer
February 3, 1988

Mr. John P. Whelan, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, HI 96813

Dear Mr. Whelan:

Subject: Draft Environmental Impact Statement (DEIS)
Ameron Horse Transfer Station

We have reviewed the subject DEIS and have the following comments:

1. Page V-3, Item B, Hydrology: The fifth sentence states that the flow of the intermittent Kapa Stream consists of some treated process water from the existing (Kapa) quarry. This is not correct as was pointed out in our October 21, 1987, comments on the EIS Preparation Notice. The City responded in their letter of December 15 (see Section XII) that the reference to the flow of process water in Kapa Stream would be deleted from the DEIS; this was not done. Please correct this section in the final EIS as agreed to by the City.

2. Pages V-5, Item F, Existing Traffic: The second paragraph acknowledges a potentially hazardous situation existing at the skewed intersection of the Kapa Quarry Road, the access road leading to the Ameron HCDQ Quarry and the access into the refuse weigh station for vehicles coming from Makakapu Saddle Road. Page 5 of Appendix A recommends that access to the proposed transfer station from this intersection be closed and a new access provided as shown on Exhibit 1 and on Figure 3, page 11-1.

We concur with that recommendation and would like to be assured that this closing will occur and the new recommended access will be constructed and not delayed to accommodate future budget constraints as addressed in section IV-C, Proposed Project Alternative on page 11-1.
March 10, 1988

Mr. E.H. Curtis
Vice President, Engineering
Aerovox R&D
P.O. Box 29948
Honolulu, Hawaii 96820

Dear Mr. Curtis:

Subject: Draft Environmental Impact Statement for Kapaa Refuse Transfer Station

We have received your comments dated February 3, 1988 on the Draft Environmental Impact Statement (DEIS) prepared for the proposed Kapaa Refuse Transfer Station. We have reviewed your comments and respond as follows:

1. We regret the error of not deleting the reference to flow of process water in Kapaa Stream; this will be corrected in the Final EIS.

2. The proposed recommendation as stated by the Traffic consultant in his study is endorsed by the Department of Public Works as a mitigative measure to eliminate a potentially hazardous traffic situation at the skewed intersection of Kapaa Quarry Road. This recommendation will not be deleted because of budget constraints.

3. Special Management Area - We will delete the reference to the inclusion of the Kapaa Quarry in the Special Management Area. We regret the error and will correct this in the Final EIS.

4. Similar to the above, Figure 6 will be corrected.

Thank you for your comments. We regret any inconvenience that may have occurred.

Sincerely,

[Signature]

Alfred J. Thieme
Director & Chief Engineer
Mr. John Whalen  
February 8, 1986

Page 3

Mr. Whalen;  

Dear Mr. Whalen;

Thank you for giving the Kailua Neighborhood Board the opportunity to respond. The Board’s concerns and questions are as follows:

Page I-2: Please explain the design, color, etc. that will be used to make the structure "aesthetically compatible with the existing area.”

Page 1-3: Please define and give source for the standard measures that will be implemented to mitigate construction related impacts.

Page V-2: Please define statement "some treated process water from the existing quarry," what is the "treated process water," chemical make up, etc., and what is the frequency of the runoff and what monitoring is done or is proposed?

Page V-3: "there are no available long-term air pollutant measures for the project site and its immediate area." Please explain why pollutant measures haven’t been done. If any are planned for the future and if so, when?

Page V-10: Given the carbon monoxide information stated on this page, we request that studies and readings be done for Kapa...
Air Quality Study

Page 9

Please explain route and times of day that the "average vehicle speed" will be 3 mph and 15 mph. What vehicles are referred to?

Appendix D

Page 6

In light of the recent flood, we feel that the last sentence, i.e., 100-year flood needs to be re-evaluated and updated and that data quoted in this section is outdated and more current studies should be quoted or conducted.

A project of this magnitude, impact, and permanence requires a very thorough review before any approval is given. For these reasons, the Kalihi Neighborhood Board approved the following motion at its February 4, 1988 meeting:

"That a letter be written from the Board to John Whalen, Director of Department of Land Utilization, stating that until our concerns and questions can be addressed, the entire project be put on hold and returned in a new updated EIS."

This correspondence is the Board's letter that is referred to in the above motion.

Thank you.

Sincerely,

Ed Bybee
Chairperson

ERICO
Division of Refuse
Department of Public Works
Kaelani Mall Heritage Foundation
Senator Clayton Ito
Council Member Dennis O'Connor
Council Member David Kahana

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

March 10, 1988

R 88-358

Mr. Ed Bybee, Chairperson
Kalihi Neighborhood Board No. 31
P.O. Kalihi Village City Hall
629-A Kalihi Road
Kalihi, Hawaii 96814

Dear Mr. Bybee:

Subject: Draft Environmental Impact Statement (DEIS) for the Kapa'a Refuse Transfer Station

We have received the comments from your Board No. 31 dated February 8, 1988 and we respond as follows:

Page 1-2: "Aesthetically compatible with the existing area" is intended as using colors and exterior materials that will blend in with the existing terrain and vegetation. We refer you to pages VII-9 and 10 for a more graphic description of the proposed colors to be used.

Page 1-3: Construction contracts include compliance requirements by the general contractor which make it mandatory that all State Department of Health Rules and Regulations applicable to Noise, Air Quality, and Surface Runoff be adhered to. Further, the City also imposes their own requirements for grading and mass excavation quantities.

Page V-2: The reference to treated process water is no longer applicable and its inclusion was the error of the EIS preparer. This will be rectified in the Final EIS. We regret any misunderstanding that occurred due to this error.

Page V-9: Discussions via telecon March 8, 1988 with the State Department of Health, Environmental Health Division provide the following information:

1. The State Department of Health Air Monitoring network is currently financed by federal dollars and siting of these air monitoring stations are limited to areas where permitted stationary sources of air pollution will have an impact on the ambient air quality.

2. Kalihi is a residential community and has no major stationary sources of air pollution.
3. For this reason, it does not have an air monitoring site.

Page V-10: Paragraph 2 on this page (V-10) refer to a traffic condition on Kalanianaole Highway at the intersection of Kapaa Quarry Access Road; the third paragraph starts with "Present concentrations of other regulated pollutants within the project area are probably quite low." Our project will have little air impact at this location during the time of the heavy morning rush hour when the concentration of carbon monoxide is greatest. This board would be best served by seeking their studies and readings to be done by the State Department of Transportation who administers the State Highway in question, Kalanianaole Highway.

Page VII-3: We would not disagree that the view from Figure 8 is not visible from Kalani Road; our position is that with the specific attention paid to the details of landscaping and color selection, the transfer station will be less visible than the structures on the Corporation Yard at the present time.

Page VII-4: In view of the recommendations from the retained civil engineering consultants to manage truck washwater and other sources of runoff water, it is our position that studies to analyze surface water is not necessary. There is no backwash that results from the development of this project.

Page VII-5: The statement in misleading and will be corrected to read "should the facility need to be increased in capacity, the transfer station will be designed to accommodate future expansion." We did not intend to imply there will be "rigorous growth" in the Koolau Park District.

Page VII-6: The statement on page VII-4 is correct. The proposed landfill is expected to handle only the non-combustible refuse and other refuse only when H-POWER is shut down. Since traffic should decrease considerably, the Honolulu private trucks will no longer be coming to the windward area.

Page IX-1: The "method" used in determining this sentence in the design criteria developed by the project architects who also are providing the detailed landscaping, color/materials selection for the exterior of the building, and department's responsiveness to concerns such as those expressed by your organization.

Traffic Impact Assessment

Page 1: About 7 transfer trailers are planned to be used daily for this development. Transfer trailers would generally be on the road between 8:30 a.m. and 4 p.m. Approximately 3-4 trips per transfer trailer per day has been estimated.

Page 5: The Kapaa Quarry Access Road will not be closed to public traffic. Only the skidway connection to the Quarry Access Road at the Makahiki end of the Kapaa Sanitary Landfill property will be closed; a new driveway connection to the Quarry Access Road is proposed (see attached site plan).
February 3, 1982

Department of Land Utilization
City and County of Honolulu
650 S. King Street, 7th floor
Honolulu, HI 96813

RE: Environmental Impact Statement for the proposed Kepaa Refuse Transfer Station, Kauai, Hawaii.

We have reviewed the December 1981 DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE KAPAAN REFUSE TRANSFER STATION, with the following comments:

GENERAL COMMENTS:


We feel that in light of the most recent flood disaster involving the Kamalii Marsh and its surrounding environs, the data included in the K&P flushing volume and Quality Studies, Biological Aspects, and even the reference material can not be accepted as valid with dates and figures used therein from data gathered for the most part from 1956-1976. It is obvious that the "100 year, 24 hour, frequency-duration storm for the landfill area" stated as "12 in. is invalid as of the January 1981 flood occurrence in the marsh area. We feel that an update on the possible generation and movement of runoff from the facility needs to be done now. The study done in 1981 was the latest data we have to determine if there has been any change in the potential surface water runoff and leachate migration to Kamalii Marsh. Dr. Bruce Anderson of the Department of Health states at the Hallam Neighborhood Board meeting January 1981, "The marsh waters have not been tested for years.

2. There seems to be no mention of the cumulative impact of expansion of the City's Kepaa Waste Transfer Station within the context of the EIR. We see no discussion of appropriate measures to contain and decontaminate runoff before it is discharged into the Marsh. Consideration should also be given to the design of the proposed facility to contain accidental spills of toxic and hazardous materials at the waste transfer station.

3. Koolau Loko is slated to grow as fast as Waiau and Central Oahu, so why is the Kepaa Refuse Transfer Station planned for this area instead of where growth is occurring and expected to more greatly occur in the near future?

4. The EIR I-31 states, "The Kepaa Refuse Transfer Station alternative was rejected because it would require extensive Ko'olau crossing by collection vehicles which would adversely impact traffic. We need data before this would be viable.

And what is the correlation with the statement from VII-F page 7-17, "The land reduction by tonnage will be a result of private collectors transporting their refuse directly to Hi-Power plant or Leonard Landfills?"

5. VI-3 Facility Operations. We are concerned that a drop off point for recycled items should be in place for the transfer station from D.B. Hi-Power cannot exist according to the experts without recycling. Recycling should be addressed under page VII-6 Paragraph 1. "The functions of the Refuse Transfer Station."


We feel a great concern about the statement, "the development will not be highly visible to surrounding residents but will be visually integrated with the surrounding areas. The proposed project will be an enclosed concrete and metal frame structure of approximately 35,000 square feet, and its location is so situated that all living or traveling along the edge of the marsh will be able to see and identify this man-made industrial structure which is larger than a football field."

The EIR statement, "commitment of land for these purposes will likely forestall certain future use options of the land."

We have strong opinions voiced by residents regarding the potential visual impacts this project can have on adjacent communities and viewing positions. We see that according to the EIR great consideration has been taken to keep the structure low and stacked and roofed in "greens and grays" to blend more effectively with the adjacent site. We appreciate this effort and consideration.

We would like to see a feasibility study done on locating the remaining transfer station and Hi-Power functions all at one overall site on this island. We feel the minor land loss by this combined approach justifies the longer distance to haul trash. Economic offsets are also intrinsic to such a combination of functions.

We would like to see it stipulated in the long-term usage plan that this site will be restored to its original site conditions and replanted eventually.
The Hawaiian Heritage Foundation letter speaks of parks both at Kapaa Transfer and at the Kahuku Landfill. Parks are not addressed by the Public Works department nor are they addressed in this EIS Draft.

III ALTERNATIVE CONSIDERED

We would like to see back-up projections for tonnage and vehicle trips involved in trans-Kauai operation for Kauai Transfer Station both with and without the Proposed Kapaa Transfer Station.

IV PRESENT AIR QUALITY

Since existing level of particulates within the transfer building and carbon monoxide levels immediately adjoining the transfer building are estimated to be quite high, what environmental protection plans and practices have been incorporated into the project to protect the employees thus exposed while working at the Transfer Station?

CONCLUSION

We feel that without more up-to-date data of the proposed facilities impact on the marsh, and without more satisfactory answers to alternate locations we are unable to complete our evaluation of this EIS draft at this time. We will anxiously await more information, and will respond promptly.

Most sincerely,
Chauncey and Betty Wightman
League of Women Voters Planning Committee

March 18, 1988

Chauncey and Betty Wightman
League of Women Voters
49 S. Hotel, Room 314
Honolulu, Hawaii 96813

Dear Mr. & Mrs. Wightman:

Subjects: Draft Environmental Impact Statement for the Kapaa Refuse Transfer Station

We have received your organization's comments dated February 3, 1988 on the Draft Environmental Impact Statement (DEIS) prepared for the proposed Kapaa Refuse Transfer Station. We have reviewed the comments and respond as follows:

1. Since the transfer operations will be in the enclosed building, contaminants will not be present in storm runoff.

In the unlikely event of a spill within the enclosed building, sand or clay material would be placed on the spill and the host material is picked up for proper disposal. Although toxic or hazardous materials are not accepted at the transfer station, the facility will be designed to contain any accidental spills of hazardous waste.

Although the last study was done by the University of Hawaii with Resource Research Center in 1983, the study also set up a program to continue testing the marsh water. Since 1982, the City has continued testing on a monthly basis with the results sent to the State Department of Health.

2. The subject of cumulative impacts due to the expansion of the City's Kapaa Quarry Maintenance Yard was described and discussed in a Negative Declaration document prepared by KFC Airport, Inc. in April, 1989. This document was prepared for the Building Department, City and County of Honolulu and describes "the Master Plan study undertaken to develop a Master Plan for the Kapaa Quarry Maintenance Yard, Koolau North." The study described in the Scope of the Environmental Assessment, "is planned activity within the site includes the future
construction of a refuse processing and transfer station. While this activity has no direct relationship to, and is not predicated on, the proposed improvements addressed herein for the Kapaa Maintenance Yard, it is considered and addressed in overall due to the potential for cumulative impacts (emphasis added). "A separate environmental assessment will be prepared by the City and County of Honolulu, Department of Public Works, to specifically address the planned refuse processing and transfer station."

3. The single most compelling reason why a refuse transfer station is being proposed is that sanitary landfill sites are finite in their longevity. The Kapaa Refuse Transfer Station is to transfer refuse from the windward sides to the ultimate disposal site, the H-Power Plant at Campbell Industrial Park, extending the life of the windward landfill.

4. The Kehi Refuse Transfer Station alternative was rejected not only because of the traffic impact but because the capacity of the Kehi Refuse Transfer Station would not be able to hold the load. The refuse transfer station would reduce traffic from the windward side of the island to Honolulu. Rather than having the City collection trucks and private haulers from the windward side of the island drive into Honolulu, the loads from several collection trucks can be consolidated into our transfer trailer. The loads from three City collection trucks can be hauled by one transfer trailer.

There is no correlation to the statement on page VII-3. That statement refers to refuse from Honolulu to the windward side of the island.

Presently, the majority of Honolulu's private collectors dispose their refuse at the Kapaa/Kalalau Sanitary Landfill. When H-Power is constructed, this refuse will be disposed of at H-Power.

5. The station is designed so that recycling can begin immediately. The area designated "Public Service Area" shown on Figure 3 page III-3 is to be used by homeowners. Homeowners will go to this area to unload their refuse into bins. Separate bins can also be set aside for recycling.

6. Figures 11, 12, 13 and 14 provide conceptual view of the transfer station from selected vantage points. Although at a certain extent, the structure will be visible, the visual impact will be lessened by the project's landscaping plan. "Monkeypod, Fornarita, and Swamp Mahogany trees will shield adequate portions of the structure and induce a breakup of the building image."

A combined transfer station/H-Power Site idea will not be necessary; there will be no need to transfer refuse once the H-Power site is in operation. If, however, direct delivery to H-Power by windward collection vehicles and residents appears more satisfactory to the public, we urge further consideration of key factors supporting the Kapaa Transfer Station Site.

Hr. & Mrs. Hightman
Page 3

Bearing in mind that windward communities are situated considerably away from H-Power, the significant travel time to H-Power, added truck and resident traffic, and associated higher costs of operation become primary considerations and key factors supporting the Kapaa Site.

The issue of the parks is addressed in a Department of General Planning report to the Planning Commission. A portion is attached as Attachment A.

IV. Alternative Considered

As stated earlier, the capacity of the Kehi Refuse Transfer Station would not be able to handle the additional load from the windward side of the island. Approximately 850 tons per day from the Honolulu private haulers will be diverted from the windward landfill to H-Power. Should half of the private haulers use the Kehi Refuse Transfer Station, the facility will reach its capacity.

V.9 Ambient Air Quality

There appears to be a misunderstanding of the statements made by the air quality consultant on pp. V-7, 10. Barry D. Root states on pp. V-9, that the current high levels of carbon monoxide occur at the intersection of Kapaa Quarry Road and Kahalanao Highway, and the existing Kapaa Landfill, not the proposed site. Root further states on pp. VII-4, "Once construction is completed, the proposed project will not in itself constitute a major direct source of air pollutants." Finally, Root concludes the section on pp. VII-4 that the decrease in truck traffic due to the transfer station function can result in an ameliorative effect on carbon monoxide levels at the intersection of Kapaa Quarry Road and Kahalanao Highway.

Conclusion

We feel that the Draft EIS adequately describes the functions of the proposed project and the planned mitigative measures will ensure that minimal impacts to the Kawaihau Marsh will occur.

Thank you for your comments and continuing concern.

Sincerely,

[Signature]

ALFRED J. FRIEDE
Director of Chief Engineer

Attachment
Robert J. Rawson, Jr., Chairman
and Members of the Planning Commission
Page 10
January 4, 1988

Park Designation on the DP Public Facilities Map

The Development Plan Public Facilities Map (DPFFM) park designation on the subject parcel is for the expansion of Kauainui Regional Park. The rationale for this designation is that it would continue the string of planned parks around the marsh perimeter to help preserve and protect Kualii Nui Marsh.

There is also a refuse transfer station designation (RTS) on the DPFFM at this site which currently houses the existing City maintenance yard. Council has previously indicated that the site is suitable for all three uses. They feel that alternative uses and alternative sites should be indicated on the DPFFM to provide option and greater flexibility in determining the final placement of the various public facilities. Council feels that the final resolution of issues of priority when conflicting policies are involved rests with them.

Several actions taken by Council recently are pertinent to the amendment being considered and should clarify Council's policy for park expansion in this area.

1. An amendment deleting the park designation from a 12-acre parcel adjacent to and north of the City's maintenance yard was adopted on May 20, 1985 (Ord. 85-49).

   The same parcel was redesignated on the DP Land Use Map from Preservation to Industrial Use to allow the development of the Kapaa Industrial Park (May 29, 1987, Ord. 87-66).

2. An amendment to place a solid waste management facility modification symbol on the DPFFM to allow construction of the Kapaa Refuse Transfer Station at the City-owned parcel in Kapaa Quarry was adopted on May 29, 1987 (Ord. 87-66).

3. A resolution approving the Special Management Area Use Permit for improvements to the Kapaa Maintenance Yard was adopted by City Council on December 16, 1986 (Resolution 86-605).

These actions indicate that Council has shifted its priorities from park to maintenance yard and refuse transfer station (industrial type use) in this area.
The Department of Parks and Recreation offered no written comments on the proposed amendment. On further investigation, DPR has indicated that it has no interest in the subject property because it feels that the maintenance yard and the refuse transfer station are the more appropriate uses of that property.

DPR was at one time interested in the adjacent property as an active regional type facility which would have consisted of ball fields, playcourts, recreation buildings, etc. However, this 28-acre parcel has since been redesignated to industrial use (see §1 above).

Kapa'a Refuse Transfer Station

The City will locate its Kapa'a Refuse Transfer Station adjacent to the north of the Kapa'a Quarry Maintenance Yard. The transfer station will also be within the boundaries of the former quarrying operation on City owned land.

Like the maintenance yard, there will be little or no impacts on the water quality of the Hanalei. And as with the maintenance yard, precautions will be taken to insure minimal impacts.

In actuality, the Refuse Transfer Station is a separate issue from the maintenance yard. A policy decision committing the City to the refuse transfer station was made with the adoption of Ordinance No. 87-66 (May 20, 1987) which placed a symbol for a solid waste management facility on the Development Plan Public Facilities Map for Koolaupoko at the site of the old quarry.

Project Location

Several alternative sites have been investigated, including those further back in Kapa'a Valley. Improvements to the existing maintenance yard was determined to be the best alternative for the following reasons:

1. Owners of the alternative sites objected to City acquisition of their properties, which indicated possible long delays in acquiring those properties. The present maintenance yard is in need of immediate upgrading and renovation.
February 1, 1988

John P. Whalen, Director
City and County of Honolulu, Dept. of Land Utilization
650 S. King St.
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Re: Environmental Impact Statement for Kapaa Refuse Transfer Station.

Thank you for the opportunity to review the Environmental Impact Statement for the above reference project.

Residents and management of Pohai Nani Good Samaritan Kahale continue to be in support of the project.

Do not hesitate to contact me if additional comments need to be made.

Sincerely yours,

Gunter Brunk, M.P.A.
Executive Director

cc: Alfred J. Thede
Director and Chief Engineer
Department of Public Works
650 S. King Street
Honolulu, Hawaii 96813

Encl.

March 10, 1988

Mr. Gunter Brunk, M.P.A.
Executive Director
Pohai Nani Good Samaritan
Kahale
45-039 Haanuku Street
Kaneohe, Hawaii 96744

Dear Mr. Brunk:

Subject: Draft Environmental Impact Statement for the Kapaa
Refuse Transfer Station

We have received your comments dated February 1, 1988 on the Draft EIS prepared for the proposed Kapaa Quarry Refuse Transfer Station. We acknowledge the support of the residents and management of Pohai Nani Good Samaritan Kahale for our project.

Thank you for your continuing support.

Sincerely,

[Signature]

ALFRED J. THEDDE
Director & Chief Engineer

In Christ's love,
Everyone is someone
January 23, 1988

Department of Land Utilization
City & County of Honolulu
520 South King St.
Honolulu, Hawaii 96813

ATTENTION: Mr. John F. Whalen, Director

SUBJECT: Kapaa Refuse Transfer Station
Environmental Impact Statement

Gentlemen:

Thank you for the opportunity to comment on the Environmental Impact Statement for the proposed Kapaa Refuse Transfer Station.

We have several areas of concern regarding this project:

Visual Impact: We are not reassured by the response to our concerns expressed in our letter to the Department of Public Works on November 6, 1987. In that letter we suggested a site further back in Kapaa Valley so that the structure would not intrude on the view plane of Kawaili Marsh. The disclaimer that there will be landscaping and material design of the building to blend in the surrounding area says nothing good about fitting in with the area. Please think in terms of preserving beauty and quiet for a park ambiance, rather than what goes with junk cars and garbage. It would be tragic to close future options for park planning without full consideration for noise abatement and sound-quality landscape screening of this structure.

Noise: Our understanding of your data suggests it will be very noisy around the facility, and that it will be easily heard a mile away. As you know, the Kawaili Nui Directional Plan as well as the State Management Plan calls for "The Gathering Place", an Interpretive Center and Campground on the pilot landfill area. Noise this future optional use of adjacent areas.

Traffic: It is unclear from maps shown in the EIS exactly how the Transfer Station traffic will flow from the Pali Highway and Kukui Highway, or where the proposed connector road exits. Such large trucks have potential for horrendous accidents and need definite projected routing.
February 7, 1988

Mr. David Quintal
Maui Refuse Transfer Station
O/A Dept. of Public Works
650 South King St.
Honolulu HI 96813

Dear Mr. Quintal,

Thank you for the opportunity to tour your facility. Our group was most impressed with the efficiency shown by your men in handling a considerable amount of refuse, and by the well-kept condition of the physical plant. It is our hope that the proposed Kapaa Refuse Transfer Station will also be well-kept and efficiently operated.

Again, our thanks.

Sincerely,

[Signature]

Kris Truek, Co-Chair
Hana Outdoor Circle

March 18, 1988

Mrs. Marian Heitman, President
The Lani-Kailua Outdoor Circle
P.O. Box 261
Kailua, Hawaii 96734

Dear Mrs. Heitman:

Subject: Draft Environmental Impact Statement, Kapaa Refuse Transfer Station

We have received your organization's comments dated January 23, 1988 on the Draft Environmental Impact Statement (DEIS) prepared for the proposed Kapaa Refuse Transfer Station. We respond to the comments as follows:

1. Visual Impact: We had discussed with Aeron Construction possible locations further in Kapaa Valley. However, they have informed us that there is no room on their present site and they also plan to develop the site behind of the Kapaa landfill for future quarry operations. We believe the proposed site is the best site for the project for the following reasons:

   a. The facility will be adjacent to the existing refuse collection yard and the new Automotive Equipment Maintenance building.

   b. The facility needs to be located close to the sanitary landfill where traffic is diverted from the existing road to either the transfer station or landfill.

   c. The city owns the present site. Acquisition of an alternative site would be costly.

   d. The land has already been extensively altered by the former quarrying operation and the present landfill activity. Alternative sites may require extensive grading and grubbling of virgin land.

   e. Access and utilities are existing on the present site. An alternative site may require costly off-site work.
Mrs. Marian Heitman
Page 2

2. Noise: Data shown in Appendix C of the EIS show that the noise levels will be well below current standards. The noise from the transfer station will be less than what is presently being heard at the landfill, since the principal activity will take place within the enclosed building as opposed to the open space of the landfill.

3. Traffic: Traffic routing is discussed in Appendix A of the EIS. The refuse transfer trucks would most likely exit the Kapua Refuse Transfer Station using Kapua Quarry Access Road to Kalanianaole Highway. Its route to the H-power plant would most likely be Kalani-anaole Highway to Kamehameha Highway to H-3 (when completed) or to Likelike Highway and on to the H-1 Freeway.

The size of these transfer trucks will be similar to the trucks/trailers that haul rocks from the quarry.

4. Water Quality: Similar to our other transfer station at Shafter Flats, the facility will not be washed down. The transfer trucks/trailers will be washed approximately once per month and only on the outside. The washwater will be conveyed to an oil separator structure before discharging onto the storm drainage system.

As stated in our previous letter, we will be looking into developing recycling programs; however, recycling by itself will not solve Oahu's disposal problem.

We trust that the response provided are satisfactory. We thank you for your comments and continuing concern.

Sincerely,

[Signature]

ALFRED J. HIEDE
Director and Chief Engineer
REFERENCES


2. City and County of Honolulu, Department of Public Works, Engineering Report for the Kapaa Refuse Processing and Transfer Station, prepared by R.M. Towill Corporation, 1975.


LIST OF PREPARERS

Environmental Communications, Inc. - Technical Writer
   Fred Rodriguez
   Taeyong Kim

Austin, Tsutsumi & Associates, Inc. - Traffic Impact Assessment
   Randall Okaneke - Traffic Engineer

Barry D. Root - Air Quality Study

Y. Ebisu & Associates - Noise Impact Study
   Y. Ebisu

Gordon L. Dugan, Ph.D. - Surface Water Runoff
APPENDIX A

Traffic Impact Assessment for the Proposed Kapaa Refuse Transfer Station
TRAFFIC IMPACT ASSESSMENT
FOR THE PROPOSED
KAPAA REFUSE TRANSFER STATION

PREPARED FOR
REFUSE COLLECTION & DISPOSAL DIVISION
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

BY
AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS * SURVEYORS
HONOLULU, HAWAII

DECEMBER 16, 1987
TRAFFIC IMPACT ASSESSMENT
FOR THE PROPOSED
KAPAA REFUSE TRANSFER STATION

I. INTRODUCTION

The purpose of this study is to assess the traffic impacts resulting from the proposed Kapaa Refuse Transfer Station. The landfill capacity of the existing Windward sites has only a few years of life remaining. When the City's proposed garbage-to-energy or "H-Power" project comes on line, combustible solid wastes from the Windward district would be collected at the Kapaa site and transferred to large trailer trucks, which would then transport the solid waste to the H-Power plant. The Windward landfill will continue to be used for non-combustible solid wastes, such as demolition material, and as a backup waste disposal facility for the H-Power plant.

Access to the project site from Kalanianaole Highway would remain the same as under the existing conditions. The existing site access from the Mokapu Saddle Road direction would be closed and a new connector road would be constructed between the transfer station and Kapaa Quarry Access Road, immediately makai of the project site. Traffic from the transfer station bound for the landfills would continue to use the existing routes. Exhibit 1 shows the proposed Kapaa
Refuse Transfer Station site plan and conceptual traffic circulation plan.

II. EXISTING CONDITIONS

A. General

The existing landfill operation at Kalaheo Sanitary Landfill serves both City refuse trucks from the Windward district and private refuse collectors from both Honolulu and Windward Oahu. The general public is directed to the Kapa'a Sanitary Landfill.

The proposed transfer station is located next to the new automotive equipment service yard, under construction at this writing, which would service primarily City refuse vehicles and equipment.

B. Traffic

Access to the existing facility at Kapa'a is primarily from Kapa'a Quarry Access Road which runs from Kalanianaole Highway, near Kailua Drive-In, to Mokapu Saddle Road, near Kalaheo High School. All refuse vehicles and the general public must check in at the weigh station at Kapa'a before proceeding either to the Kapa'a or Kalaheo sites.

A potential hazard exists at a skewed intersection at the north entrance to the Kapa'a Weigh Station area. Vehicles from Mokapu Saddle Road, bound for the weigh station at Kapa'a, conflict with vehicles from Kalanianaole Highway, bound for Kapa'a Quarry.

The peak hours of traffic on the Kapa'a Quarry Access Road occur between 6:15 AM and 7:15 AM and between 3:00 PM and 4:00 PM, with traffic volumes of 652 vehicles per hour (vph) and 416
vph, total for both directions. The 24-hour traffic volume on the Kapaa Quarry Access Road totals 5,843 vehicles for both directions.

The vehicular traffic mix consists of private vehicles, using Kapaa Quarry Access Road as a cutoff between Mokapu Saddle Rock and Kalanianaole Highway, as well as employee and truck traffic bound for the landfill or the quarry. Exhibit 2 shows traffic count data at the intersection of Kalanianaole Highway and Kapaa Quarry Access Road, obtained from the State Department of Transportation.

The segment of the Quarry Access Road between the Kapaa Site and Mokapu Saddle Road is subject to flooding. The roadway becomes inaccessible and is prone to deterioration from heavy truck traffic.

III. TRAFFIC GENERATION

When the proposed transfer station becomes operational, it is expected that the refuse load and the resulting traffic will be significantly reduced. The load reduction of 70% by tonnage will be a result of private collectors transporting their refuse directly to the H-Power plant. The City refuse load and general public refuse load are expected to remain relatively constant. The resulting average daily traffic is expected to be reduced by one-third. The solid waste loading and traffic generation for the existing condition and the projected conditions for the proposed transfer station are shown in Table 1.
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<td>35</td>
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<td>241</td>
<td>292</td>
</tr>
<tr>
<td>Total</td>
<td>1,236</td>
<td>1,500</td>
<td>493</td>
<td>598</td>
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<tr>
<td><strong>Kapaa Transfer Station</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refuse Division</td>
<td>174</td>
<td>211</td>
<td>31</td>
<td>38</td>
</tr>
<tr>
<td>Collection Trucks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Collection</td>
<td>160</td>
<td>246</td>
<td>35</td>
<td>53</td>
</tr>
<tr>
<td>Trucks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Public</td>
<td>35</td>
<td>43</td>
<td>241</td>
<td>292</td>
</tr>
<tr>
<td>Subtotal</td>
<td>369</td>
<td>500</td>
<td>307</td>
<td>383</td>
</tr>
<tr>
<td>Transfer Trailer Trucks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>325</td>
<td>413</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The number of refuse personnel needed for a full-scale landfill operation is about the same as the number of personnel required for the transfer station operation.

The transfer station traffic demand would actually be less than the existing landfill traffic demand. Furthermore, the general public traffic would continue to check in at the new weigh station; however,
separate dumping areas would be established within the transfer station. Therefore, the proposed transfer station is expected to have a negligible impact on traffic operations on Kapaa Quarry Access Road.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The proposed Kapaa Transfer Station traffic demand would be only about two-thirds of existing landfill traffic demand. The reduction in traffic is entirely in private collection trucks. The truck to general public vehicle mix would change from 1:1 to 1:3. The proposed transfer station would actually improve existing traffic conditions because of the reduction of total vehicular trips on the Quarry access road and the reduction of large vehicles in the traffic mix.

The through traffic currently using the Quarry Access Road as a cutoff between Mokapu Saddle Road and Kalanianaole Highway should be diverted to the new H-3 Freeway upon its completion. Therefore, traffic in the vicinity would be strictly local traffic destined for the transfer station, Ameron HC&D Kapaa Quarry, or the municipal landfill.

The proposed Kapaa Refuse Transfer Station is not expected to have a significant impact on existing traffic operations.

B. Recommendations

1. The existing access driveway to the Kapaa site from the Mokapu Saddle Road direction should be closed and replaced by a new connector road between Kapaa Quarry Access Road and the transfer station site. This eliminates the existing
conflict between northbound quarry traffic and southbound Kapaa traffic at the existing Kapaa access driveway.

2. Truck traffic traveling to and from the transfer station should avoid using the Mokapu Saddle Road access and should use the Kalanianaole Highway access. The north end of the Quarry Access Road is not an all-weather road. Furthermore, its intersection with Mokapu Saddle Road is unsignalized and trucks may experience long delays waiting to enter mainline traffic.
APPENDIX B

Air Quality Study for the Proposed Kapaa Refuse Transfer Station
AIR QUALITY STUDY
FOR THE
PROPOSED KAPAA REFUSE TRANSFER STATION
Koolaupoko, Oahu, Hawaii

Prepared by
Barry D. Root
Kaneohe, Hawaii

November 16, 1987
1. PROJECT DESCRIPTION

The proposed project will involve site preparation and construction of a refuse transfer station for solid wastes. Specifically, an enclosed concrete and metal frame structure of approximately 28,000 square feet is planned. The proposed construction site is located within the present Kapaa Sanitary Landfill area just off the Kapaa Quarry Road in the Koolaupoka District of Oahu as shown in Figure 1.

The transfer station will be used to consolidate shipments of solid waste from the windward side of Oahu to the planned H-POWER plant in Campbell Industrial Park. The H-POWER project is slated for completion by 1991.

The purpose of this study is to describe existing ambient air quality in the project area and to estimate the magnitude of any change in air pollutant concentrations resulting from actions related to the proposed project.
Figure 1
Project Site Map
2. AIR QUALITY STANDARDS

State of Hawaii and National Ambient Air Quality Standards (AQS) have been established for six classes of pollutants as shown in Table 1. An AQS is a pollutant concentration not to be exceeded over a specified sampling period which varies for each pollutant depending upon the type of exposure necessary to cause adverse effects. Each of the regulated pollutants has the potential to cause some form of adverse health effect or to produce environmental degradation when present in sufficiently high concentration.

National AQS have been divided into primary and secondary levels. Primary AQS are designed to prevent adverse health impacts while secondary AQS refer to welfare impacts such as decreased visibility, diminished comfort levels, damage to vegetation, animals or property, or a reduction in the overall aesthetic quality of the atmosphere. State of Hawaii AQS have been set at a single level which is in some cases significantly more stringent than the lowest comparable national limit. In particular, the State of Hawaii one hour standard for carbon monoxide is four times more stringent than the National standard.

National AQS are based on 40 CFR Part 50, while State of Hawaii AQS are set in Chapter 11-69, Hawaii Administrative Rules.
<table>
<thead>
<tr>
<th>POLLUTANT</th>
<th>SAMPLING PERIOD</th>
<th>NATIONAL PRIMARY</th>
<th>NATIONAL SECONDARY</th>
<th>HAWAII PRIMARY</th>
<th>HAWAII SECONDARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulates</td>
<td>Annual Geometric Mean</td>
<td>75</td>
<td>60</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum 24-Hour Average</td>
<td>260</td>
<td>150</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>Annual Arithmetic Mean</td>
<td>80</td>
<td></td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum 24-Hour Average</td>
<td>365</td>
<td></td>
<td>365</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum 3-Hour Average</td>
<td>1300</td>
<td></td>
<td>1300</td>
<td></td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>Annual Arithmetic Mean</td>
<td></td>
<td>100</td>
<td></td>
<td>70</td>
</tr>
<tr>
<td>Ozone</td>
<td>Maximum 1-Hour Average</td>
<td></td>
<td>240</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>Maximum 8-Hour Average</td>
<td>10</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum 1-Hour Average</td>
<td>40</td>
<td></td>
<td>10</td>
<td></td>
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<tr>
<td>Lead</td>
<td>Calendar Quarter</td>
<td>1.5</td>
<td></td>
<td>1.5</td>
<td></td>
</tr>
</tbody>
</table>

Notes: 1. Carbon monoxide standards are in milligrams per cubic meter.
3. PRESENT AIR QUALITY

There are no available long term air pollutant measurements for the project site or its immediate vicinity. Particulates have been measured for several years in Waimanalo, on the windward coast of Oahu, but this station was selected primarily to sample background concentrations upwind of Oahu and readings are consequently quite low. Particulate levels at Waimanalo typically range from 20 to 40 with an average of 30 micrograms per cubic meter, a level well below all existing air quality limits. Particulate levels in the vicinity of the present Kapaa Landfill are likely to be much higher than background levels, however, because dirt moving activities and heavy vehicles moving over unimproved roadways create a significant amount of fugitive dust. It is not possible to estimate whether current levels exceed allowable AGS, but it is possible that they do.

Carbon monoxide levels at the intersection of Kapaa Quarry Road and Kalianianaole Highway are presently estimated to be above State of Hawaii one and eight hour limits, and may exceed Federal eight hour limits as well under worst case atmospheric dispersion conditions. The nearest carbon monoxide monitoring station is in urban Honolulu in the Department of Health building at Punchbowl and Beretania Streets. State of Hawaii one hour AGS were exceeded at that location three times last year, but levels were not above the eight hour Hawaii limit and Federal standards were not violated. Heavy traffic volume at the main intersection serving the project makes it one of the significant potential carbon monoxide hotspots on Oahu, however, and it is possible that carbon monoxide levels in the vicinity of this intersection could exceed allowable limits several times a year.

Present concentrations of other regulated pollutants within the project area are probably quite low. Refuse collection trucks used on the windward side of Oahu are primarily diesel-powered. Diesel emissions contain significant amounts of nitrogen dioxide, but the percentage of refuse trucks within the daily traffic volume at the primary intersection of concern is small and nitrogen dioxide emissions from gasoline-powered vehicles are very low. On the other hand, carbon monoxide emissions from diesel trucks are little more than those of a single automobile, and refuse trucks consequently make a small contribution to vehicle-related carbon monoxide levels.

Within the existing Landfill there are also likely to be some objectionable odors generated during normal daily operations. There are presently no objective methods for measuring these odors, and no quantitative standards for evaluating their potential environmental impact.

In summary, existing levels of particulates within the project site, and carbon monoxide levels near the primary intersection serving the project site are estimated to be quite high, but levels of other regulated pollutants are most likely well within allowable limits.
4. DIRECT AIR QUALITY IMPACT OF PROJECT CONSTRUCTION

During the site preparation and construction phases of this project it is inevitable that a certain amount of fugitive dust will be generated. Field measurements of such emissions from apartment and shopping center construction projects has yielded an estimated emission rate of 1.2 tons of dust per acre of construction per month of activity. This figure assumes medium level activity in a semi-arid climate with a moderate soil silt content. Actual emissions of fugitive dust from this project can be expected to vary daily depending upon the amount of activity and the moisture content of exposed soil in work areas.

One major generator of fugitive dust is heavy construction equipment moving over unpaved surfaces. This problem can be substantially mitigated by completing and paving roadways and parking areas as early in the development process as possible.

In fact, site preparation for this project should be relatively uncomplicated and the construction phase of the project should be of relatively short duration. By curtailing landfill operations and paving parking lots and roadways adjacent to the transfer station, the overall dust generating characteristics of the project site will be significantly reduced and present high levels of fugitive dust will have been substantially abated.
5. INDIRECT AIR QUALITY IMPACT OF PROJECT-RELATED TRAFFIC

Once construction is completed the proposed project will not in itself constitute a major direct source of air pollutants. By serving as an attraction for motor vehicle traffic in the area, however, the project could be considered to be a potential indirect air pollution source, but in the case of this particular project future levels of traffic entering and leaving the project site are expected to be lower than present levels. Because of a significant reduction in the daily volume of private haulers using the transfer station as compared to present landfill operations, daily traffic volume at the site is expected to drop from 493 to 307. This would reduce peak morning rush hour volume by an estimated 24 vehicles. While this decrease is not particularly significant it is possible to quantify the ameliorative effect it would have on carbon monoxide levels at the intersection of Kalanianaloe Highway and Kapaa Quarry Road.

Motor vehicles, especially those with gasoline-powered engines, are prodigious emitters of carbon monoxide. Motor vehicles also emit some nitrogen dioxide and those burning fuel which contains lead as an additive contribute some lead particles to the atmosphere as well. The major control measure designed to limit lead emissions is a Federal law requiring the use of unleaded fuel in most new automobiles. As older cars are removed from the vehicle fleet lead emissions should continue to fall. In fact, effective January 1, 1986, the Federal Environmental Protection Agency has revised the allowable lead amount in gasoline to 0.1 gram per gallon. At the beginning of 1985 the standard was 1.1 grams per gallon. The EPA is also advocating a total ban on lead in gasoline to take effect as early as 1988.

Federal control regulations also call for increased efficiency in removing carbon monoxide and nitrogen dioxide from vehicle exhausts. By the year 1997 carbon monoxide emissions from the Oahu vehicle fleet then operating should be little more than half the amounts now emitted. At present, however, no further reductions in vehicular emissions have been mandated for years following 1985, and increases in traffic levels after 1985 will result in directly proportional increases in vehicle-related pollutant emissions.
6. CARBON MONOXIDE DIFFUSION MODELING

Even though traffic to and from the proposed new transfer station is expected to be lower than existing levels, traffic volumes at the major intersection serving the project are expected to continue increasing in coming years. Traffic volume at the intersection of Kalanianaole Highway and Kapaa Quarry Road increased by 6.4% over the last ten years. This value was used to create extrapolated traffic volume projections for this intersection for the year 1997.

In order to evaluate the air quality impact of projected increases in traffic at this intersection in view of the potential reduction in volume of traffic associated with the proposed project and the projected reductions in emission rates per vehicle described in the previous section, a detailed carbon monoxide modeling study was carried out. The study was designed to yield carbon monoxide concentration values which could be compared directly to allowable State and National Ambient Air Quality Standards.

Just one critical location was selected for analysis, a site to the south of the intersection along Kalanianaole highway. This intersection is presently signalized with a peak hour signal cycle of about 75 seconds, resulting in queue lengths of about 60 meters upstream from each red signal. Peak hour at this location is during the morning rush hour from about 6:15 to 7:15 AM. Current and forecast peak hour traffic volumes at this intersection indicate that highest traffic-related levels of carbon monoxide would be most likely to occur along the south side of Kalanianaole Highway.

Modeling was performed for a string of receptor sites located 10 meters from the edge of the highway and highest levels in all cases occurred at a single receptor site located about 33 meters south of the intersection. This site is marked in Figure 1.

Computations were made for current peak hour conditions and for study year 1997. Calculations for 1997 included peak hour traffic volume scenarios with and without the proposed project.

Using 1986 vehicle registration figures for Oahu, the existing peak hour vehicle mix in the project area is estimated to be 91.3% light duty gasoline-powered vehicles, 4.2% light duty gasoline-powered trucks and vans between 6000 and 8500 pounds, 0.5% heavy duty gasoline-powered vehicles, 0.6% diesel-powered automobiles, 0.1% diesel-powered light duty trucks, 1% diesel-powered trucks and buses, and 1% motorcycles. The same vehicle mix was assumed for 1997 emission rate calculations.
Average vehicle speeds were assumed to be 1 mph upstream from red signals and 15 mph downstream from signals or turns. An ambient temperature of 58 degrees F was assumed to simulate a cool winter morning with 20.6 percent of vehicles equipped with catalytic converters and 20.6 percent of vehicles without catalytic converters operating in the "cold start" mode and 27.3 percent of all vehicles operating in the hot start mode. The EPA computer model MOBILE3 was run using the above parameters to produce vehicular carbon monoxide emission estimates for each of the years studied. The low speed option of the model was employed to project emission rates for vehicle speeds of less than 5 mph and the national default options for misfueling rates were employed.

The EPA computer model HIWAY 2 was used to calculate carbon monoxide concentrations at each of the selected critical receptor sites for each scenario studied. Stability category 6 was used for determining diffusion coefficients. This stability category represents the most stable (least favorable) atmospheric condition that can be used in modeling calculations.

To simulate worst case wind conditions a uniform wind speed of one meter per second was assumed with the worst case wind direction from the northwest. For each receptor site concentrations were computed at a height of 1.5 meters in order to estimate levels that would exist within the normal human breathing zone.

Background contributions of carbon monoxide from sources or distant roadways not directly considered in the analysis were assumed to be zero in order to more clearly indicate the impact of project-related traffic. In fact, background levels at this location would not likely be more than 0.5 milligrams per cubic meter in 1987 and not more than 0.3 in 1997.

Results of the peak hour carbon monoxide study are presented in Table 2. Present peak hour carbon monoxide levels under the worst case assumptions used here are well above the allowable State of Hawaii one hour AQS for both the present and future case, with the decrease in trucks bound for the Landfill in future years accounting for a potential decrease of about 0.5 milligrams per cubic meter. All of the computed peak hour worst case carbon monoxide concentrations are well within the National one hour carbon monoxide limit.

Eight hour carbon monoxide levels are estimated by multiplying the peak hour values by a "meteorological persistence factor" of 0.6 which is recommended in EPA modeling guidelines to account for the fact that average one hour traffic volumes over an eight hour period are lower than peak hour volume and the fact that meteorological dispersion conditions are more variable (and hence more favorable) over an eight hour period than they are for a one hour period. Multiplying projected peak hour carbon monoxide levels by this factor yields the values that are shown in Table 3.
<table>
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<tr>
<th>SCENARIO</th>
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<th>1997</th>
</tr>
</thead>
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<td>25.0</td>
<td>12.6</td>
</tr>
<tr>
<td>With Transfer Station</td>
<td>12.1</td>
<td></td>
</tr>
</tbody>
</table>

**STATE OF HAWAII AQIs:** 10  
**NATIONAL AQIs:** 40

**Notes:** See Figure 1 for location of critical receptor site.  
See text, Section 6, for models and assumptions used for producing these estimates.
TABLE 3

RESULTS OF EIGHT HOUR CARBON MONOXIDE ANALYSIS
(Milligrams Per Cubic Meter)

AT CRITICAL RECEPTOR SITE NEAR KALANIANAOLE HIGHWAY — KAPAA QUARRY
ROAD INTERSECTION

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<th>1997</th>
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</thead>
<tbody>
<tr>
<td>Without Transfer Station</td>
<td>15.0</td>
<td>7.6</td>
</tr>
<tr>
<td>With Transfer Station</td>
<td></td>
<td>7.3</td>
</tr>
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</table>

STATE OF HAWAII AQS:    5
NATIONAL AQS:           10

Notes: See Figure 1 for location of critical receptor site. See text, Section 6, for models and assumptions used for producing these estimates.
For the 1987 scenario, worst case traffic and meteorological assumptions indicate that the Hawaii eight hour standard would be exceeded at the critical receptor site considered for both the present and future case. In fact the eight hour National standard could be exceeded by the present case as well. By 1997, however, projected eight hour levels fall within allowable National limits.

As seen from the modeling, the quantifiable air quality impact of the proposed project is very small. Nonetheless any measurable improvement in air quality that can be gained by implementing the proposed project as planned must be considered to be significant in view of the fact that potential worst case carbon monoxide levels in the vicinity of the major intersection serving the project are so high.
REFERENCES


APPENDIX C

Noise Impact Study for the Proposed
Kapaa Refuse and Transfer Station
NOISE IMPACT STUDY
FOR THE PROPOSED
KAPAA REFUSE AND TRANSFER STATION PROJECT

PREPARED FOR
ENVIRONMENTAL COMMUNICATIONS, INC.

BY
Y. EBISU & ASSOCIATES

SEPTEMBER, 1987
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<td>PURPOSE</td>
<td>2</td>
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<td>III.</td>
<td>NOISE DESCRIPTORS AND THEIR RELATIONSHIP TO LAND USE COMPATIBILITY</td>
<td>3</td>
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<td>IV.</td>
<td>GENERAL STUDY METHODOLOGY</td>
<td>6</td>
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<td>EXISTING NOISE ENVIRONMENT</td>
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<td>VI.</td>
<td>FUTURE NOISE ENVIRONMENT AND POSSIBLE IMPACTS</td>
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2  AUGUST, 1987 BACKGROUND AMBIENT AND SOURCE NOISE MEASUREMENTS  ........... 8
I. SUMMARY

The existing and future noise levels in the vicinity of the proposed Kapaa Refuse and Transfer Station were evaluated for the purpose of determining the possible noise impacts which may occur as a result of operations at the proposed facility. Additionally, the projected changes in truck traffic noise levels along the north and south sections of the Quarry Access Road were evaluated.

The remoteness of the proposed location for the transfer station, and the similarity of the proposed use with existing operations at the Kapaa Sanitary Landfill reduce the risks of adverse noise impacts from the proposed transfer station. Calculated noise levels from the proposed transfer station at surrounding noise sensitive properties are below existing background ambient noise levels. Increases in noise levels resulting from heavy truck traffic along the Quarry Access Road are not expected to occur, since the project is not expected to cause a net increase in heavy truck trips along the Quarry Access Road. Increases in trailer truck trips are expected to be offset by decreases in private refuse collection truck trips. For these reasons, special noise mitigation measures are not considered necessary for this project.
II. PURPOSE

The purposes of this study were to evaluate the existing and future noise environment in the environs of the proposed Kapaa Refuse and Transfer Station project at the Kapaa Sanitary Landfill, and to determine if noise mitigation measures are required to mitigate adverse noise impacts attributable to the operations of the proposed station. Recommendations for the implementation of noise mitigation measures were to be provided as required.
III. NOISE DESCRIPTORS AND THEIR RELATIONSHIP TO LAND USE COMPATIBILITY

The noise descriptor currently used to assess environmental noise in general is the Day-Night Average Sound Level (Ldn). This descriptor incorporates a 24-hour average of instantaneous A-Weighted Sound Levels as read on a standard Sound Level Meter. The minimum averaging period for the Ldn descriptor is 24 hours (by definition). Additionally, sound levels which occur during the nighttime hours of 10:00 PM to 7:00 AM are increased by 10 decibels (dB) prior to computing the 24-hour average by the Ldn descriptor. A more complete list of noise descriptors is provided in APPENDIX B to this report.

TABLE 1, derived from Reference 1, presents current federal standards and acceptability criteria for residential land uses exposed to various levels of environmental noise. As a general rule, noise levels of 55 Ldn or less occur in rural areas, or urbanized areas which are shielded from high volume streets. In urbanized areas, Ldn levels generally range from 55 to 65 Ldn, and are usually controlled by motor vehicle traffic noise. Residences which front major roadways are generally exposed to levels of 65 Ldn, and as high as 72 Ldn when the roadway is a high speed freeway. Due to noise shielding effects from intervening structures, residences which are located within interior lots are usually exposed to lower noise levels of 60 Ldn or less.

For the purposes of determining noise acceptability for funding assistance from federal agencies (FHA/HUD and VA), an exterior noise level of 65 Ldn or lower is considered acceptable. This standard is applied nationally (see Reference 2), including Hawaii. Because of our open-living conditions, the predominant use of naturally ventilated dwellings, and the relatively low exterior-to-interior sound attenuation afforded by these naturally ventilated structures, an exterior noise level of 65 Ldn does not eliminate all risks of noise impacts. For these reasons, and as recommended in Reference 3, a lower level of 55 Ldn is considered
<table>
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<th>Noise Exposure Class</th>
<th>Day–Night Sound Level</th>
<th>Equivalent Sound Level</th>
<th>Federal Standard</th>
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<td>Minimal Exposure</td>
<td>Not Exceeding 55 Ldn</td>
<td>Not Exceeding 55 Leq</td>
<td>Unconditionally Acceptable</td>
</tr>
<tr>
<td>Moderate Exposure</td>
<td>Above 55 Ldn But Not Above 65 Ldn</td>
<td>Above 55 Leq But Not Above 65 Leq</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Significant Exposure</td>
<td>Above 65 Ldn But Not Above 75 Ldn</td>
<td>Above 65 Leq But Not Above 75 Leq</td>
<td>Normally Unacceptable</td>
</tr>
<tr>
<td>Severe Exposure</td>
<td>Above 75 Ldn</td>
<td>Above 75 Leq</td>
<td>Unacceptable</td>
</tr>
</tbody>
</table>

Note: (1) Federal Housing Administration, Veterans Administration, Department of Defense, and Department of Transportation.

(2) FHWA uses the Leq instead of the Ldn descriptor. For planning purposes, both are equivalent if: (a) heavy trucks do not exceed 10 percent of total traffic flow in vehicles per 24 hours, and (b) traffic between 10:00 PM and 7:00 AM does not exceed 15 percent of average daily traffic flow in vehicles per 24 hours.

Source: Reference 1.
as the "Unconditionally Acceptable" (or "Near-Zero Risk") level of exterior noise. However, after considering the cost and feasibility of applying the lower level of 55 Ldn, government agencies such as FHA/HUD and VA have selected 65 Ldn as a more appropriate regulatory standard.
IV. GENERAL STUDY METHODOLOGY

Measurements of existing background ambient noise in the project environs were made in August, 1987 to determine the possible intrusiveness of the noise from the proposed transfer station operations at the noise sensitive properties across Kawainui Swamp. In conjunction with this effort, measurements of noise emanating from the existing Keahi Refuse Transfer Station were also made in August, 1987. These noise data were used to calibrate the noise prediction model, and to refine predictions of future noise levels and noise impact potential in the area surrounding the proposed Kapaa Transfer Station. The measured noise levels at the Keahi Refuse Transfer Station were increased by 7 dBA to depict the busiest period of future unloading operations. Worst case predictions of noise levels associated with future operations at the transfer station were then made at various distances from the proposed transfer station.

Existing and projected refuse truck traffic volumes on the Quarry Access Road were obtained from Austin, Tsutsumi & Associates, Inc. (Reference 4). Because an increase in heavy truck trips on the Quarry Access Road was not projected to occur as a result of the proposed transfer station, project related traffic noise impacts were not expected to occur.
V. EXISTING NOISE ENVIRONMENT

TABLE 2 presents the results of the background ambient noise measurements obtained in the environs of the project site, as well as noise measurements obtained at the Keehi Refuse Transfer Station. FIGURE 1 shows the locations of the background noise measurement sites in relationship to the project site. Background ambient noise levels in the project area were obtained during the quiet time of the day (6:00 PM to 7:00 PM), with resulting average noise levels of 47 to 52 dBA. Minimum background ambient noise levels ranged from 39 to 40 dBA, which are considered to be very quiet. From these measurements, background ambient noise levels in the residential areas to the east of the project site are estimated to be in the range of 45 to 55 Ldn.
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>MAXIMUM (Lmax)</th>
<th>AVERAGE (Leq)</th>
<th>MINIMUM (Lmin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SITE K-1 At Keahi Refuse Transfer Station; 50 FT from the entrance opening.</td>
<td>78</td>
<td>69</td>
<td>64</td>
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<tr>
<td>2. SITE K-2 At Keahi Refuse Transfer Station; inside the entrance opening and 40 FT from tipping stall.</td>
<td>91</td>
<td>85</td>
<td>75</td>
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<tr>
<td>3. SITE K-2 At Keahi Refuse Transfer Station; front end loader noise in pit area.</td>
<td>87</td>
<td>80</td>
<td>74</td>
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<td>4. SITE P-1 At proposed project site location; on entrance road to Quarry.</td>
<td>66</td>
<td>52</td>
<td>39</td>
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<td>5. SITE P-2 At neighborhood park, across Kawainui Swamp from project site.</td>
<td>58</td>
<td>47</td>
<td>40</td>
</tr>
</tbody>
</table>
FIGURE 1
PROJECT LOCATION MAP AND NOISE MEASUREMENT SITES

SCALE

PROPOSED KALAHEO LANDFILL SITE
PROJECT SITE
Kawainui Swamp
EXISTING KAPAA SANITARY LANDFILL SITE

-9-
VI. FUTURE NOISE ENVIRONMENT AND POSSIBLE NOISE IMPACTS

During unloading operations at the proposed refuse transfer station, noise from the refuse vehicles at the tipping stalls and the front end loader in the refuse pit are expected to emanate from the wall openings of the transfer station. These wall openings include the entry and exit doorways (on the north and south faces of the building) to the tipping stalls, and ventilation openings along the west face of the building. Predicted worst case noise levels at 1,000, 2,000, 3,000, and 4,000 FT distances from the open sides of the proposed transfer station are 47, 39, 33, and 29 dBA, respectively. The noisiest (or open) sides of the facility were designed to face toward the north, south and west, and away from the noise sensitive residences toward the east. Because of the optimum orientation of the transfer station, the large distances (approximately 4,000 FT) to noise sensitive properties across Kawainui Swamp, the beneficial shielding effects of the mountains to the north, west, and south, and the remote location of the proposed facility, the noise from the proposed facility should not present risks of adverse noise impacts. For this reason, special noise mitigation measures should not be required.
A. REFERENCES


(4) Existing refuse traffic volumes to Kapaa Landfill and projected traffic volumes to Kapaa Transfer Station, via 9/9/87 transmittal from Austin, Tsutsumi & Associates, Inc.
EXCERPTS FROM EPA'S ACOUSTIC TERMINOLOGY GUIDE

Descriptor Symbol Usage

The recommended symbols for the commonly used acoustic descriptors based on A-weighting are contained in Table I. As most acoustic criteria and standards used by EPA are derived from the A-weighted sound level, almost all descriptor symbol usage guidance is contained in Table I.

Since acoustic nomenclature includes weighting networks other than "A" and measurements other than pressure, an expansion of Table I was developed (Table II).

The group adopted the ANSI descriptor-symbol scheme which is structured into three stages. The first stage indicates that the descriptor is a level (i.e., based upon the logarithm of a ratio), the second stage indicates the type of quantity (power, pressure, or sound exposure), and the third stage indicates the weighting network (A, B, C, D, E,...). If no weighting network is specified, "A" weighting is understood. Exceptions are the A-weighted sound level and the A-weighted peak sound level which require that the "A" be specified. For convenience in those situations in which an A-weighted descriptor is being compared to that of another weighting, the alternative column in Table II permits the inclusion of the "A". For example, a report on blast noise might wish to contrast the LPA with the LAd.

Although not included in the tables, it is also recommended that "Lpeg" and "Lpeg" be used as symbols for perceived noise levels and effective perceived noise level, respectively.

It is recommended that in their initial use within a report, such terms be written in full, rather than abbreviated. An example of preferred usage is as follows:

A: The A-weighted sound level (LA) was measured before and after the installation of acoustical treatment. The measured LA values were 85 and 75 dB, respectively.

Descriptor Nomenclature

With regard to energy averaging over time, the term "average" should be discouraged in favor of the term "equivalent". Hence, Leq, is designated the "equivalent sound level". For Ld, Ldn, and Ldn, "equivalent" need not be stated since the concept of day, night, or day-night averaging is by definition understood. Therefore, the designations are "day sound level", "night sound level", and "day-night sound level", respectively.

The peak sound level is the logarithmic ratio of peak sound pressure to a reference pressure and not the maximum root mean square pressure. While the latter is the maximum sound pressure level, it is often incorrectly labelled peak. In that sound level meters have "peak" settings, this distinction is most important.

"Background ambient" should be used in lieu of "background", "ambient", "residual", or "indigenous" to describe the level characteristic of the general background noise due to the contribution of many unidentifiable noise sources near and far.

With regard to units, it is recommended that the unit decibel (abbreviated as db) be used without modification. Hence, dBA, PND, and EPNdB are not to be used. Examples of this preferred usage are the Perceived Noise Level (LPN) was found to be 75 dB, LPN = 75 dB.)

This decision was based upon the recommendation of the National Bureau of Standards, and the policies of ANSI and the Acoustical Society of America, all of which disallow any modification of the prefix besides indicating its multiples or submultiples (e.g., deci).

Noise Impact

In discussing noise impact, it is recommended that "Level Weighted Population" (LWP) replace "Equivalent Noise Impact" (ENI). The term "Relative Change of Impact" (RCI) shall be used for comparing the relative differences in LWP between two alternatives.

Further, when appropriate, "Noise Impact Index" (NII) and "Population Weighted Loss of Hearing" (PHL) shall be used consistent with CHABA Working Group 69 Report Guidelines for Preparing Environmental Impact Statements (1977).

### Table I: A-Weighted Recommended Descriptor List

<table>
<thead>
<tr>
<th>Term</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A-Weighted Sound Level</td>
<td>L_A</td>
</tr>
<tr>
<td>2. A-Weighted Sound Power Level</td>
<td>L_W</td>
</tr>
<tr>
<td>3. Maximum A-Weighted Sound Level</td>
<td>L_max</td>
</tr>
<tr>
<td>4. Peak A-Weighted Sound Level</td>
<td>L_apk</td>
</tr>
<tr>
<td>5. Level Exceeded x% of the time</td>
<td>L_x</td>
</tr>
<tr>
<td>6. Equivalent Sound Level</td>
<td>L_eq</td>
</tr>
<tr>
<td>7. Equivalent Sound Level over Time (T) (1)</td>
<td>L_eq(T)</td>
</tr>
<tr>
<td>8. Day Sound Level</td>
<td>L_d</td>
</tr>
<tr>
<td>9. Night Sound Level</td>
<td>L_n</td>
</tr>
<tr>
<td>10. Day-Night Sound Level</td>
<td>L_dn</td>
</tr>
<tr>
<td>11. Yearly Day-Night Sound Level</td>
<td>L_dny</td>
</tr>
<tr>
<td>12. Sound Exposure Level</td>
<td>LSEX</td>
</tr>
</tbody>
</table>

(1) Unless otherwise specified, time is in hours (e.g., the hourly equivalent level is L_eq (T)). Time may be specified in non-quantitative terms (e.g. could be specified a L_eq(WASH) to mean the washing cycle noise for a washing machine.)

Published by THE BUREAU OF NATIONAL AFFAIRS, INC., WASHINGTON, D.C. 20037
### TABLE II: Recommended Descriptor List

<table>
<thead>
<tr>
<th>Term</th>
<th>A-Weighting</th>
<th>Alternative(1)</th>
<th>Other Weighting(2)</th>
<th>Unweighted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sound (Pressure) Level</td>
<td>$L_A$</td>
<td>$L_{PA}$</td>
<td>$L_B$, $L_{PB}$</td>
<td>$L_p$</td>
</tr>
<tr>
<td>2. Sound Power Level</td>
<td>$L_{WA}$</td>
<td>$L_{WB}$</td>
<td>$L_W$</td>
<td></td>
</tr>
<tr>
<td>3. Max. Sound Level</td>
<td>$L_{max}$</td>
<td>$L_{A_{max}}$</td>
<td>$L_{B_{max}}$</td>
<td>$L_{p_{max}}$</td>
</tr>
<tr>
<td>4. Peak Sound (Pressure) Level</td>
<td>$L_{Apk}$</td>
<td>$L_{Bpk}$</td>
<td>$L_{pk}$</td>
<td></td>
</tr>
<tr>
<td>5. Level Exceeded $x_t$ of the time</td>
<td>$L_X$</td>
<td>$L_{Ax}$</td>
<td>$L_{Bx}$</td>
<td>$L_{px}$</td>
</tr>
<tr>
<td>6. Equivalent Sound Level</td>
<td>$L_{eq}$</td>
<td>$L_{A_{eq}}$</td>
<td>$L_{B_{eq}}$</td>
<td>$L_{p_{eq}}$</td>
</tr>
<tr>
<td>7. Equivalent Sound Level Over Time($T$)</td>
<td>$L_{eq(T)}$</td>
<td>$L_{A_{eq(T)}}$</td>
<td>$L_{B_{eq(T)}}$</td>
<td>$L_{p_{eq(T)}}$</td>
</tr>
<tr>
<td>8. Day Sound Level</td>
<td>$L_d$</td>
<td>$L_{Ad}$</td>
<td>$L_{Bd}$</td>
<td>$L_{pd}$</td>
</tr>
<tr>
<td>9. Night Sound Level</td>
<td>$L_n$</td>
<td>$L_{An}$</td>
<td>$L_{Bn}$</td>
<td>$L_{pn}$</td>
</tr>
<tr>
<td>10. Day-Night Sound Level</td>
<td>$L_{dn}$</td>
<td>$L_{Adn}$</td>
<td>$L_{Bdn}$</td>
<td>$L_{pdn}$</td>
</tr>
<tr>
<td>11. Yearly Day-Night Sound Level</td>
<td>$L_{dn(y)}$</td>
<td>$L_{Adn(Y)}$</td>
<td>$L_{Bdn(Y)}$</td>
<td>$L_{pdn(Y)}$</td>
</tr>
<tr>
<td>12. Sound Exposure Level</td>
<td>$L_S$</td>
<td>$L_{SA}$</td>
<td>$L_{SB}$</td>
<td>$L_{Sp}$</td>
</tr>
<tr>
<td>13. Energy Average value over (non-time domain) set of observations</td>
<td>$L_{eq(e)}$</td>
<td>$L_{A_{eq(e)}}$</td>
<td>$L_{B_{eq(e)}}$</td>
<td>$L_{p_{eq(e)}}$</td>
</tr>
<tr>
<td>14. Level exceeded $x_t$ of the total set of (non-time domain) observations</td>
<td>$L_{x(e)}$</td>
<td>$L_{Ax(e)}$</td>
<td>$L_{Bx(e)}$</td>
<td>$L_{px(e)}$</td>
</tr>
<tr>
<td>15. Average $L_X$ value</td>
<td>$L_X$</td>
<td>$L_{Ax}$</td>
<td>$L_{Bx}$</td>
<td>$L_{px}$</td>
</tr>
</tbody>
</table>

(1) "Alternative" symbols may be used to assure clarity or consistency.
(2) Only B-weighting shown. Applies also to C,D,E,...... weighting.
(3) The term "pressure" is used only for the unweighted level.
(4) Unless otherwise specified, time is in hours (e.g., the hourly equivalent level is $L_{eq(1)}$). Time may be specified in non-quantitative terms (e.g., could be specified as $L_{eq(WASH)}$ to mean the washing cycle noise for a washing machine).
APPENDIX D

Environmental Aspects of Potential Surface Water Runoff and Leachate Migration from the Proposed Kapaa Refuse Processing and Transfer Station
Environmental Aspects
of
Potential Surface Water Runoff and Leachate Migration
from the Proposed Kapa'a Refuse Processing
and Transfer Station, Windward Oahu, Hawaii

August, 1987

Gordon L. Dugan, Ph.D.
Environmental Consultant
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<th>Page</th>
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INTRODUCTION

The Kapaa (Sanitary) Landfill, located adjacent to Kawaihui Marsh, near Kailua town in Windward Oahu, as shown in Figure I, has been operated since 1964 by the Refuse Division, Department of Public Works, City and County of Honolulu. The facility has been receiving an average of approximately 1000 tons/day of solid waste (refuse). The landfill area consists of two completed sites, and one which is nearing completion.

The City and County of Honolulu's concern about the possible generation and movement of leachate from the landfill facility to the 750 acre kawaihui Marsh has prompted the funding of several studies.

Two of the previous studies, Bowles and Mink (1977), and EMCON Associates (1977) involved the possible generation and movement of leachate from the facility. A previous study by Burbank (1972) had investigated the relationship between the existing landfill operations and marsh water quality. While the University of Hawaii Water Resources Research Center (WRRC) (Chun and Dugan 1981; Dugan and Chun 1983) reported on an extensive baseline study followed by a lower level monitoring operation of the Kapaa Landfill and Kawaihui Marsh area. The WRRC baseline study involved the use of six surface water stations and six water wells, all of which were strategically located throughout the landfill and marsh area. Water levels of the surface water and water well stations were monitored throughout the study and water samples were collected and analyzed for an array of constituents. The City and County of
Figure 1. Site Location of Proposed Kapaa Refuse Processing and Transfer Station, Windward Oahu, Hawaii

From Figure 2, Page 5, reference: Giambelluca et al. 1984)
Honolulu also funded a detailed vegetative study of Kawainui Marsh (Smith 1978) which complemented two previous biological studies of Kawainui Marsh by Bienfang (1974) and Ford (1975).

The aforementioned studies involve the operation of the Kapaa Landfill, which includes the depositing, compaction, and daily covering of the approximately 1000 tons/day of municipal solid waste (refuse), whereas the present concern involves potential surface water runoff and leachate migration to Kawainui Marsh, as a result of the operation of the proposed Kapaa Refuse Processing and Transfer Station, located approximately 3/8 mile mauka of Kawainui Marsh (Figure 2). The latter does not involve on-site deposition of solid waste, but rather it is only a receiving, temporary storage (as necessary), and transfer location.

Potential surface water and leachate quality concerns would consequently be incidental. For example accidental spillage of refuse to and from the station (from which leached constituents could be extracted by storm water for potential transportation by surface and/or subsurface flow to the marsh); or washdown water that may be produced at the station during the washdown of station facilities and trucks. Good housekeeping and diligent policing of the spilled refuse will control the former, and properly designed evaporation/holding ponds would decrease the chance of excess washdown water reaching the marsh, except during times of significant storm events, at which time a considerable dilution would take place.
Figure 2. Surface Water and Well Water Sampling Sites near Kapaa Sanitary Landfill, Windward Oahu, Hawaii

From Figure 3, Page 14, reference: Chun and Dugan 1983.
PHYSICAL SETTING

The kapaa Landfill (adjacent to and mauka of Kawaihui Marsh) is located in Maunawili Valley, an 18 sq mile basin that drains through Kawaihui Marsh into Kailua Bay on the windward side of Oahu, Hawaii (Figure 1 and 2). The geologic features of this valley consist of Koolau Volcanic Series, which formed high cliffs along the south-western side of the basin, while the rocks of the Koolau and Kailua Volcanic Series formed two ridges that strike north-eastward and which separate the area from Waimanalo to the southwest, and Kaneohe to the northwest (Takasaki et al. 1969).

Deep in the valley, at the base of the high cliffs, older alluvium forms an apron, while the lower part of the valley is underlain by younger alluvium. This younger material forms Kawaihui Marsh, the largest freshwater marsh in Hawaii.

It is postulated that Kawaihui Marsh was once a freshwater lake that has been transformed by siltation into the marsh-like conditions that exist today. Along the front of this marsh area, as well as along the entire coastline, dune sand beach deposits and sparse outcrops of coraline limestone occur. The marsh is presently designated as a flood control-conversion area.

Maunawili Valley's groundwater, principally high-level and dike-confined, is located generally at elevations greater than 650 ft. The height of the basal water is less than 2 ft, with brackish conditions occurring near the shore. Groundwater probably moves north-eaestward near the crest, due to geologic constraints, and discharges at numerous points as
springs at elevations of about 600 ft. These springs feed Kawainui Marsh and the area's two stream systems, Maunawili and Kahanaiki streams. The dependable yield of this groundwater reservoir was estimated by Takasaki et al. (1969) to be 6.7 mgd, of which approximately 2.7 mgd feeds the two stream systems.

At the inland margin of Kawainui Marsh groundwater in the dike compartment aquifer overflows into the marsh rather than flowing through the vertical face as occurs ordinarily in aquifer hydraulics. This is an important aspect inasmuch as leachate tends to flow along the water table surface instead of undergoing deep mixing in the aquifer. The surface of Kawainui Marsh is the surface of the general groundwater table in the region (Takasaki et al. 1969).

Of the two stream systems draining into Kawainui Marsh, Maunawili is the larger, with flow steadily increasing downstream to a maximum at the upper edge of the marsh. Takasaki et al. (1969) reported an estimated long-term average daily flow of 7.8 mgd for Maunawili Stream and 1.0 mgd for Kahanaiki Stream at the upper marsh edge, with a reported quantity of about 2.0 mgd being diverted from the area by Maunawili Ditch system which intercepted water from Makawao Stream, a tributary to Maunawili Stream. There are presently no continuous flow gages located on these streams. The median annual rainfall at the Kapaa Landfill is about 50 in., whereas, it is over 100 in. near the crest where the principal groundwater recharge occurs. The 100 yr, 24 hr frequency-duration storm for the landfill area is 13 in. (Giambelluca et al. 1984).
KAWAINUI MARSH

In considering the biological aspects of Kawainui Marsh, various aspects must be considered. The marsh is presently a flood-control facility for most of the Kailua area, and serves as a buffer zone and sink for sediment and nutrients that are produced by natural and human activities upstream of the marsh, including overland runoff. The marsh is also a receptacle for treated sewage effluent (although the major quantity of this effluent is scheduled to be diverted to the Kailua Wastewater Treatment Plant), and possibly leachate production from the landfill. Because of its size and location adjacent to an urban area, the marsh is desired by developers for housing, commercial ventures, and active recreation; and by conservationists for a wildlife sanctuary.

Biological Aspects

Kawainui Marsh has been altered, used and exploited since the discovery of the islands by Europeans, thus, no pristine vegetation exists. The vegetation that exists today is the result of past stresses to the system, and if the nature of these stresses change, the vegetation and other biological aspects of the marsh will adjust accordingly (Smith 1978).

The City and County of Honolulu funded study of the vegetative aspects of Kawainui Marsh by Smith (1978) was conducted to establish a vegetative baseline, and to gain insight, from a biological point of view, of the possible effects that further expansion (after 1978) of the Kapaa Landfill operation would have on the marsh ecosystem. Previous documents by
Bienfang (1974) and Ford (1975) had also addressed the environmental and biological conditions of the marsh ecosystem, but not in relation to the post 1978 expansion of the landfill operation. The biological aspects discussed herein will primarily focus on the vegetative (flora) considerations based on the report by Smith (1978), and on the fauna aspects reported by Ford (1975).

A sizeable portion of the permanently flooded area of the lower part of Kawaiinui Marsh is a floating bog, with layers of plants, roots, and peat floating over water. In general, wetlands, such as Kawaiinui Marsh, are not thought to be very sensitive to small environmental changes, inasmuch as they have an adaptive resistance to the harse conditions under which they exist. Thus, wetlands do not serve as sensitive bioindicators as could be the case for other ecosystems. In view of this, it is important to ascertain the plant species distribution in the marsh and to monitor these aspects over time (Smith 1978).

The entire Kawaiinui Marsh, inventoried by Smith (1978), can be segregated into two vegetation types, woody (forest) and marsh meadow. Both are considered secondary because they are composed of plants that had become established in previously disturbed areas; however, in general, the woody vegetation area was not considered to be in a position to be potentially affected by post 1978 landfill operation, nor the proposed refuse processing and transfer station. Thus, the main emphasis will be placed on the marsh meadow. No rare or endangered plants were found in Kawaiinui Marsh.
In the lower, permanently flooded portions of the marsh bulrush and sawgrass dominate; while California grass, with scattered strands of cattail and bulrush, dominate the upper, non-permanently flooded portion of the marsh (Smith 1978).

The biological aspects within Kawaiinui Marsh, in some ways, approach a "black box" concept, inasmuch as the actual biophysical-chemical relationships within the marsh are poorly understood at best. Only a portion of the inputs and outputs can be measured, nevertheless, it is generally agreed that water depth is the major factor in governing the distribution of wetland plants and that sedimentation is closely related. An increase in the nutrient load appears to have little effect on plant species distribution; however, little is known about the effects of heavy metal loadings and much less about nutrient decreases (Smith 1978).

Landfill operations typically produce leachate that contains significant to high concentrations of heavy metals, particularly iron. In the case of heavy metals, the concern is not particularly with the uptake within the plants themselves, but with the potential biomagnification (leading to toxicity) in the overall food chain. Water hyacinth and duckweeds are known to accumulate heavy metals, which are thus passed up the food chain.

Iron is usually the most prominent heavy metal constituent in landfill leachate; however, in the case of Kawaiinui Marsh Marsh iron-rich clays are contained in the incoming sediment. Thus, the fact that the plants did not show any iron
toxicity effects is probably the best indication that the vegetation would not be affected if the iron concentration increased (Smith 1978).

An aquatic and estuarine fauna survey was conducted by Ford (1975) at 16 established stations in the Kawaihui Marsh and the Maunawili Stream system; however, only the first seven stations (A-G) were within the marsh itself, and thus correspond generally to the flora survey by Smith (1978).

Ford (1978) indicated that conflicting data exists among individuals and agencies concerning the abundance and distribution of water birds within Kawaihui Marsh. In general, the marsh serves as a habitat and feeding grounds for four endangered waterbird species: the Hawaiian coot, which appears to be the most prevalent of the rare species; the Hawaiian duck or koloa (Anas wy villians); the gallinule (Gallinula chloropus sandvicensis); and, occasionally, the Hawaiian stilt (Himantopus knudseni) (Ford 1975). An inventory of the estuarine fauna as well as the vegetative (flora) list is included in the WRRC technical report (Chun and Dugan 1981).
RESULTS OF WRRC WATER MOVEMENT AND QUALITY STUDIES

Although the previous hydrology/hydraulic studies by Bowles and Mink (1977) and EMCON Associates (1977) concluded that the present operation and proposed (post 1977) expansion of the Kawainui Landfill would not be expected to adversely affect the quality of the marsh water by way of leachate production and migration these studies were based on reviews of the existing literature on the hydrogeology of the region and on leachate production reported elsewhere. Burbank's (1972) study, which included field monitoring, also had found no evidence implicating the landfill operation as an influencing factor in the quality of the marsh water, but that study was of short duration and included only three sites—two surface water and one shallow well.

Despite strong evidence to the contrary up through 1977, the City and County of Honolulu elected to further explore the potential migration of leachate to the marsh. As part of this precautionary approach, the aforementioned WRRC project was funded which involved an intensive baseline water level and quality study (1978 through 1980) of six surface stations and six shallow water wells positioned to represent surface and subsurface water conditions throughout Kapaa Landfill and Kawainui Marsh from different landfill conditions (active and completed landfills and those not affected by landfill activity). The six surface water quality stations were located in the general vicinity of the Kapaa Landfill, while the six water wells were located in and around the landfill (Figure 2).
The baseline study was followed by a monitoring program, from 1981 through 1982 (Dugan and Chun 1983), at three of the baseline study's water wells and one surface water station using key water quality parameters.

The WRRC project (Chun and Dugan 1981) was designed to not only attempt to ascertain the quality and quantity, if any, of leachate migration into the marsh from the landfill, but to also define a baseline quality level against which future water quality data can be compared. In addition to serving as a valuable management device, the monitoring program was intended to increase what little is known of leachate production and migration from sanitary landfill operations in Hawaii.

For comparison purposes the highest median values during the baseline study of selected constituents from the project's positioned water wells are presented, along with the range and typical values of key constituents that are generally found in leachate from landfills, in Table 1. The values of the subsequent lower level monitoring program (Dugan and Chun 1983) were also quite similar to the baseline's median constituent values.

The one outstanding characteristic of leachate from landfill operations is a high Chemical Oxygen Demand (COD) concentration, or organic content, which has been reported to have a typical concentration of approximately 18,000 mg/L (Table 1); however, the highest median concentration of the six baseline monitoring wells was 38 mg/L which was essentially the same as the highest median concentration (39 mg/L) for the six baseline surface water stations.
TABLE 1. COMPOSITION OF LEACHATE FROM LANDFILLS IN COMPARISON TO THE HIGHEST MEDIAN VALUE FROM MONITORING WELLS A-F, KAPA'A LANDFILL, WINWARD O'AHU, HAWAII

<table>
<thead>
<tr>
<th>CONSTITUENT</th>
<th>LANDFILL LEACHATE COMPOSITION* (mg/l)†</th>
<th>MONITORING WELLS (A-F) HIGHEST MEDIAN VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-Day Biochemical Oxygen Demand</td>
<td>2,000-30,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Total Organic Carbon</td>
<td>1,500-20,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Chemical Oxygen Demand</td>
<td>3,000-45,000</td>
<td>18,000 (F)</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>200-1,000</td>
<td>500 (F)</td>
</tr>
<tr>
<td>Organic Nitrogen</td>
<td>10-600</td>
<td>200</td>
</tr>
<tr>
<td>Ammonia Nitrogen</td>
<td>10-800</td>
<td>200 (F)</td>
</tr>
<tr>
<td>Nitrate</td>
<td>5-40</td>
<td>25 (A)</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>1-70</td>
<td>30 (F)</td>
</tr>
<tr>
<td>Ortho Phosphorus</td>
<td>1-50</td>
<td>20 (B)</td>
</tr>
<tr>
<td>Alkalinity (as CaCO₃)</td>
<td>1,000-10,000</td>
<td>3,000 (F)</td>
</tr>
<tr>
<td>pH</td>
<td>5.3-8.5</td>
<td>6 (F)</td>
</tr>
<tr>
<td>Total Hardness (as CaCO₃)</td>
<td>300-10,000</td>
<td>3,500 (F)</td>
</tr>
<tr>
<td>Calcium</td>
<td>200-3,000</td>
<td>1,000 (A)</td>
</tr>
<tr>
<td>Magnesium</td>
<td>50-1,500</td>
<td>250 (F)</td>
</tr>
<tr>
<td>Potassium</td>
<td>200-2,000</td>
<td>300 (F)</td>
</tr>
<tr>
<td>Sodium</td>
<td>200-2,000</td>
<td>500 (F)</td>
</tr>
<tr>
<td>Chloride</td>
<td>100-3,000</td>
<td>500 (F)</td>
</tr>
<tr>
<td>Sulfate</td>
<td>100-1,500</td>
<td>300 (F)</td>
</tr>
<tr>
<td>Total Iron</td>
<td>50-600</td>
<td>60 (F)</td>
</tr>
</tbody>
</table>

†Except pH.

From Table 8, Page 29, reference: Chun and Dugan 1981.
"No particular consistent correlation could be found to relate individual constituent levels of the surface water stations and monitoring wells to groundwater levels, rainfall, or seasonal and/or annual changes during the baseline study and subsequent monitoring period. There seemed to be a correlation between groundwater depth and quality and the surface water quality of Kawaihui Marsh, which thus, suggests a significant interchange between groundwater quality and surface water quality in and around the Kapaa Landfill. If there is indeed a correlation between leachate production and the underlying groundwater quality, it was not apparent during the baseline and monitoring study phases. Thus, it was concluded that any correlation would have to be considered minor at best."

(Dugan and Chun 1983).

Consequently if the WRRC studies (Chun and Dugan 1981; Dugan and Chun 1983) as well as the previous and complementary studies (Burbank 1972; Bowles and Mink 1977; EMCON Associates 1977; Smith 1978) involving the Kapaa Landfill could not identify detrimental water quality results within Kawaihui Marsh, when up to an average of approximately 1000 tons/day of solid waste (refuse) was deposited in the landfill during 23 years of landfill operation, it is inconceivable that identifiable detrimental water quality problems would result in Kawaihui Marsh as a result of the proposed operation of the Kapaa Refuse Processing and Transfer Station.
REFERENCES


